

MGO
MT OWEN/GLENDELL OPERATIONS
GLENCORE

**MT OWEN/GLENDELL OPERATIONS
THE ANNUAL REVIEW
APPENDICIES**

1 January 2020 – 31 December 2020

Environment

We are aware that our global operations can have direct and indirect impacts on the environment.

Our operations are geographically widespread and extremely diverse in nature, including prospecting, production, reclamation, processing, storage, transportation and marketing of natural resources. This means that our potential environmental impacts are complex and specific to different commodity groups or production sites.

We are aware of the increasing regulatory pressure and societal demand for a low emission economy to address the global climate change situation. We are working to integrate this into our existing resource efficiency programmes at our operations. We comply with applicable laws, regulations and other requirements for environmental management. Where these are less stringent than our own standards we seek to exceed the statutory requirements wherever possible.

We also participate in supply chains that are not under our direct control. Here we work in partnership with our customers, suppliers and service providers to limit the overall environmental impact along the entire supply chain, and promote environmental awareness.

Our managers are required to:

1. Identify, assess and monitor environmental impacts
2. Comply with applicable regulatory requirements and monitor relevant regulations for changes
3. Implement appropriate environmental management programmes and controls, including appropriate measures for emergency preparedness
4. Ensure competent staff and sufficient resources for environmental management
5. Involve contractors and service providers where appropriate
6. Implement programmes and targets for continuous improvement of our:
 - Efficient use of resources (eg energy, water and land)
 - Protection of biodiversity
 - Climate change impact
 - Pollution prevention (by addressing management of fresh water and effluent, waste, air emissions, hazardous materials and rehabilitation of land)
7. Track actual environmental performance

Compliance

Everyone who works for Glencore Xstrata must comply with or exceed the laws, regulations and best practice guidelines applicable in the jurisdictions where we operate.

We will not assist any third party in breaching the law in any country, or participate in any other criminal, fraudulent or corrupt practice. We seek to prevent such misconduct through strong leadership, internal policies and procedures.

Anyone acting on behalf of Glencore Xstrata, along our entire supply chain, must comply with applicable laws and corporate policies. Our managers and supervisors must ensure this is the case, and take appropriate action to prevent, detect and report any failures to comply.

You must follow the guidance and instructions regarding the corporate policies applicable to your duties, including related training. Where appropriate, you must confirm that you have received and understood the compliance policies, manuals and guidance. Local compliance co-ordinators have been appointed to support you in day-to-day business considerations.

Individual operations may implement their own policies in addition to the Glencore Xstrata corporate policies. These should be designed to address their specific requirements, while consistent with Our Values and principles as set out by the Code and Glencore Xstrata corporate policies.

Conflict of interest

A conflict of interest is a situation in which an individual has a private interest sufficient to appear to influence the objective exercise of his or her professional duties.

You must avoid actual conflicts of interest and avoid, wherever possible, apparent or potential conflicts or otherwise carefully manage them accordingly. Everyone working for Glencore Xstrata must carefully perform their professional duties and safeguard Glencore Xstrata's legitimate interests.

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Appendix A: Correspondence

*To be Inserted following DPIE Approval

Appendix B: Daily Train Movements

Table 1: Daily Train Movements and Tonnes Loaded 2020

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 1/01/2020 | 3 | 26957.60 |
| 2/01/2020 | 5 | 45845.10 |
| 3/01/2020 | 2 | 13646.55 |
| 4/01/2020 | 3 | 22617.15 |
| 5/01/2020 | 7 | 54293.40 |
| 6/01/2020 | 3 | 17884.45 |
| 7/01/2020 | 4 | 27062.00 |
| 8/01/2020 | 5 | 41067.25 |
| 9/01/2020 | 5 | 36042.15 |
| 10/01/2020 | 3 | 22132.30 |
| 11/01/2020 | 5 | 35804.75 |
| 12/01/2020 | 4 | 26828.90 |
| 13/01/2020 | 3 | 17906.85 |
| 14/01/2020 | 4 | 26994.40 |
| 15/01/2020 | 4 | 30805.15 |
| 16/01/2020 | 3 | 17439.95 |
| 17/01/2020 | 3 | 22381.40 |
| 18/01/2020 | 3 | 27782.25 |
| 19/01/2020 | 4 | 36902.65 |
| 20/01/2020 | 2 | 18563.95 |
| 21/01/2020 | 2 | 13495.35 |
| 22/01/2020 | 6 | 45129.80 |
| 23/01/2020 | 7 | 54183.60 |
| 24/01/2020 | 5 | 36045.95 |
| 25/01/2020 | 2 | 13228.45 |
| 26/01/2020 | 4 | 26432.15 |
| 27/01/2020 | 5 | 35860.30 |
| 28/01/2020 | 3 | 17637.90 |
| 29/01/2020 | 4 | 31816.70 |
| 30/01/2020 | 3 | 17450.95 |
| 31/01/2020 | 2 | 18054.75 |
| 1/02/2020 | 1 | 9230.90 |
| 2/02/2020 | 4 | 36593.75 |
| 3/02/2020 | 3 | 22843.90 |
| 4/02/2020 | 4 | 31660.10 |
| 5/02/2020 | 3 | 21760.65 |
| 6/02/2020 | 4 | 32265.60 |
| 7/02/2020 | 6 | 50093.35 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 8/02/2020 | 5 | 36318.80 |
| 9/02/2020 | 4 | 22031.00 |
| 14/02/2020 | 2 | 18482.05 |
| 15/02/2020 | 6 | 55363.05 |
| 16/02/2020 | 5 | 44746.60 |
| 17/02/2020 | 3 | 22912.35 |
| 18/02/2020 | 4 | 32058.75 |
| 19/02/2020 | 4 | 26403.75 |
| 20/02/2020 | 5 | 35846.70 |
| 21/02/2020 | 3 | 27606.15 |
| 22/02/2020 | 3 | 27674.40 |
| 23/02/2020 | 2 | 18388.70 |
| 24/02/2020 | 4 | 36483.45 |
| 25/02/2020 | 3 | 27270.65 |
| 27/02/2020 | 3 | 22684.85 |
| 28/02/2020 | 5 | 31193.70 |
| 29/02/2020 | 4 | 31904.95 |
| 1/03/2020 | 3 | 17644.20 |
| 2/03/2020 | 3 | 17693.85 |
| 3/03/2020 | 3 | 22477.90 |
| 4/03/2020 | 4 | 32174.15 |
| 5/03/2020 | 4 | 36997.95 |
| 6/03/2020 | 3 | 27599.90 |
| 7/03/2020 | 4 | 37010.95 |
| 8/03/2020 | 3 | 27622.30 |
| 9/03/2020 | 1 | 9182.05 |
| 10/03/2020 | 1 | 9114.00 |
| 11/03/2020 | 3 | 27733.80 |
| 12/03/2020 | 2 | 18650.40 |
| 14/03/2020 | 1 | 9368.90 |
| 15/03/2020 | 1 | 9315.10 |
| 16/03/2020 | 1 | 9286.90 |
| 17/03/2020 | 1 | 9241.05 |
| 18/03/2020 | 1 | 9226.75 |
| 19/03/2020 | 3 | 27486.90 |
| 20/03/2020 | 2 | 18527.85 |
| 21/03/2020 | 5 | 46285.00 |
| 22/03/2020 | 3 | 27624.65 |
| 23/03/2020 | 4 | 37173.15 |
| 24/03/2020 | 5 | 45717.85 |
| 25/03/2020 | 3 | 27724.60 |
| 26/03/2020 | 1 | 8761.95 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 27/03/2020 | 5 | 45269.95 |
| 28/03/2020 | 4 | 37126.30 |
| 29/03/2020 | 3 | 27326.10 |
| 30/03/2020 | 1 | 9360.15 |
| 2/04/2020 | 1 | 9276.75 |
| 3/04/2020 | 1 | 9325.10 |
| 4/04/2020 | 3 | 27621.40 |
| 5/04/2020 | 3 | 22092.05 |
| 6/04/2020 | 4 | 26638.40 |
| 7/04/2020 | 5 | 36420.70 |
| 8/04/2020 | 3 | 17483.40 |
| 9/04/2020 | 4 | 31587.90 |
| 10/04/2020 | 6 | 45416.75 |
| 11/04/2020 | 4 | 36715.30 |
| 12/04/2020 | 3 | 27453.10 |
| 13/04/2020 | 3 | 27549.70 |
| 14/04/2020 | 4 | 37105.00 |
| 15/04/2020 | 1 | 9221.00 |
| 16/04/2020 | 2 | 18316.45 |
| 17/04/2020 | 1 | 9298.05 |
| 18/04/2020 | 4 | 35907.95 |
| 19/04/2020 | 2 | 18416.20 |
| 20/04/2020 | 2 | 18389.55 |
| 21/04/2020 | 1 | 9248.10 |
| 23/04/2020 | 1 | 9280.00 |
| 24/04/2020 | 1 | 9360.50 |
| 25/04/2020 | 2 | 18651.25 |
| 26/04/2020 | 1 | 8980.10 |
| 29/04/2020 | 1 | 9210.25 |
| 30/04/2020 | 3 | 27981.35 |
| 1/05/2020 | 3 | 27899.55 |
| 2/05/2020 | 5 | 46367.80 |
| 3/05/2020 | 2 | 18601.80 |
| 4/05/2020 | 1 | 9226.20 |
| 5/05/2020 | 2 | 18542.00 |
| 6/05/2020 | 1 | 9031.10 |
| 8/05/2020 | 1 | 9155.45 |
| 10/05/2020 | 4 | 36943.40 |
| 11/05/2020 | 4 | 36613.60 |
| 12/05/2020 | 3 | 27859.90 |
| 13/05/2020 | 5 | 46387.95 |
| 14/05/2020 | 3 | 27997.55 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 15/05/2020 | 4 | 36932.50 |
| 16/05/2020 | 2 | 18259.40 |
| 17/05/2020 | 5 | 45723.10 |
| 18/05/2020 | 1 | 9176.85 |
| 22/05/2020 | 1 | 9317.40 |
| 23/05/2020 | 6 | 54976.45 |
| 24/05/2020 | 7 | 63124.70 |
| 25/05/2020 | 1 | 8931.45 |
| 26/05/2020 | 3 | 27917.25 |
| 28/05/2020 | 2 | 17897.30 |
| 29/05/2020 | 3 | 27109.55 |
| 30/05/2020 | 3 | 27379.65 |
| 31/05/2020 | 1 | 9318.90 |
| 2/06/2020 | 2 | 18216.55 |
| 3/06/2020 | 2 | 18452.00 |
| 4/06/2020 | 3 | 27523.25 |
| 5/06/2020 | 3 | 27994.45 |
| 12/06/2020 | 1 | 9123.75 |
| 13/06/2020 | 3 | 27584.50 |
| 14/06/2020 | 4 | 37131.40 |
| 15/06/2020 | 2 | 18641.50 |
| 16/06/2020 | 3 | 27820.15 |
| 18/06/2020 | 2 | 18541.25 |
| 19/06/2020 | 1 | 8867.00 |
| 22/06/2020 | 4 | 36343.95 |
| 23/06/2020 | 1 | 9326.70 |
| 24/06/2020 | 1 | 9295.70 |
| 27/06/2020 | 1 | 8982.20 |
| 28/06/2020 | 2 | 18469.40 |
| 29/06/2020 | 1 | 9155.90 |
| 4/07/2020 | 2 | 18490.50 |
| 5/07/2020 | 2 | 8389.05 |
| 6/07/2020 | 2 | 8394.85 |
| 7/07/2020 | 1 | 4202.40 |
| 8/07/2020 | 2 | 18333.30 |
| 11/07/2020 | 1 | 9268.55 |
| 12/07/2020 | 2 | 18170.25 |
| 13/07/2020 | 6 | 55101.10 |
| 14/07/2020 | 3 | 27499.20 |
| 15/07/2020 | 1 | 9158.35 |
| 16/07/2020 | 2 | 18561.35 |
| 17/07/2020 | 1 | 9335.30 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 18/07/2020 | 4 | 36928.25 |
| 19/07/2020 | 1 | 9240.05 |
| 20/07/2020 | 3 | 27477.85 |
| 21/07/2020 | 3 | 27502.35 |
| 22/07/2020 | 3 | 27567.90 |
| 23/07/2020 | 5 | 45780.60 |
| 24/07/2020 | 2 | 18515.05 |
| 25/07/2020 | 3 | 27746.10 |
| 26/07/2020 | 4 | 36687.70 |
| 28/07/2020 | 1 | 9301.30 |
| 29/07/2020 | 1 | 9368.45 |
| 31/07/2020 | 2 | 18671.15 |
| 1/08/2020 | 4 | 36327.90 |
| 2/08/2020 | 3 | 27734.10 |
| 3/08/2020 | 2 | 18292.55 |
| 7/08/2020 | 5 | 46099.25 |
| 8/08/2020 | 5 | 46404.25 |
| 9/08/2020 | 4 | 37060.15 |
| 10/08/2020 | 4 | 36940.50 |
| 11/08/2020 | 3 | 27679.40 |
| 12/08/2020 | 1 | 9171.50 |
| 13/08/2020 | 1 | 9238.25 |
| 14/08/2020 | 2 | 17964.60 |
| 15/08/2020 | 2 | 18504.35 |
| 16/08/2020 | 3 | 27805.85 |
| 17/08/2020 | 2 | 18515.55 |
| 19/08/2020 | 1 | 9288.25 |
| 20/08/2020 | 2 | 18672.35 |
| 21/08/2020 | 5 | 45966.80 |
| 22/08/2020 | 5 | 45742.65 |
| 23/08/2020 | 4 | 36968.20 |
| 24/08/2020 | 3 | 27270.95 |
| 25/08/2020 | 5 | 46823.45 |
| 26/08/2020 | 3 | 27629.00 |
| 27/08/2020 | 2 | 18344.30 |
| 28/08/2020 | 2 | 18057.85 |
| 29/08/2020 | 3 | 27894.90 |
| 30/08/2020 | 3 | 27981.75 |
| 31/08/2020 | 1 | 9344.60 |
| 1/09/2020 | 1 | 9192.80 |
| 2/09/2020 | 3 | 27477.50 |
| 3/09/2020 | 3 | 27950.45 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 4/09/2020 | 6 | 55085.80 |
| 5/09/2020 | 2 | 18314.30 |
| 6/09/2020 | 1 | 9240.40 |
| 7/09/2020 | 2 | 18157.00 |
| 8/09/2020 | 1 | 9090.40 |
| 9/09/2020 | 1 | 9318.75 |
| 10/09/2020 | 1 | 4197.90 |
| 11/09/2020 | 4 | 27011.20 |
| 12/09/2020 | 2 | 18507.25 |
| 13/09/2020 | 3 | 27053.30 |
| 15/09/2020 | 2 | 18086.20 |
| 16/09/2020 | 4 | 37051.25 |
| 17/09/2020 | 4 | 37007.15 |
| 18/09/2020 | 3 | 27501.75 |
| 19/09/2020 | 4 | 36781.80 |
| 20/09/2020 | 2 | 18630.00 |
| 25/09/2020 | 1 | 9140.35 |
| 26/09/2020 | 3 | 27473.40 |
| 27/09/2020 | 5 | 46158.75 |
| 28/09/2020 | 5 | 45289.60 |
| 29/09/2020 | 3 | 27105.95 |
| 30/09/2020 | 5 | 46319.75 |
| 1/10/2020 | 1 | 9343.05 |
| 2/10/2020 | 3 | 27432.55 |
| 3/10/2020 | 2 | 18469.30 |
| 4/10/2020 | 1 | 8777.10 |
| 5/10/2020 | 2 | 17889.20 |
| 6/10/2020 | 1 | 9192.00 |
| 7/10/2020 | 1 | 9258.00 |
| 8/10/2020 | 1 | 9319.50 |
| 9/10/2020 | 2 | 18429.25 |
| 10/10/2020 | 1 | 9328.45 |
| 11/10/2020 | 2 | 18345.45 |
| 13/10/2020 | 2 | 13501.35 |
| 14/10/2020 | 5 | 36196.65 |
| 15/10/2020 | 6 | 45303.75 |
| 16/10/2020 | 2 | 8381.55 |
| 18/10/2020 | 1 | 9201.60 |
| 19/10/2020 | 1 | 9305.40 |
| 20/10/2020 | 1 | 9254.50 |
| 21/10/2020 | 3 | 27490.25 |
| 22/10/2020 | 3 | 28006.05 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|------------|--------------------------|---------------|
| 23/10/2020 | 4 | 26804.05 |
| 24/10/2020 | 3 | 27982.40 |
| 25/10/2020 | 4 | 36646.55 |
| 2/11/2020 | 3 | 27785.15 |
| 3/11/2020 | 2 | 18386.15 |
| 4/11/2020 | 3 | 27558.10 |
| 5/11/2020 | 4 | 37188.30 |
| 6/11/2020 | 3 | 27696.05 |
| 7/11/2020 | 4 | 36297.30 |
| 8/11/2020 | 1 | 9184.00 |
| 9/11/2020 | 1 | 9022.85 |
| 12/11/2020 | 2 | 18403.20 |
| 13/11/2020 | 4 | 36758.50 |
| 14/11/2020 | 4 | 36770.35 |
| 15/11/2020 | 3 | 27240.25 |
| 20/11/2020 | 1 | 9282.80 |
| 21/11/2020 | 2 | 18649.25 |
| 23/11/2020 | 1 | 9203.75 |
| 24/11/2020 | 3 | 28050.00 |
| 25/11/2020 | 4 | 37170.30 |
| 26/11/2020 | 1 | 9173.45 |
| 27/11/2020 | 3 | 27731.95 |
| 28/11/2020 | 2 | 17898.70 |
| 29/11/2020 | 1 | 9195.40 |
| 30/11/2020 | 6 | 55528.90 |
| 1/12/2020 | 6 | 54968.85 |
| 2/12/2020 | 5 | 45823.45 |
| 3/12/2020 | 1 | 9101.80 |
| 4/12/2020 | 1 | 9145.05 |
| 5/12/2020 | 4 | 36662.60 |
| 6/12/2020 | 2 | 18490.05 |
| 7/12/2020 | 4 | 37393.50 |
| 9/12/2020 | 1 | 9214.80 |
| 10/12/2020 | 3 | 27845.30 |
| 11/12/2020 | 3 | 28025.65 |
| 12/12/2020 | 3 | 27834.40 |
| 13/12/2020 | 3 | 27836.35 |
| 14/12/2020 | 5 | 46204.55 |
| 15/12/2020 | 2 | 18391.35 |
| 16/12/2020 | 2 | 18630.00 |
| 17/12/2020 | 1 | 4003.45 |
| 18/12/2020 | 2 | 8366.20 |

| Date | Number of Trains Per Day | Tonnes Loaded |
|--------------|--------------------------|-------------------|
| 19/12/2020 | 2 | 12997.25 |
| 20/12/2020 | 3 | 17222.05 |
| 21/12/2020 | 4 | 26997.70 |
| 22/12/2020 | 1 | 3996.45 |
| 23/12/2020 | 4 | 32029.15 |
| 24/12/2020 | 2 | 18289.30 |
| 27/12/2020 | 4 | 36071.55 |
| 28/12/2020 | 3 | 27345.30 |
| 29/12/2020 | 5 | 46492.95 |
| 30/12/2020 | 2 | 18405.60 |
| 31/12/2020 | 3 | 27482.10 |
| Total | 860 | 7385800.20 |

Appendix C: Environmental Incidents

Environmental incidents at MGO are classified into six categories (based on Glencore's Internal Incident Reporting):

- Nil Category: below category 1;
- Category 1: Negligible - An incident that causes negligible, reversible environmental impact, requiring very minor or no remediation;
- Category 2: Minor – An incident that causes minor, reversible environmental impacts, require minor remediation;
- Category 3: Significant – An incident that has caused moderate, reversible environmental impact with short-term effect, requiring moderate remediation;
- Category 4: Serious – An incident that has caused significant environmental impact, with medium-term effect, requiring significant remediation; and
- Category 5: Disastrous – An incident that has caused disastrous environmental impact, with long-term effect, requiring major remediation.

Table 2: Environmental Incidents 2020

| No. | Incident Date | Incident Category | Incident Type | Response |
|--------------------------------------|---------------|-------------------|---|---|
| Glendell and Ravensworth East | | | | |
| 1 | 15-Jan-20 | Nil | Depositional Dust Sampling Non-Compliance | Implementation of additional checks for scheduling dust gauge sampling to minimise likelihood of reoccurrence. |
| 2 | 11-Feb-20 | 1 | Oil Spill | Machine shutdown, made fundamental and spill was contained and cleaned up. |
| 3 | 11-Feb-20 | Nil | Oil Spill | Machine shutdown, made fundamental and spill was contained. Absorbent material was used to clean up spill. |
| 4 | 18-Feb-20 | 1 | Hydraulic Oil Spill | Machine shutdown and spill was contained. |
| 5 | 04-Mar-20 | 1 | ROM Stockpile Fire | Water cart extinguished the fire. |
| 6 | 28-Mar-20 | Nil | Oil Spill | Spill was contained and cleaned up using absorbent matting. |
| 7 | 31-Mar-20 | 1 | Blast Fume (3B) | Plume was monitored and did not leave site. Investigation was undertaken with action to prevent reoccurrence. |
| 8 | 15-Apr-20 | 1 | Fire at Hebden P.S | Fire Brigade called and watercart deployed to contain fire until RFS arrived. |
| 9 | 17-Apr-20 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. |
| 10 | 20-Apr-20 | 1 | Diesel Spill | Spill was contained and area isolated for later remediation. |
| 11 | 27-Apr-20 | Nil | Ground Disturbance Permit Breach | Work ceased and supervisor notified. |
| 12 | 02-Jun-20 | Nil | Blast Overpressure Exceedance | Exceedance investigated to determine contributing factors to mitigate potential recurrences. |
| 13 | 03-Jun-20 | 1 | Blast Fume (3B) | Plume was monitored and did not leave site. Investigation was undertaken with action to prevent reoccurrence. |
| 14 | 04-Jun-20 | Nil | Dust Sample – missed sample, | Depositional Dust Gauge DG7 gauge was found knocked over and was reinstated. |
| 15 | 18-Jun-20 | 1 | Mine Water Pipeline Leak | Pump & pipeline immediately isolated. Sump created preventing offsite discharge. |
| 16 | 20-Jun-20 | 1 | Oil Spill | Spill was contained and cleaned up with spill kits. |
| 17 | 29-Jun-20 | Nil | Blast Fume (2B) | Plume path was monitored, neighbouring mine site contacted and notified. Investigation was undertaken with action to prevent reoccurrence |
| 18 | 30-Jun-20 | Nil | Noise Monitoring - Loss of Data | Noise monitored inspected and reinstated following fault. |
| 19 | 07-Jul-20 | 1 | Coolant Leak | Machine isolated. Source of the leak identified and machine fixed. |
| 20 | 14-Jul-20 | 1 | Illegal Dumping of waste | Supplier contacted immediately and clean up undertaken. |
| 21 | 22-Jul-20 | Nil | Dirty Water Spill | System was inspected, the STP pump was reconnected, spill was cleaned. |

| No. | Incident Date | Incident Category | Incident Type | Response |
|----------------|---------------|-------------------|--|--|
| 22 | 22-Jul-20 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. |
| 23 | 14-Aug-20 | Nil | Diesel Spill | Investigation undertaken to determine origin of leak on mine access road. Clean up of roadway was undertaken. |
| 24 | 17-Aug-20 | Nil | Oil Spill | Spill kits used to clean up spill in contractor parking lot. |
| 25 | 02-Sep-20 | Nil | Oil Spill/Inappropriate Chemical Storage | Spill contained within workshop floor. Area supervisor notified regarding chemical storage requirements. |
| 26 | 05-Sep-20 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. |
| 27 | 24-Sep-20 | 1 | Oil Spill – Hydraulic Hose | Machine shutdown and spill was contained and cleaned up. |
| 28 | 12-Oct-20 | Nil | Oil Spill | Spill cleaned using a spill kit and disposed of in the oil rag bin. |
| 29 | 26-Nov-20 | 1 | Oil Spill – Hydraulic Hose | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 30 | 29-Nov-20 | 1 | Oil Spill – Hydraulic Hose | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| Mt Owen | | | | |
| 1 | 14 Feb 2020 | 1 | Diesel Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 2 | 25 Feb 2020 | 1 | Oil Spill | Bund constructed to contain the spill, contaminated material was recovered and taken to the bioremediation area. |
| 3 | 26 Feb 2020 | 2 | Diesel Spill | Bund was constructed to contain the spill. Material was recovered and taken the bioremediation area. |
| 4 | 17 Jun 2020 | 1 | Noise Exceedance at N1 (EPL Point 31) During Attended Noise Monitoring | EPA and DPIE were informed of the exceedance. An additional noise monitoring test was scheduled within one week. Corrective and preventative actions were addressed. |
| 5 | 26 Jun 2020 | 1 | Ground Disturbance Permit Breach | Area inspected and Investigation of area commenced. Sediment fence installed. Corrective actions implemented to prevent reoccurrence. |
| 6 | 01 Jul 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 7 | 03 Jul 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 8 | 20 Jul 2020 | 1 | Oil Spill | Machine shutdown and spill was contained. Contaminated material could not be recovered as the majority of the oil was lost on the highwall. |
| 9 | 14 Aug 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. |
| 10 | 23 Aug 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 11 | 24 Aug 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 12 | 07 Sep 2020 | 1 | Blast fume (3A) | Plume was monitored and did not leave site. Investigation was undertaken with action to prevent reoccurrence |
| 13 | 14 Sep 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area |
| 14 | 17 Sep 2020 | Nil | Secondary Noise monitoring location required to determine compliance at N3 (EPL point 33) During Attended Noise Monitoring | Secondary noise monitoring location was monitored in accordance with EPL4460 condition N9.3. Noise monitoring results indicated compliance. |
| 15 | 18 Sep 2020 | Nil | Oil Spill | A drip tray was placed under the truck body and hydrocarbon absorbent material to be applied over the spill. |
| 16 | 19 Sep 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area |
| 17 | 23 Sep 2020 | Nil | Diesel Spill | Spill was contained and cleaned up. Contaminated material was relocated to the bioremediation area |
| 18 | 23 Sep 2020 | Nil | Diesel Spill | Spill was contained and cleaned up. Contaminated material was relocated to the bioremediation area |
| 19 | 23 Sep 2020 | Nil | Incorrect Waste Disposal | Waste was put into the correct bins for disposal. |
| 20 | 19 Oct 2020 | 1 | Diesel Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area |
| 21 | 22 Oct 2020 | 1 | Oil Spill | Machine shutdown and spill was contained. Due to the wet conditions of the ground on which the oil was spilled, no contaminated material could be recovered. |

| No. | Incident Date | Incident Category | Incident Type | Response |
|-----|---------------|-------------------|--|--|
| 22 | 22 Oct 2020 | Nil | Diesel Spill | Machine shutdown and spill was contained and cleaned up with absorbent material. |
| 23 | 16 Nov 2020 | 1 | Slumping/erosion of windrow east of Ramp 1 Haul Road | Bund reinstated and erosion repair was undertaken to prevent further occurrence. |
| 24 | 24 Nov 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area |
| 25 | 19 Dec 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area. |
| 26 | 24 Dec 2020 | 1 | Oil Spill | Machine shutdown and spill was contained and cleaned up. Contaminated material taken to the bioremediation area |

Appendix D: Noise

Table 3: MGO Noise Monitoring Locations

| Monitoring Location | Description of Monitoring Location | Property Location Reference |
|---------------------|--|-----------------------------|
| Sx1 | Continuous noise unit located on Property 86 | Mt Owen EIS |
| Sx4 | Continuous noise unit located on Property 109 | Mt Owen EIS |
| Sx5 | Mt Owen reference continuous noise unit located south east of Mt Owen Mine on Property 66. | Mt Owen EIS |
| Sx6 | Mobile Continuous Noise unit – used for targeted monitoring | - |
| Sx7 | Continuous noise unit located to the south of the Glendell Pit | - |
| SX11 | Refurbised Mobile Continuous Noise unit – used for targeted monitoring | - |
| Sx12 | Continuous noise unit located near Property 31 | Glendell EA |
| Sx122 | Mobile Continuous Noise unit – used for targeted monitoring | - |
| Sx13 M8 | Meteorological station located to the west of Mt Owen Mine | - |
| Sx13 M1 | Meteorological station located to the west of Glendell Mine | - |
| Sx13 M2 | Meteorological station located to the east of Glendell Mine | - |
| N1 | Greenlands, to the west of Property 54 | Mt Owen EIS |
| N2 | Falbrook Road, adjacent to Property 71 | Mt Owen EIS |
| N3 | Corner of Falbrook and Middle Falbrook Road | - |
| N4 | Glennies Creek Road adjacent to Property 109 | Mt Owen EIS |
| N8 | South of Camberwell Village at Property 7a | Glendell EA |
| N9 | Camberwell Village (central section) adjacent to Property R47 | Glendell EA |
| N10 | Camberwell Village (western section) adjacent to Property R27 | Glendell EA |
| N11 | Glennies Creek Road adjacent to Property R37a | Glendell EA |
| N17 | Representative of the rural residence on Scrumlo Road, Hebden near property R134 | Mt Owen EIS |

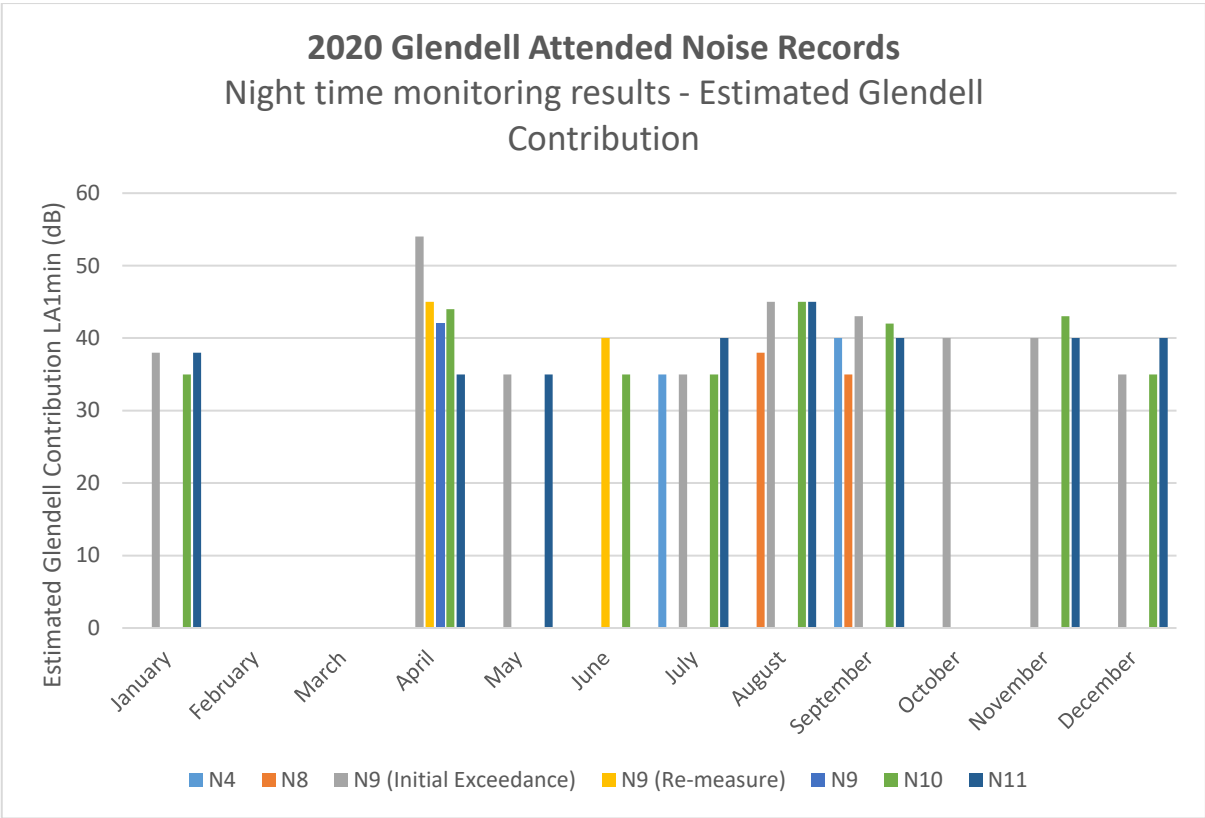


Figure 1: 2020 Attended Noise Records - Night time noise contribution - Glendell

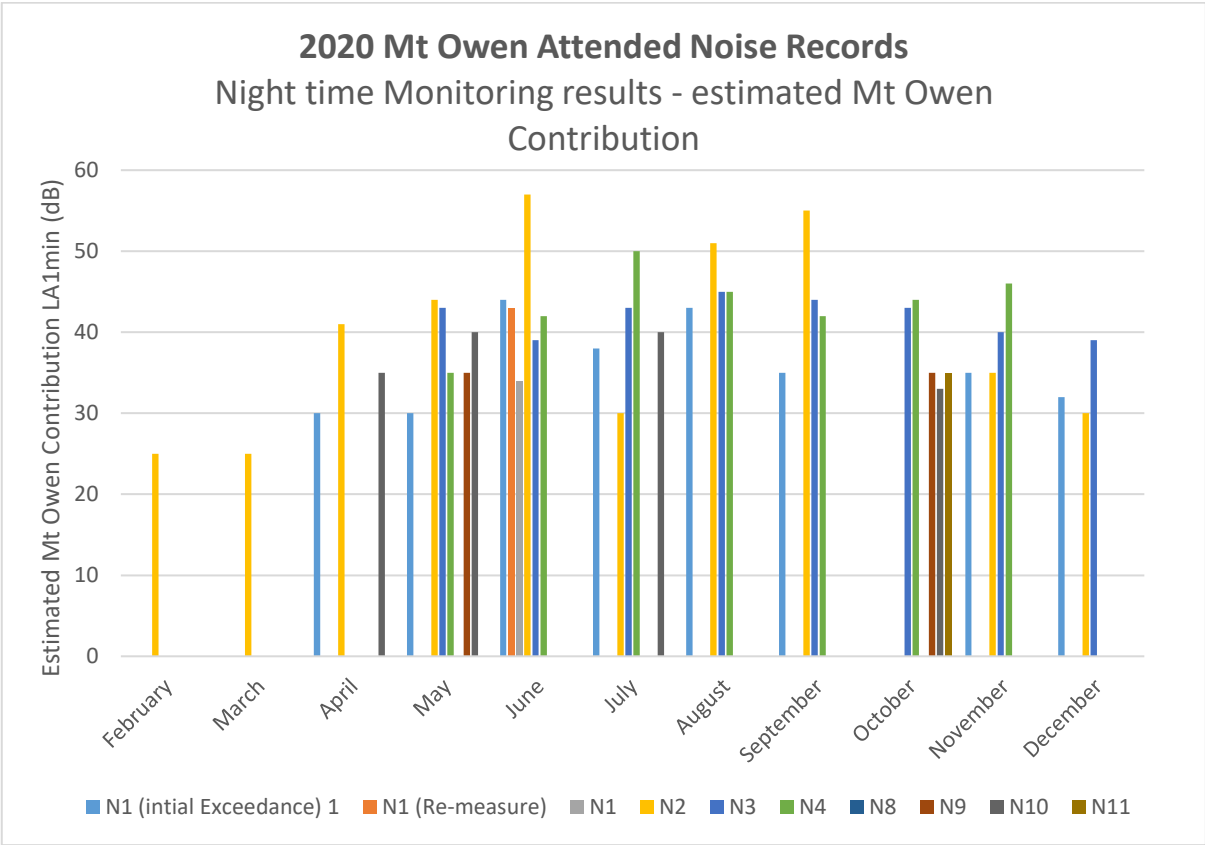
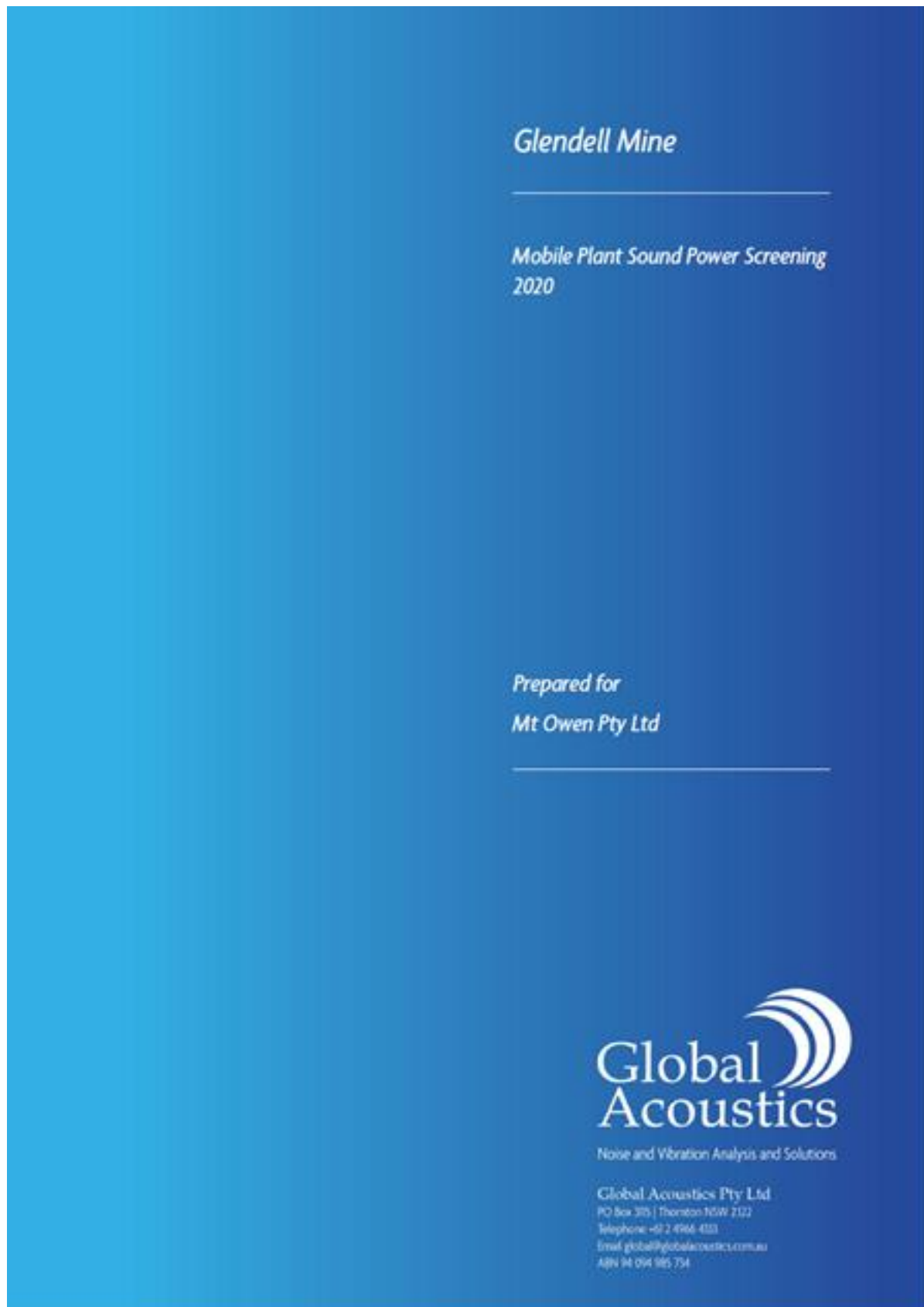


Figure 2: 2020 Attended Noise Records - Night time noise contribution - Mt Owen

Glendell Sound Power Level Report



Glendell Mine

Sound Power Screening 2020

Reference: 20096_R01_iDraft03

Report date: 26 October 2020

Prepared for

Mt Owen Pty Ltd
Locked Bag 6015
Hunter Regional MC NSW 2310

Prepared by

Global Acoustics Pty Ltd
PO Box 3115
Thornton NSW 2322



Prepared: Tambalyn Durney
Consultant



QA Review: Jonathan Erasmus
Consultant

Global Acoustics Pty Ltd ~ Environmental noise modelling and impact assessment ~ Sound power testing ~ Noise control advice ~ Noise and vibration monitoring ~ OHS noise monitoring and advice ~ Expert evidence in Land and Environment and Compensation Courts ~ Architectural acoustics ~ Blasting assessments and monitoring ~ Noise management plans (NMP) ~ Sound level meter and noise logger sales and hire

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1 INTRODUCTION

Global Acoustics was engaged by Mt Owen Pty Ltd (Mt Owen) to determine sound power (L_W) data for mobile equipment operated at Glendell Mine (Glendell)

Mt Owen has a commitment in the Mt Owen Complex (MOC) Noise Management Plan (NMP) to monitor the condition of the mobile plant operating at Glendell. 'Section 3.2.2 - Operational Performance Assessment' states that "In order to manage noise impacts as a result of significant variations to equipment fleet over time, MOC will undertake an assessment of their equipment fleet against the indicative equipment list outlined in...DA 80/952 (Glendell Mine) every 5 years to confirm that noise impacts have not significantly changed. If the equipment list has substantially changed the change management process will be triggered."

Sound power noise level measurements were made on 28, 29 September and 2 October 2020. A total of 26 plant items were tested during the 2020 sound power survey. All units were tested to the reduced scope screening methodology. More detail is provided in Section 2.

1.1 Terminology

Some definitions of terminology, which may be used in this report, are provided in Table 1.1.

Table 1.1: TERMINOLOGY & ABBREVIATIONS

| Descriptor | Definition |
|------------|--|
| dB | Decibels. For sound pressure level this is 10 times the logarithm to the base 10 of the ratio of the mean-square sound pressure to the square of the reference sound pressure (20 micro-pascals) |
| dB(A) | Noise level measurement units are decibels (dB). The "A" weighting scale is used to describe human response to noise. |
| SPL | Sound pressure level (SPL), fluctuations in pressure measured as 10 times a logarithmic scale, the reference pressure being 20 micro-pascals. |
| L_W | Linear sound power level, expressed in decibels, is the logarithmic ratio of the sound power of a source in watts (W) relative to the sound power reference base of 10-12W |
| L_{WA} | A-weighted sound power level. |
| L_{Aeq} | The average A-weighted noise energy during a measurement period, in dB |

2 METHODOLOGY

2.1 Test Standards

Measurement and calculation was conducted using a reduced scope version of the following:

- AS 2012.1-1990 'Acoustics – Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors – Stationary test condition – Determination of Compliance With Limits for External Noise';
- ISO 3744-2010 'Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane';
- ISO 6393:2008(E) 'Earth-moving machinery – Determination of sound power level – Stationary test conditions'; and
- ISO 6395:2008(E) 'Earth-moving machinery – Determination of sound power level noise emissions – Dynamic test conditions'.

The reduced scope uses fewer microphone positions than specified in the standards, with only ground positions used. The rationale being to increase mobility of the testing team, provide flexibility in choice of testing location, and to minimise disruption to mining production.

The test is mainly used as a screening tool. A more accurate equipment sound power result obtained from full adherence to the above standards was not required. A minimum of two test runs were recorded for each plant item with the aim to have less than 1.5 dB difference between results. It is considered that the results are of sufficient accuracy and repeatability for the purpose of this survey.

Typical test areas are present in Figure 1 and Figure 2. The majority of tests for mobile plant were undertaken using a dynamic test only, where the plant item passes through the test area shown in Figure 1 under full power on level ground. The measurement is commenced and completed when the plant item (centre of) passes between microphone positions 2 & 3 and 1 & 4 respectively.

Typically for mobile plant items the test area radius ("R" in Figure 1 and 2) was 16-20m depending on equipment size and test area limitations. For stationary tests on drills, excavators, and shovels, the alternate stationary microphone positions were used as presented in Figure 2. In some cases, not all four microphone positions could safely be reached due to proximity of high walls, low walls or other mining operations.

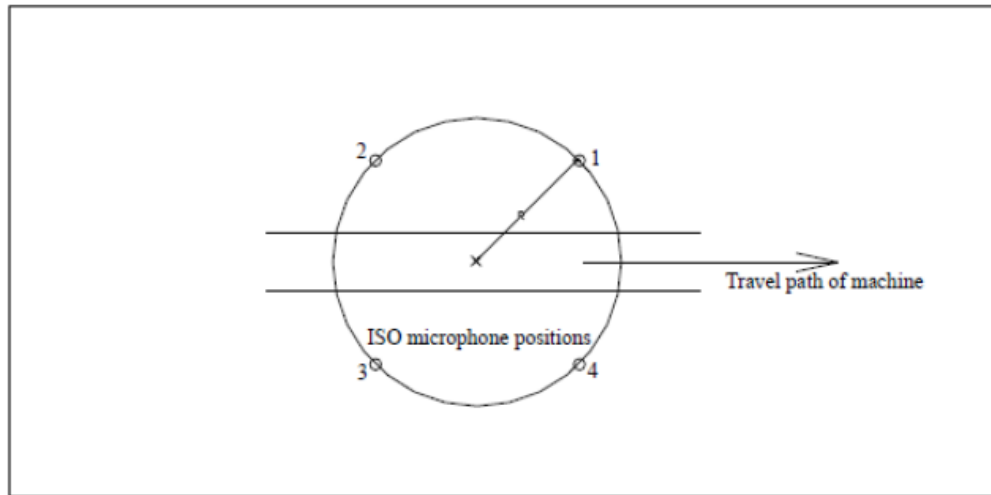


Figure 1 Sound Power Microphone Positions

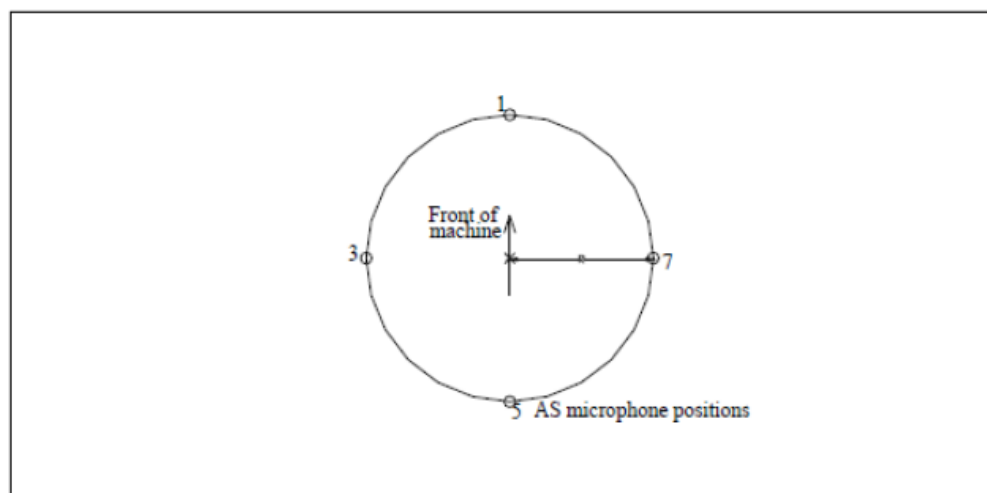


Figure 2 Alternate Stationary Sound Power Microphone Positions

2.2 Equipment Used

Equipment used to measure and record noise levels are listed in Table 2.1. Calibration certificates are provided in Appendix A.

Table 2.1: SOUND LEVEL MEASUREMENT EQUIPMENT

| Model | Serial Number | Calibration Due Date |
|---------------------------------------|---------------|----------------------|
| SVAN 958 noise and vibration analyser | 14216 | 21/02/2021 |
| SVAN 958 noise and vibration analyser | 15496 | 13/10/2022 |
| Rion NC74 sound level calibrator | 34483783 | 11/03/2022 |
| Rion NC74 sound level calibrator | 50941314 | 17/06/2021 |

2.3 Weather Conditions

Weather conditions at the time of testing, presented in Table 2.2.

Table 2.2: ATMOSPHERIC CONDITIONS

| Date | Temperature (°C) | Wind Speed (m/s) | Barometric Pressure (hPa) | Relative Humidity (%) |
|------------|------------------|------------------|---------------------------|-----------------------|
| 28/09/2020 | 18 | <1 | 1025 | 43 |
| 29/09/2020 | 18 | <1 | 1025 | 44 |
| 02/10/2020 | 25 | <1 | 1023 | 27 |

2.4 Sound Power Criteria

During this sound power testing survey, 26 plant items were tested. Where applicable, results have been compared to criteria sourced from "Environmental Assessment for Modification of Glendell Mine Operations Volume 2 August 2007". A table extracted from this source listing the criteria is presented in Appendix Error: Reference source not found.

2.5 Tonality

The NPfI states that a noise is determined to be tonal when the level of an individual one-third octave band exceeds the level of the adjacent bands on both sides by:

- 5 dB or more if the centre frequency of the band containing the tone is above 400Hz;
- 8 dB or more if the centre frequency of the band containing the tone is 160 Hz to 400 Hz inclusive;
- 15 dB or more if the centre frequency of the band containing the tone is below 160 Hz.

The tonality assessment is by itself not an actionable trigger for remedial work on any specific piece of mobile plant failing the assessment. A single plant item with tonal noise content does not necessarily indicate potential off site noise issues. Individual results must be viewed in relation to the whole mining fleet and the potential for tonal noise to be noted off site. Any plant failing this tonality requirement has been listed in Table 3.2.

2.6 Overall Sound Power

Overall A-weighted sound power levels determined from measured SPL are shown in Table 3.1. Overall sound power results which exceeded the relevant criterion by 2 dB or less are considered minor and not significant enough to require additional investigation. Overall sound power results which exceeded the relevant criterion by 3 dB or more (presented in bold red type) are considered significant and require additional investigation. Any difference in results for the same plant between consecutive years of 3 dB or more would also trigger a more detailed analysis of results (third octave band results analysis) and potentially follow-up machine inspection and/or additional testing.

This approach has been developed in consideration of a number of uncertainty factors and has been adopted and approved by the Department of Planning and Environment (DPE) in other annual noise testing regimes of mobile plant in NSW. These factors include, but are not limited to:

- As described in Section Methodology section of this report, the acceptable repeatability for screening is up to 1.5 dB between measured results;
- Due to the mobile nature of screening testing, additional variables such as other mobile plant operating nearby, hard-packed and/or uneven testing surfaces, varying skill of operators, and

certain modes of operations being undertaken during testing (in the case of excavators and drills) can result in measured noise levels that are slightly different than they would be under full scope noise testing;

Single and one-third-octave graphs for equipment tested can be useful in identifying noise sources or differences between like machines. These graphs have not been included in this report but are available upon request.

Note that overall linear sound power levels are a better indicator of low frequency noise content of plant than overall A-weighted sound power levels. Low frequency noise can propagate further than high frequency noise, and so can indicate items with higher potential for off-site noise impacts.

3 Results

3.1 Overall sound power

Overall 2020 sound powers determined from measured SPL are provided in Table 3.1. These results are compared with sound power limits specified in Appendix B

Table 3.1: OVERALL SOUND POWER RESULTS (dB)

| SOUND POWER RESULTS 2020 | | | | | | | | |
|--------------------------|------------|------------------|---------------------------|---------------------|----------------------|---|--------------------|-------|
| Plant No | Date | Make/Model | Test Type | L _W (dB) | L _{WA} (dB) | Glendell EIS Target L _{WA} (dB) | Exceedance (dB) | Tonal |
| Trucks | | | | | | | | |
| 251 | 2020-09-28 | Caterpillar 789C | Dynamic, 1st Gear Forward | 125 | 118 | 115 | 3 | No |
| 297 | 2020-09-28 | Caterpillar 789C | Dynamic, 1st Gear Forward | 123 | 118 | 115 | 3 | No |
| 255 | 2020-09-28 | Caterpillar 789C | Dynamic, 1st Gear Forward | 123 | 117 | 115 | 2 | No |
| 298 | 2020-09-28 | Caterpillar 789C | Dynamic, 1st Gear Forward | 122 | 116 | 115 | 1 | No |
| 256 | 2020-09-28 | Caterpillar 789C | Dynamic, 1st Gear Forward | 123 | 116 | 115 | 1 | No |
| 229 | 2020-09-28 | Caterpillar 789D | Dynamic, 1st Gear Forward | 123 | 116 | 115 | 1 | 2000 |
| 204 | 2020-09-28 | Caterpillar 793D | Dynamic, 1st Gear Forward | 122 | 117 | 115 | 2 | No |
| 211 | 2020-10-02 | Caterpillar 793D | Dynamic, 1st Gear Forward | 124 | 119 | 115 | 4 | 2000 |
| 212 | 2020-10-02 | Caterpillar 793D | Dynamic, 1st Gear Forward | 124 | 117 | 115 | 2 | No |
| 214 | 2020-10-02 | Caterpillar 793D | Dynamic, 1st Gear Forward | 122 | 117 | 115 | 2 | No |
| Dozers | | | | | | | | |
| 452 | 2020-09-28 | Caterpillar D11R | Dynamic, 1st Gear Forward | 124 | 118 | 110 | 8 | No |
| 452 | 2020-09-28 | Caterpillar D11R | Dynamic, 1st Gear Reverse | 126 | 122 | 122 | 0 | No |
| 452 | 2020-09-28 | Caterpillar D11R | Dynamic, 2nd Gear Forward | 129 | 125 | 110 | NA | No |

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ABN 94 094 985 734

| SOUND POWER RESULTS 2020 | | | | | | | | |
|--------------------------|------------|------------------|---------------------------|---------------------|----------------------|---|--------------------|-------|
| Plant No | Date | Make/Model | Test Type | L _W (dB) | L _{WA} (dB) | Glendell EIS Target L _{WA} (dB) | Exceedance (dB) | Tonal |
| 452 | 2020-09-28 | Caterpillar D11R | Dynamic, 2nd Gear Reverse | 131 | 128 | 110 | NA | No |
| 452 | 2020-09-28 | Caterpillar D11R | Stationary | 119 | 108 | 110 | Nil | No |
| Wheel dozer | | | | | | | | |
| 491 | 2020-09-28 | Caterpillar 854G | Dynamic, 1st Gear Forward | 116 | 111 | 110 | 1 | No |
| 6002 | 2020-09-29 | Caterpillar 992K | Dynamic, 1st Gear Forward | 122 | 116 | 110 | 6 | No |
| 6001 | 2020-09-29 | Caterpillar 992K | Dynamic, 1st Gear Forward | 121 | 114 | 110 | 4 | No |
| Excavator | | | | | | | | |
| 151 | 2020-10-02 | Hitachi EX2500 | Dynamic | 119 | 112 | 114 | Nil | No |
| 152 | 2020-10-02 | Hitachi EX3600 | Dynamic | 122 | 114 | 114 | Nil | No |
| 102 | 2020-09-28 | Hitachi EX5500 | Dynamic | 127 | 120 | 114 | 6 | No |
| Drills | | | | | | | | |
| 503 | 2020-09-28 | Reeddrill SKF | Dynamic | 121 | 118 | 114 | 4 | No |
| 502 | 2020-09-28 | Reeddrill SKF | Dynamic | 121 | 117 | 114 | 3 | No |
| 501 | 2020-10-02 | Reeddrill SKF | Dynamic | 119 | 116 | 114 | 2 | No |

Notes:

1. Bolded results in red indicate an exceedance of Glendell EIS Target;
2. "-" denotes item not tested or information not available; and
3. "NA" denotes that criterion for this plant was not provided.

Table 3.2: PLANT ITEMS THAT FAIL TONALITY REQUIREMENTS

| Plant no | Make/Model | Test Date | Test Type | Tonality Frequency (Hz) | Tonality notes |
|----------|------------------|------------|---------------------------|-------------------------|--|
| 229 | Caterpillar 789D | 2020-09-28 | Dynamic, 1st Gear Forward | 2000 | Noise sources >1000 Hz are unlikely to be audible off site |
| 221 | Caterpillar 793D | 2020-10-02 | Dynamic, 1st Gear Forward | 2000 | Noise sources >1000 Hz are unlikely to be audible off site |

4 SUMMARY

Global Acoustics was engaged by Glendell Coal Mine to undertake annual noise testing of mobile plant. Plant items identified with elevated sound power levels should come under additional investigation.

We trust this information is per your requirements. Please contact us if you require further details or advice.

Global Acoustics Pty Ltd

APPENDIX

A CALIBRATION CERTIFICATES



Level 7 Building 2 423 Pennant Hills Rd
Pennant Hills NSW AUSTRALIA 2120
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3:2013
Calibration Certificate
Calibration Number C19126

| | |
|---|--|
| Client Details | Global Acoustics Pty Ltd 12/16 Huntingdale Drive Thornton NSW 2322 |
| Equipment Tested/ Model Number : | SVANTEK SVAN 958 |
| Instrument Serial Number : | 14216 |
| Microphone Serial Number : | 480224 |
| Pre-amplifier Serial Number : | 5592 |
| Pre-Test Atmospheric Conditions | Post-Test Atmospheric Conditions |
| Ambient Temperature : 23.3°C | Ambient Temperature : 23.9°C |
| Relative Humidity : 55.6% | Relative Humidity : 56.3% |
| Barometric Pressure : 99.58kPa | Barometric Pressure : 99.5kPa |
| Calibration Technician : Lucky Jaiswal | Secondary Check: Lewis Boorman |
| Calibration Date : 21 Feb 2019 | Report Issue Date : 22 Feb 2019 |
| Approved Signatory : | Ken Williams |

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|--|--------|---|--------|
| 12: Acoustical Sig. tests of a frequency weighting | Pass | 17: Level linearity incl. the level range control | Pass |
| 13: Electrical Sig. tests of frequency weightings | Pass | 18: Toneburst response | Pass |
| 14: Frequency and time weightings at 1 kHz | Pass | 19: C Weighted Peak Sound Level | Pass |
| 15: Long Term Stability | Pass | 20: Overload Indication | Pass |
| 16: Level linearity on the reference level range | Pass | 21: High Level Stability | Pass |

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

| Least Uncertainties of Measurement - | | | |
|--------------------------------------|---------|--------------------------|-----------|
| Acoustic Tests | | Environmental Conditions | |
| 31.5 Hz to 8kHz | ±0.15dB | Temperature | ±0.2°C |
| 12.5kHz | ±0.2dB | Relative Humidity | ±2.4% |
| 16kHz | ±0.29dB | Barometric Pressure | ±0.015kPa |
| Electrical Tests | | | |
| 31.5 Hz to 20 kHz | ±0.11dB | | |

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.





This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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| <h1 style="text-align: center;">CERTIFICATE OF CALIBRATION</h1> | | | |
|---|---|--|--------------------|
| CERTIFICATE No.: SLM 28030 | | | |
| Equipment Description: Sound & Vibration Analyser | | | |
| Manufacturer: | Svantek | | |
| Model No: | Svan-958 | Serial No: | 15496 |
| Microphone Type: | N/A | Serial No: | N/A |
| Preamplifier Type: | N/A | Serial No: | N/A |
| Filter Type: | 1/3 Octave | Test No: | FILT 6065 |
| Comments: | All tests passed for class 1. (See over for details) | | |
| Owner: | Acu-Vib Electronics 14/22 Hudson Avenue Castle Hill, NSW 2154 | | |
| Ambient Pressure: | 1009 hPa ± 1.5 hPa | | |
| Temperature: | 23 °C $\pm 2^\circ$ C | Relative Humidity: | 56% $\pm 5\%$ |
| Date of Calibration: | 13/10/2020 | Issue Date: | 13/10/2020 |
| Acu-Vib Test Procedure: AVP10 (SLM) & AVP06 (Filters) | | | |
| CHECKED BY: | <i>[Signature]</i> | AUTHORISED SIGNATURE: | <i>[Signature]</i> |
| Accredited for compliance with ISO/IEC 17025 - Calibration The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards. | | | |
|  | |  | |
| Accredited Lab. No. 9262 Acoustic and Vibration Measurements | | HEAD OFFICE Unit 14, 22 Hudson Ave. Castle Hill NSW 2154 Tel: (02) 96808133 Fax: (02) 96808233 Mobile: 0413 809806 web site: www.acu-vib.com.au | |
| Page 1 of 2 AVCERT10 Rev. 1.3 15.05.18 | | | |



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Sound Calibrator

IEC 60942-2017

Calibration Certificate

Calibration Number C20154

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Dr
Thornton NSW 2322

Equipment Tested/ Model Number : Rion NC-74
Instrument Serial Number : 34483783

Atmospheric Conditions

Ambient Temperature : 23.3°C
Relative Humidity : 53.8%
Barometric Pressure : 101.2kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 11 Mar 2020

Secondary Check : Alannah Squires
Report Issue Date : 12 Mar 2020

Approved Signatory :

Ken Williams

| Characteristic Tested | Result |
|--------------------------------|--------|
| Generated Sound Pressure Level | Pass |
| Frequency Generated | Pass |
| Total Distortion | Pass |

| Nominal Level | Nominal Frequency | Measured Level | Measured Frequency |
|---------------|-------------------|----------------|--------------------|
| 94 | 1000 | 93.99 | 1002.13 |

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

Least Uncertainties of Measurement -

| Specific Tests | Environmental Conditions |
|----------------|--------------------------|
| Generated SPL | Temperature |
| Frequency | Relative Humidity |
| Distortion | Barometric Pressure |

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

* The tests <1000 kHz are not covered by Acoustic Research Labs Pty Ltd NATA accreditation.



This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

PAGE 1 OF 1

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Sound Calibrator
IEC 60942-2017

Calibration Certificate

Calibration Number C19343

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Rion NC-74
Instrument Serial Number : 50941314

Atmospheric Conditions

Ambient Temperature : 24.2°C
Relative Humidity : 47.4%
Barometric Pressure : 100.85kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 17 Jun 2019

Secondary Check: Eloise Burrows
Report Issue Date : 17 Jun 2019

Approved Signatory :

Ken Williams

| Characteristic Tested | Result |
|--------------------------------|--------|
| Generated Sound Pressure Level | Pass |
| Frequency Generated | Pass |
| Total Distortion | Pass |

| | Nominal Level | Nominal Frequency | Measured Level | Measured Frequency |
|-----------------|---------------|-------------------|----------------|--------------------|
| Measured Output | 94.0 | 1000.0 | 94.3 | 1002.89 |

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

Lean Uncertainties of Measurement *

| Specific Tests | Environmental Conditions |
|----------------|-------------------------------|
| Generated SPL | Temperature ±0.2°C |
| Frequency | Relative Humidity ±2.4% |
| Distortion | Barometric Pressure ±0.015kPa |

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

* The tests <1000 kHz are not covered by Acoustic Research Labs Pty Ltd NATA accreditation.



This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

Page: 1 of 1

B CRITERIA

Criteria taken from "Environmental Assessment for Modification of Glendell Mine Operations Volume 2 August 2007".

Table A3.1: Proposed Fleet Specification (all noise levels in dB(A))

| Equipment | Year 1.5 Standard | Year 1.5 Attenuated | Year 3 | Year 6 | Year 9 | Year 12 |
|----------------------------------|--|---------------------|---------|---------|---------|---------|
| Excavator (Overburden) | 123 - Average (125 - Exhaust Side) (130 - Fan Side) | 117 | 117 | 117 | 117 | 117 |
| Excavator (Coal) | 114 to 116 | 114 | 114 | 114 | 114 | 114 |
| Trucks (240t) | 117 to 119 - Up 8% Grade 113 to 116 - Down 8% Grade | 115 | 115 | 115 | 115 | 115 |
| Trucks (150t and Watercart) | 119 - Up 8% Grade 114 to 120 - Down 8% Grade | 114 | 114 | 114 | 114 | 114 |
| Dozers - D10 (Pushing/Reversing) | 110/122 | 110/122 | 110/122 | 110/118 | 110/118 | 110/118 |
| Grader | 104 - Cat 16H Grader 112 - Cat 24H Grader | 104 | 104 | 104 | 104 | 104 |
| Drills | 116 to 119 | 114 | 114 | 114 | 114 | 114 |

Notes

1. All dozers, including rubber tyre dozers, have been assessed against the Dozer D10 Year 1.5 Attenuated criteria as advised by Glendell Mine; and
2. Criteria for dozers is for first gear only, as advised by Glendell Mine.

Mt Owen Sound Power Level Report



**Sound Power Determination
Mt Owen Complex Mobile Machinery 2020**

| | |
|--------------|---|
| Prepared By: | Michael Thearle18 |
| Date: | March 2021 |
| Telephone: | 0437 345 297 |
| Email: | michael@thearle.net.au |
| Address: | 4/56 Industrial Drive East Mayfield NSW 2304 |

Report - Sound Power Determination - 2020

This report has been prepared within the specific requirements agreed between Thearle Engineering and Thiess Mt Owen. This report was prepared with background information, terms of reference and assumptions agreed with the Thiess Mt Owen. The report is not intended for use by any other individual or organisation. Thearle Engineering will not accept liability for use of the information contained in this report, other than that which was intended at the time of writing.

Summary:

Machines tested generally represent a cross section of the mobile mining fleet at Thiess Mt Owen. Individual machine results and recommendations are presented on the following pages. The noise levels are consistent with testing completed in recent years. Equipment such as the 785C haul truck, D11 dozer and 24H grader, thenon-conformance is generally random due to machine wear and tear and are unlikely to represent a significantrisk to the operation. Equipment such as the 793F and EH4500 haul trucks represent the best level of attenuation currently achieved on these models. Machines such as the 785C water cart can be readily improved usingexisting technology within the market.

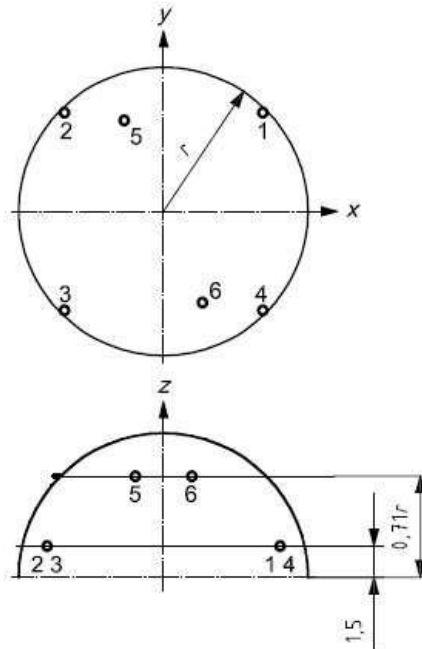
Referenced Standards:

| | |
|--|--|
| ISO 3744:2010 energy levels of noise sources using sound reflectingplane | Acoustics - Determination of sound power levels and sound pressure - Engineering methods for an essentially free field over a |
| ISO 6393:2008 Stationary test conditions | Earth-moving machinery - Determination of sound power level |
| ISO 6395:2008 Dynamic test conditions | Earth-moving machinery - Determination of sound power level |
| MDG15 mines | Guideline for mobile and transportable equipment for use in |
| MGOOC-1779562647-10975 | MGO Noise Management Plan |
| 3109/R11/FINAL Operations Project | Appendix 7 – Noise Impact Assessment, Mt Owen Continued |
| GCAA-625378177-10238 | GCCA 11.11 Noise Management |

Test Setup Parameters:

The test area was setup as per ISO 6393:2008 with microphones positioned at the locations in Figure 1.

Dimensions in metres



Key

- 1 to 6 microphone positions
 r hemisphere radius

Figure 1 — Microphone array on the hemisphere

Table 1 — Co-ordinates of microphone positions

| Microphone position | x/r | y/r | z |
|---------------------|-------|-------|----------|
| 1 | 0,7 | 0,7 | 1,5 m |
| 2 | -0,7 | 0,7 | 1,5 m |
| 3 | -0,7 | -0,7 | 1,5 m |
| 4 | 0,7 | -0,7 | 1,5 m |
| 5 | -0,27 | 0,65 | 0,71 r |
| 6 | 0,27 | -0,65 | 0,71 r |

Figure 1 - ISO 6393:2008 Microphone Positions (1, 5 and 2 are on the left side of the machine)

Test Configuration:

Haul Trucks:

| | |
|--|--|
| Stationary Test | Engine Rated Power RPM, Park Brake Applied. |
| Dynamic Test Uphill Trucks, Maximum Speed Electric Drive Trucks. | Nominal Rated Load, Rated Power RPM, 1 st Gear Mechanical Drive |
| Dynamic Test Downhill | Machine Unloaded, 23-25 km/hr, Speed Controlled on Retarder |

Water Carts:

| | |
|-----------------------|---|
| Stationary Test | Engine Rated Power RPM, Park Brake Applied. |
| Dynamic Test Uphill | Nominal Rated Load, Rated Power RPM, 1 st Gear. |
| Dynamic Test Downhill | Nominal Rated Load, 23-25 km/hr, Speed Controlled on Retarder |

Dozers and Loaders:

| | |
|-----------------------|--|
| Stationary Test | Engine Rated RPM, Park Brake Applied. |
| Dynamic Test Forwards | First Gear Forwards, Engine Rated RPM. |
| Dynamic Test Reverse | First Gear Reverse, Engine Rated RPM. |

Graders and Scrapers:

| | |
|-----------------------|--|
| Stationary Test | Engine Rated RPM, Park Brake Applied. |
| Dynamic Test Forwards | First Gear Forwards, Engine Rated RPM. |

Diggers and Drills:

| | |
|--|---|
| Stationary Test | Engines High Idle |
| Dynamic Test Full Pretend to Dig Cycle | Engines High Idle, Drills - Hoist Force Set to Maximum, Diggers - |

Testing Equipment:

Class 1 Sound Meters Pattern Approved to IEC 61672:2013 and IEC 61260:2014.

| | Serial Number | Microphone and Preamp Serial Number | Calibration Date | Calibration Expiry |
|-----------------------------|---------------|--|---------------------|-----------------------|
| NTI XL2-TA | A2A-14797-E0 | A15893 / 7656 | 20/11/2019 | 19/11/2021 |
| NTI XL2-TA | A2A-15111-E0 | A15916 / 7633 | 20/11/2019 | 19/11/2021 |
| NTI XL2-TA | A2A-14826-E0 | A15923 / 7627 | 20/11/2019 | 19/11/2021 |
| NTI XL2-TA | A2A-14999-E0 | A16148 / 7762 | 30/10/2018 | 29/10/2020 |
| NTI XL2-TA | A2A-15297-E0 | A16173 / 7865 | 30/10/2018 | 29/10/2020 |
| NTI XL2-TA | A2A-15022-E0 | A16149 / 7761 | 30/10/2018 | 29/10/2020 |
| Precision Calibrator CAL200 | 15642 | | 20/11/2019 | 19/11/2021 |
| Precision Calibrator CAL200 | 16048 | | 12/03/2019 | 11/03/2021 |

Calibration Certificates are supplied separately on request.

Results:

Machinery has been tested and assessed as per the requirements of Glencore document GCAA 11.11. All machines tested were existing machines onsite. As such, Sound power levels have been assessed according to the in-service target and tonality requirement only. In-service target and tonal requirements are applicable to all tests as described in the following tables. The Glencore in-service target consists of a linear noise level only. A-weighted and linear noise levels of each machine have been reported. A-weighted levels have been included for historical purposes only due to this being the previous method for assessing compliance onsite.

| Unit Number | Model | Static | Uphill Loaded | Downhill Loaded | GCAA In-Service Target |
|-------------|---------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| 1606 | Hitachi EH4500 Haul Truck | 114 dBA / 125 dB | 115 dBA / 127 dB | 113 dBA / 121 dB | - dBA / 123 dB |
| 1607 | Hitachi EH4500 Haul Truck | 112 dBA / 121 dB | 115 dBA / 130 dB | 113 dBA / 121 dB | - dBA / 123 dB |
| 1754 | Hitachi EH4500 Haul Truck | 114 dBA / 128 dB | 114 dBA / 128 dB | 113 dBA / 124 dB | - dBA / 123 dB |
| | | Tonal Result | | | |
| 1900 | CAT 785C Haul Truck | 116 dBA / 121 dB | 119 dBA / 123 dB | 115 dBA / 121 dB | - dBA / 123 dB |
| | | Tonal Result | | | |
| 2730 | CAT 793F Haul Truck | 113 dBA / 120 dB | 118 dBA / 123 dB | 116 dBA / 124 dB | - dBA / 123 dB |
| 2736 | CAT 793F Haul Truck | 113 dBA / 118 dB | 117 dBA / 124 dB | 116 dBA / 123 dB | - dBA / 123 dB |
| 2741 | CAT 793F Haul Truck | 113 dBA / 119 dB | 118 dBA / 124 dB | 115 dBA / 122 dB | - dBA / 123 dB |
| 2742 | CAT 793F Haul Truck | 113 dBA / 119 dB | 117 dBA / 123 dB | 115 dBA / 122 dB | - dBA / 123 dB |
| 1309 | CAT 785C Water Cart | 120 dBA / 126 dB | 120 dBA / 130 dB | 116 dBA / 122 dB | - dBA / 125 dB |

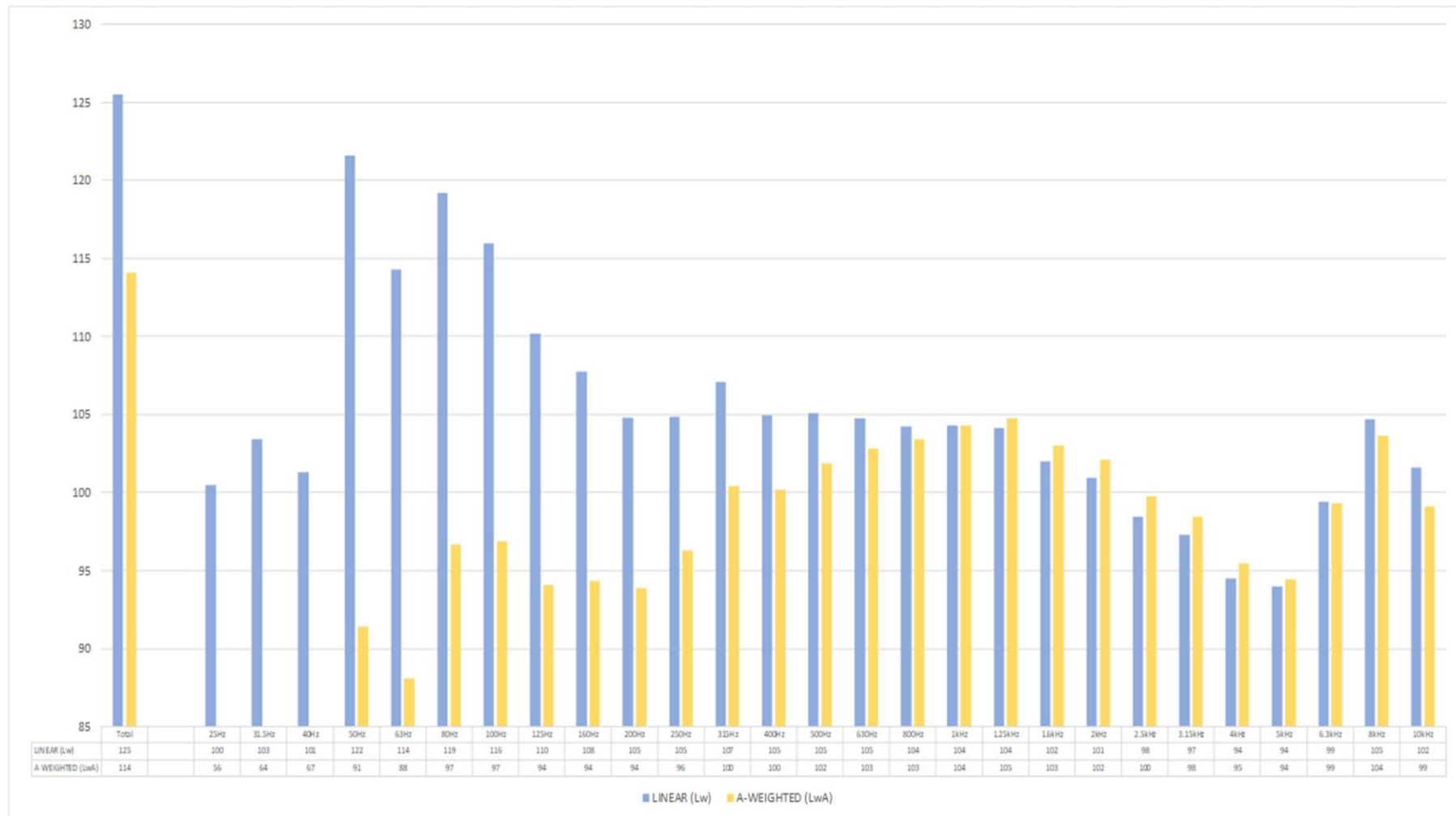
| Unit Number | Model | Static | Forwards | Reverse | GCAA In-Service Target |
|-------------|------------------|---|---|---|------------------------|
| 1150 | CAT 992G Loader | 112 dBA / 117 dB | 113 dBA / 116 dB | 115 dBA / 118 dB | - dBA / 123 dB |
| 1418 | CAT D11T Dozer | 115 dBA / 125 dB Tonal Result | 116 dBA / 125 dB Tonal Result | 118 dBA / 126 dB Tonal Result | - dBA / 123 dB |
| 1586 | CAT 854K Dozer | 114 dBA / 118 dB | 114 dBA / 118 dB | 118 dBA / 120 dB | - dBA / 123 dB |
| 1712 | CAT D10T Dozer | 110 dBA / 120 dB | 113 dBA / 123 dB | 113 dBA / 123 dB | - dBA / 123 dB |
| 1850 | CAT 980G Loader | 109 dBA / 116 dB | 110 dBA / 117 dB | 110 dBA / 117 dB | - dBA / 123 dB |
| 952 | CAT 637G Scraper | 117 dBA / 122 dB | 117 dBA / 112 dB | Not Applicable | - dBA / 122 dB |
| 979 | CAT 24H Grader | 114 dBA / 119 dB | 113 dBA / 118 dB | Not Applicable | - dBA / 117 dB |

| Unit Number | Model | Static | Dynamic | | GCAA In-Service Target |
|-------------|------------------------|------------------|------------------|---|------------------------|
| 821 | Sandvik D55SP Drill | 114 dBA / 118 dB | 116 dBA / 119 dB | - | 1. dBA / 119 dB |
| 1161 | Liebherr 996 Excavator | 120 dBA / 125 dB | 120 dBA / 125 dB | - | 2. dBA / 125 dB |
| 1190 | Liebherr 996 Excavator | 4 dBA / 121 dB | 5 dBA / 123 dB | - | 3. dBA / 125 dB |

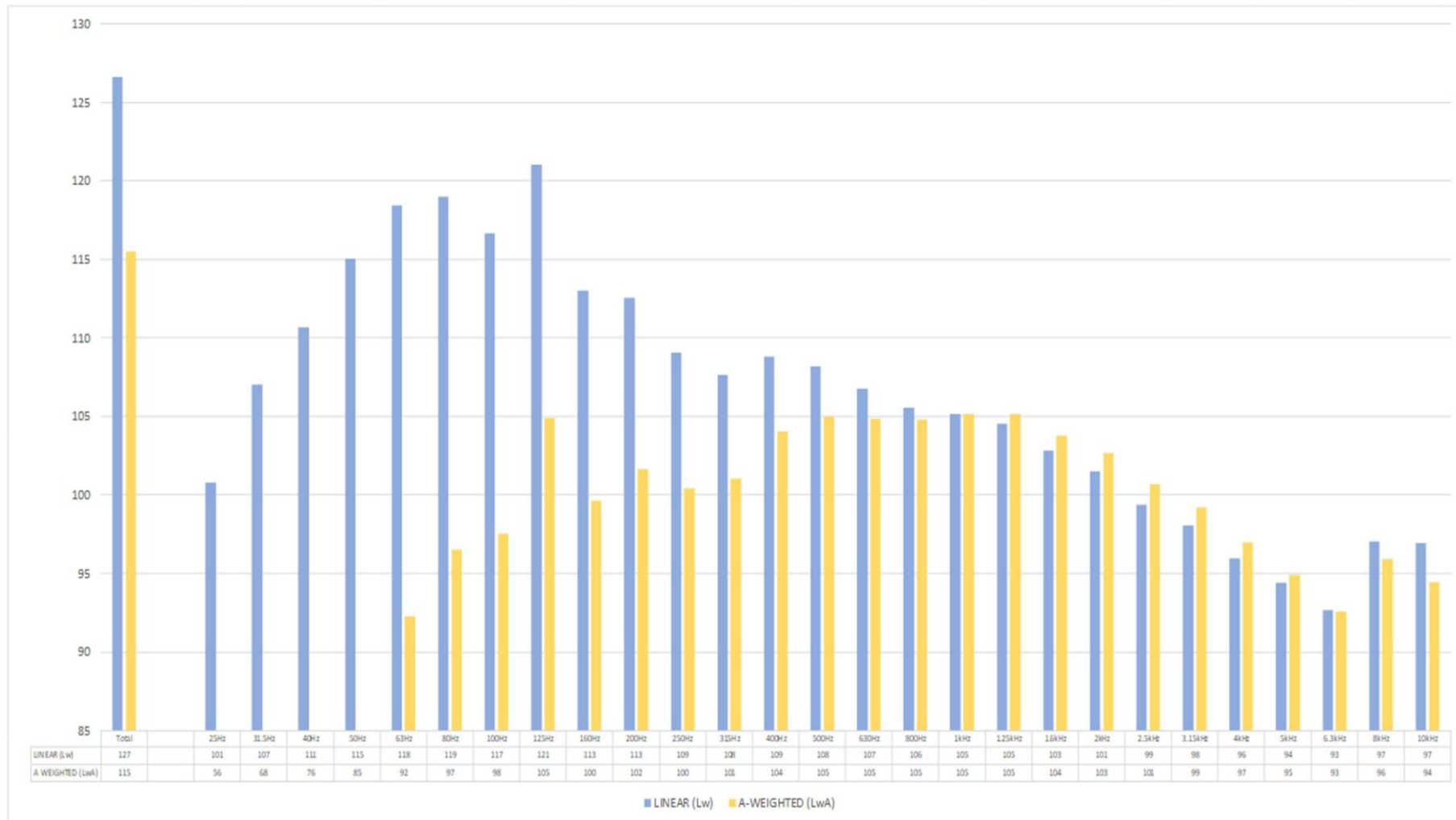
Comments and Recommendations:

| Unit Number | Model | Recommendation for Further Treatment |
|-------------|---------------------------|--|
| 1606 | Hitachi EH4500 Haul Truck | Machine setup consistent with previous A-weighted Target. Review performance of exhaust system and replace as appropriate to suit current Linear Target. |
| 1607 | Hitachi EH4500 Haul Truck | Machine setup consistent with previous A-weighted Target. Review performance of exhaust system and replace as appropriate to suit current Linear Target. |
| 1754 | Hitachi EH4500 Haul Truck | Machine setup consistent with previous A-weighted Target. Review performance of exhaust system and replace as appropriate to suit current Linear Target |
| 1900 | CAT 785C Haul Truck | Failure likely mechanical noise from transmission. Plan for changeout and retest as appropriate. |
| 2730 | CAT 793F Haul Truck | Machine generally in line with similar units. Review performance of exhaust system and replace as appropriate. |
| 2736 | CAT 793F Haul Truck | Machine generally in line with similar units. Review performance of exhaust system and replace as appropriate. |
| 2741 | CAT 793F Haul Truck | Machine generally in line with similar units. Review performance of exhaust system and replace as appropriate. |
| 1309 | CAT 785C Water Cart | Review performance of exhaust system and replace as appropriate. Recommend kit as per Water Cart 6029. |
| 1418 | CAT D11T Dozer | Cooling fan speed not adjustable at time of testing. Diagnose fan speed fault and retest at recommended settings. Likely to be compliant. |
| 979 | CAT 24H Grader | Replace cooling fan with sound attenuated unit. |

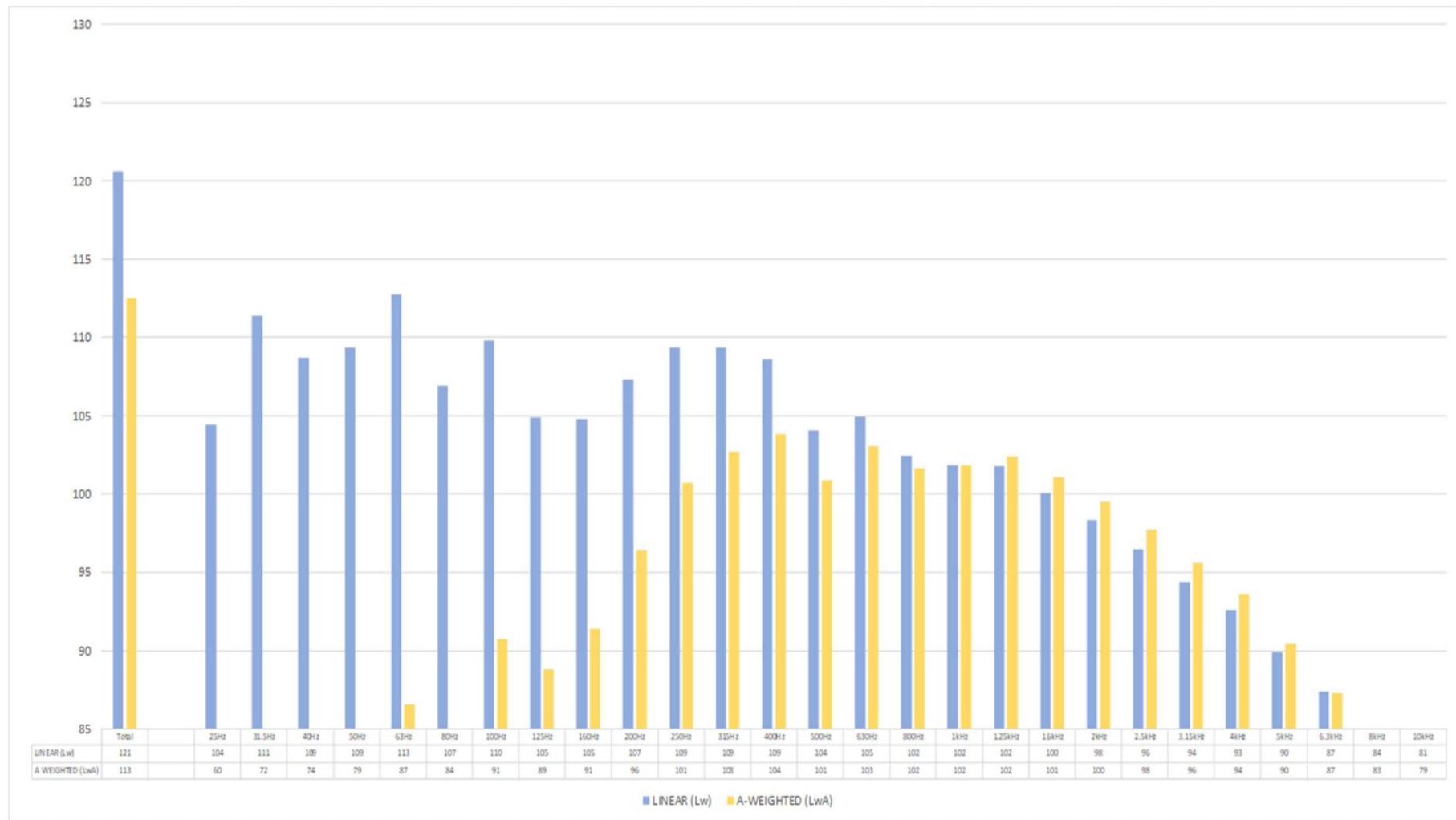
Appendix A



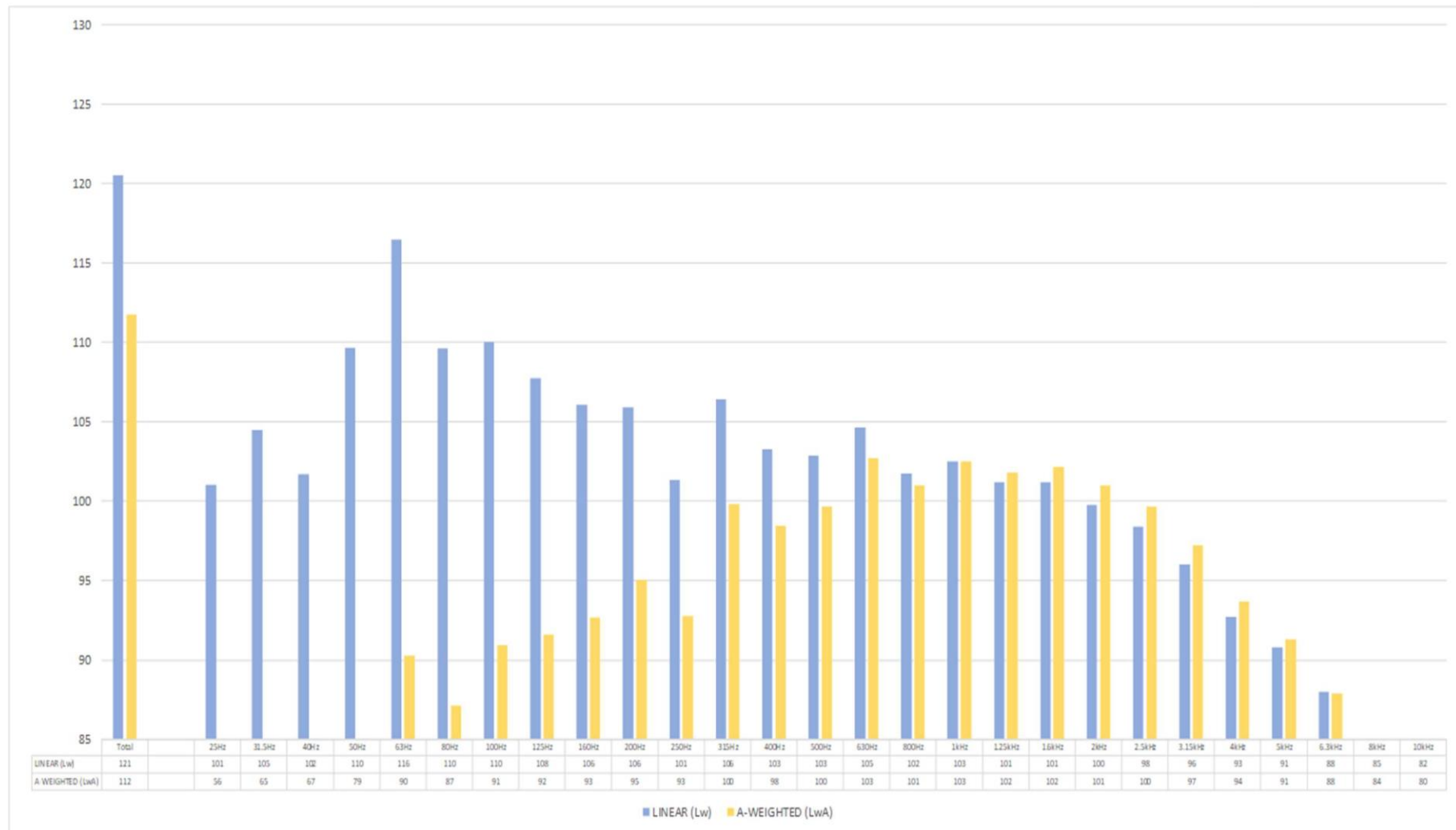
1606 Haul Truck Stationary Test



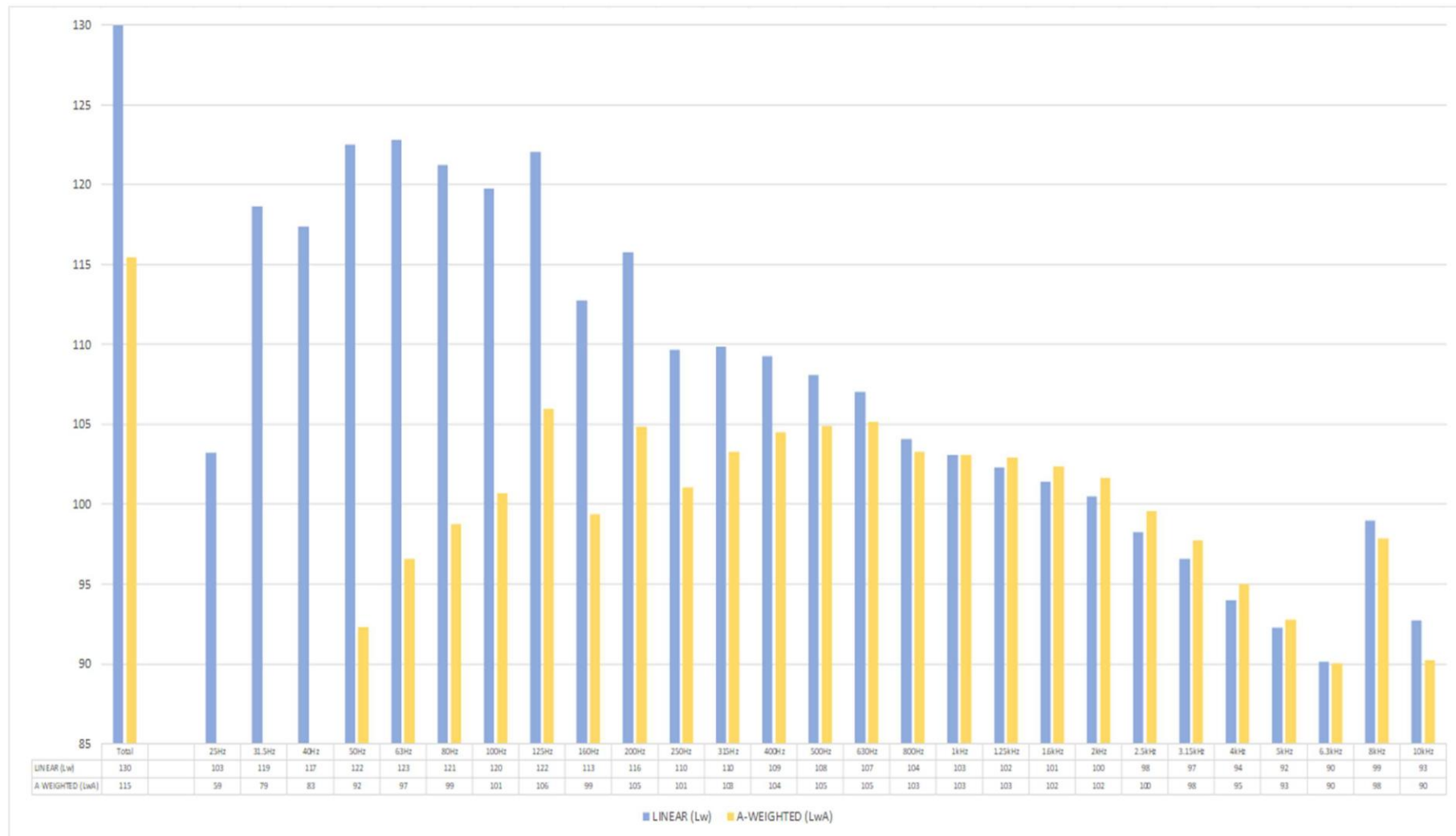
1606 Haul Truck Dynamic Test Uphill



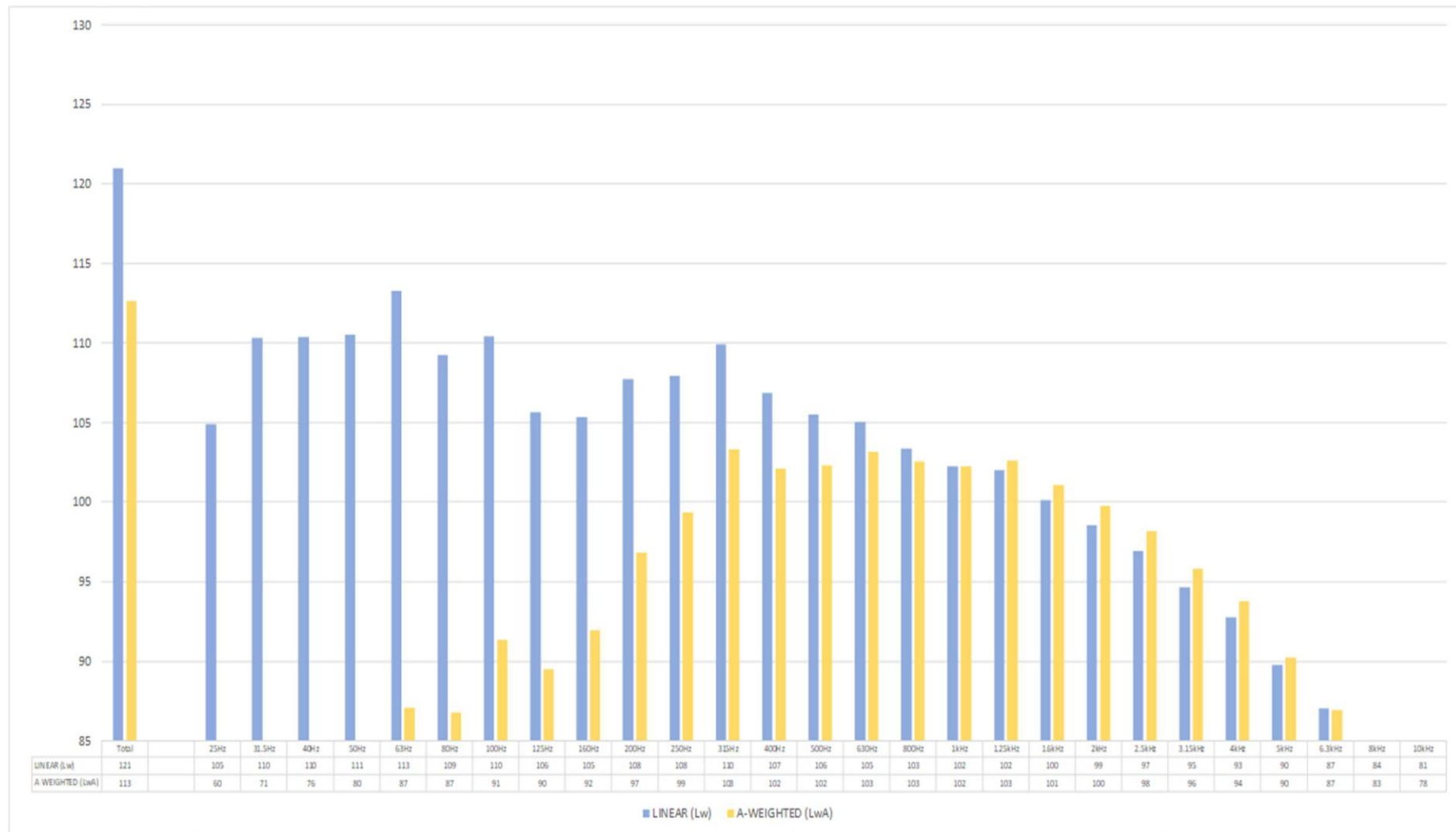
1606 Haul Truck Dynamic Test Downhill



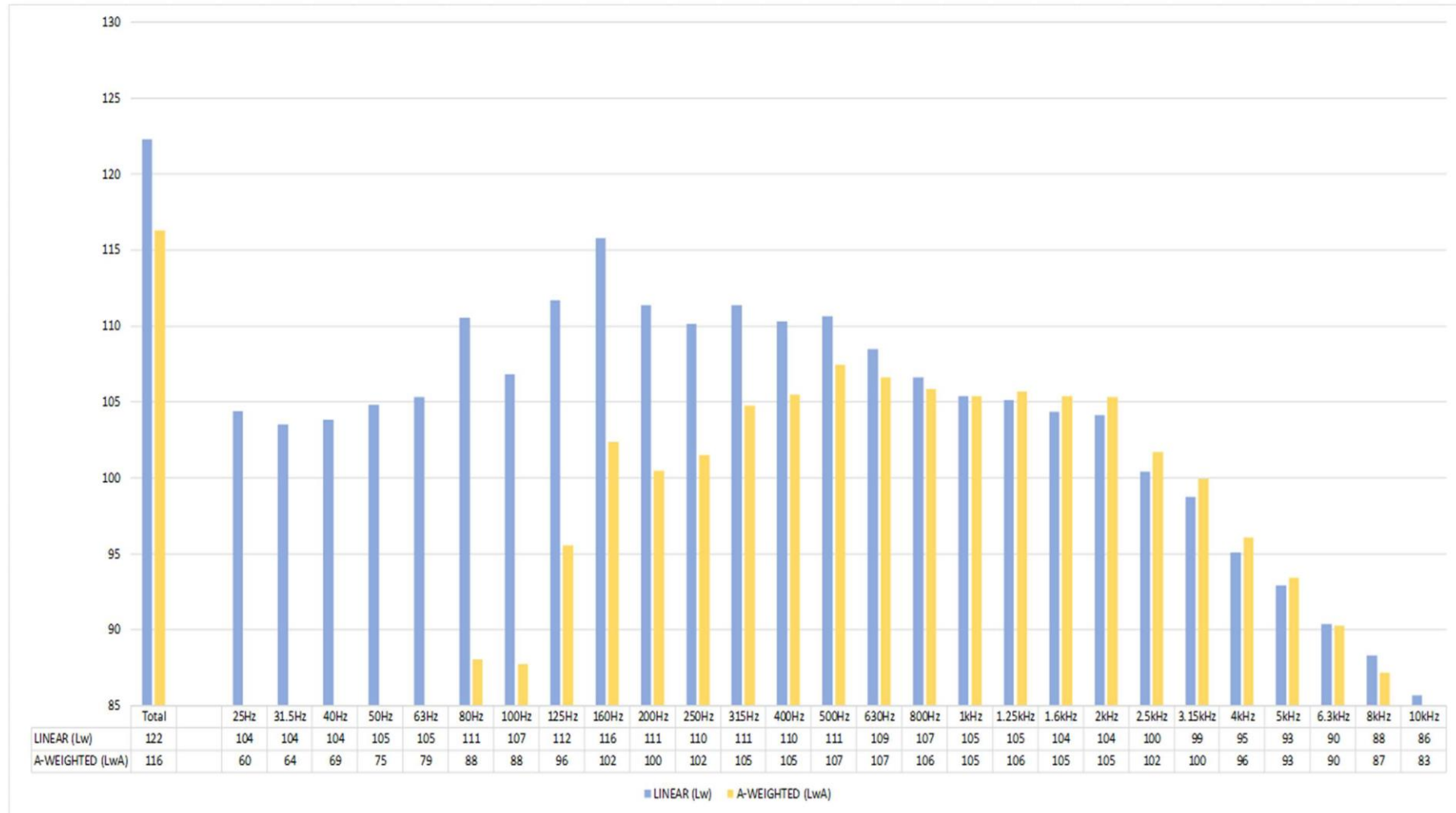
1607 Haul Truck Stationary Test



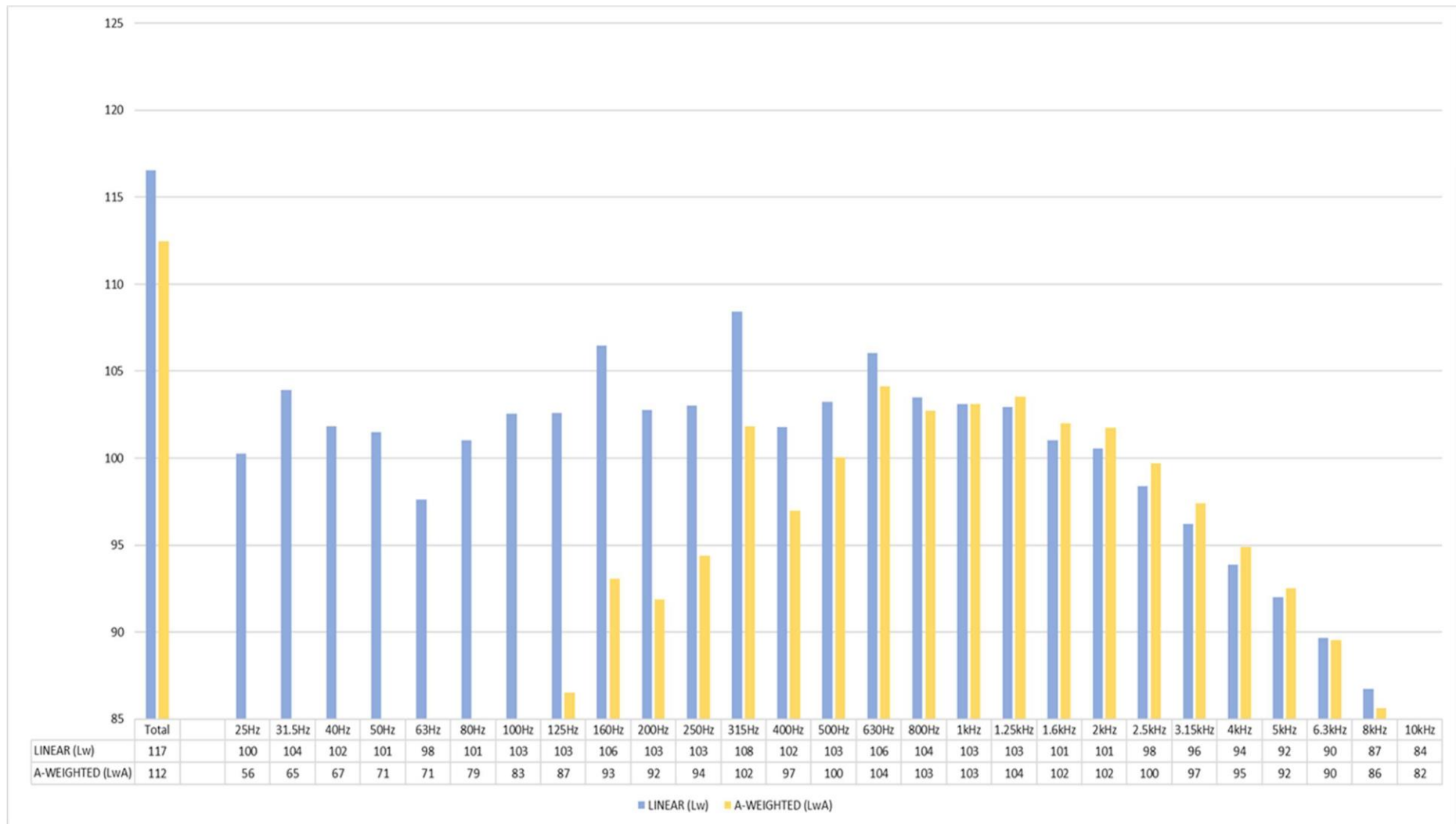
1607 Haul Truck Dynamic Test Uphill



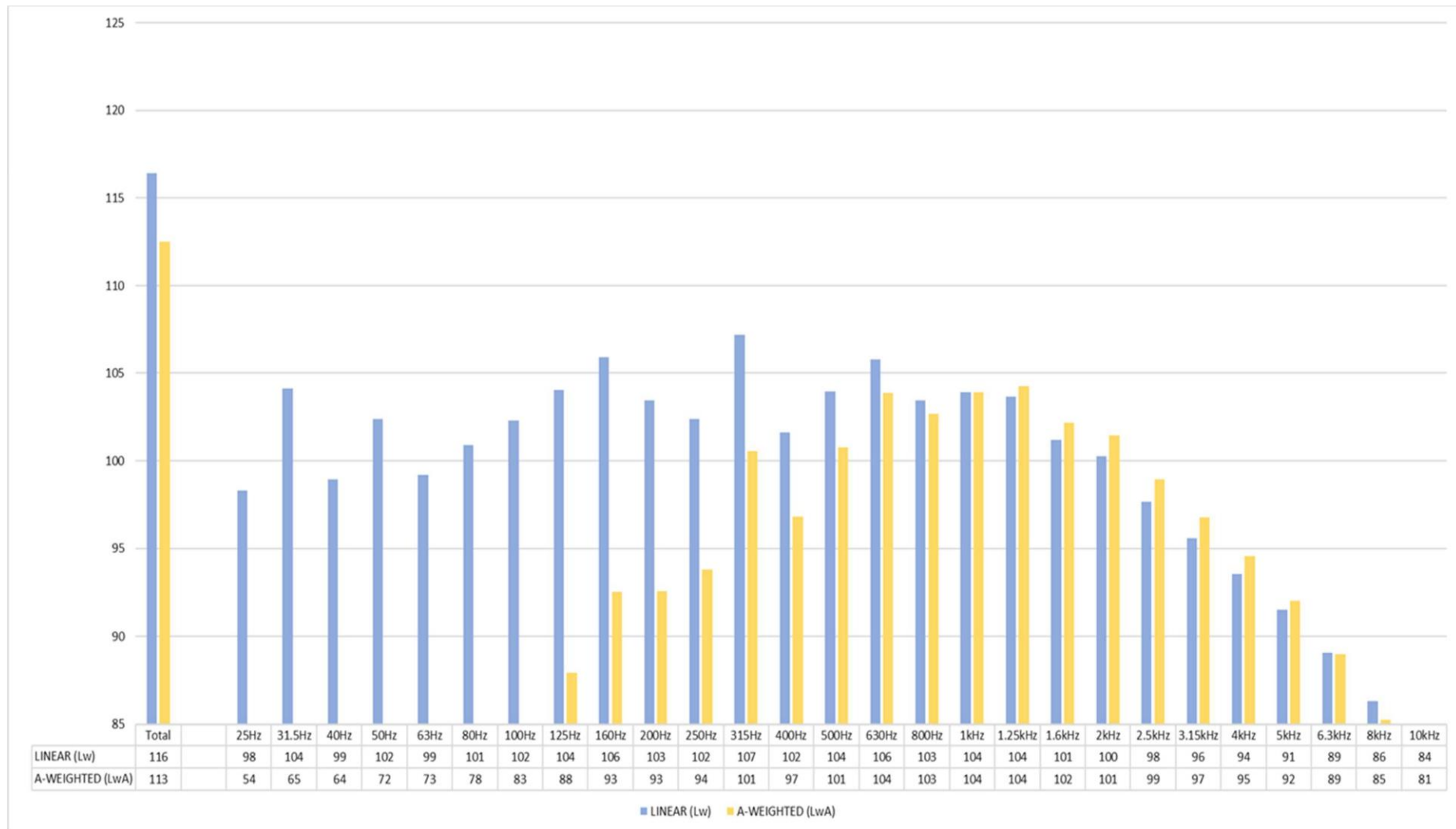
1607 Haul Truck Dynamic Test Downhill



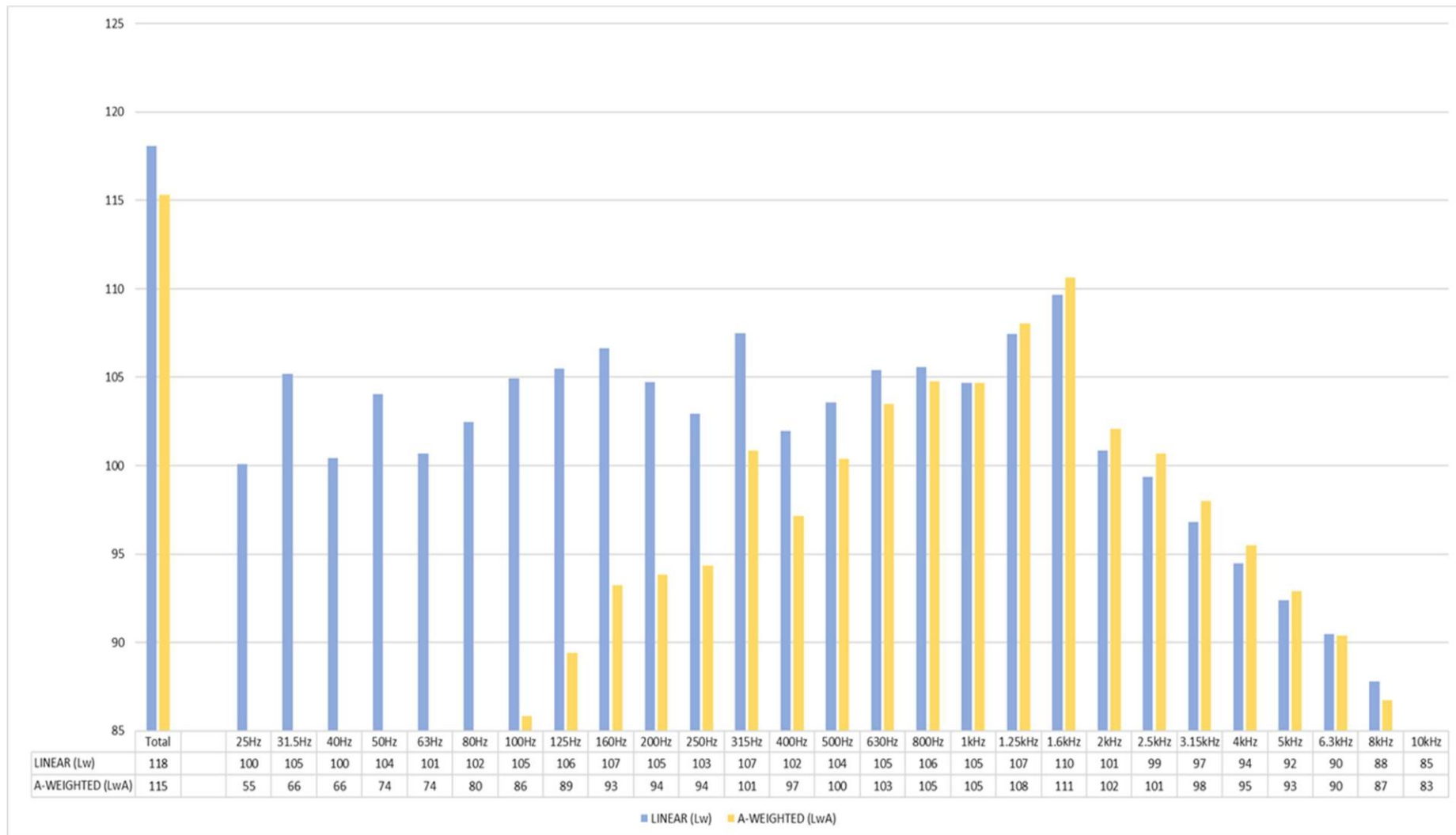
1309 Water Cart Dynamic Test Downhill



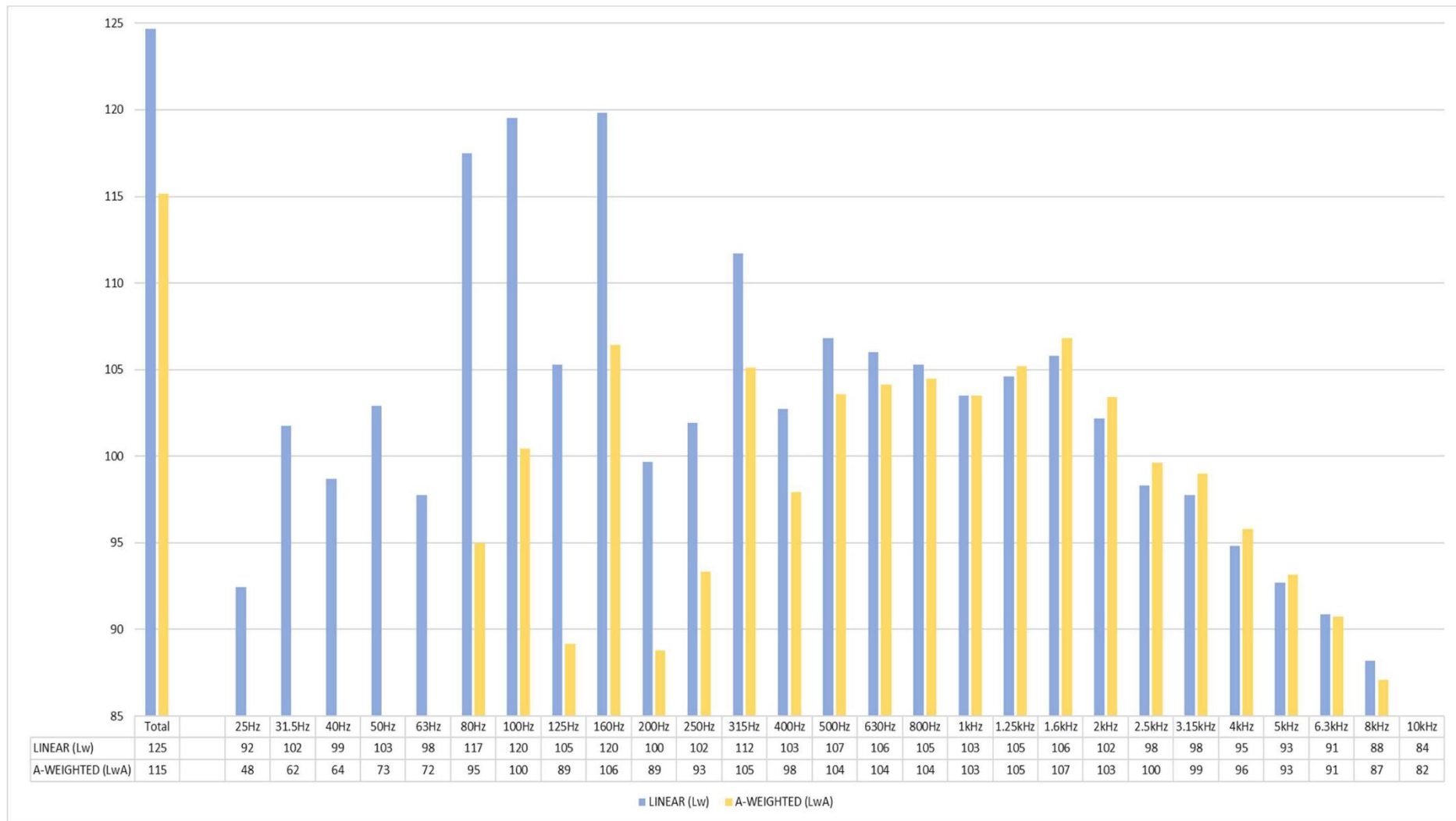
1150 Loader Stationary Test



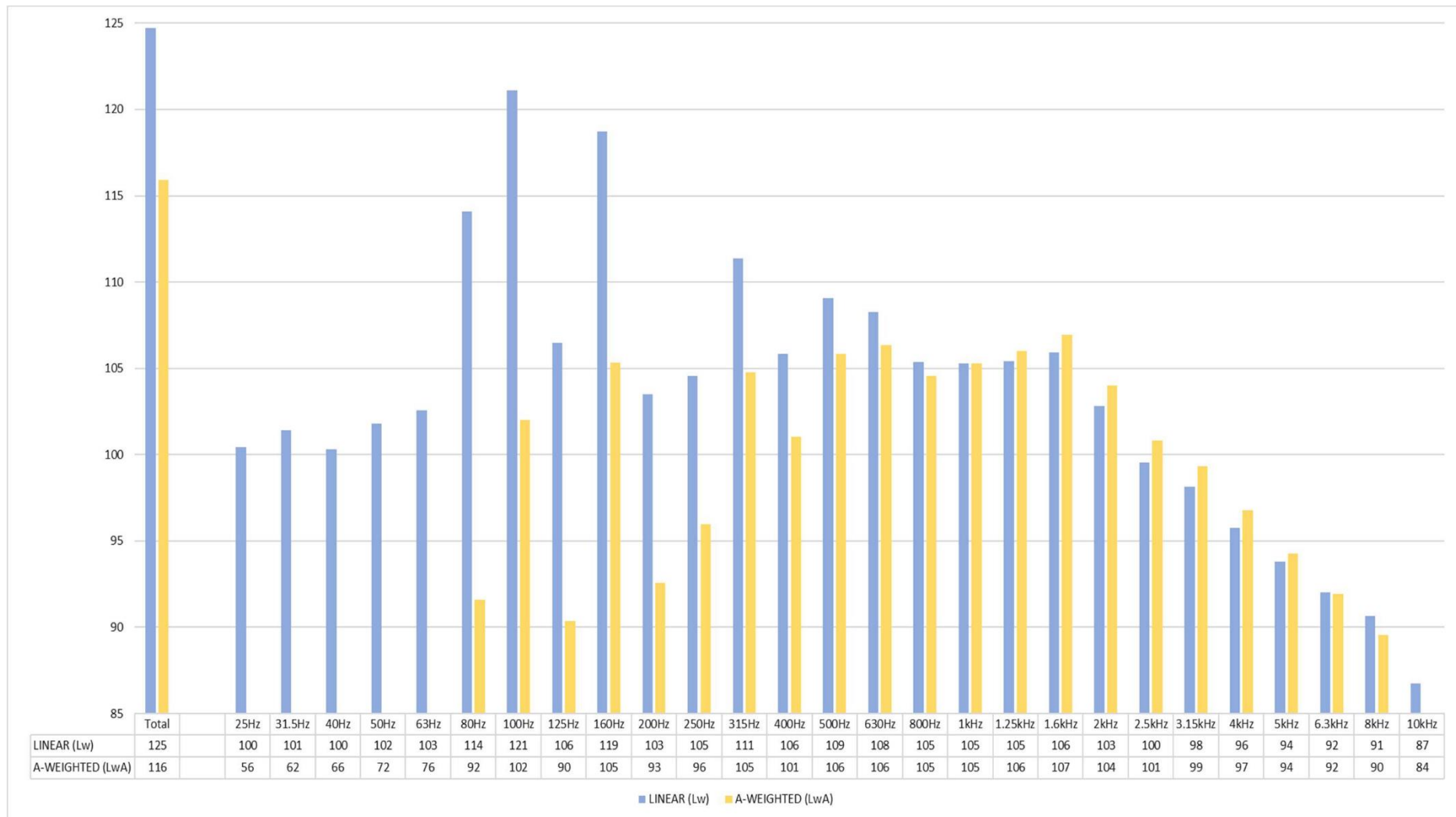
1150 Loader Dynamic Test Forwards



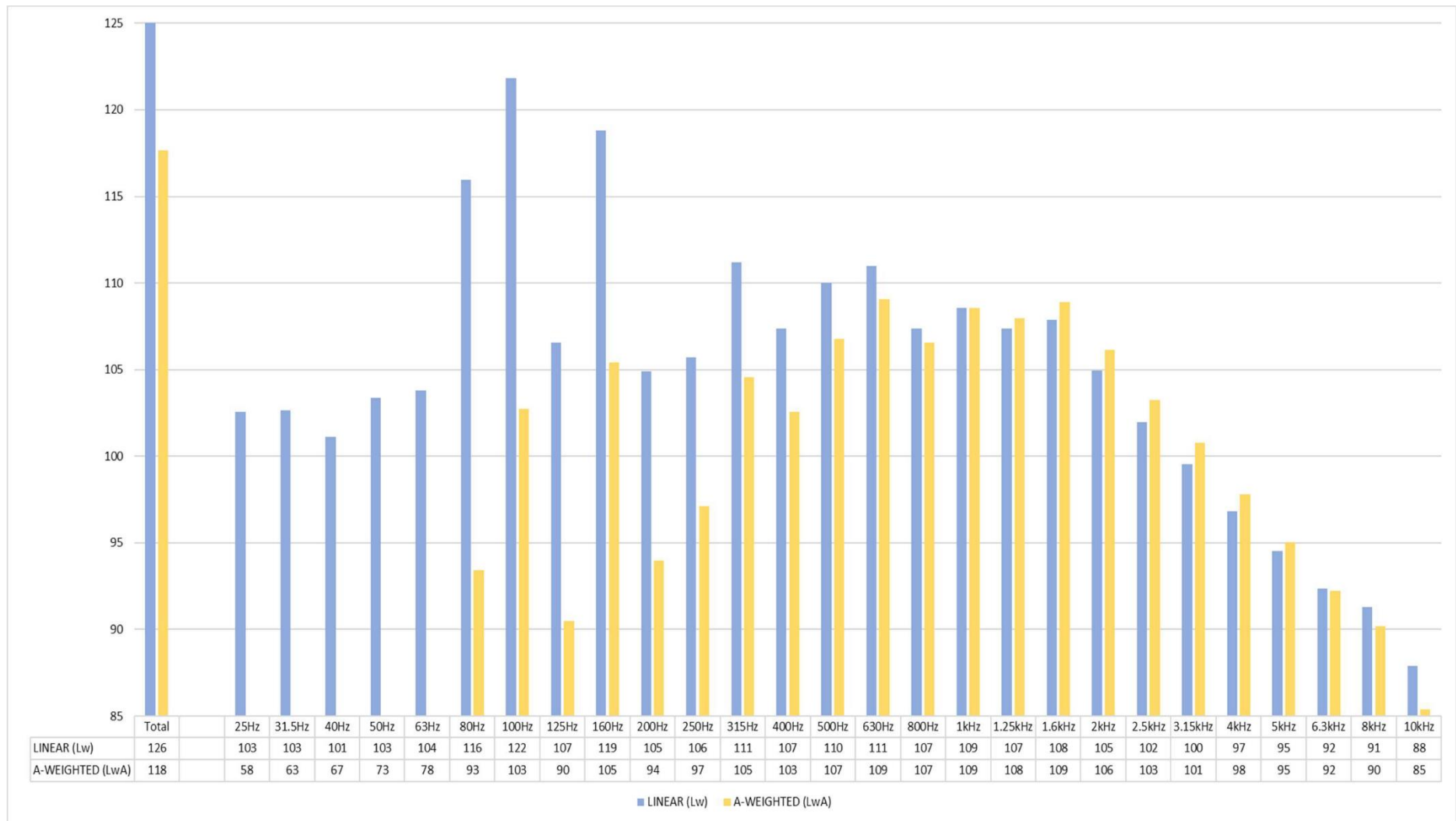
1150 Loader Dynamic Test Reverse



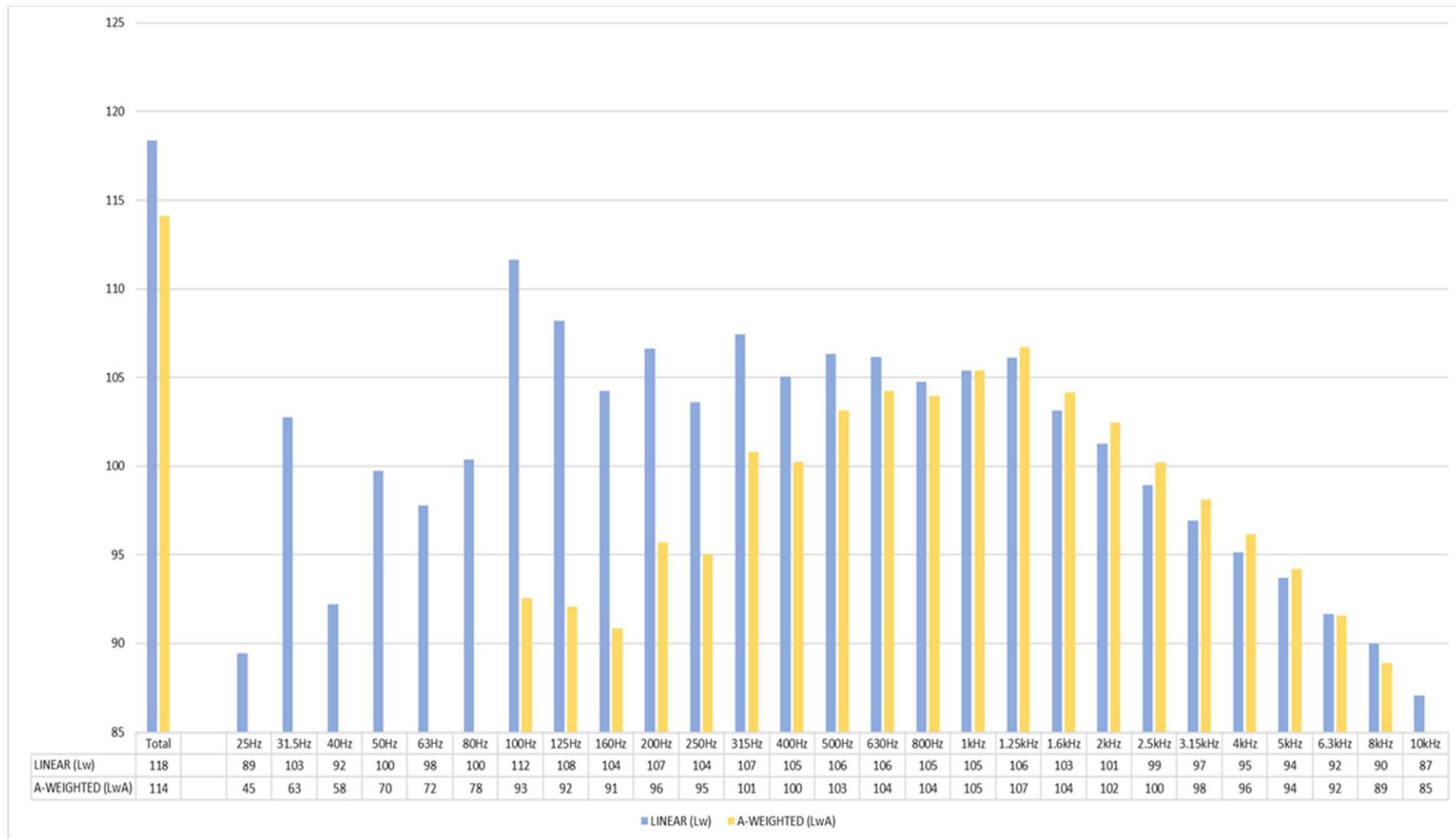
1418 Dozer Stationary Test



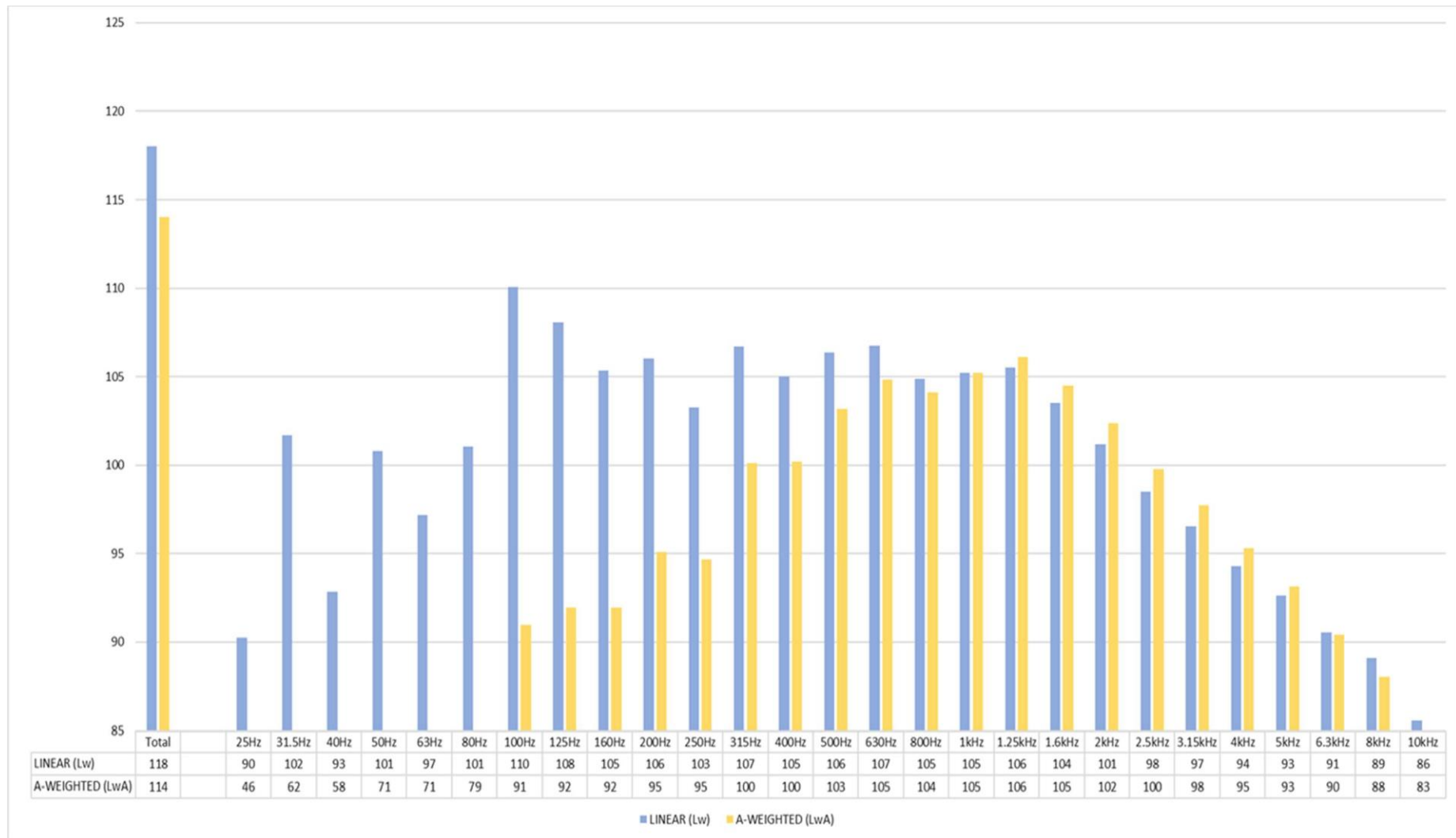
1418 Dozer Dynamic Test Forwards



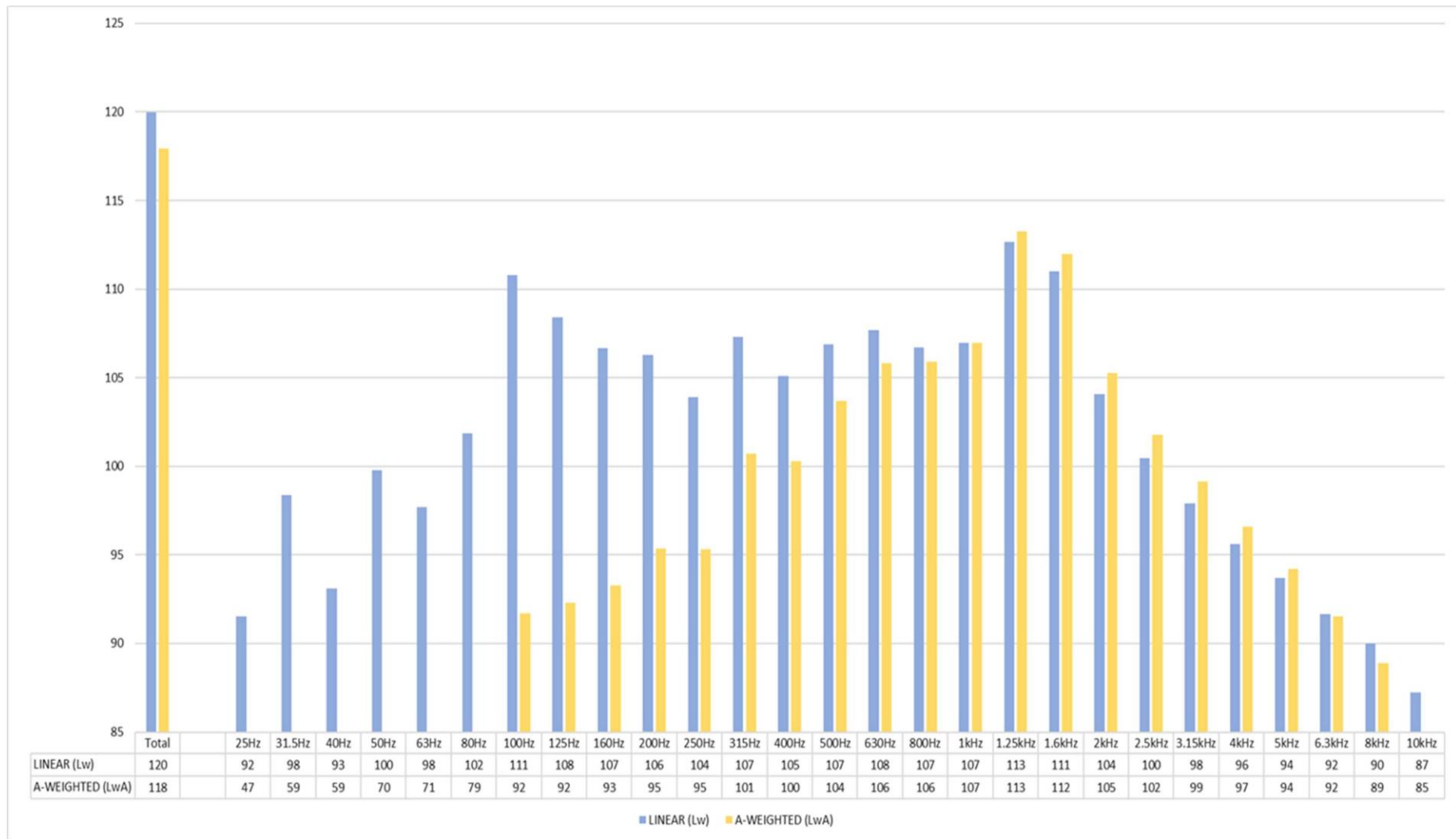
1418 Dozer Dynamic Test Reverse



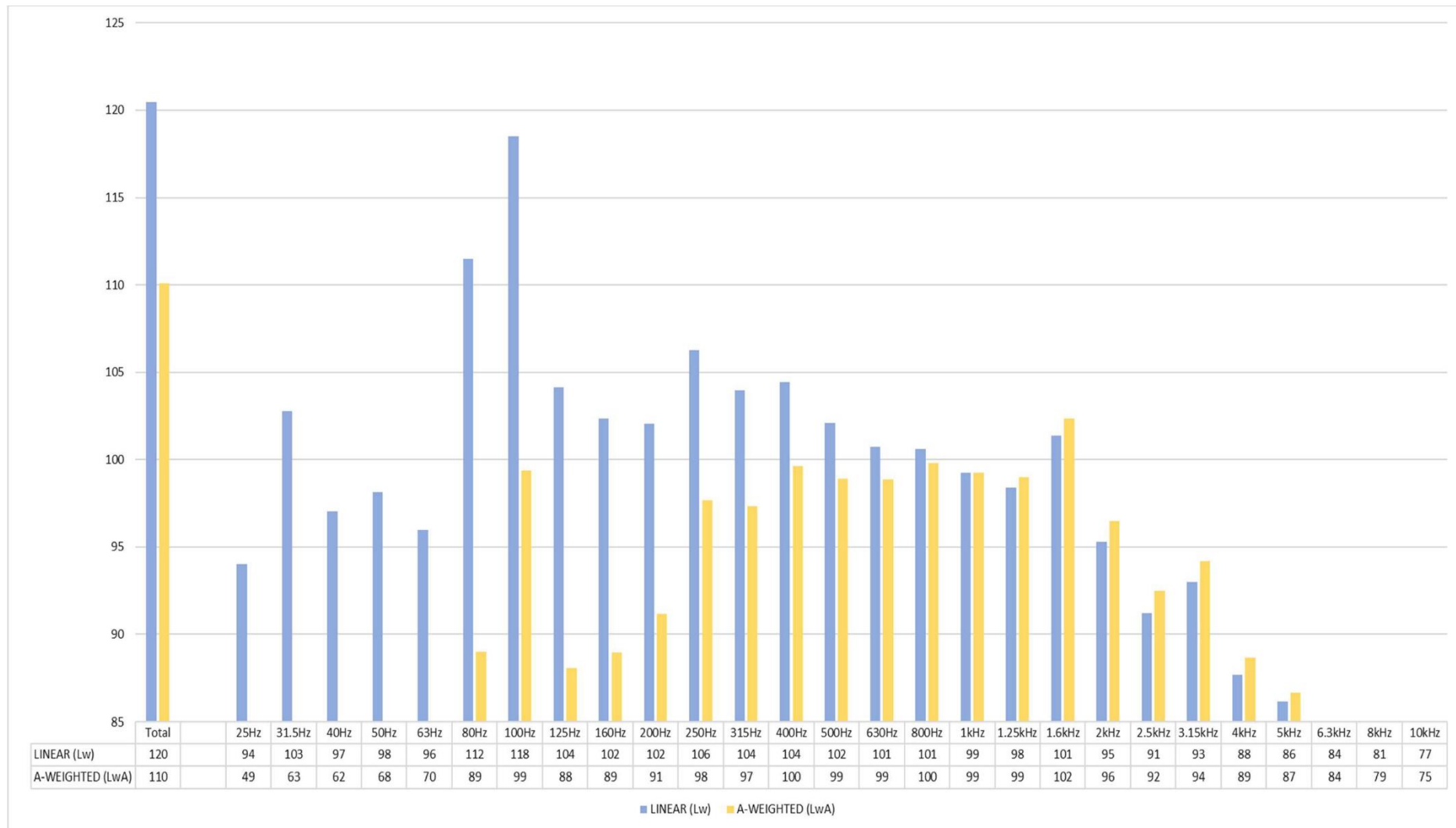
1586 Dozer Stationary Test



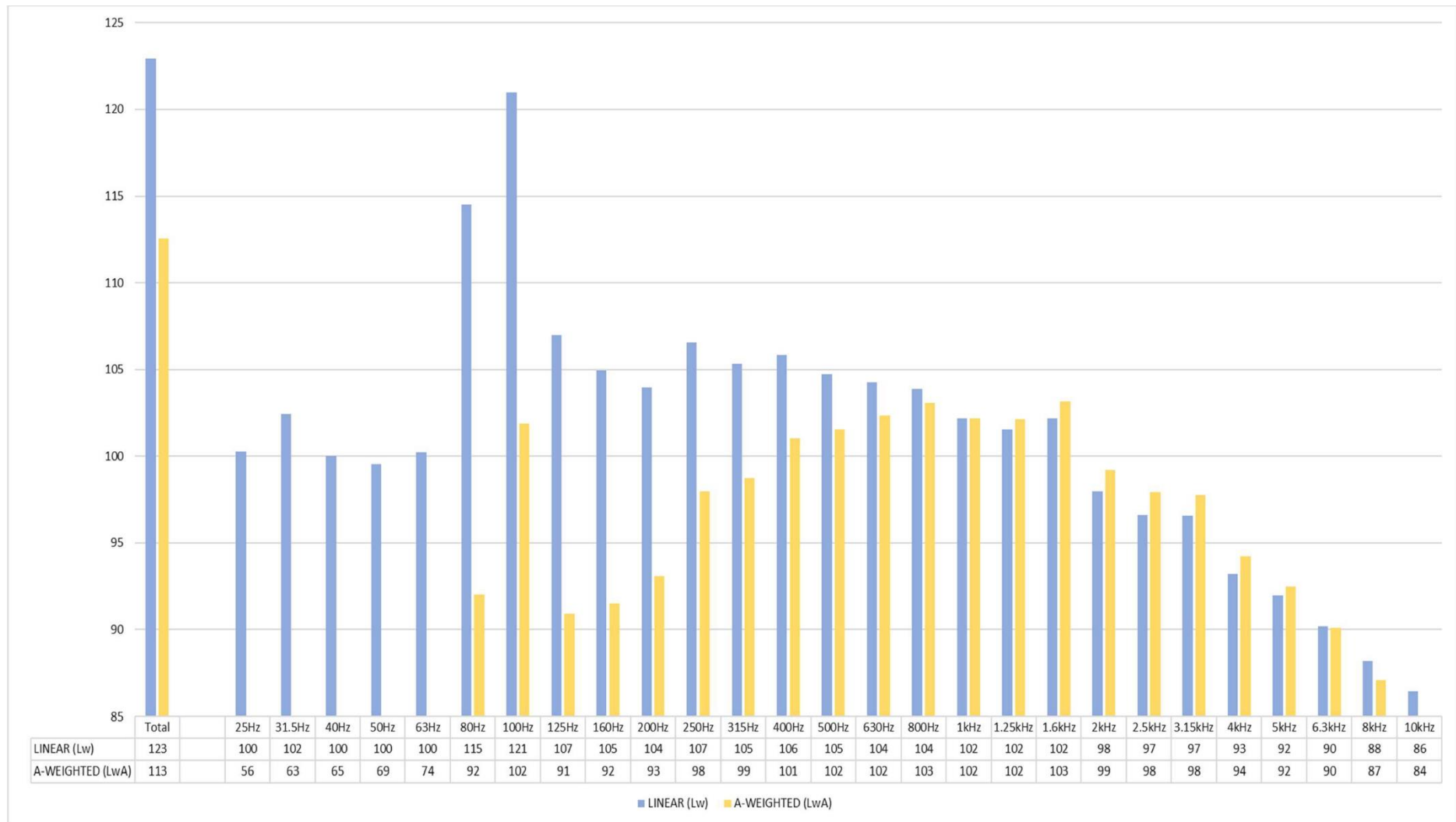
1586 Dozer Dynamic Test Forwards



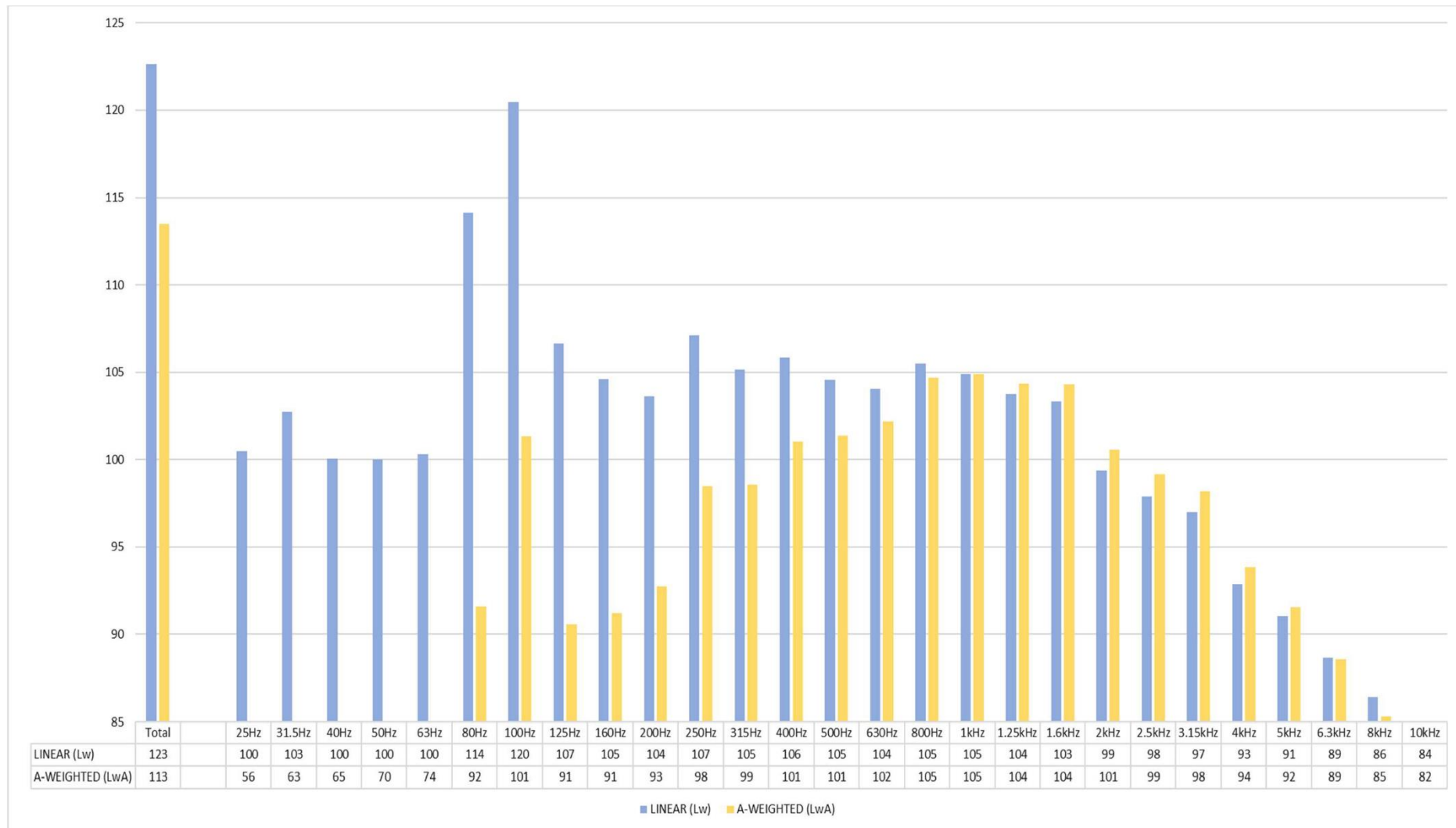
1586 Dozer Dynamic Test Reverse



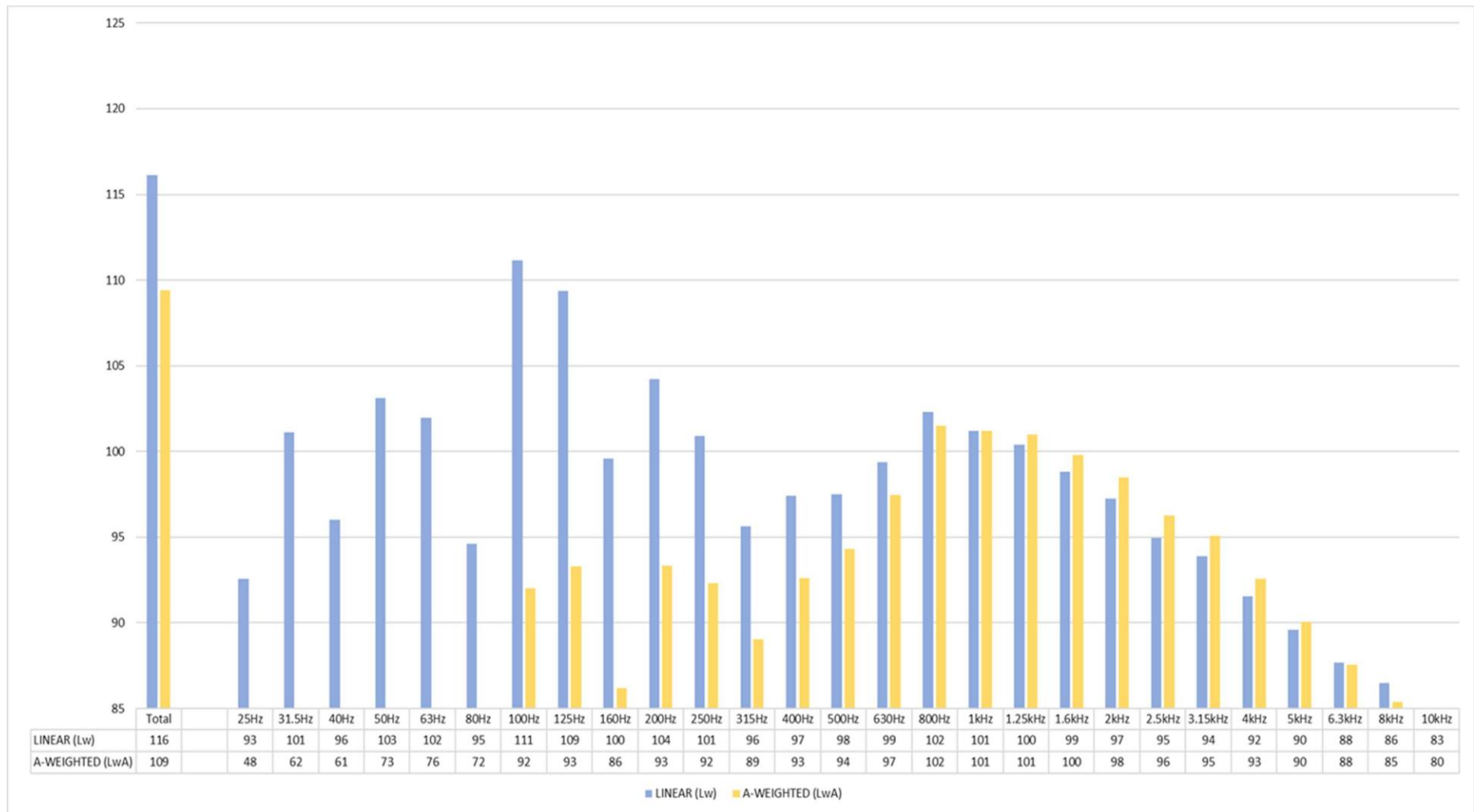
1712 Dozer Stationary Test



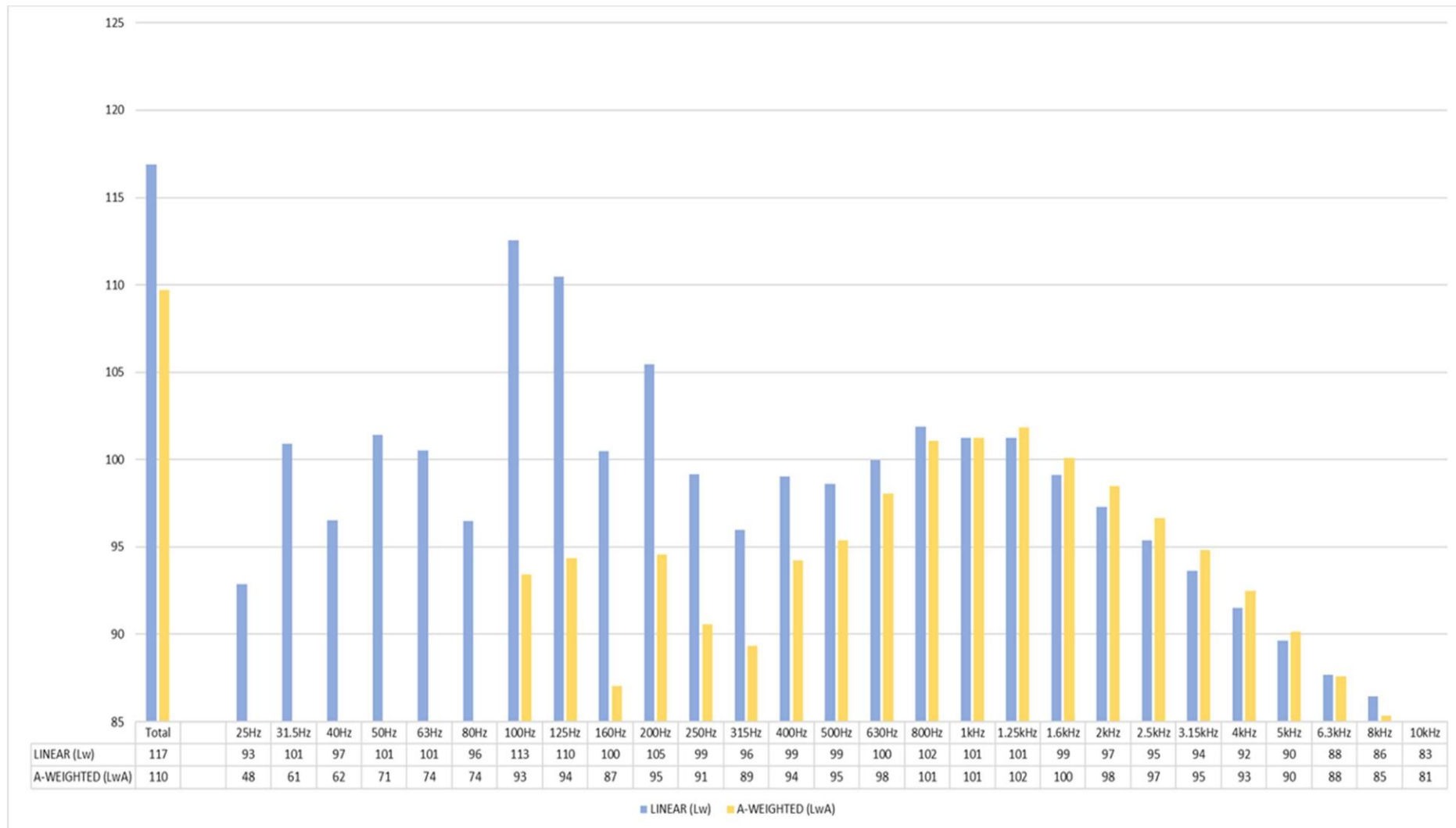
1712 Dozer Dynamic Test Forwards



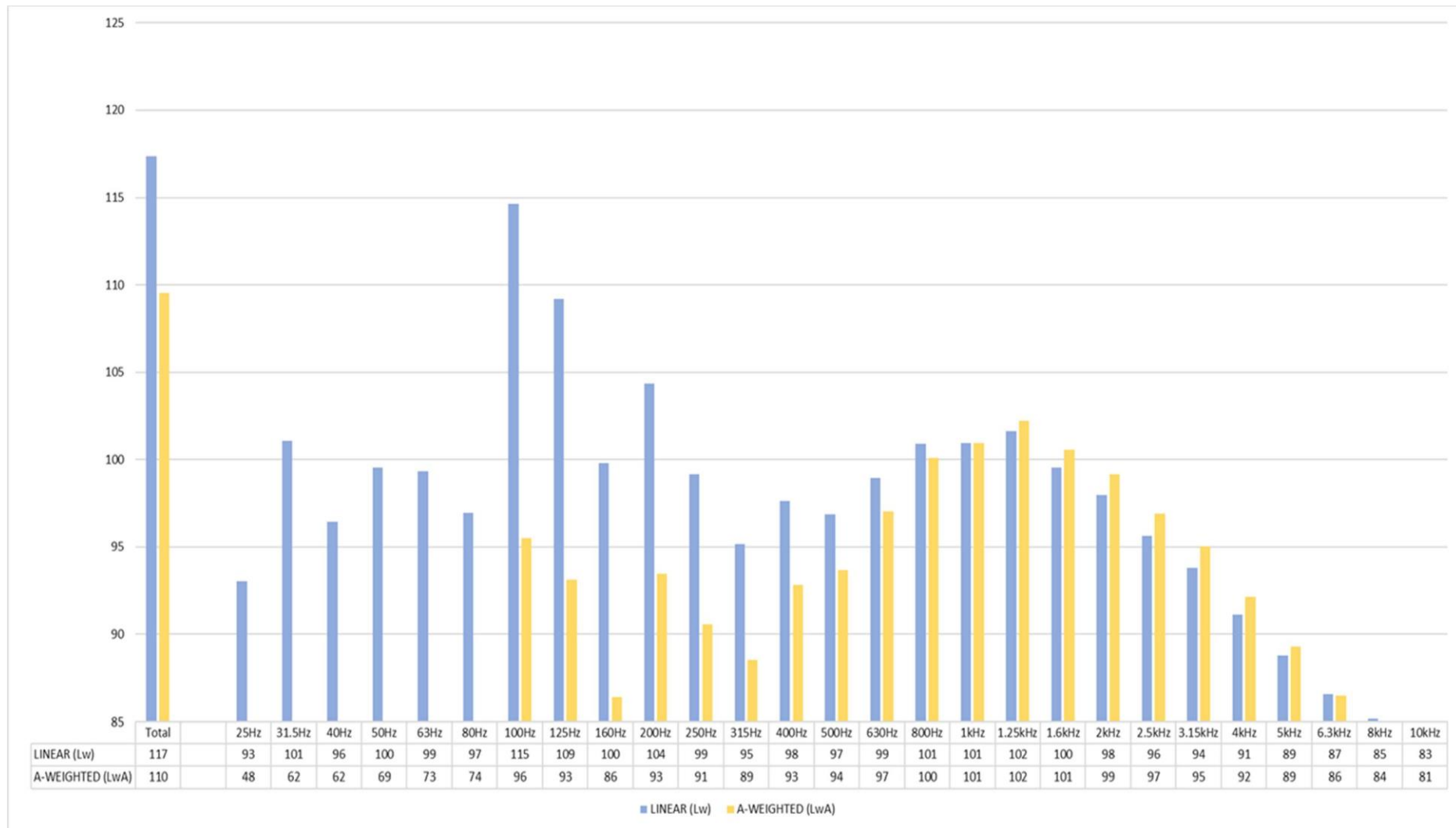
1712 Dozer Dynamic Test Reverse



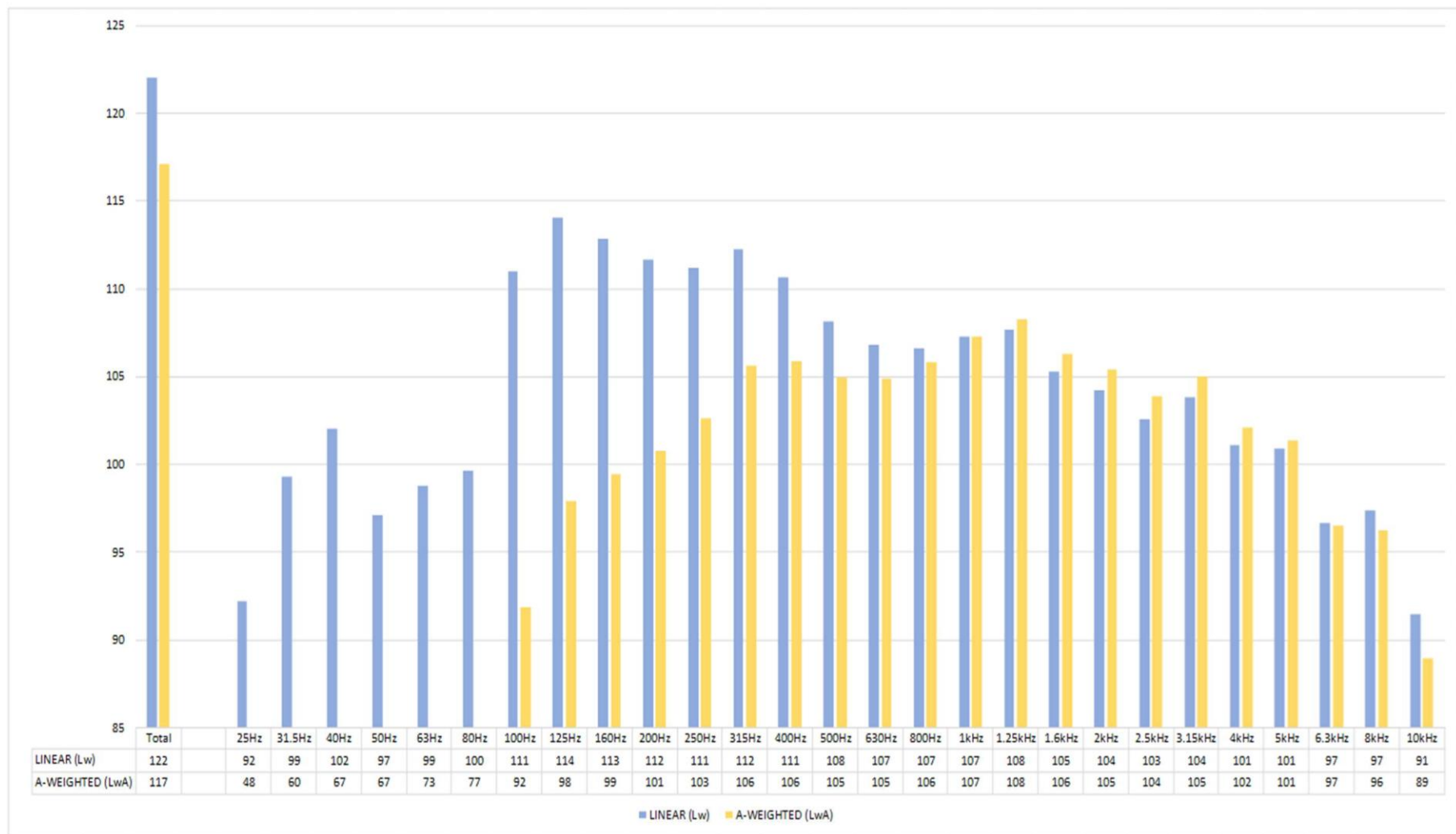
1850 Loader Stationary Test



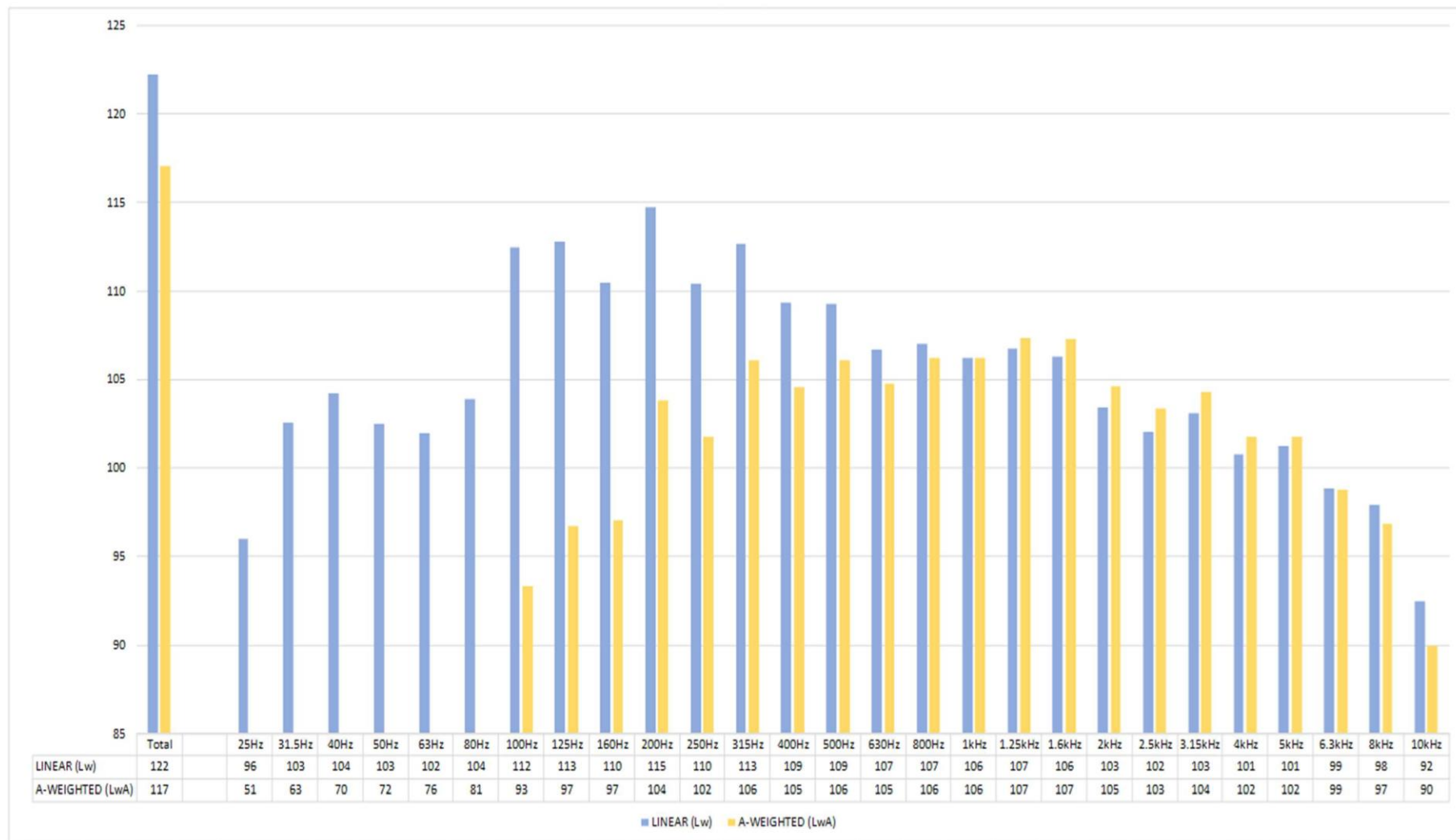
1850 Loader Dynamic Test Forwards



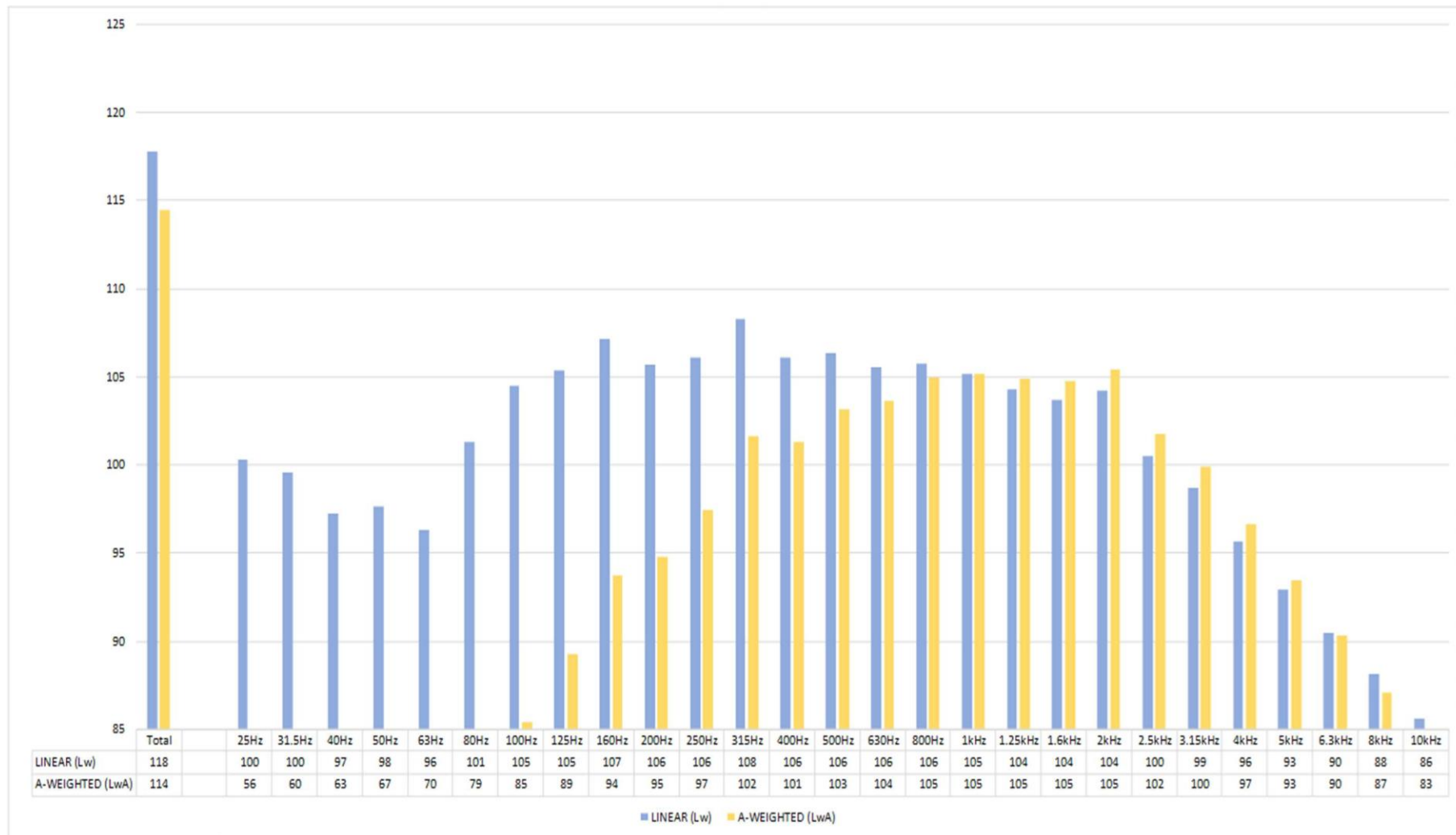
1850 Loader Dynamic Test Reverse



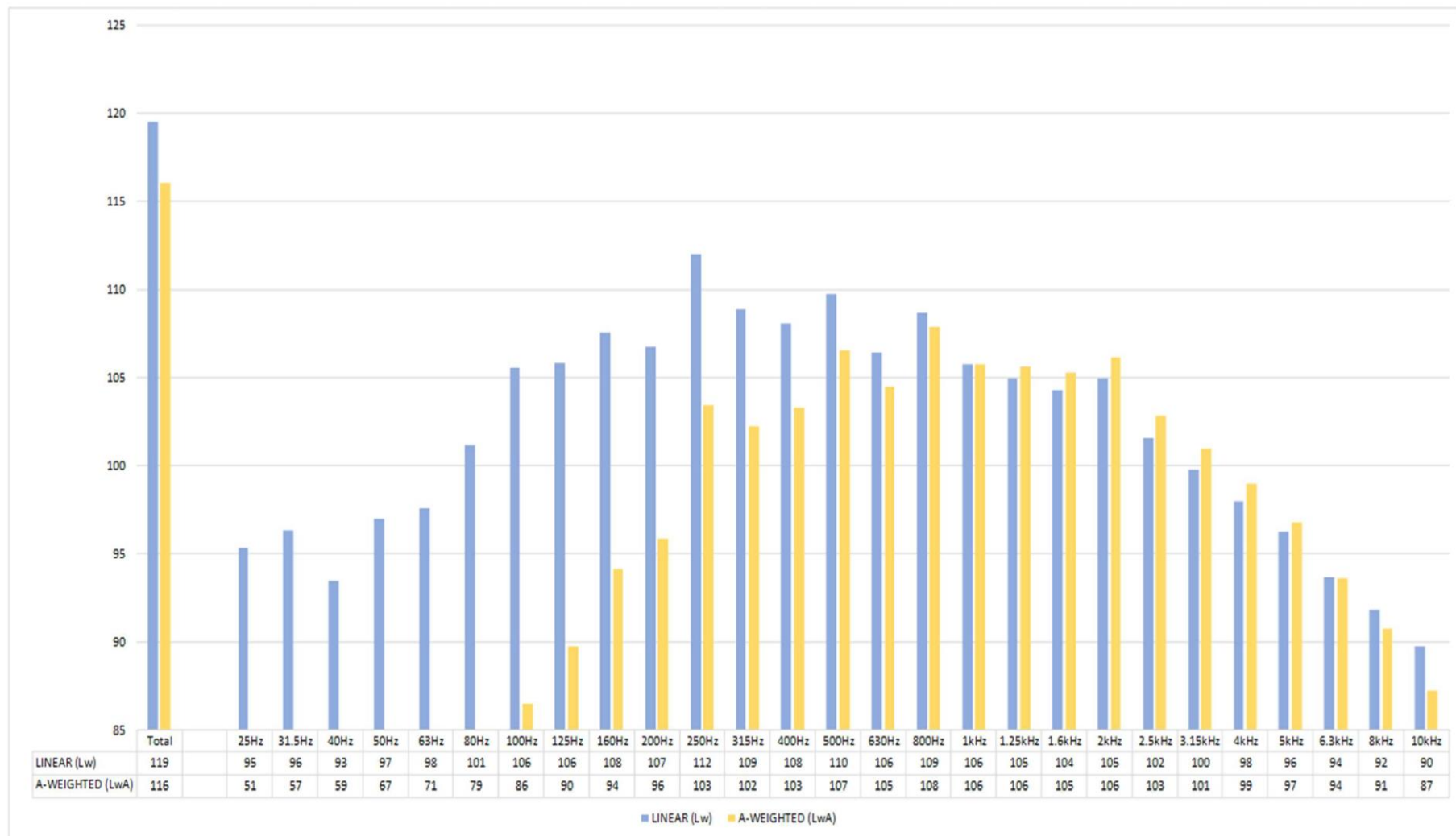
952 Scraper Stationary Test



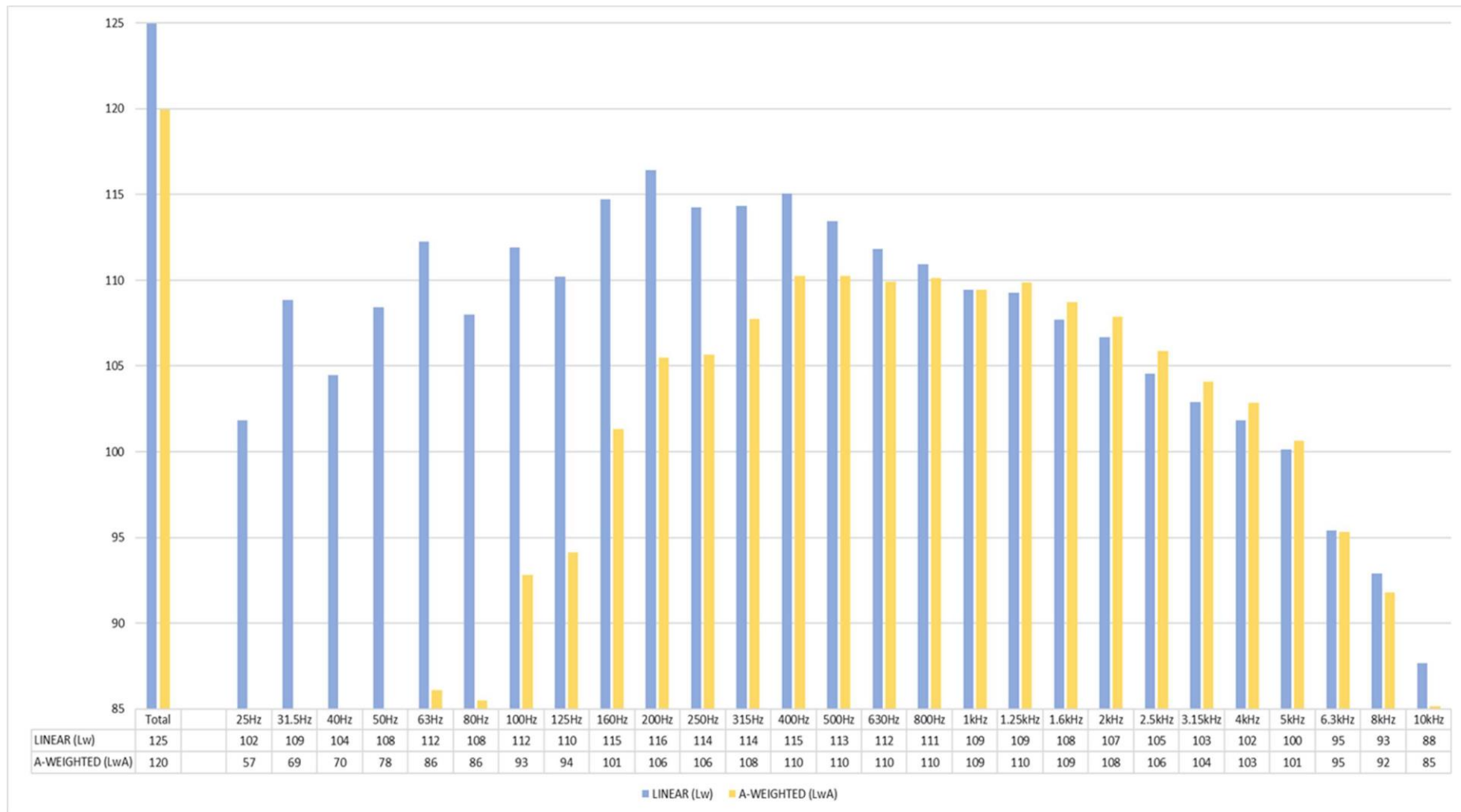
952 Scraper Dynamic Test Forwards



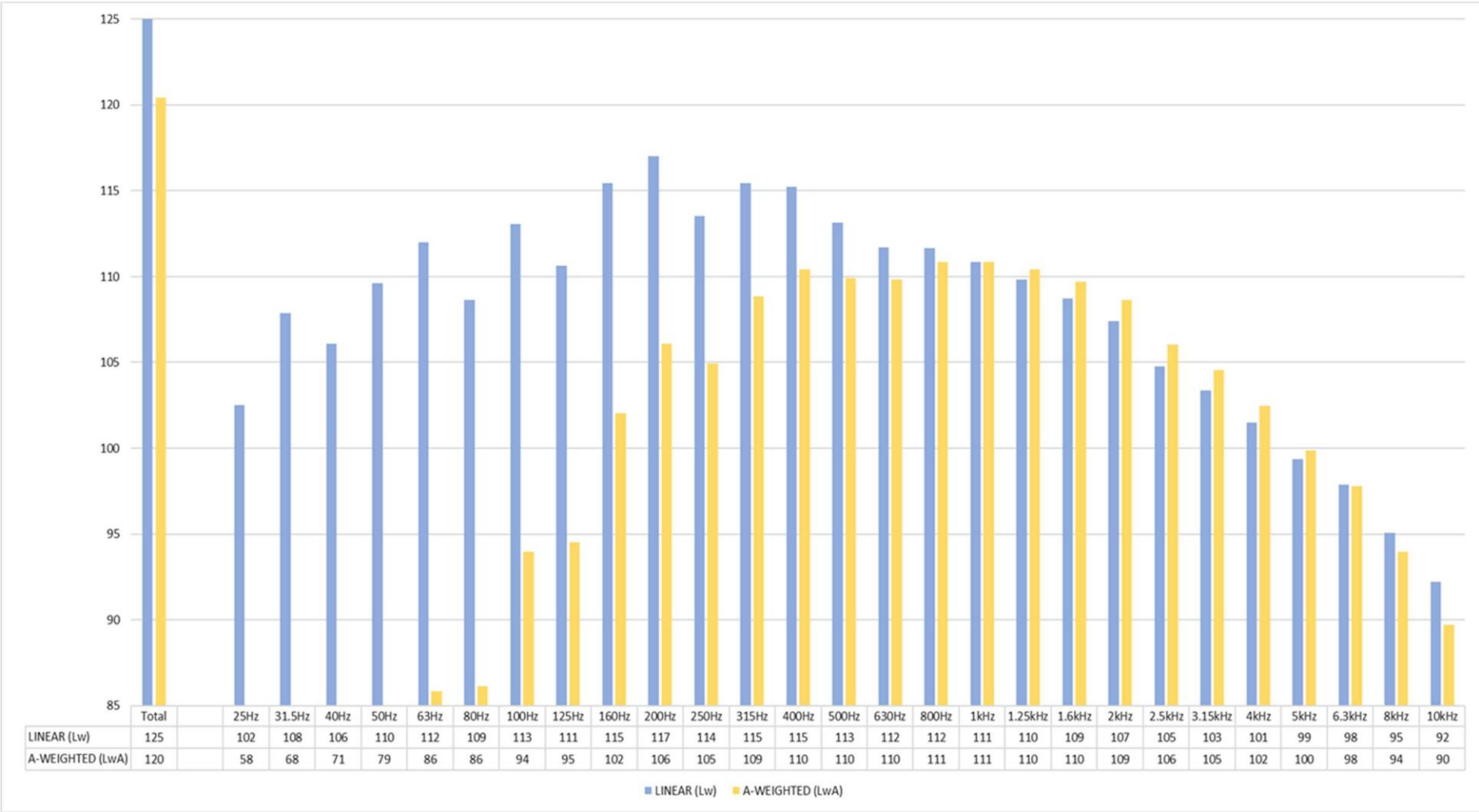
821 Drill Stationary Test



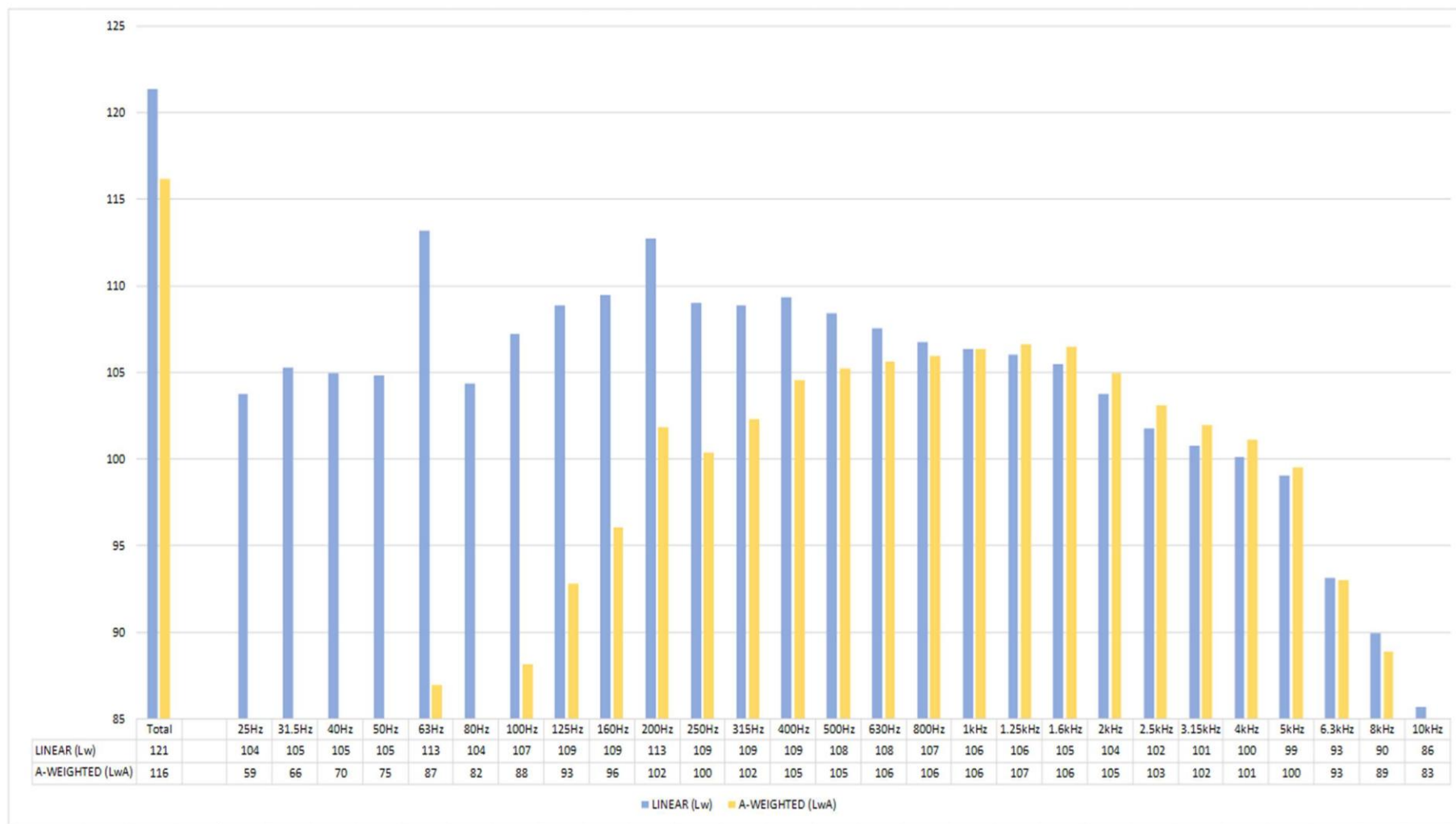
821 Drill Dynamic Test



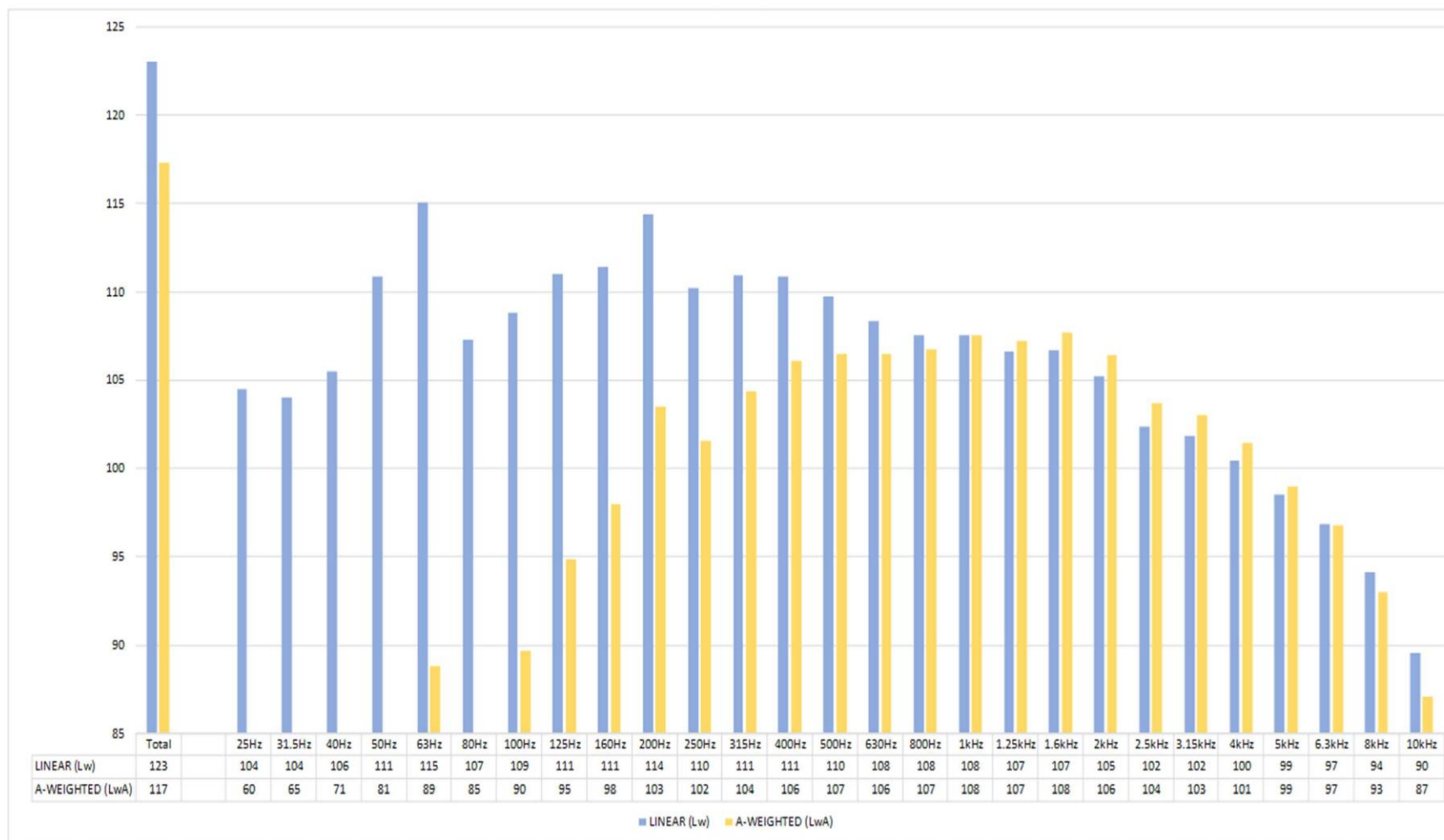
1161 Excavator Stationary Test



1161 Excavator Dynamic Test



1190 Excavator Stationary Test



1190 Excavator Dynamic Test

Appendix E: Blasting

Table 4: MGO Overpressure Blasting Compliance Summary

| Blast Monitor | Location | Maximum Airblast (dB(L)) | Average Airblast (dB(L)) |
|-------------------------------------|-------------------------------|---------------------------------|---------------------------------|
| Mt Owen and Ravensworth | | | |
| MOC1 | Glennies Ck Road | 116.2 | 97.2 |
| MOC2 | Glennies Ck Road | 111.6 | 94.9 |
| MOC3 | Glennie St Camberwell Village | 109.8 | 90.4 |
| MOC4 | Middle Falbrook Area | 108.3 | 91.9 |
| MOC5 | Goorangoola Area | 113 | 92.7 |
| Ravensworth Homestead | Ravensworth Homestead | 113 | 96.4 |
| Chain of Ponds Inn | Chain of Ponds Inn | 111.3 | 92.7 |
| Former Hebden Public School | Former Hebden Public School | 112 | 95.7 |
| Church | Camberwell Church | 110.9 | 92.4 |
| Integra Surface | Integra Surface | 118.3 | 101.6 |
| Integra Underground Workings | Integra Underground Workings | 124.3 | 106.4 |
| Glendell | | | |
| Ravensworth Homestead | Ravensworth Homestead | 111.9 | 99.1 |
| MOC3 | Glennie St Camberwell Village | 109.6 | 93.7 |
| Church | Camberwell Church | 107.8 | 94.1 |
| Powerlines | Powerlines | 124.7 | 103 |
| ARTC 1 | Main Northern Railway | 123.4 | 101.9 |
| ARTC 2 | Main Northern Railway | 117.1 | 102.1 |
| ARTC 3 | Main Northern Railway | 112.2 | 99.3 |
| ARTC 4 | Main Northern Railway | 113.2 | 98.2 |

| | | | |
|------------------------|---------------------|-------|------|
| MOC2 | Glennies Creek Road | 108.2 | 94 |
| Integra Surface | Integra Surface | 119.7 | 99.8 |

Table 5: MGO Vibration Blasting Compliance Summary

| Blast Monitor | Location | Maximum Vibration (mm/s) | Average Vibration (mm/s) |
|-------------------------------------|-------------------------------|---------------------------------|---------------------------------|
| Mt Owen and Ravensworth East | | | |
| MOC1 | Glennies Ck Road | 1.38 | 0.3 |
| MOC2 | Glennies Ck Road | 0.83 | 0.3 |
| MOC3 | Glennie St Camberwell Village | 0.19 | 0.1 |
| MOC4 | Middle Falbrook Area | 1.39 | 0.3 |
| MOC5 | Goorangoola Area | 0.61 | 0.2 |
| Ravensworth Homestead | Ravensworth Homestead | 2.09 | 0.3 |
| Chain of Ponds Inn | Chain of Ponds Inn | 2.04 | 0.2 |
| Former Hebden Public School | Former Hebden Public School | 1.59 | 0.3 |
| Church | Camberwell Church | 0.14 | 0.1 |
| Integra Surface | Integra Surface | 7.67 | 0.4 |
| Integra Underground Workings | Integra Underground Workings | 16.82 | 1.6 |
| Glendell | | | |

| | | | |
|------------------------------|-------------------------------|------|------|
| Ravensworth Homestead | Ravensworth Homestead | 2.09 | 0.4 |
| MOC3 | Glennie St Camberwell Village | 0.79 | 0.3 |
| Church | Camberwell Church | 0.2 | 0.52 |
| MOC2 | Glennies Creek Road | 0.65 | 0.2 |
| Powerlines | Powerlines | 5.45 | 1.4 |
| ARTC 1 | Main Northern Railway | 5.67 | 1.1 |
| ARTC 2 | Main Northern Railway | 1.36 | 0.5 |
| ARTC 3 | Main Northern Railway | 1.39 | 0.4 |
| ARTC 4 | Main Northern Railway | 1.58 | 0.4 |
| Integra Surface | Integra Surface | 1.56 | 0.3 |

Table 6: Mt Owen Blast Monitoring Results – MOC 1 and MOC 2

| | | | MOC 1 | | MOC 2 Green Acres | |
|-------------------|-------------------|------------------|--------------------------------|------------------------------|--------------------------------|------------------------------|
| Date fired | Time fired | Site | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 6/01/2020 | 13:37 | Ravensworth East | 100.8 | 0.04 | 110.1 | 0.11 |
| 8/01/2020 | 12:59 | Mt Owen | 104.8 | 0.12 | 96.8 | 0.2 |
| 10/01/2020 | 10:10 | Mt Owen | 98.3 | 0.18 | 96.1 | 0.27 |
| 22/01/2020 | 13:09 | Mt Owen | 99.2 | 0.37 | 95.5 | 0.31 |
| 24/01/2020 | 7:17 | Mt Owen | 98.9 | 0.21 | 100 | 0.35 |
| 28/01/2020 | 13:13 | Mt Owen | 96.8 | 0.24 | 102.9 | 0.3 |
| 30/01/2020 | 12:23 | Mt Owen | 100.4 | 0.23 | 93.6 | 0.33 |
| 04/02/2020 | 13:23 | Ravensworth East | 116.1 | 0.03 | 111 | 0.06 |
| 05/02/2020 | 11:23 | Mt Owen | 98.5 | 0.15 | 94.6 | 0.26 |
| 12/02/2020 | 13:18 | Mt Owen | 101.9 | 0.15 | 95.3 | 0.21 |
| 12/02/2020 | 13:20 | Mt Owen | 90.9 | 0.33 | 98.3 | 0.23 |
| 20/02/2020 | 12:06 | Ravensworth East | 85.7 | 0.09 | 84.2 | 0.13 |
| 20/02/2020 | 12:22 | Mt Owen | 92.7 | 0.22 | 88.9 | 0.23 |
| 21/02/2020 | 12:16 | Mt Owen | 97.4 | 0.56 | 92.3 | 0.43 |

| | | | | | | |
|------------|-------|------------------|-------|------|-------|------|
| 27/02/2020 | 12:13 | Mt Owen | 96.6 | 0.14 | 91.3 | 0.18 |
| 28/02/2020 | 12:03 | Mt Owen | 102.2 | 0.44 | 87.7 | 0.33 |
| 4/03/2020 | 13:36 | Ravensworth East | 110.1 | 0.11 | 103.1 | 0.11 |
| 5/03/2020 | 9:33 | Mt Owen | 95.7 | 0.54 | 94.7 | 0.32 |
| 5/03/2020 | 9:35 | Mt Owen | 75.3 | 0.07 | 75.8 | 0.05 |
| 11/03/2020 | 13:20 | Mt Owen | 108.1 | 0.23 | 91.6 | 0.25 |
| 13/03/2020 | 12:10 | Mt Owen | 90.9 | 0.43 | 92.6 | 0.35 |
| 13/03/2020 | 13:28 | Ravensworth East | 82 | 0.08 | 80 | 0.16 |
| 16/03/2020 | 14:58 | Ravensworth East | 103.6 | 0.05 | 109.1 | 0.09 |
| 18/03/2020 | 13:44 | Mt Owen | 95.6 | 0.29 | 95.1 | 0.3 |
| 20/03/2020 | 13:24 | Ravensworth East | 114 | 0.08 | 102.2 | 0.15 |
| 24/03/2020 | 11:15 | Mt Owen | 97.6 | 0.39 | 94.2 | 0.52 |
| 24/03/2020 | 11:15 | Mt Owen | 97.6 | 0.39 | 94.2 | 0.52 |
| 27/03/2020 | 16:12 | Mt Owen | 101 | 0.45 | 95 | 0.47 |
| 1/04/2020 | 15:02 | Mt Owen | 95.7 | 0.31 | 93.2 | 0.5 |
| 2/04/2020 | 12:05 | Mt Owen | 82.6 | 0.14 | 83.3 | 0.18 |
| 6/04/2020 | 13:23 | Mt Owen | 90.4 | 0.4 | 94.9 | 0.43 |
| 7/04/2020 | 13:43 | Ravensworth East | 99.5 | 0.07 | 97.9 | 0.12 |
| 8/04/2020 | 13:17 | Mt Owen | 98.6 | 0.19 | 100.8 | 0.29 |
| 14/04/2020 | 11:08 | Mt Owen | 93.2 | 0.65 | 94.7 | 0.2 |
| 15/04/2020 | 12:07 | Mt Owen | 89.4 | 0.17 | 87.3 | 0.27 |
| 17/04/2020 | 10:21 | Mt Owen | 94.4 | 0.21 | 108.6 | 0.4 |
| 21/04/2020 | 9:02 | Mt Owen | 103.7 | 0.27 | 96.6 | 0.32 |
| 23/04/2020 | 15:54 | Mt Owen | 99.8 | 0.32 | 96.4 | 0.35 |
| 24/04/2020 | 12:04 | Ravensworth East | 97.3 | 0.02 | 94.3 | 0.04 |
| 28/04/2020 | 16:23 | Mt Owen | 91.9 | 0.29 | 92.1 | 0.29 |
| 4/05/2020 | 12:45 | Ravensworth East | 84.5 | 0.04 | 87.1 | 0.14 |
| 4/05/2020 | 15:37 | Mt Owen | 95.6 | 0.27 | 93.4 | 0.3 |
| 8/05/2020 | 9:19 | Mt Owen | 105.7 | 0.44 | 107.8 | 0.24 |
| 8/05/2020 | 13:44 | Ravensworth East | 96.2 | 0.03 | 92.1 | 0.08 |
| 8/05/2020 | 13:46 | Ravensworth East | 92.7 | 0.05 | 96.5 | 0.04 |
| 12/05/2020 | 12:27 | Mt Owen | 93.6 | 0.42 | 93.9 | 0.46 |
| 14/05/2020 | 12:23 | Mt Owen | 94.2 | 0.32 | 95.7 | 0.41 |
| 16/05/2020 | 9:56 | Ravensworth East | 73.7 | 0.02 | 78.5 | 0.03 |
| 18/05/2020 | 15:34 | Mt Owen | 98.2 | 0.36 | 93.8 | 0.26 |
| 21/05/2020 | 13:24 | Mt Owen | 103 | 0.36 | 99.4 | 0.31 |
| 22/05/2020 | 12:30 | Ravensworth East | 97.5 | 0.03 | 95.4 | 0.04 |
| 28/05/2020 | 14:24 | Ravensworth East | 84.8 | 0.04 | 92.1 | 0.14 |
| 29/05/2020 | 13:24 | Mt Owen | 99.8 | 0.84 | 93.3 | 0.83 |
| 2/06/2020 | 10:33 | Ravensworth East | 112.2 | 0.06 | 107.3 | 0.09 |
| 3/06/2020 | 14:02 | Ravensworth East | 83.1 | 0.07 | 79.4 | 0.09 |
| 3/06/2020 | 14:04 | Ravensworth East | 84.3 | 0.03 | 85.9 | 0.1 |
| 5/06/2020 | 13:16 | Mt Owen | 96.7 | 0.37 | 93.4 | 0.43 |
| 9/06/2020 | 13:55 | Ravensworth East | 94 | 0.05 | 92.9 | 0.11 |
| 10/06/2020 | 13:19 | Mt Owen | 94.9 | 0.14 | 93.1 | 0.3 |
| 15/06/2020 | 12:57 | Ravensworth East | 100.3 | 0.04 | 100.4 | 0.08 |

| | | | | | | |
|------------|-------|------------------|-------|------|-------|------|
| 15/06/2020 | 13:13 | Mt Owen | 96.9 | 0.2 | 96 | 0.23 |
| 17/06/2020 | 13:14 | Mt Owen | 103.2 | 0.34 | 96.4 | 0.27 |
| 19/06/2020 | 12:22 | Mt Owen | 93.5 | 0.14 | 92.3 | 0.15 |
| 23/06/2020 | 13:44 | Ravensworth East | 103.7 | 0.05 | 111.6 | 0.09 |
| 26/06/2020 | 09:21 | Mt Owen | 103.7 | 0.45 | 96.8 | 0.43 |
| 26/06/2020 | 12:23 | Mt Owen | 103.8 | 0.23 | 107.5 | 0.29 |
| 1/07/2020 | 12:14 | Mt Owen | 98 | 0.18 | 95.5 | 0.25 |
| 3/07/2020 | 12:10 | Mt Owen | 102 | 0.18 | 96 | 0.2 |
| 6/07/2020 | 12:10 | Mt Owen | 95.5 | 0.14 | 97.2 | 0.26 |
| 6/07/2020 | 13:36 | Ravensworth East | 84 | 0.04 | 80.6 | 0.1 |
| 7/07/2020 | 12:21 | Mt Owen | 96.2 | 0.14 | 92.7 | 0.19 |
| 7/07/2020 | 13:57 | Ravensworth East | 89 | 0.11 | 94.6 | 0.38 |
| 9/07/2020 | 13:38 | Mt Owen | 98.1 | 0.2 | 94.5 | 0.16 |
| 9/07/2020 | 13:41 | Mt Owen | 95 | 0.17 | 88.3 | 0.15 |
| 14/07/2020 | 13:09 | Mt Owen | 113.8 | 1.38 | 100.8 | 0.71 |
| 14/07/2020 | 13:39 | Ravensworth East | 105.2 | 0.04 | 104.4 | 0.06 |
| 16/07/2020 | 12:17 | Mt Owen | 97 | 0.67 | 98.4 | 0.61 |
| 17/07/2020 | 12:32 | Ravensworth East | 87.7 | 0.02 | 79.4 | 0.05 |
| 21/07/2020 | 12:35 | Ravensworth East | 99.7 | 0.29 | 91.8 | 0.28 |
| 21/07/2020 | 13:21 | Mt Owen | 99.3 | 0.3 | 93.3 | 0.35 |
| 24/07/2020 | 13:25 | Mt Owen | 91 | 0.44 | 90.6 | 0.31 |
| 27/07/2020 | 12:59 | Ravensworth East | 113.1 | 0.13 | 97 | 0.34 |
| 31/07/2020 | 12:16 | Mt Owen | 88.8 | 0.39 | 92.1 | 0.16 |
| 6/08/2020 | 14:53 | Mount Owen | 100.1 | 0.33 | 97.4 | 0.45 |
| 7/08/2020 | 13:49 | Ravensworth East | 83.2 | 0.02 | 83.1 | 0.05 |
| 13/08/2020 | 13:30 | Mount Owen | 103 | 0.66 | 99.9 | 0.49 |
| 14/08/2020 | 12:46 | Ravensworth East | 96.5 | 0.18 | 98 | 0.38 |
| 18/08/2020 | 9:06 | Mount Owen | 108.1 | 0.37 | 98 | 0.27 |
| 21/08/2020 | 7:16 | Ravensworth East | 102.4 | 0.05 | 94.1 | 0.07 |
| 25/08/2020 | 10:04 | Mount Owen | 96.4 | 0.32 | 91.2 | 0.44 |
| 25/08/2020 | 12:26 | Ravensworth East | 89.5 | 0.12 | 94.4 | 0.22 |
| 28/08/2020 | 12:07 | Mount Owen | 98.6 | 0.46 | 99.7 | 0.31 |
| 1/09/2020 | 13:05 | Mount Owen | 90.6 | 0.43 | 91.6 | 0.39 |
| 3/09/2020 | 9:11 | Mount Owen | 104.2 | 0.36 | 92 | 0.33 |
| 7/09/2020 | 12:06 | Mount Owen | 95.6 | 0.3 | 92.8 | 0.28 |
| 9/09/2020 | 12:11 | Ravensworth East | 89.8 | 0.27 | 89.1 | 0.27 |
| 9/09/2020 | 13:45 | Ravensworth East | 105.8 | 0.02 | 97.5 | 0.04 |
| 11/09/2020 | 12:19 | Mount Owen | 98.1 | 0.44 | 94.2 | 0.43 |
| 15/09/2020 | 13:43 | Mount Owen | 90 | 0.34 | 90.4 | 0.49 |
| 15/09/2020 | 13:46 | Mount Owen | 90.4 | 0.08 | 88.6 | 0.07 |
| 18/09/2020 | 12:13 | Mount Owen | 94.1 | 0.31 | 96.3 | 0.21 |
| 18/09/2020 | 13:20 | Ravensworth East | 100 | 0.04 | 94 | 0.1 |
| 18/09/2020 | 13:21 | Ravensworth East | 107 | 0.11 | 91.6 | 0.17 |
| 21/09/2020 | 13:21 | Mount Owen | 92.1 | 0.43 | 89.8 | 0.26 |
| 24/09/2020 | 13:31 | Ravensworth East | 114.7 | 0.08 | 99.1 | 0.21 |
| 28/09/2020 | 15:07 | Mount Owen | 93 | 0.37 | 90.4 | 0.37 |

| | | | | | | |
|------------|-----------|------------------|-------|------|-------|------|
| 29/09/2020 | 15:19 | Mount Owen | 96.8 | 1.16 | 98.4 | 0.53 |
| 13/10/2020 | 13:37 | Ravensworth East | 87.7 | 0.14 | 88 | 0.39 |
| 15/10/2020 | 12:33 | Mount Owen | 100 | 0.23 | 92.5 | 0.29 |
| 16/10/2020 | 12:04 | Mount Owen | 90.8 | 0.46 | 96.7 | 0.29 |
| 21/10/2020 | 13:10 | Mount Owen | 93.6 | 0.3 | 88.9 | 0.32 |
| 21/10/2020 | 13:39 | Ravensworth East | 88.9 | 0.04 | 87.6 | 0.13 |
| 22/10/2020 | 16:11 | Mount Owen | 93.5 | 0.39 | 98.4 | 0.56 |
| 2/11/2020 | 12:20 | Mount Owen | 104.6 | 0.3 | 104.2 | 0.3 |
| 5/11/2020 | 16:09 | Mount Owen | 104.2 | 0.62 | 102.5 | 0.35 |
| 11/11/2020 | 13:18 (1) | Mount Owen | 93.5 | 0.72 | 92 | 0.51 |
| 11/11/2020 | 13:18 (2) | Mount Owen | 93.5 | 0.72 | 96.1 | 0.51 |
| 17/11/2020 | 12:12 | Mount Owen | 105.9 | 0.24 | 97 | 0.21 |
| 17/11/2020 | 12:15 | Mount Owen | 103.8 | 0.21 | 101.5 | 0.21 |
| 19/11/2020 | 13:17 | Mount Owen | 95 | 0.77 | 90.3 | 0.66 |
| 25/11/2020 | 12:25 | Mount Owen | 103.2 | 0.31 | 107 | 0.38 |
| 30/11/2020 | 13:20 | Mount Owen | 114.3 | 0.51 | 108.7 | 0.6 |
| 8/12/2020 | 13:24 | Mount Owen | 102.3 | 0.29 | 98.9 | 0.35 |
| 10/12/2020 | 12:20 | Mount Owen | 108.9 | 0.27 | 106.4 | 0.28 |
| 15/12/2020 | 12:18 | Mount Owen | 89.6 | 0.35 | 92.5 | 0.38 |
| 23/12/2020 | 16:08 | Mount Owen | 106.1 | 0.39 | 102.1 | 0.31 |

Table 7: Mt Owen Blast Monitoring Results – MOC 3 and MOC 4

| | | | MOC 3 Camberwell | | MOC4 | |
|------------|------------|------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| Date fired | Time fired | Site | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 6/01/2020 | 13:37 | Ravensworth East | 101 | 0.03 | 90 | 0.03 |
| 8/01/2020 | 12:59 | Mt Owen | 92.2 | 0.06 | 94.8 | 0.14 |
| 10/01/2020 | 10:10 | Mt Owen | 94.4 | 0.09 | 97.9 | 0.16 |
| 22/01/2020 | 13:09 | Mt Owen | 89.5 | 0.07 | 98.7 | 0.51 |
| 24/01/2020 | 7:17 | Mt Owen | 96 | 0.1 | 99.7 | 0.28 |
| 28/01/2020 | 13:13 | Mt Owen | 92.3 | 0.07 | 93.2 | 0.43 |
| 30/01/2020 | 12:23 | Mt Owen | 95.3 | 0.19 | 94 | 0.39 |
| 04/02/2020 | 13:23 | Ravensworth East | 94.5 | 0.03 | 96.3 | 0.03 |
| 05/02/2020 | 11:23 | Mt Owen | 89.4 | 0.11 | 92.6 | 0.21 |
| 12/02/2020 | 13:18 | Mt Owen | 84.9 | 0.05 | 91 | 0.19 |
| 12/02/2020 | 13:20 | Mt Owen | 89.3 | 0.06 | 88 | 0.3 |
| 20/02/2020 | 12:06 | Ravensworth East | 80.7 | 0.05 | 81.5 | 0.08 |
| 20/02/2020 | 12:22 | Mt Owen | 86.4 | 0.08 | 89.7 | 0.4 |
| 21/02/2020 | 12:16 | Mt Owen | 90.7 | 0.09 | 90.8 | 0.87 |
| 27/02/2020 | 12:13 | Mt Owen | 93.8 | 0.05 | 91.3 | 0.21 |
| 28/02/2020 | 12:03 | Mt Owen | 86.7 | 0.1 | 86.6 | 0.91 |
| 4/03/2020 | 13:36 | Ravensworth East | 87.8 | 0.04 | 101.4 | 0.05 |

| | | | | | | |
|------------|-------|------------------|--------|------|-------|------|
| 5/03/2020 | 9:33 | Mt Owen | 98.3 | 0.09 | 90.4 | 1.14 |
| 5/03/2020 | 9:35 | Mt Owen | 80.4 | 0.02 | 75.5 | 0.08 |
| 11/03/2020 | 13:20 | Mt Owen | 87.7 | 0.08 | 90.9 | 0.34 |
| 13/03/2020 | 12:10 | Mt Owen | 90.2 | 0.16 | 90.5 | 0.27 |
| 13/03/2020 | 13:28 | Ravensworth East | 78.1 | 0.05 | 87.9 | 0.1 |
| 16/03/2020 | 14:58 | Ravensworth East | 86.9 | 0.05 | 101.8 | 0.09 |
| 18/03/2020 | 13:44 | Mt Owen | 91.9 | 0.1 | 92.3 | 0.32 |
| 20/03/2020 | 13:24 | Ravensworth East | 93.2 | 0.05 | 87.4 | 0.09 |
| 24/03/2020 | 11:15 | Mt Owen | 91.2 | 0.12 | 94.8 | 0.38 |
| 24/03/2020 | 11:15 | Mt Owen | 91.2 | 0.12 | 94.8 | 0.38 |
| 27/03/2020 | 16:12 | Mt Owen | 90.4 | 0.12 | 86.3 | 0.28 |
| 1/04/2020 | 15:02 | Mt Owen | 92.2 | 0.15 | 91 | 0.27 |
| 2/04/2020 | 12:05 | Mt Owen | 86.7 | 0.05 | 84.3 | 0.33 |
| 6/04/2020 | 13:23 | Mt Owen | 88 | 0.1 | 92.6 | 0.48 |
| 7/04/2020 | 13:43 | Ravensworth East | 85.8 | 0.04 | 79.9 | 0.07 |
| 8/04/2020 | 13:17 | Mt Owen | 93.3 | 0.09 | 93.4 | 0.19 |
| 14/04/2020 | 11:08 | Mt Owen | 90.7 | 0.09 | 92.1 | 0.38 |
| 15/04/2020 | 12:07 | Mt Owen | 86.3 | 0.06 | 90.7 | 0.24 |
| 17/04/2020 | 10:21 | Mt Owen | 94.2 | 0.08 | 95.9 | 0.16 |
| 21/04/2020 | 9:02 | Mt Owen | 92.2 | 0.1 | 104.1 | 0.37 |
| 23/04/2020 | 15:54 | Mt Owen | 88.3 | 0.1 | 97.1 | 0.47 |
| 24/04/2020 | 12:04 | Ravensworth East | 88 | 0.02 | 92 | 0.02 |
| 28/04/2020 | 16:23 | Mt Owen | 85 | 0.11 | 93.8 | 0.4 |
| 4/05/2020 | 12:45 | Ravensworth East | 80.4 | 0.03 | 79.3 | 0.08 |
| 4/05/2020 | 15:37 | Mt Owen | 92.9 | 0.13 | 91.7 | 0.44 |
| 8/05/2020 | 9:19 | Mt Owen | 97.9 | 0.07 | 104.6 | 0.54 |
| 8/05/2020 | 13:44 | Ravensworth East | 82.7 | 0.02 | 89.1 | 0.04 |
| 8/05/2020 | 13:46 | Ravensworth East | 77.3 | 0.06 | 86.2 | 0.03 |
| 12/05/2020 | 12:27 | Mt Owen | 93.4 | 0.14 | 89.6 | 0.53 |
| 14/05/2020 | 12:23 | Mt Owen | 91.1 | 0.12 | 88 | 0.22 |
| 16/05/2020 | 9:56 | Ravensworth East | 78.1 | 0.02 | 76.4 | 0.02 |
| 18/05/2020 | 15:34 | Mt Owen | 93.2 | 0.08 | 88 | 0.53 |
| 21/05/2020 | 13:24 | Mt Owen | 93.2 | 0.08 | 103 | 0.32 |
| 22/05/2020 | 12:30 | Ravensworth East | 92.3 | 0.09 | 91.7 | 0.03 |
| 28/05/2020 | 14:24 | Ravensworth East | 89.6 | 0.04 | 79 | 0.06 |
| 29/05/2020 | 13:24 | Mt Owen | 92 | 0.18 | 92.7 | 0.91 |
| 2/06/2020 | 10:33 | Ravensworth East | 117.4* | 0.15 | 101.9 | 0.06 |
| 3/06/2020 | 14:02 | Ravensworth East | 76.9 | 0.05 | 78.3 | 0.04 |
| 3/06/2020 | 14:04 | Ravensworth East | 83.3 | 0.03 | 83.4 | 0.04 |
| 5/06/2020 | 13:16 | Mt Owen | 92.1 | 0.18 | 92.8 | 0.42 |
| 9/06/2020 | 13:55 | Ravensworth East | 89.7 | 0.04 | 74.4 | 0.06 |
| 10/06/2020 | 13:19 | Mt Owen | 93.7 | 0.06 | 89.4 | 0.25 |
| 15/06/2020 | 12:57 | Ravensworth East | 90.2 | 0.03 | 98.4 | 0.03 |
| 15/06/2020 | 13:13 | Mt Owen | 98.3 | 0.08 | 97.2 | 0.27 |
| 17/06/2020 | 13:14 | Mt Owen | 96.6 | 0.06 | 93.4 | 0.21 |
| 19/06/2020 | 12:22 | Mt Owen | 88 | 0.05 | 91.7 | 0.18 |

| | | | | | | |
|------------|-------|------------------|-------|------|-------|------|
| 23/06/2020 | 13:44 | Ravensworth East | 97.6 | 0.04 | 93.3 | 0.04 |
| 26/06/2020 | 09:21 | Mt Owen | 97.2 | 0.14 | 102.8 | 0.44 |
| 26/06/2020 | 12:23 | Mt Owen | 90.5 | 0.09 | 106.2 | 0.25 |
| 1/07/2020 | 12:14 | Mt Owen | 92.1 | 0.06 | 97.4 | 0.25 |
| 3/07/2020 | 12:10 | Mt Owen | 92.2 | 0.08 | 95.7 | 0.22 |
| 6/07/2020 | 12:10 | Mt Owen | 90.8 | 0.07 | 97.8 | 0.1 |
| 6/07/2020 | 13:36 | Ravensworth East | 81.5 | 0.03 | 80.2 | 0.05 |
| 7/07/2020 | 12:21 | Mt Owen | 88.7 | 0.09 | 94.2 | 0.15 |
| 7/07/2020 | 13:57 | Ravensworth East | 85.4 | 0.07 | 83.2 | 0.07 |
| 9/07/2020 | 13:38 | Mt Owen | 89.5 | 0.04 | 100.9 | 0.2 |
| 9/07/2020 | 13:41 | Mt Owen | 86.9 | 0.06 | 92.1 | 0.16 |
| 14/07/2020 | 13:09 | Mt Owen | 98.3 | 0.14 | 93.9 | 1.09 |
| 14/07/2020 | 13:39 | Ravensworth East | 96.9 | 0.03 | 77.6 | 0.04 |
| 16/07/2020 | 12:17 | Mt Owen | 83.3 | 0.12 | 89.8 | 0.54 |
| 17/07/2020 | 12:32 | Ravensworth East | 78.5 | 0.02 | 79.9 | 0.02 |
| 21/07/2020 | 12:35 | Ravensworth East | 82.2 | 0.1 | 83 | 0.1 |
| 21/07/2020 | 13:21 | Mt Owen | 88.9 | 0.17 | 88.3 | 0.28 |
| 24/07/2020 | 13:25 | Mt Owen | 88.8 | 0.12 | 90 | 0.7 |
| 27/07/2020 | 12:59 | Ravensworth East | 109.8 | 0.06 | 101.8 | 0.09 |
| 31/07/2020 | 12:16 | Mt Owen | 87 | 0.12 | 85 | 0.32 |
| 6/08/2020 | 14:53 | Mount Owen | 91.1 | 0.12 | 98.9 | 0.32 |
| 7/08/2020 | 13:49 | Ravensworth East | 88.6 | 0.02 | 75.9 | 0.02 |
| 13/08/2020 | 13:30 | Mount Owen | 93 | 0.15 | 108.3 | 0.45 |
| 14/08/2020 | 12:46 | Ravensworth East | 101.1 | 0.08 | 101.5 | 0.09 |
| 18/08/2020 | 9:06 | Mount Owen | 103.3 | 0.09 | 104.2 | 0.29 |
| 21/08/2020 | 7:16 | Ravensworth East | 87 | 0.03 | 88.3 | 0.04 |
| 25/08/2020 | 10:04 | Mount Owen | 98.3 | 0.11 | 93.4 | 0.37 |
| 25/08/2020 | 12:26 | Ravensworth East | 84.1 | 0.07 | 90.4 | 0.1 |
| 28/08/2020 | 12:07 | Mount Owen | 90.3 | 0.09 | 88.0 | 0.16 |
| 1/09/2020 | 13:05 | Mount Owen | 94.5 | 0.09 | 92.6 | 0.54 |
| 3/09/2020 | 9:11 | Mount Owen | 90.3 | 0.14 | 105.9 | 0.29 |
| 7/09/2020 | 12:06 | Mount Owen | 89.2 | 0.11 | 88.7 | 0.23 |
| 9/09/2020 | 12:11 | Ravensworth East | 85 | 0.15 | 86.9 | 0.29 |
| 9/09/2020 | 13:45 | Ravensworth East | 83.5 | 0.03 | 86.9 | 0.04 |
| 11/09/2020 | 12:19 | Mount Owen | 91.4 | 0.11 | 86.2 | 0.56 |
| 15/09/2020 | 13:43 | Mount Owen | 85.7 | 0.11 | 92.3 | 0.23 |
| 15/09/2020 | 13:46 | Mount Owen | 93.7 | 0.02 | 91.3 | 0.11 |
| 18/09/2020 | 12:13 | Mount Owen | 84.1 | 0.07 | 88.2 | 0.29 |
| 18/09/2020 | 13:20 | Ravensworth East | 85.4 | 0.07 | 101 | 0.04 |
| 18/09/2020 | 13:21 | Ravensworth East | 86.7 | 0.06 | 94.2 | 0.06 |
| 21/09/2020 | 13:21 | Mount Owen | 87.8 | 0.07 | 86.8 | 0.34 |
| 24/09/2020 | 13:31 | Ravensworth East | 96.6 | 0.05 | 91.3 | 0.07 |
| 28/09/2020 | 15:07 | Mount Owen | 89.8 | 0.17 | 89.9 | 0.46 |
| 29/09/2020 | 15:19 | Mount Owen | 95.6 | 0.18 | 93.7 | 1.39 |
| 13/10/2020 | 13:37 | Ravensworth East | 83.5 | 0.11 | 87 | 0.07 |
| 15/10/2020 | 12:33 | Mount Owen | 90.2 | 0.07 | 98.2 | 0.27 |

| | | | | | | |
|------------|-----------|------------------|-------|------|-------|------|
| 16/10/2020 | 12:04 | Mount Owen | 85.2 | 0.1 | 94.3 | 0.42 |
| 21/10/2020 | 13:10 | Mount Owen | 87.9 | 0.1 | 100.7 | 0.3 |
| 21/10/2020 | 13:39 | Ravensworth East | 89.6 | 0.03 | 83.4 | 0.04 |
| 22/10/2020 | 16:11 | Mount Owen | 95.7 | 0.14 | 92.5 | 0.44 |
| 2/11/2020 | 12:20 | Mount Owen | 90.5 | 0.08 | 95.5 | 0.34 |
| 5/11/2020 | 16:09 | Mount Owen | 89.7 | 0.1 | 97.4 | 0.59 |
| 11/11/2020 | 13:18 (1) | Mount Owen | 89.2 | 0.13 | 94.2 | 0.75 |
| 11/11/2020 | 13:18 (2) | Mount Owen | 89.2 | 0.13 | 94.2 | 0.75 |
| 17/11/2020 | 12:12 | Mount Owen | 95.4 | 0.09 | 97.7 | 0.19 |
| 17/11/2020 | 12:15 | Mount Owen | 99.3 | 0.05 | 94.7 | 0.22 |
| 19/11/2020 | 13:17 | Mount Owen | 88.6 | 0.19 | 88.2 | 0.8 |
| 25/11/2020 | 12:25 | Mount Owen | 92.6 | 0.14 | 85.2 | 0.32 |
| 30/11/2020 | 13:20 | Mount Owen | 102.9 | 0.15 | 96.8 | 0.74 |
| 8/12/2020 | 13:24 | Mount Owen | 93.5 | 0.1 | 103.4 | 0.36 |
| 10/12/2020 | 12:20 | Mount Owen | 89.5 | 0.14 | 98.5 | 0.35 |
| 15/12/2020 | 12:18 | Mount Owen | 92.5 | 0.11 | 87.3 | 0.48 |
| 23/12/2020 | 16:08 | Mount Owen | 95.5 | 0.07 | 89.5 | 0.42 |

*Over exceedance entered as an incident.

Table 8: Mt Owen Blast Monitoring Results – MOC 5 and Homestead

| Date fired | Time fired | Site | MOC 5 | | Homestead | |
|------------|------------|------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 6/01/2020 | 13:37 | Ravensworth East | 102 | 0.04 | 110.6 | 0.39 |
| 8/01/2020 | 12:59 | Mt Owen | 97.4 | 0.11 | 95.9 | 0.16 |
| 10/01/2020 | 10:10 | Mt Owen | 94.2 | 0.07 | 90.5 | 0.12 |
| 22/01/2020 | 13:09 | Mt Owen | 98.5 | 0.31 | 96.2 | 0.14 |
| 24/01/2020 | 7:17 | Mt Owen | 90.2 | 0.12 | 88.6 | 0.38 |
| 28/01/2020 | 13:13 | Mt Owen | 90.7 | 0.22 | 93.1 | 0.36 |
| 30/01/2020 | 12:23 | Mt Owen | 89.3 | 0.1 | 98.5 | 0.15 |
| 04/02/2020 | 13:23 | Ravensworth East | 98.5 | 0.04 | 100.1 | 0.29 |
| 05/02/2020 | 11:23 | Mt Owen | 91.8 | 0.15 | 93.7 | 0.25 |
| 12/02/2020 | 13:18 | Mt Owen | 82.7 | 0.11 | 91.4 | 0.1 |
| 12/02/2020 | 13:20 | Mt Owen | 85.6 | 0.17 | 96.9 | 0.14 |
| 20/02/2020 | 12:06 | Ravensworth East | 76.7 | 0.07 | 96.7 | 0.86 |
| 20/02/2020 | 12:22 | Mt Owen | 86.7 | 0.15 | 86.6 | 0.1 |
| 21/02/2020 | 12:16 | Mt Owen | 93.5 | 0.55 | 99.3 | 0.51 |
| 27/02/2020 | 12:13 | Mt Owen | 93.9 | 0.16 | 100.4 | 0.14 |
| 28/02/2020 | 12:03 | Mt Owen | 89.9 | 0.61 | 90.7 | 0.33 |
| 4/03/2020 | 13:36 | Ravensworth East | 96.1 | 0.07 | 106.2 | 1.08 |
| 5/03/2020 | 9:33 | Mt Owen | 88.7 | 0.6 | 95.7 | 0.34 |
| 5/03/2020 | 9:35 | Mt Owen | 74.5 | 0.05 | 80.2 | 0.06 |

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|------------|-------|------------------|-------|------|-------|------|
| 11/03/2020 | 13:20 | Mt Owen | 90 | 0.2 | 108.9 | 0.11 |
| 13/03/2020 | 12:10 | Mt Owen | 85.6 | 0.14 | 91.6 | 0.14 |
| 13/03/2020 | 13:28 | Ravensworth East | 78.7 | 0.08 | 90.5 | 0.85 |
| 16/03/2020 | 14:58 | Ravensworth East | 97.8 | 0.08 | 108.7 | 0.6 |
| 18/03/2020 | 13:44 | Mt Owen | 91.4 | 0.17 | 93.7 | 0.15 |
| 20/03/2020 | 13:24 | Ravensworth East | 100.8 | 0.08 | 106.2 | 1.03 |
| 24/03/2020 | 11:15 | Mt Owen | 98.3 | 0.37 | 91.2 | 0.57 |
| 24/03/2020 | 11:15 | Mt Owen | 98.3 | 0.37 | 91.2 | 0.57 |
| 27/03/2020 | 16:12 | Mt Owen | 94.8 | 0.28 | 97.8 | 0.2 |
| 1/04/2020 | 15:02 | Mt Owen | 97.2 | 0.16 | 97.9 | 0.15 |
| 2/04/2020 | 12:05 | Mt Owen | 82.9 | 0.39 | 83.9 | 0.36 |
| 6/04/2020 | 13:23 | Mt Owen | 94.6 | 0.27 | 86.8 | 0.26 |
| 7/04/2020 | 13:43 | Ravensworth East | 87.7 | 0.1 | 107.9 | 0.52 |
| 8/04/2020 | 13:17 | Mt Owen | 91.1 | 0.22 | 93.5 | 0.38 |
| 14/04/2020 | 11:08 | Mt Owen | 86.7 | 0.11 | 95.5 | 0.12 |
| 15/04/2020 | 12:07 | Mt Owen | 93 | 0.19 | 88.1 | 0.13 |
| 17/04/2020 | 10:21 | Mt Owen | 94.5 | 0.15 | 99.8 | 0.21 |
| 21/04/2020 | 9:02 | Mt Owen | 91.1 | 0.18 | 92.5 | 0.15 |
| 23/04/2020 | 15:54 | Mt Owen | 92.5 | 0.27 | 89.6 | 0.16 |
| 24/04/2020 | 12:04 | Ravensworth East | 79.3 | 0.02 | 93.9 | 0.18 |
| 28/04/2020 | 16:23 | Mt Owen | 88.5 | 0.26 | 95.8 | 0.2 |
| 4/05/2020 | 12:45 | Ravensworth East | 81.7 | 0.04 | 93.4 | 0.52 |
| 4/05/2020 | 15:37 | Mt Owen | 98.3 | 0.19 | 97.5 | 0.15 |
| 8/05/2020 | 9:19 | Mt Owen | 91.3 | 0.21 | 97 | 0.09 |
| 8/05/2020 | 13:44 | Ravensworth East | 91.6 | 0.03 | 102.6 | 0.23 |
| 8/05/2020 | 13:46 | Ravensworth East | 102.3 | 0.03 | 89.9 | 0.32 |
| 12/05/2020 | 12:27 | Mt Owen | 92.8 | 0.18 | 96.1 | 0.2 |
| 14/05/2020 | 12:23 | Mt Owen | 93.1 | 0.09 | 97.3 | 0.15 |
| 16/05/2020 | 9:56 | Ravensworth East | 71.7 | 0.02 | 96.8 | 0.12 |
| 18/05/2020 | 15:34 | Mt Owen | 94.6 | 0.3 | 97.2 | 0.17 |
| 21/05/2020 | 13:24 | Mt Owen | 98.9 | 0.18 | 94.7 | 0.1 |
| 22/05/2020 | 12:30 | Ravensworth East | 105.7 | 0.06 | 106.5 | 0.51 |
| 28/05/2020 | 14:24 | Ravensworth East | 74.5 | 0.05 | 92.9 | 0.22 |
| 29/05/2020 | 13:24 | Mt Owen | 99.1 | 0.5 | 92.2 | 1.67 |
| 2/06/2020 | 10:33 | Ravensworth East | 109.3 | 0.07 | 112.3 | 0.55 |
| 3/06/2020 | 14:02 | Ravensworth East | 75 | 0.04 | 90.6 | 0.25 |
| 3/06/2020 | 14:04 | Ravensworth East | 85.8 | 0.04 | 97.4 | 0.28 |
| 5/06/2020 | 13:16 | Mt Owen | 91.5 | 0.49 | 89.3 | 0.39 |
| 9/06/2020 | 13:55 | Ravensworth East | 75.5 | 0.04 | 100.5 | 0.32 |
| 10/06/2020 | 13:19 | Mt Owen | 94.2 | 0.16 | 94.7 | 0.24 |
| 15/06/2020 | 12:57 | Ravensworth East | 89.6 | 0.02 | 101.1 | 0.18 |
| 15/06/2020 | 13:13 | Mt Owen | 91.3 | 0.15 | 93.3 | 0.18 |
| 17/06/2020 | 13:14 | Mt Owen | 94.4 | 0.13 | 93.7 | 0.07 |
| 19/06/2020 | 12:22 | Mt Owen | 89.8 | 0.1 | 86.9 | 0.2 |
| 23/06/2020 | 13:44 | Ravensworth East | 94.9 | 0.05 | 99.1 | 0.37 |
| 26/06/2020 | 09:21 | Mt Owen | 103.8 | 0.37 | 95 | 0.22 |

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|------------|-------|------------------|-------|------|-------|------|
| 26/06/2020 | 12:23 | Mt Owen | 99.9 | 0.07 | 93.6 | 0.14 |
| 1/07/2020 | 12:14 | Mt Owen | 97.9 | 0.24 | 94 | 0.24 |
| 3/07/2020 | 12:10 | Mt Owen | 103.1 | 0.13 | 95.4 | 0.11 |
| 6/07/2020 | 12:10 | Mt Owen | 93.3 | 0.05 | 95.1 | 0.14 |
| 6/07/2020 | 13:36 | Ravensworth East | 86.1 | 0.06 | 95.4 | 0.7 |
| 7/07/2020 | 12:21 | Mt Owen | 91 | 0.11 | 96.1 | 0.12 |
| 7/07/2020 | 13:57 | Ravensworth East | 95.3 | 0.1 | 102.5 | 1.05 |
| 9/07/2020 | 13:38 | Mt Owen | 96.7 | 0.11 | 93.3 | 0.06 |
| 9/07/2020 | 13:41 | Mt Owen | 95.3 | 0.09 | 93 | 0.07 |
| 14/07/2020 | 13:09 | Mt Owen | 102 | 0.49 | 99.7 | 0.24 |
| 14/07/2020 | 13:39 | Ravensworth East | 96.7 | 0.04 | 112.5 | 0.25 |
| 16/07/2020 | 12:17 | Mt Owen | 91 | 0.29 | 102.1 | 0.17 |
| 17/07/2020 | 12:32 | Ravensworth East | 81.3 | 0.02 | 90.5 | 0.38 |
| 21/07/2020 | 12:35 | Ravensworth East | 83.4 | 0.15 | 101.6 | 1.66 |
| 21/07/2020 | 13:21 | Mt Owen | 95.1 | 0.13 | 97.6 | 0.11 |
| 24/07/2020 | 13:25 | Mt Owen | 90.5 | 0.28 | 91.3 | 0.21 |
| 27/07/2020 | 12:59 | Ravensworth East | 113 | 0.09 | 111.7 | 1.28 |
| 31/07/2020 | 12:16 | Mt Owen | 92.4 | 0.21 | 90.4 | 0.11 |
| 6/08/2020 | 14:53 | Mount Owen | 94 | 0.09 | 89.5 | 0.25 |
| 7/08/2020 | 13:49 | Ravensworth East | 71.7 | 0.03 | 93.5 | 0.38 |
| 13/08/2020 | 13:30 | Mount Owen | 103.8 | 0.39 | 99.8 | 0.19 |
| 14/08/2020 | 12:46 | Ravensworth East | 83.1 | 0.12 | 101.7 | 1.45 |
| 18/08/2020 | 9:06 | Mount Owen | 92.1 | 0.08 | 86.6 | 0.12 |
| 21/08/2020 | 7:16 | Ravensworth East | 90.4 | 0.04 | 103.2 | 0.56 |
| 25/08/2020 | 10:04 | Mount Owen | 89.4 | 0.2 | 99.5 | 0.32 |
| 25/08/2020 | 12:26 | Ravensworth East | 96.4 | 0.12 | 101.3 | 0.97 |
| 28/08/2020 | 12:07 | Mount Owen | 102.1 | 0.07 | 91.2 | 0.18 |
| 1/09/2020 | 13:05 | Mount Owen | 96.9 | 0.28 | 99.5 | 0.15 |
| 3/09/2020 | 9:11 | Mount Owen | 90.9 | 0.31 | 99.5 | 0.18 |
| 7/09/2020 | 12:06 | Mount Owen | 90.1 | 0.1 | 89.8 | 0.09 |
| 9/09/2020 | 12:11 | Ravensworth East | 86.2 | 0.17 | 92.2 | 0.16 |
| 9/09/2020 | 13:45 | Ravensworth East | 98.6 | 0.03 | 100.7 | 0.16 |
| 11/09/2020 | 12:19 | Mount Owen | 101.2 | 0.36 | 97.7 | 0.14 |
| 15/09/2020 | 13:43 | Mount Owen | 92 | 0.13 | 89.5 | 0.18 |
| 15/09/2020 | 13:46 | Mount Owen | 88.7 | 0.04 | 87.8 | 0.02 |
| 18/09/2020 | 12:13 | Mount Owen | 98.6 | 0.1 | 94.9 | 0.11 |
| 18/09/2020 | 13:20 | Ravensworth East | 92.7 | 0.04 | 102.7 | 0.45 |
| 18/09/2020 | 13:21 | Ravensworth East | 94.7 | 0.09 | 105.2 | 0.82 |
| 21/09/2020 | 13:21 | Mount Owen | 88.7 | 0.19 | 94.3 | 0.13 |
| 24/09/2020 | 13:31 | Ravensworth East | 100.8 | 0.07 | 101.2 | 0.52 |
| 28/09/2020 | 15:07 | Mount Owen | 94.2 | 0.23 | 96 | 0.18 |
| 29/09/2020 | 15:19 | Mount Owen | 92.3 | 0.42 | 104.1 | 0.14 |
| 13/10/2020 | 13:37 | Ravensworth East | 83.6 | 0.13 | 111.9 | 2.09 |
| 15/10/2020 | 12:33 | Mount Owen | 89.8 | 0.21 | 82.3 | 0.19 |
| 16/10/2020 | 12:04 | Mount Owen | 96.1 | 0.26 | 98.6 | 0.19 |
| 21/10/2020 | 13:10 | Mount Owen | 91.9 | 0.22 | 84.5 | 0.25 |

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|------------|-----------|------------------|-------|------|-------|------|
| 21/10/2020 | 13:39 | Ravensworth East | 88.9 | 0.05 | 101.4 | 0.32 |
| 22/10/2020 | 16:11 | Mount Owen | 96.7 | 0.25 | 92.6 | 0.1 |
| 2/11/2020 | 12:20 | Mount Owen | 95.5 | 0.34 | 94.2 | 0.29 |
| 5/11/2020 | 16:09 | Mount Owen | 110 | 0.4 | 104.4 | 0.15 |
| 11/11/2020 | 13:18 (1) | Mount Owen | 88.2 | 0.24 | 89.3 | 0.47 |
| 11/11/2020 | 13:18 (2) | Mount Owen | 93.7 | 0.24 | 89.3 | 0.47 |
| 17/11/2020 | 12:12 | Mount Owen | 103.5 | 0.09 | 102.4 | 0.08 |
| 17/11/2020 | 12:15 | Mount Owen | 98.6 | 0.12 | 104.3 | 0.09 |
| 19/11/2020 | 13:17 | Mount Owen | 97.3 | 0.32 | 92.7 | 0.27 |
| 25/11/2020 | 12:25 | Mount Owen | 105 | 0.15 | 100.4 | 0.23 |
| 30/11/2020 | 13:20 | Mount Owen | 110 | 0.51 | 113 | 0.26 |
| 8/12/2020 | 13:24 | Mount Owen | 98.2 | 0.24 | 97.9 | 0.19 |
| 10/12/2020 | 12:20 | Mount Owen | 92 | 0.27 | 86.9 | 0.29 |
| 15/12/2020 | 12:18 | Mount Owen | 90.2 | 0.3 | 93.3 | 0.51 |
| 23/12/2020 | 16:08 | Mount Owen | 103.3 | 0.35 | 98.4 | 0.14 |

Table 9: Mt Owen Blast Monitoring Results – Chain of Ponds, Hebden School and Church

| Date fired | Time fired | Site | Chain of Ponds | | Hebden School | | Church | |
|------------|------------|------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 6/01/2020 | 13:37 | Ravensworth East | 93.3 | 0.18 | 106.9 | 0.35 | 103 | 0.02 |
| 8/01/2020 | 12:59 | Mt Owen | 91.8 | 0.13 | 94.5 | 0.12 | 91.3 | 0.04 |
| 10/01/2020 | 10:10 | Mt Owen | 88 | 0.12 | 89.9 | 0.1 | 93.1 | 0.05 |
| 22/01/2020 | 13:09 | Mt Owen | 88.4 | 0.12 | 96.9 | 0.11 | 89.8 | 0.07 |
| 24/01/2020 | 7:17 | Mt Owen | 90.3 | 0.16 | 87.3 | 0.26 | 96.4 | 0.06 |
| 28/01/2020 | 13:13 | Mt Owen | 89.6 | 0.14 | 95.1 | 0.18 | 92.8 | 0.05 |
| 30/01/2020 | 12:23 | Mt Owen | 88.4 | 0.11 | 90.9 | 0.1 | 89.2 | 0.06 |
| 04/02/2020 | 13:23 | Ravensworth East | 105.1 | 0.12 | 102.4 | 0.23 | 96.5 | 0.01 |
| 05/02/2020 | 11:23 | Mt Owen | 91.5 | 0.13 | 99.8 | 0.18 | 91.6 | 0.04 |
| 12/02/2020 | 13:18 | Mt Owen | 96.6 | 0.1 | 95.6 | 0.15 | 97.3 | 0.03 |
| 12/02/2020 | 13:20 | Mt Owen | 91.5 | 0.12 | 96.2 | 0.13 | 90.4 | 0.06 |
| 20/02/2020 | 12:06 | Ravensworth East | 88.8 | 0.19 | 102.1 | 0.71 | 80.1 | 0.04 |
| 20/02/2020 | 12:22 | Mt Owen | 88 | 0.1 | 86.9 | 0.17 | 90.5 | 0.1 |
| 21/02/2020 | 12:16 | Mt Owen | 94.6 | 0.15 | 99.2 | 0.31 | 91.8 | 0.07 |
| 27/02/2020 | 12:13 | Mt Owen | 97.4 | 0.13 | 103.7 | 0.16 | 94.4 | 0.05 |
| 28/02/2020 | 12:03 | Mt Owen | 89.6 | 0.14 | 94.3 | 0.29 | 86.4 | 0.07 |
| 4/03/2020 | 13:36 | Ravensworth East | 95.6 | 0.21 | 106.5 | 0.89 | 90.7 | 0.03 |
| 5/03/2020 | 9:33 | Mt Owen | 93.6 | 0.13 | 95.3 | 0.24 | 102.2 | 0.06 |
| 5/03/2020 | 9:35 | Mt Owen | 86.6 | 0.09 | 83.9 | 0.09 | 80.3 | 0.02 |
| 11/03/2020 | 13:20 | Mt Owen | 98.2 | 0.13 | 98.5 | 0.1 | 98.5 | 0.06 |
| 13/03/2020 | 12:10 | Mt Owen | 87.1 | 0.14 | 92.3 | 0.18 | 87.5 | 0.07 |
| 13/03/2020 | 13:28 | Ravensworth East | 87.5 | 0.18 | 101.1 | 0.82 | 84.9 | 0.05 |
| 16/03/2020 | 14:58 | Ravensworth East | 105.7 | 0.19 | 108.2 | 0.58 | 97.5 | 0.03 |
| 18/03/2020 | 13:44 | Mt Owen | 90.9 | 0.14 | 96.1 | 0.25 | 93 | 0.08 |
| 20/03/2020 | 13:24 | Ravensworth East | 95.8 | 0.19 | 93 | 0.54 | 110.9 | 0.06 |
| 24/03/2020 | 11:15 | Mt Owen | 87.1 | 0.21 | 92.9 | 0.25 | 90.4 | 0.07 |
| 24/03/2020 | 11:15 | Mt Owen | 87.1 | 0.21 | 92.9 | 0.25 | 90.4 | 0.07 |
| 27/03/2020 | 16:12 | Mt Owen | 92.6 | 0.16 | 99.2 | 0.09 | 98.6 | 0.07 |
| 1/04/2020 | 15:02 | Mt Owen | 92.1 | 0.14 | 101.5 | 0.16 | 90 | 0.1 |
| 2/04/2020 | 12:05 | Mt Owen | 88.8 | 0.1 | 85.3 | 0.15 | 85.3 | 0.02 |
| 6/04/2020 | 13:23 | Mt Owen | 87.5 | 0.14 | 90.9 | 0.15 | 87.7 | 0.05 |
| 7/04/2020 | 13:43 | Ravensworth East | 98.4 | 0.16 | 103.3 | 0.61 | 90.7 | 0.03 |
| 8/04/2020 | 13:17 | Mt Owen | 95.2 | 0.16 | 94.1 | 0.25 | 92 | 0.06 |
| 14/04/2020 | 11:08 | Mt Owen | 87.5 | 0.2 | 91.7 | 0.1 | 92 | 0.07 |
| 15/04/2020 | 12:07 | Mt Owen | 90.3 | 0.11 | 99.4 | 0.21 | 87.2 | 0.05 |
| 17/04/2020 | 10:21 | Mt Owen | 99.1 | 0.17 | 92.5 | 0.17 | 103.4 | 0.06 |
| 21/04/2020 | 9:02 | Mt Owen | 88 | 0.12 | 91.7 | 0.1 | 93.5 | 0.05 |
| 23/04/2020 | 15:54 | Mt Owen | 89.2 | 0.17 | 87.9 | 0.15 | 89.3 | 0.07 |
| 24/04/2020 | 12:04 | Ravensworth East | 94.4 | 0.11 | 95.9 | 0.31 | 87 | 0.01 |
| 28/04/2020 | 16:23 | Mt Owen | 96.6 | 0.14 | 101.1 | 0.14 | 93.4 | 0.08 |

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|------------|-------|------------------|-------|------|-------|------|-------|------|
| 4/05/2020 | 12:45 | Ravensworth East | 88.8 | 0.13 | 100.6 | 0.29 | 81 | 0.02 |
| 4/05/2020 | 15:37 | Mt Owen | 87.5 | 0.15 | 100.5 | 0.22 | 93.6 | 0.1 |
| 8/05/2020 | 9:19 | Mt Owen | 85.5 | 0.15 | 95 | 0.1 | 93.7 | 0.05 |
| 8/05/2020 | 13:44 | Ravensworth East | 104.4 | 0.1 | 91.9 | 0.2 | 94.8 | 0.01 |
| 8/05/2020 | 13:46 | Ravensworth East | 93.8 | 0.13 | 84.7 | 0.37 | 98.1 | 0.02 |
| 12/05/2020 | 12:27 | Mt Owen | 89.2 | 0.2 | 97.1 | 0.17 | 94.3 | 0.09 |
| 14/05/2020 | 12:23 | Mt Owen | 92.8 | 0.14 | 98.6 | 0.14 | 89.4 | 0.07 |
| 16/05/2020 | 9:56 | Ravensworth East | 89.6 | 0.12 | 102.4 | 0.19 | 76.9 | 0.01 |
| 18/05/2020 | 15:34 | Mt Owen | 94.2 | 0.12 | 99.7 | 0.15 | 99.2 | 0.1 |
| 21/05/2020 | 13:24 | Mt Owen | 88.8 | 0.12 | 93.8 | 0.09 | 93.6 | 0.06 |
| 22/05/2020 | 12:30 | Ravensworth East | 111.3 | 2.04 | 112 | 0.86 | 100.6 | 0.04 |
| 28/05/2020 | 14:24 | Ravensworth East | 91.2 | 0.19 | 94 | 0.27 | 88.7 | 0.02 |
| 29/05/2020 | 13:24 | Mt Owen | 89.6 | 0.3 | 96.6 | 0.88 | 92.7 | 0.14 |
| 2/06/2020 | 10:33 | Ravensworth East | 107.9 | 0.18 | 94.1 | 0.84 | 105.8 | 0.03 |
| 3/06/2020 | 14:02 | Ravensworth East | 85.5 | 0.21 | 97.3 | 0.43 | 84.9 | 0.03 |
| 3/06/2020 | 14:04 | Ravensworth East | 88.4 | 0.13 | 102.2 | 0.22 | 84.5 | 0.01 |
| 5/06/2020 | 13:16 | Mt Owen | 92.1 | 0.18 | 85.1 | 0.18 | 86.4 | 0.1 |
| 9/06/2020 | 13:55 | Ravensworth East | 99.4 | 0.19 | 99.2 | 0.27 | 90.4 | 0.03 |
| 10/06/2020 | 13:19 | Mt Owen | 92.8 | 0.13 | 94 | 0.27 | 94.1 | 0.05 |
| 15/06/2020 | 12:57 | Ravensworth East | 95 | 0.15 | 101.3 | 0.16 | 94.8 | 0.02 |
| 15/06/2020 | 13:13 | Mt Owen | 96.5 | 0.11 | 90 | 0.11 | 90.6 | 0.08 |
| 17/06/2020 | 13:14 | Mt Owen | 91.5 | 0.11 | 101.1 | 0.05 | 90.8 | 0.04 |
| 19/06/2020 | 12:22 | Mt Owen | 84.2 | 0.12 | 87.2 | 0.21 | 88.7 | 0.03 |
| 23/06/2020 | 13:44 | Ravensworth East | 98.7 | 0.11 | 95.2 | 0.3 | 103.8 | 0.02 |
| 26/06/2020 | 09:21 | Mt Owen | 91.8 | 0.14 | 92.5 | 0.19 | 96.5 | 0.11 |
| 26/06/2020 | 12:23 | Mt Owen | 88.8 | 0.1 | 94.7 | 0.1 | 94.1 | 0.06 |
| 1/07/2020 | 12:14 | Mt Owen | 87.5 | 0.15 | 91.7 | 0.14 | 92 | 0.04 |
| 3/07/2020 | 12:10 | Mt Owen | 89.9 | 0.13 | 95.7 | 0.09 | 93.8 | 0.04 |
| 6/07/2020 | 12:10 | Mt Owen | 91.2 | 0.13 | 96.6 | 0.12 | 92.6 | 0.05 |
| 6/07/2020 | 13:36 | Ravensworth East | 89.9 | 0.15 | 101.5 | 0.75 | 80.7 | 0.03 |
| 7/07/2020 | 12:21 | Mt Owen | 87.1 | 0.1 | 89 | 0.06 | 89.8 | 0.05 |
| 7/07/2020 | 13:57 | Ravensworth East | 94.6 | 0.21 | 107.3 | 0.44 | 88.9 | 0.04 |
| 9/07/2020 | 13:38 | Mt Owen | 86.1 | 0.12 | 91.7 | 0.05 | 89.3 | 0.03 |
| 9/07/2020 | 13:41 | Mt Owen | 87.1 | 0.11 | 95.9 | 0.07 | 87.4 | 0.04 |
| 14/07/2020 | 13:09 | Mt Owen | 93.6 | 0.19 | 94.7 | 0.18 | 101.5 | 0.12 |
| 14/07/2020 | 13:39 | Ravensworth East | 99 | 0.17 | 106.2 | 0.44 | 103.5 | 0.02 |
| 16/07/2020 | 12:17 | Mt Owen | 99.1 | 0.14 | 84.9 | 0.14 | 100.2 | 0.09 |
| 17/07/2020 | 12:32 | Ravensworth East | 90.3 | 0.12 | 100.3 | 0.19 | 88.7 | 0.01 |
| 21/07/2020 | 12:35 | Ravensworth East | 92.8 | 0.3 | 107.9 | 0.8 | 98.1 | 0.06 |
| 21/07/2020 | 13:21 | Mt Owen | 93.1 | 0.14 | 89.1 | 0.1 | 87.4 | 0.07 |
| 24/07/2020 | 13:25 | Mt Owen | 90.6 | 0.16 | 96.6 | 0.24 | 88.7 | 0.1 |
| 27/07/2020 | 12:59 | Ravensworth East | 106.3 | 0.2 | 93.4 | 0.63 | 101.6 | 0.04 |
| 31/07/2020 | 12:16 | Mt Owen | 87.5 | 0.13 | 90.6 | 0.09 | 88.7 | 0.06 |
| 6/08/2020 | 14:53 | Mount Owen | 90.9 | 0.14 | 89.2 | 0.08 | 90.7 | 0.1 |
| 7/08/2020 | 13:49 | Ravensworth East | 93.8 | 0.11 | 102 | 0.38 | 85.6 | 0.01 |
| 13/08/2020 | 13:30 | Mount Owen | 98.6 | 0.18 | 92.4 | 0.13 | 91.1 | 0.12 |

| | | | | | | | | |
|------------|-----------|------------------|-------|------|-------|------|-------|------|
| 14/08/2020 | 12:46 | Ravensworth East | 92.8 | 0.21 | 105.8 | 0.68 | 101.3 | 0.04 |
| 18/08/2020 | 9:06 | Mount Owen | 88.4 | 0.12 | 84.1 | 0.06 | 102 | 0.07 |
| 21/08/2020 | 7:16 | Ravensworth East | 98.4 | 0.13 | 93.3 | 0.36 | 93.2 | 0.02 |
| 25/08/2020 | 10:04 | Mount Owen | 95.6 | 0.2 | 93.6 | 0.22 | 95.7 | 0.06 |
| 25/08/2020 | 12:26 | Ravensworth East | 99.2 | 0.25 | 102.3 | 0.75 | 88.4 | 0.05 |
| 28/08/2020 | 12:07 | Mount Owen | 88.0 | 0.12 | 91.5 | 0.09 | 91.5 | 0.09 |
| 1/09/2020 | 13:05 | Mount Owen | 86.1 | 0.14 | 96.7 | 0.14 | 95.3 | 0.08 |
| 3/09/2020 | 9:11 | Mount Owen | 105.8 | 0.14 | 95.7 | 0.29 | 90.1 | 0.09 |
| 7/09/2020 | 12:06 | Mount Owen | 87.1 | 0.13 | 87.9 | 0.1 | 90.8 | 0.09 |
| 9/09/2020 | 12:11 | Ravensworth East | 88.4 | 0.19 | 93.8 | 0.15 | 83.1 | 0.09 |
| 9/09/2020 | 13:45 | Ravensworth East | 91.5 | 0.11 | 103.6 | 0.19 | 80.3 | 0.01 |
| 11/09/2020 | 12:19 | Mount Owen | 86.6 | 0.14 | 92.8 | 0.16 | 88 | 0.08 |
| 15/09/2020 | 13:43 | Mount Owen | 86.1 | 0.15 | 92.1 | 0.11 | 85 | 0.06 |
| 15/09/2020 | 13:46 | Mount Owen | 94.6 | 0.09 | 89.6 | 0.03 | 84.8 | 0.02 |
| 18/09/2020 | 12:13 | Mount Owen | 89.2 | 0.12 | 92.1 | 0.06 | 91.5 | 0.05 |
| 18/09/2020 | 13:20 | Ravensworth East | 102.3 | 0.12 | 105.3 | 0.44 | 100.5 | 0.02 |
| 18/09/2020 | 13:21 | Ravensworth East | 91.8 | 0.18 | 102.9 | 0.65 | 94 | 0.03 |
| 21/09/2020 | 13:21 | Mount Owen | 96.9 | 0.11 | 86.7 | 0.13 | 88.4 | 0.07 |
| 24/09/2020 | 13:31 | Ravensworth East | 109.5 | 0.13 | 100 | 0.48 | 107.8 | 0.04 |
| 28/09/2020 | 15:07 | Mount Owen | 91.8 | 0.16 | 95.7 | 0.19 | 90.8 | 0.09 |
| 29/09/2020 | 15:19 | Mount Owen | 87.5 | 0.17 | 89 | 0.17 | 105.4 | 0.12 |
| 13/10/2020 | 13:37 | Ravensworth East | 93.6 | 0.65 | 106.6 | 1.59 | 85.4 | 0.06 |
| 15/10/2020 | 12:33 | Mount Owen | 100.9 | 0.13 | 87.3 | 0.14 | 99.4 | 0.06 |
| 16/10/2020 | 12:04 | Mount Owen | 85.5 | 0.15 | 92.9 | 0.21 | 96.4 | 0.08 |
| 21/10/2020 | 13:10 | Mount Owen | 85.5 | 0.12 | 88.6 | 0.13 | 97.2 | 0.1 |
| 21/10/2020 | 13:39 | Ravensworth East | 91.5 | 0.12 | 103.3 | 0.35 | 82.9 | 0.02 |
| 22/10/2020 | 16:11 | Mount Owen | 89.9 | 0.12 | 95 | 0.09 | 93 | 0.07 |
| 2/11/2020 | 12:20 | Mount Owen | 84.9 | 0.16 | 101.7 | 0.25 | 86.5 | 0.07 |
| 5/11/2020 | 16:09 | Mount Owen | 101.4 | 0.17 | 98.6 | 0.12 | 90.1 | 0.09 |
| 11/11/2020 | 13:18 (1) | Mount Owen | 87.5 | 0.21 | 88.4 | 0.43 | 89.3 | 0.1 |
| 11/11/2020 | 13:18 (2) | Mount Owen | 88.8 | 0.21 | 88.4 | 0.43 | 89.3 | 0.1 |
| 17/11/2020 | 12:12 | Mount Owen | 87.5 | 0.11 | 92.6 | 0.06 | 93.3 | 0.06 |
| 17/11/2020 | 12:15 | Mount Owen | 97.1 | 0.1 | 95.6 | 0.11 | 90.4 | 0.06 |
| 19/11/2020 | 13:17 | Mount Owen | 88.4 | 0.18 | 94.9 | 0.59 | 92.7 | 0.11 |
| 25/11/2020 | 12:25 | Mount Owen | 88.8 | 0.12 | 92.9 | 0.2 | 92.2 | 0.09 |
| 30/11/2020 | 13:20 | Mount Owen | 104.6 | 0.19 | 97.8 | 0.18 | 109.3 | 0.13 |
| 8/12/2020 | 13:24 | Mount Owen | 107.5 | 0.16 | 94.8 | 0.1 | 100.2 | 0.08 |
| 10/12/2020 | 12:20 | Mount Owen | 86.6 | 0.13 | 90.5 | 0.12 | 91 | 0.07 |
| 15/12/2020 | 12:18 | Mount Owen | 92.1 | 0.21 | 93.3 | 0.51 | 92.3 | 0.06 |
| 23/12/2020 | 16:08 | Mount Owen | 94.8 | 0.14 | 102.4 | 0.1 | 93.4 | 0.09 |

Table 10: Mt Owen Blast Monitoring Results – Integra Underground and Integra Surface*

| Date fired | Time fired | Site | Integra Underground | | Integra Surface | |
|------------|------------|------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 6/01/2020 | 13:37 | Ravensworth East | 104.2 | 0.12 | 109.8 | 0.22 |
| 8/01/2020 | 12:59 | Mt Owen | 117.2 | 0.2 | 111.2 | 1.05 |
| 10/01/2020 | 10:10 | Mt Owen | 101.9 | 0.3 | 118.3 | 7.67 |
| 22/01/2020 | 13:09 | Mt Owen | 98.6 | 0.24 | 107.5 | 0.74 |
| 24/01/2020 | 7:17 | Mt Owen | 102.4 | 0.25 | 109.4 | 3.22 |
| 28/01/2020 | 13:13 | Mt Owen | 101.3 | 0.29 | 109.3 | 0.45 |
| 30/01/2020 | 12:23 | Mt Owen | 98.8 | 0.24 | 110 | 6.54 |
| 04/02/2020 | 13:23 | Ravensworth East | 109.1 | 0.16 | 103.3 | 0.08 |
| 05/02/2020 | 11:23 | Mt Owen | 111.9 | 1.65 | 100.5 | 0.19 |
| 12/02/2020 | 13:18 | Mt Owen | 106 | 0.41 | 94.9 | 0.22 |
| 12/02/2020 | 13:20 | Mt Owen | 110.2 | 0.87 | 99.7 | 0.26 |
| 20/02/2020 | 12:06 | Ravensworth East | 94.9 | 0.4 | 104.4 | 0.2 |
| 20/02/2020 | 12:22 | Mt Owen | 107.6 | 3.97 | 103.1 | 0.2 |
| 21/02/2020 | 12:16 | Mt Owen | 110.2 | 0.84 | 113.3 | 0.39 |
| 27/02/2020 | 12:13 | Mt Owen | 114.7 | 1.36 | 101.9 | 0.21 |
| 28/02/2020 | 12:03 | Mt Owen | 105.3 | 0.76 | 98.9 | 0.25 |
| 4/03/2020 | 13:36 | Ravensworth East | 101.3 | 0.43 | 105.2 | 0.16 |
| 5/03/2020 | 9:33 | Mt Owen | 108 | 0.57 | 102.6 | 0.28 |
| 5/03/2020 | 9:35 | Mt Owen | 93.4 | 0.55 | 101.6 | 0.06 |
| 11/03/2020 | 13:20 | Mt Owen | 108.5 | 1.26 | 101.3 | 0.27 |
| 13/03/2020 | 12:10 | Mt Owen | 114.9 | 5.37 | 102.7 | 0.32 |
| 13/03/2020 | 13:28 | Ravensworth East | 91.8 | 0.39 | 101.9 | 0.25 |
| 16/03/2020 | 14:58 | Ravensworth East | 110.5 | 0.36 | 113.7 | 0.17 |
| 18/03/2020 | 13:44 | Mt Owen | 112.1 | 1.04 | 100.5 | 0.25 |
| 20/03/2020 | 13:24 | Ravensworth East | 97.9 | 0.4 | 108.5 | 0.24 |
| 24/03/2020 | 11:15 | Mt Owen | 110.5 | 1.6 | 99.5 | 0.51 |
| 24/03/2020 | 11:15 | Mt Owen | 110.5 | 1.24 | 99.7 | 0.51 |
| 27/03/2020 | 16:12 | Mt Owen | 111.1 | 1.33 | 99.8 | 0.4 |
| 1/04/2020 | 15:02 | Mt Owen | 118.4 | 4.03 | 102.7 | 0.42 |
| 2/04/2020 | 12:05 | Mt Owen | 95.7 | 0.24 | 104.2 | 0.22 |
| 6/04/2020 | 13:23 | Mt Owen | 107 | 0.9 | 103.3 | 0.32 |
| 7/04/2020 | 13:43 | Ravensworth East | 101.3 | 0.33 | 102.8 | 0.19 |
| 8/04/2020 | 13:17 | Mt Owen | 114.8 | 2.54 | 102.4 | 0.24 |
| 14/04/2020 | 11:08 | Mt Owen | 104.7 | 0.77 | 106.2 | 0.26 |
| 15/04/2020 | 12:07 | Mt Owen | 100 | 0.67 | 101 | 0.21 |
| 17/04/2020 | 10:21 | Mt Owen | 105.4 | 1.76 | 98.4 | 0.28 |
| 21/04/2020 | 9:02 | Mt Owen | 111.3 | 1.98 | 99 | 0.28 |
| 23/04/2020 | 15:54 | Mt Owen | 108.6 | 2.39 | 96.3 | 0.39 |

| | | | | | | |
|------------|-------|------------------|-------|-------|-------|------|
| 24/04/2020 | 12:04 | Ravensworth East | 97.4 | 0.08 | 94.9 | 0.04 |
| 28/04/2020 | 16:23 | Mt Owen | 107.2 | 1.29 | 90.7 | 0.3 |
| 4/05/2020 | 12:45 | Ravensworth East | 95.6 | 0.26 | 94.7 | 0.12 |
| 4/05/2020 | 15:37 | Mt Owen | 113.6 | 1.2 | 99.4 | 0.4 |
| 8/05/2020 | 9:19 | Mt Owen | 103.1 | 0.58 | 105.4 | 0.19 |
| 8/05/2020 | 13:44 | Ravensworth East | 98.2 | 0.2 | 99.2 | 0.09 |
| 8/05/2020 | 13:46 | Ravensworth East | 100.4 | 0.1 | 97.9 | 0.08 |
| 12/05/2020 | 12:27 | Mt Owen | 114 | 1.19 | 98.7 | 0.43 |
| 14/05/2020 | 12:23 | Mt Owen | 115.7 | 6.81 | 97.7 | 0.42 |
| 16/05/2020 | 9:56 | Ravensworth East | 89.2 | 0.06 | 91.9 | 0.03 |
| 18/05/2020 | 15:34 | Mt Owen | 107.6 | 0.71 | 93.9 | 0.23 |
| 21/05/2020 | 13:24 | Mt Owen | 111.3 | 0.49 | 101 | 0.24 |
| 22/05/2020 | 12:30 | Ravensworth East | 99.8 | 0.09 | 95.3 | 0.05 |
| 28/05/2020 | 14:24 | Ravensworth East | 99.6 | 0.24 | 100.5 | 0.12 |
| 29/05/2020 | 13:24 | Mt Owen | 113.6 | 3.07 | 97.4 | 0.84 |
| 2/06/2020 | 10:33 | Ravensworth East | 111.6 | 0.24 | 106.1 | 0.14 |
| 3/06/2020 | 14:02 | Ravensworth East | 89.2 | 0.13 | 88.2 | 0.1 |
| 3/06/2020 | 14:04 | Ravensworth East | 96.2 | 0.24 | 89.4 | 0.1 |
| 5/06/2020 | 13:16 | Mt Owen | 110.9 | 4.63 | 93 | 0.52 |
| 9/06/2020 | 13:55 | Ravensworth East | 98 | 0.35 | 90.8 | 0.16 |
| 10/06/2020 | 13:19 | Mt Owen | 112.7 | 3.57 | 95.9 | 0.19 |
| 15/06/2020 | 12:57 | Ravensworth East | 106.7 | 0.19 | 101.1 | 0.1 |
| 15/06/2020 | 13:13 | Mt Owen | 107.1 | 1.51 | 98.8 | 0.25 |
| 17/06/2020 | 13:14 | Mt Owen | 106 | 0.91 | 97.4 | 0.18 |
| 19/06/2020 | 12:22 | Mt Owen | 111.9 | 1.83 | 93.6 | 0.13 |
| 23/06/2020 | 13:44 | Ravensworth East | 104.1 | 0.29 | 106.9 | 0.13 |
| 26/06/2020 | 09:21 | Mt Owen | 110 | 1.18 | 101.4 | 0.29 |
| 26/06/2020 | 12:23 | Mt Owen | 124.3 | 7.3 | 105.4 | 0.24 |
| 1/07/2020 | 12:14 | Mt Owen | 110.8 | 1.19 | 100.7 | 0.24 |
| 3/07/2020 | 12:10 | Mt Owen | 111.8 | 0.95 | 103.5 | 0.16 |
| 6/07/2020 | 12:10 | Mt Owen | 120.9 | 16.82 | 99.9 | 0.25 |
| 6/07/2020 | 13:36 | Ravensworth East | 94.8 | 0.21 | 99.9 | 0.15 |
| 7/07/2020 | 12:21 | Mt Owen | 113.2 | 4.59 | 100 | 0.19 |
| 7/07/2020 | 13:57 | Ravensworth East | 100.8 | 0.6 | 102.2 | 0.29 |
| 9/07/2020 | 13:38 | Mt Owen | 107.1 | 0.52 | 101.3 | 0.12 |
| 9/07/2020 | 13:41 | Mt Owen | 111.1 | 0.89 | 103.1 | 0.15 |
| 14/07/2020 | 13:09 | Mt Owen | 108.5 | 1.18 | 99.9 | 0.63 |
| 14/07/2020 | 13:39 | Ravensworth East | 107.8 | 0.11 | 106.4 | 0.08 |
| 16/07/2020 | 12:17 | Mt Owen | 104 | 1.81 | 101.1 | 0.57 |
| 17/07/2020 | 12:32 | Ravensworth East | 92.3 | 0.11 | 97.2 | 0.06 |
| 21/07/2020 | 12:35 | Ravensworth East | 94.9 | 1.09 | 104 | 0.4 |
| 21/07/2020 | 13:21 | Mt Owen | 114.1 | 5.37 | 107.2 | 0.36 |
| 24/07/2020 | 13:25 | Mt Owen | 107.5 | 1.91 | 103.2 | 0.39 |
| 27/07/2020 | 12:59 | Ravensworth East | 107.7 | 1.29 | 110.6 | 0.25 |
| 31/07/2020 | 12:16 | Mt Owen | 107.8 | 0.99 | 107.5 | 0.29 |
| 6/08/2020 | 14:53 | Mount Owen | 116 | 8.61 | 105.9 | 0.42 |

| | | | | | | |
|------------|-----------|------------------|-------|------|-------|------|
| 7/08/2020 | 13:49 | Ravensworth East | 89.2 | 0.12 | 107.1 | 0.08 |
| 13/08/2020 | 13:30 | Mount Owen | 109.3 | 1.14 | 107.4 | 0.46 |
| 14/08/2020 | 12:46 | Ravensworth East | 105.1 | 0.89 | 104.4 | 0.33 |
| 18/08/2020 | 9:06 | Mount Owen | 112 | 5.01 | 107.2 | 0.31 |
| 21/08/2020 | 7:16 | Ravensworth East | 108.3 | 0.38 | 109.8 | 0.13 |
| 25/08/2020 | 10:04 | Mount Owen | 109.1 | 2.33 | 106.9 | 0.36 |
| 25/08/2020 | 12:26 | Ravensworth East | 100.4 | 0.75 | 107 | 0.34 |
| 28/08/2020 | 12:07 | Mount Owen | 97.8 | 0.31 | 112.1 | 0.36 |
| 1/09/2020 | 13:05 | Mount Owen | 110.1 | 1.66 | 106.2 | 0.44 |
| 3/09/2020 | 9:11 | Mount Owen | 102.8 | 1.64 | 106.4 | 0.37 |
| 7/09/2020 | 12:06 | Mount Owen | 111.1 | 1.77 | 99.9 | 0.36 |
| 9/09/2020 | 12:11 | Ravensworth East | 105.3 | 1.95 | 102.5 | 0.32 |
| 9/09/2020 | 13:45 | Ravensworth East | 92.1 | 0.17 | 101.4 | 0.06 |
| 11/09/2020 | 12:19 | Mount Owen | 103.6 | 1.31 | 104.2 | 0.33 |
| 15/09/2020 | 13:43 | Mount Owen | 112.8 | 8.08 | 103.3 | 0.35 |
| 15/09/2020 | 13:46 | Mount Owen | 102.9 | 0.17 | 103.5 | 0.06 |
| 18/09/2020 | 12:13 | Mount Owen | 107.8 | 1.07 | 102.8 | 0.22 |
| 18/09/2020 | 13:20 | Ravensworth East | 104.4 | 0.24 | 101.4 | 0.11 |
| 18/09/2020 | 13:21 | Ravensworth East | 99.3 | 0.69 | 100.6 | 0.22 |
| 21/09/2020 | 13:21 | Mount Owen | 104.2 | 0.49 | 99.2 | 0.23 |
| 24/09/2020 | 13:31 | Ravensworth East | 107.7 | 0.36 | 105 | 0.29 |
| 28/09/2020 | 15:07 | Mount Owen | 114.2 | 0.9 | 111.1 | 0.36 |
| 29/09/2020 | 15:19 | Mount Owen | 105.8 | 1.45 | 100.7 | 0.45 |
| 13/10/2020 | 13:37 | Ravensworth East | 99.2 | 0.82 | 96.8 | 0.35 |
| 15/10/2020 | 12:33 | Mount Owen | 105.4 | 2.45 | 100.1 | 0.29 |
| 16/10/2020 | 12:04 | Mount Owen | 105.3 | 0.79 | 96.7 | 0.27 |
| 21/10/2020 | 13:10 | Mount Owen | 107.7 | 2.05 | 100.2 | 0.42 |
| 21/10/2020 | 13:39 | Ravensworth East | 99 | 0.34 | 100.5 | 0.09 |
| 22/10/2020 | 16:11 | Mount Owen | 114.3 | 1.07 | 102.3 | 0.33 |
| 2/11/2020 | 12:20 | Mount Owen | 108 | 1.68 | 99.9 | 0.29 |
| 5/11/2020 | 16:09 | Mount Owen | 115.3 | 1.11 | 101.5 | 0.51 |
| 11/11/2020 | 13:18 (1) | Mount Owen | 109.8 | 2.72 | 96.1 | 0.37 |
| 11/11/2020 | 13:18 (2) | Mount Owen | 106.3 | 2.72 | 96.1 | 0.37 |
| 17/11/2020 | 12:12 | Mount Owen | 109.4 | 2.48 | 99.3 | 0.26 |
| 17/11/2020 | 12:15 | Mount Owen | 110.5 | 0.56 | 98.3 | 0.2 |
| 19/11/2020 | 13:17 | Mount Owen | 109.4 | 1.71 | 96.6 | 0.57 |
| 25/11/2020 | 12:25 | Mount Owen | 102.1 | 5.25 | 96 | 0.33 |
| 30/11/2020 | 13:20 | Mount Owen | 110.3 | 1.05 | 105.2 | 0.45 |
| 8/12/2020 | 13:24 | Mount Owen | 115.9 | 1.54 | 99.2 | 0.35 |
| 10/12/2020 | 12:20 | Mount Owen | 113.6 | 8.87 | 96.8 | 0.29 |
| 15/12/2020 | 12:18 | Mount Owen | 109.9 | 1.18 | 96.3 | 0.33 |
| 23/12/2020 | 16:08 | Mount Owen | 111.9 | 0.57 | 99.9 | 0.27 |

Table 11: Glendell Blast Monitoring Results – MOC 3 and Church

| | | Camberwell (MOC 3) | Church | Green Acres (MOC 2) |
|--|--|--------------------|--------|---------------------|
|--|--|--------------------|--------|---------------------|

| Date fired | Time fired | Site | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
|------------|------------|----------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| 3/01/2020 | 13:39 | Glendell | 90.2 | 0.3 | 94.7 | 0.16 | 84.5 | 0.15 |
| 9/01/2020 | 13:40 | Glendell | 97.1 | 0.25 | 91.4 | 0.03 | 98.9 | 0.01 |
| 9/01/2020 | 13:42 | Glendell | 96.7 | 0.3 | 93.6 | 0.16 | 96.8 | 0.21 |
| 13/01/2020 | 10:36 | Glendell | 99.6 | 0.79 | 104 | 0.39 | 102.2 | 0.28 |
| 15/01/2020 | 15:32 | Glendell | 99.5 | 0.37 | 90.6 | 0.21 | 104 | 0.28 |
| 22/01/2020 | 10:33 | Glendell | 90.8 | 0.27 | 90.8 | 0.2 | 90.2 | 0.16 |
| 24/01/2020 | 15:23 | Glendell | 90.2 | 0.44 | 100.6 | 0.12 | 103.8 | 0.09 |
| 25/01/2020 | 9:24 | Glendell | 90.5 | 0.54 | 89 | 0.3 | 95.4 | 0.32 |
| 29/01/2020 | 13:42 | Glendell | 95.8 | 0.32 | 96.4 | 0.27 | 98.4 | 0.11 |
| 3/02/2020 | 11:04 | Glendell | 95.4 | 0.48 | 92.6 | 0.25 | 88.4 | 0.24 |
| 7/02/2020 | 12:53 | Glendell | 93.9 | 0.38 | 96 | 0.19 | 95.6 | 0.19 |
| 7/02/2020 | 12:56 | Glendell | 87.8 | 0.46 | 88.9 | 0.12 | 96.5 | 0.28 |
| 18/02/2020 | 13:59 | Glendell | 100.5 | 0.37 | 101.9 | 0.23 | 93.6 | 0.16 |
| 21/02/2020 | 12:02 | Glendell | 90.4 | 0.28 | 92.2 | 0.07 | 102.9 | 0.09 |
| 25/02/2020 | 13:21 | Glendell | 94.7 | 0.22 | 94.9 | 0.19 | 93.9 | 0.12 |
| 28/02/2020 | 13:30 | Glendell | 95.4 | 0.27 | 97.2 | 0.12 | 90.9 | 0.1 |
| 28/02/2020 | 13:33 | Glendell | 89.8 | 0.46 | 89.3 | 0.2 | 87.7 | 0.25 |
| 3/03/2020 | 13:27 | Glendell | 93.3 | 0.08 | 92.4 | 0.05 | 99.7 | 0.05 |
| 7/03/2020 | 10:05 | Glendell | 92.5 | 0.42 | 87.6 | 0.19 | 88.9 | 0.25 |
| 9/03/2020 | 13:27 | Glendell | 101.2 | 0.1 | 98.4 | 0.07 | 103 | 0.09 |
| 12/03/2020 | 13:30 | Glendell | 91.8 | 0.38 | 101.2 | 0.2 | 97.5 | 0.22 |
| 12/03/2020 | 14:00 | Glendell | 88.9 | 0.29 | 103.9 | 0.13 | 108.2 | 0.4 |
| 18/03/2020 | 13:50 | Glendell | 89 | 0.1 | 90.7 | 0.05 | 84.8 | 0.06 |
| 18/03/2020 | 13:53 | Glendell | 87.9 | 0.15 | 88.7 | 0.06 | 84.8 | 0.1 |
| 31/03/2020 | 13:57 | Glendell | 103.4 | 0.41 | 103.5 | 0.29 | 105.4 | 0.28 |
| 2/04/2020 | 15:00 | Glendell | 100.8 | 0.48 | 97.7 | 0.2 | 100.2 | 0.25 |
| 2/04/2020 | 15:02 | Glendell | 90.2 | 0.18 | 88.5 | 0.09 | 87 | 0.07 |
| 8/04/2020 | 12:43 | Glendell | 93.7 | 0.3 | 93.2 | 0.17 | 96.3 | 0.16 |
| 9/04/2020 | 13:36 | Glendell | 90.7 | 0.24 | 90.1 | 0.13 | 87 | 0.19 |
| 18/04/2020 | 12:39 | Glendell | 97.5 | 0.48 | 96.8 | 0.32 | 96.6 | 0.46 |
| 18/04/2020 | 12:46 | Glendell | 99.2 | 0.43 | 99.5 | 0.52 | 96 | 0.17 |
| 22/04/2020 | 13:37 | Glendell | 98.3 | 0.36 | 97.4 | 0.24 | 90.5 | 0.19 |
| 27/04/2020 | 13:38 | Glendell | 91.7 | 0.42 | 88.4 | 0.24 | 100.8 | 0.23 |
| 28/04/2020 | 14:29 | Glendell | 92.6 | 0.11 | 90.1 | 0.05 | 102.7 | 0.06 |
| 28/04/2020 | 16:11 | Glendell | 89.4 | 0.24 | 88.8 | 0.16 | 90.7 | 0.18 |
| 4/05/2020 | 14:03 | Glendell | 96.2 | 0.07 | 93 | 0.05 | 90.9 | 0.04 |
| 4/05/2020 | 14:06 | Glendell | 87.3 | 0.06 | 92 | 0.04 | 89 | 0.05 |
| 5/05/2020 | 13:33 | Glendell | 92.2 | 0.26 | 91.1 | 0.17 | 87.3 | 0.11 |
| 7/05/2020 | 13:41 | Glendell | 100.5 | 0.34 | 98.4 | 0.18 | 98.3 | 0.26 |
| 14/05/2020 | 13:36 | Glendell | 88.7 | 0.23 | 89.9 | 0.17 | 90.5 | 0.14 |
| 19/05/2020 | 13:39 | Glendell | 91.5 | 0.2 | 91.8 | 0.14 | 84.8 | 0.15 |
| 21/05/2020 | 13:47 | Glendell | 98 | 0.25 | 98.9 | 0.24 | 95.4 | 0.17 |
| 3/06/2020 | 12:31 | Glendell | 98.7 | 0.18 | 96 | 0.12 | 98.8 | 0.1 |

| | | | | | | | | |
|------------|-------|----------|-------|------|-------|------|-------|------|
| 4/06/2020 | 15:47 | Glendell | 93.1 | 0.49 | 89.3 | 0.29 | 82.5 | 0.19 |
| 11/06/2020 | 13:58 | Glendell | 95.9 | 0.44 | 94.3 | 0.22 | 89.3 | 0.42 |
| 12/06/2020 | 13:37 | Glendell | 89.7 | 0.37 | 88.6 | 0.24 | 84.5 | 0.19 |
| 16/06/2020 | 13:27 | Glendell | 96.4 | 0.31 | 94.5 | 0.17 | 99 | 0.1 |
| 17/06/2020 | 13:36 | Glendell | 92.5 | 0.54 | 92 | 0.22 | 87.7 | 0.65 |
| 23/06/2020 | 15:52 | Glendell | 96 | 0.6 | 97.6 | 0.37 | 100.8 | 0.24 |
| 25/06/2020 | 09:36 | Glendell | 86.6 | 0.15 | 89.4 | 0.1 | 100.9 | 0.05 |
| 26/06/2020 | 13:44 | Glendell | 94 | 0.36 | 93.3 | 0.27 | 92.3 | 0.28 |
| 29/06/2020 | 16:02 | Glendell | 95.3 | 0.45 | 92.7 | 0.28 | 87.3 | 0.21 |
| 3/07/2020 | 12:48 | Glendell | 101 | 0.2 | 98 | 0.23 | 98.2 | 0.11 |
| 8/07/2020 | 13:36 | Glendell | 93.5 | 0.15 | 93.8 | 0.1 | 89.9 | 0.11 |
| 10/07/2020 | 10:48 | Glendell | 93.7 | 0.16 | 89.4 | 0.11 | 94.2 | 0.09 |
| 10/07/2020 | 10:51 | Glendell | 92 | 0.23 | 90.6 | 0.14 | 95.9 | 0.13 |
| 21/07/2020 | 13:48 | Glendell | 87.7 | 0.4 | 87.2 | 0.21 | 101.5 | 0.2 |
| 21/07/2020 | 13:50 | Glendell | 97.2 | 0.31 | 96.8 | 0.23 | 84.2 | 0.18 |
| 30/07/2020 | 13:29 | Glendell | 90.9 | 0.38 | 96.3 | 0.26 | 89 | 0.23 |
| 31/07/2020 | 14:14 | Glendell | 82 | 0.21 | 87 | 0.1 | 91.1 | 0.08 |
| 31/07/2020 | 14:15 | Glendell | 93.3 | 0.4 | 91.2 | 0.21 | 90.3 | 0.16 |
| 6/08/2020 | 13:30 | Glendell | 98.9 | 0.51 | 97.3 | 0.26 | 94 | 0.3 |
| 13/08/2020 | 14:03 | Glendell | 109.6 | 0.3 | 96.4 | 0.16 | 93.8 | 0.08 |
| 24/08/2020 | 12:39 | Glendell | 95.5 | 0.35 | 96.1 | 0.22 | 98.3 | 0.21 |
| 25/08/2020 | 13:40 | Glendell | 99 | 0.43 | 96.8 | 0.29 | 93.8 | 0.19 |
| 25/08/2020 | 13:43 | Glendell | 84.3 | 0.12 | 97.7 | 0.05 | 88 | 0.03 |
| 28/08/2020 | 13:27 | Glendell | 93.7 | 0.18 | 93.9 | 0.1 | 90.3 | 0.1 |
| 31/08/2020 | 16:16 | Glendell | 99.4 | 0.29 | 107.2 | 0.27 | 92.5 | 0.17 |
| 31/08/2020 | 16:19 | Glendell | 94.2 | 0.12 | 100.5 | 0.08 | 99.3 | 0.09 |
| 4/09/2020 | 9:03 | Glendell | 106.9 | 0.47 | 103.1 | 0.27 | 99 | 0.17 |
| 4/09/2020 | 9:04 | Glendell | 103.1 | 0.43 | 104.5 | 0.23 | 99.9 | 0.18 |
| 8/09/2020 | 13:40 | Glendell | 95.7 | 0.28 | 93.8 | 0.23 | 93.3 | 0.35 |
| 9/09/2020 | 13:45 | Glendell | 83.5 | 0.03 | 80.3 | 0.01 | 97.5 | 0.04 |
| 10/09/2020 | 13:42 | Glendell | 98 | 0.25 | 94.9 | 0.1 | 103.7 | 0.19 |
| 11/09/2020 | 13:37 | Glendell | 90.8 | 0.21 | 91.1 | 0.1 | 99.8 | 0.07 |
| 15/09/2020 | 13:33 | Glendell | 92.8 | 0.18 | 92.2 | 0.2 | 90.4 | 0.1 |
| 18/09/2020 | 13:20 | Glendell | 85.4 | 0.07 | 100.5 | 0.02 | 94 | 0.1 |
| 18/09/2020 | 13:21 | Glendell | 86.7 | 0.06 | 94 | 0.03 | 91.6 | 0.17 |
| 22/09/2020 | 11:01 | Glendell | 98.1 | 0.43 | 100.7 | 0.33 | 93.8 | 0.27 |
| 24/09/2020 | 9:13 | Glendell | 92.3 | 0.29 | 91.5 | 0.19 | 101.6 | 0.09 |
| 24/09/2020 | 9:15 | Glendell | 96 | 0.26 | 100 | 0.24 | 99.8 | 0.2 |
| 24/09/2020 | 13:31 | Glendell | 96.6 | 0.05 | 107.8 | 0.04 | 99.1 | 0.21 |
| 28/09/2020 | 12:34 | Glendell | 91.9 | 0.32 | 91.2 | 0.16 | 89.7 | 0.19 |
| 2/10/2020 | 10:29 | Glendell | 94.6 | 0.25 | 95.7 | 0.19 | 95.6 | 0.12 |
| 2/10/2020 | 10:31 | Glendell | 95.4 | 0.43 | 95.5 | 0.36 | 93.1 | 0.21 |
| 13/10/2020 | 13:37 | Glendell | 84.9 | 0.11 | 85.4 | 0.06 | 88.0 | 0.39 |
| 14/10/2020 | 14:47 | Glendell | 92.7 | 0.18 | 101.5 | 0.16 | 104.8 | 0.26 |
| 14/10/2020 | 14:50 | Glendell | 98.6 | 0.36 | 96.8 | 0.20 | 101.8 | 0.26 |
| 16/10/2020 | 13:34 | Glendell | 96.2 | 0.28 | 93.3 | 0.17 | 89.1 | 0.27 |

| | | | | | | | | |
|------------|----------|----------|------|------|-------|------|-------|------|
| 20/10/2020 | 13:30 | Glendell | 92.8 | 0.22 | 89.9 | 0.18 | 86.5 | 0.20 |
| 21/10/2020 | 13:39 | Glendell | 89.6 | 0.03 | 82.9 | 0.02 | 87.6 | 0.13 |
| 22/10/2020 | 13:29 | Glendell | 85.4 | 0.14 | 91.2 | 0.09 | 82.5 | 0.05 |
| 23/10/2020 | 11:22 | Glendell | 94.5 | 0.23 | 94.7 | 0.15 | 87.0 | 0.20 |
| 29/10/2020 | 13:26 | Glendell | 89.5 | 0.46 | 87.8 | 0.20 | 94.1 | 0.19 |
| 4/11/2020 | 13:34:23 | Glendell | 88.9 | 0.03 | 93.9 | 0.01 | 92.9 | 0.02 |
| 4/11/2020 | 13:37:05 | Glendell | 93.5 | 0.37 | 93.7 | 0.31 | 95 | 0.14 |
| 6/11/2020 | 13:30:29 | Glendell | 92 | 0.17 | 97.8 | 0.12 | 87.7 | 0.18 |
| 10/11/2020 | 13:38 | Glendell | 92.5 | 0.14 | 89.2 | 0.11 | 94.6 | 0.07 |
| 11/11/2020 | 13:38 | Glendell | 85 | 0.2 | 81.8 | 0.17 | 86.7 | 0.05 |
| 17/11/2020 | 11:16 | Glendell | 90.9 | 0.17 | 92.6 | 0.11 | 89.7 | 0.16 |
| 19/11/2020 | 13:27 | Glendell | 96.2 | 0.75 | 96.8 | 0.36 | 93.8 | 0.26 |
| 24/11/2020 | 13:33 | Glendell | 90 | 0.17 | 87.9 | 0.12 | 102 | 0.12 |
| 27/11/2020 | 13:37 | Glendell | 94.9 | 0.27 | 94.5 | 0.19 | 94.3 | 0.18 |
| 3/12/2020 | 13:45 | Glendell | 93.5 | 0.16 | 92 | 0.12 | 86.9 | 0.08 |
| 3/12/2020 | 13:47 | Glendell | 94.5 | 0.41 | 94.5 | 0.25 | 90.3 | 0.2 |
| 8/12/2020 | 13:58 | Glendell | 94.7 | 0.3 | 91.3 | 0.22 | 98.4 | 0.25 |
| 9/12/20 | 11:07 | Glendell | 97.4 | 0.76 | 97.5 | 0.39 | 84.1 | 0.36 |
| 11/12/2020 | 13:28 | Glendell | 96.2 | 0.11 | 100.5 | 0.06 | 106.6 | 0.03 |
| 17/12/2020 | 10:48 | Glendell | 97.4 | 0.53 | 93.3 | 0.32 | 94.6 | 0.59 |
| 21/12/2020 | 13:34 | Glendell | 93.6 | 0.26 | 92.4 | 0.22 | 90.6 | 0.19 |

Table 12: Glendell Blast Monitoring Results – Powerlines, Railway/ ARTC1

| Date fired | Time fired | Site | Power Lines | | Railway/ ARTC1 | |
|------------|------------|----------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 3/01/2020 | 13:39 | Glendell | 97.3 | 3.05 | 94.1 | 2.55 |
| 9/01/2020 | 13:40 | Glendell | 97.8 | 0.45 | 102.4 | 0.23 |
| 9/01/2020 | 13:42 | Glendell | 106.1 | 1.34 | 104.7 | 0.82 |
| 13/01/2020 | 10:36 | Glendell | 108.3 | 5.45 | 109.7 | 5.67 |
| 15/01/2020 | 15:32 | Glendell | 103.8 | 2.58 | 103 | 1.85 |
| 22/01/2020 | 10:33 | Glendell | 103.7 | 1.14 | 102.3 | 1.1 |
| 24/01/2020 | 15:23 | Glendell | 100.3 | 0.5 | 98.5 | 0.43 |
| 25/01/2020 | 9:24 | Glendell | 105.5 | 2.44 | 104 | 1.53 |
| 29/01/2020 | 13:42 | Glendell | 103.9 | 2.48 | 103 | 1.27 |
| 3/02/2020 | 11:04 | Glendell | 101.2 | 1.74 | 103.0 | 1.74 |
| 7/02/2020 | 12:53 | Glendell | 103.9 | 1.23 | 104.6 | 0.99 |
| 7/02/2020 | 12:56 | Glendell | 102.8 | 1.05 | 101.4 | 0.64 |
| 18/02/2020 | 13:59 | Glendell | 108.6 | 2.78 | 109.2 | 1.75 |
| 21/02/2020 | 12:02 | Glendell | 103.1 | 0.4 | 101.2 | 0.34 |

| | | | | | | |
|------------|-------|----------|-------|------|-------|------|
| 25/02/2020 | 13:21 | Glendell | 105.5 | 1.65 | 104.5 | 1.5 |
| 28/02/2020 | 13:30 | Glendell | 102.6 | 1.38 | 102 | 0.98 |
| 28/02/2020 | 13:33 | Glendell | 99.9 | 1.07 | 99.7 | 1.15 |
| 3/03/2020 | 13:27 | Glendell | 102.4 | 0.56 | 102.1 | 0.32 |
| 7/03/2020 | 10:05 | Glendell | 114.4 | 2.66 | 111.6 | 1.7 |
| 9/03/2020 | 13:27 | Glendell | 99.3 | 0.37 | 99.7 | 0.32 |
| 12/03/2020 | 13:30 | Glendell | 103.9 | 0.91 | 104.8 | 0.72 |
| 12/03/2020 | 14:00 | Glendell | 100.7 | 1.17 | 97.3 | 0.78 |
| 18/03/2020 | 13:50 | Glendell | 103.4 | 0.5 | 100 | 0.36 |
| 18/03/2020 | 13:53 | Glendell | 103.1 | 0.3 | 102.5 | 0.35 |
| 31/03/2020 | 13:57 | Glendell | 124.7 | 2.04 | 123.4 | 1.69 |
| 2/04/2020 | 15:00 | Glendell | 105.3 | 1.09 | 104.8 | 0.73 |
| 2/04/2020 | 15:02 | Glendell | 94.4 | 1.1 | 97.4 | 0.78 |
| 8/04/2020 | 12:43 | Glendell | 104 | 0.86 | 102.5 | 0.85 |
| 9/04/2020 | 13:36 | Glendell | 102.5 | 0.81 | 100.8 | 0.7 |
| 18/04/2020 | 12:39 | Glendell | 104.9 | 2.1 | 106.2 | 1.85 |
| 18/04/2020 | 12:46 | Glendell | 105.9 | 4.21 | 107.2 | 3.6 |
| 22/04/2020 | 13:37 | Glendell | 104.4 | 1.29 | 105.5 | 0.91 |
| 27/04/2020 | 13:38 | Glendell | 100.3 | 1.38 | 99.8 | 1.62 |
| 28/04/2020 | 14:29 | Glendell | 99.7 | 0.22 | 97.3 | 0.24 |
| 28/04/2020 | 16:11 | Glendell | 103.2 | 1.67 | 101.7 | 1.02 |
| 4/05/2020 | 14:03 | Glendell | 103.1 | 0.25 | 102.5 | 0.19 |
| 4/05/2020 | 14:06 | Glendell | 100.8 | 0.37 | 100.4 | 0.42 |
| 5/05/2020 | 13:33 | Glendell | 106.6 | 2.11 | 103.1 | 1.32 |
| 7/05/2020 | 13:41 | Glendell | 104.5 | 0.72 | 104.1 | 0.81 |
| 14/05/2020 | 13:36 | Glendell | 99.6 | 1.49 | 97.1 | 1.14 |
| 19/05/2020 | 13:39 | Glendell | 101.9 | 1.52 | 102.8 | 0.71 |
| 21/05/2020 | 13:47 | Glendell | 111.9 | 2.32 | 110.2 | 2.08 |
| 3/06/2020 | 12:31 | Glendell | 103.6 | 0.72 | 104.9 | 0.72 |
| 4/06/2020 | 15:47 | Glendell | 105.6 | 4.56 | 104.1 | 2.31 |
| 11/06/2020 | 13:58 | Glendell | 106.8 | 1.2 | 105.6 | 1 |
| 12/06/2020 | 13:37 | Glendell | 105.6 | 2.78 | 104.5 | 1.78 |
| 16/06/2020 | 13:27 | Glendell | 100.9 | 2.35 | 92 | 1.75 |
| 17/06/2020 | 13:36 | Glendell | 106 | 1.07 | 101.1 | 1.1 |
| 23/06/2020 | 15:52 | Glendell | 106 | 4.53 | 104.1 | 4.4 |
| 25/06/2020 | 09:36 | Glendell | 98 | 1.54 | 97.6 | 0.53 |
| 26/06/2020 | 13:44 | Glendell | 104.4 | 2.52 | 104.5 | 1.9 |
| 29/06/2020 | 16:02 | Glendell | 107.4 | 2.41 | 107.3 | 2.08 |
| 3/07/2020 | 12:48 | Glendell | 113.1 | 1.32 | 112.4 | 1.39 |
| 8/07/2020 | 13:36 | Glendell | 104 | 0.87 | 102.6 | 0.58 |
| 10/07/2020 | 10:48 | Glendell | 103.9 | 0.81 | 101.9 | 0.85 |
| 10/07/2020 | 10:51 | Glendell | 100.4 | 0.55 | 99.6 | 0.71 |
| 21/07/2020 | 13:48 | Glendell | 104.9 | 2.17 | 102.7 | 1.77 |
| 21/07/2020 | 13:50 | Glendell | 109.3 | 1.11 | 108 | 0.91 |
| 30/07/2020 | 13:29 | Glendell | 101.1 | 1.18 | 98.5 | 1.08 |
| 31/07/2020 | 14:14 | Glendell | 94.8 | 1.37 | 102.4 | 1.9 |

| | | | | | | |
|------------|-------|----------|-------|------|-------|------|
| 31/07/2020 | 14:15 | Glendell | 105.9 | 0.67 | 102.8 | 1.34 |
| 6/08/2020 | 13:30 | Glendell | 108.4 | 2.6 | 107.8 | 1.6 |
| 13/08/2020 | 14:03 | Glendell | 103.5 | 1.11 | 101.3 | 0.91 |
| 24/08/2020 | 12:39 | Glendell | 105.3 | 1.31 | 102.7 | 1.04 |
| 25/08/2020 | 13:40 | Glendell | 106.8 | 4.83 | 105.9 | 3.51 |
| 25/08/2020 | 13:43 | Glendell | 93.5 | 0.8 | 91.3 | 0.52 |
| 28/08/2020 | 13:27 | Glendell | 100.5 | 0.33 | 99.4 | 0.29 |
| 31/08/2020 | 16:16 | Glendell | 102.8 | 1.73 | 102.7 | 1.6 |
| 31/08/2020 | 16:19 | Glendell | 102.8 | 0.45 | 104.8 | 0.35 |
| 4/09/2020 | 9:03 | Glendell | 110.6 | 2.47 | 114.5 | 1.99 |
| 4/09/2020 | 9:04 | Glendell | 108.8 | 1.32 | 106.5 | 1.04 |
| 8/09/2020 | 13:40 | Glendell | 107.7 | 1.39 | 105.4 | 1.08 |
| 9/09/2020 | 13:45 | Glendell | 90.6 | 0.03 | 87.7 | 0.03 |
| 10/09/2020 | 13:42 | Glendell | 104.0 | 0.45 | 98.8 | 0.30 |
| 11/09/2020 | 13:37 | Glendell | 101.2 | 0.44 | 100.7 | 0.66 |
| 15/09/2020 | 13:33 | Glendell | 102.5 | 1.13 | 102.8 | 0.83 |
| 18/09/2020 | 13:20 | Glendell | 97.9 | 0.04 | 94.6 | 0.04 |
| 18/09/2020 | 13:21 | Glendell | 93.4 | 0.09 | 92.2 | 0.13 |
| 22/09/2020 | 11:01 | Glendell | 108.8 | 2.38 | 106.0 | 1.34 |
| 24/09/2020 | 9:13 | Glendell | 106.2 | 1.51 | 95.7 | 1.07 |
| 24/09/2020 | 9:15 | Glendell | 105.5 | 0.80 | 104.8 | 0.89 |
| 24/09/2020 | 13:31 | Glendell | 102.7 | 0.07 | 93.8 | 0.12 |
| 28/09/2020 | 12:34 | Glendell | 102.1 | 1.48 | 101.8 | 1.40 |
| 2/10/2020 | 10:29 | Glendell | 105.6 | 0.73 | 103.7 | 0.50 |
| 2/10/2020 | 10:31 | Glendell | 107.0 | 2.40 | 104.7 | 2.32 |
| 13/10/2020 | 13:37 | Glendell | 89.2 | 0.20 | 88.6 | 0.21 |
| 14/10/2020 | 14:47 | Glendell | 105.4 | 1.14 | 98.9 | 0.81 |
| 14/10/2020 | 14:50 | Glendell | 101.3 | 1.07 | 99.7 | 0.80 |
| 16/10/2020 | 13:34 | Glendell | 106.9 | 0.94 | 105.6 | 0.72 |
| 20/10/2020 | 13:30 | Glendell | 100 | 0.91 | 101 | 0.55 |
| 21/10/2020 | 13:39 | Glendell | 89.8 | 0.05 | 87.4 | 0.05 |
| 22/10/2020 | 13:29 | Glendell | 95.0 | 0.96 | 94.4 | 0.44 |
| 23/10/2020 | 11:22 | Glendell | 105.2 | 0.71 | 101.8 | 0.53 |
| 29/10/2020 | 13:26 | Glendell | 103.0 | 0.92 | 103.7 | 0.66 |
| 4/11/2020 | 13:34 | Glendell | 78.8 | 0.07 | 81.2 | 0.05 |
| 4/11/2020 | 13:37 | Glendell | 106.4 | 1.91 | 106.5 | 1.48 |
| 6/11/2020 | 13:30 | Glendell | 101.3 | 0.52 | 99.9 | 0.44 |
| 10/11/2020 | 13:38 | Glendell | 98.8 | 0.76 | 97.3 | 0.55 |
| 11/11/2020 | 13:38 | Glendell | 86.6 | 1.43 | 93.5 | 0.85 |
| 17/11/2020 | 11:16 | Glendell | 100.8 | 1.01 | 100.3 | 0.59 |
| 19/11/2020 | 13:27 | Glendell | 104.9 | 1.64 | 102 | 0.87 |
| 24/11/2020 | 13:33 | Glendell | 102.3 | 0.74 | 101.9 | 0.52 |
| 27/11/2020 | 13:37 | Glendell | 105.2 | 0.78 | 103.5 | 0.68 |
| 3/12/2020 | 13:45 | Glendell | 104.3 | 1.64 | 102.2 | 0.71 |
| 3/12/2020 | 13:47 | Glendell | 103.3 | 2.34 | 102.9 | 1.52 |
| 8/12/2020 | 13:58 | Glendell | 100.2 | 1.05 | 98.1 | 0.73 |

| | | | | | | |
|------------|-------|----------|-------|------|-------|------|
| 9/12/20 | 11:07 | Glendell | 112.8 | 1.16 | 109.4 | 1.18 |
| 11/12/2020 | 13:28 | Glendell | 101.8 | 0.17 | 105.1 | 0.19 |
| 17/12/2020 | 10:48 | Glendell | 105.9 | 2.25 | 105.1 | 1.56 |
| 21/12/2020 | 13:34 | Glendell | 103.6 | 1.13 | 101.6 | 0.74 |

Table 13: Glendell Main North Railway Blast Monitoring Results

| Date fired | Time fired | Site | ARTC 2 | | ARTC 3 | | ARTC 4 | |
|------------|------------|----------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 3/01/2020 | 13:39 | Glendell | 101.4 | 0.47 | 93.8 | 0.35 | 90.4 | 0.4 |
| 9/01/2020 | 13:40 | Glendell | 92.9 | 0.15 | 91 | 0.08 | 102.2 | 0.03 |
| 9/01/2020 | 13:42 | Glendell | 105.4 | 0.37 | 103 | 0.3 | 98.8 | 0.36 |
| 13/01/2020 | 10:36 | Glendell | 111.6 | 1.36 | 105.1 | 0.99 | 101.2 | 1.09 |
| 15/01/2020 | 15:32 | Glendell | 103.9 | 0.77 | 97.6 | 0.41 | 98.2 | 0.74 |
| 22/01/2020 | 10:33 | Glendell | 99.3 | 0.5 | 99 | 0.33 | 96 | 0.49 |
| 24/01/2020 | 15:23 | Glendell | 95.9 | 0.38 | 95.3 | 0.31 | 91.9 | 0.33 |
| 25/01/2020 | 9:24 | Glendell | 101.6 | 0.6 | 98.7 | 0.59 | 99.5 | 0.63 |
| 29/01/2020 | 13:42 | Glendell | 104.3 | 0.76 | 101.8 | 0.28 | 93.4 | 0.31 |
| 3/02/2020 | 11:04 | Glendell | 103.8 | 0.53 | 103.1 | 0.58 | 101.9 | 0.83 |
| 7/02/2020 | 12:53 | Glendell | 102.5 | 0.36 | 102 | 0.53 | 96.9 | 0.56 |
| 7/02/2020 | 12:56 | Glendell | 101.6 | 0.35 | 96.2 | 0.56 | 91 | 0.67 |
| 18/02/2020 | 13:59 | Glendell | 108 | 0.51 | 103.4 | 0.27 | 102.6 | 0.33 |
| 21/02/2020 | 12:02 | Glendell | 99.4 | 0.43 | 95.2 | 0.41 | 92.5 | 0.4 |
| 25/02/2020 | 13:21 | Glendell | 106.7 | 0.45 | 100.6 | 0.3 | 99.1 | 0.3 |
| 28/02/2020 | 13:30 | Glendell | 103.3 | 0.47 | 100.1 | 0.25 | 96.7 | 0.26 |
| 28/02/2020 | 13:33 | Glendell | 100.4 | 0.63 | 97.6 | 0.75 | 101.5 | 0.87 |
| 3/03/2020 | 13:27 | Glendell | 100.5 | 0.22 | 98.5 | 0.11 | 93.8 | 0.08 |
| 7/03/2020 | 10:05 | Glendell | 109.1 | 1.07 | 102.6 | 0.43 | 101.3 | 0.47 |
| 9/03/2020 | 13:27 | Glendell | 96.3 | 0.33 | 102 | 0.14 | 100.7 | 0.11 |
| 12/03/2020 | 13:30 | Glendell | 103.2 | 0.65 | 98.5 | 0.47 | 99.2 | 0.7 |
| 12/03/2020 | 14:00 | Glendell | 97.3 | 0.4 | 93.8 | 0.3 | 101.2 | 0.54 |
| 18/03/2020 | 13:50 | Glendell | 98.7 | 0.24 | 97.7 | 0.1 | 94.6 | 0.1 |
| 18/03/2020 | 13:53 | Glendell | 102.6 | 0.28 | 99.5 | 0.28 | 96.5 | 0.29 |
| 31/03/2020 | 13:57 | Glendell | 117.1 | 0.87 | 112.2 | 0.38 | 113.2 | 0.52 |
| 2/04/2020 | 15:00 | Glendell | 110.6 | 0.6 | 105.7 | 0.43 | 105.2 | 0.56 |
| 2/04/2020 | 15:02 | Glendell | 98.5 | 0.34 | 92.8 | 0.35 | 90.5 | 0.17 |
| 8/04/2020 | 12:43 | Glendell | 101.7 | 0.47 | 99.4 | 0.46 | 97.2 | 0.48 |
| 9/04/2020 | 13:36 | Glendell | 99.2 | 0.42 | 95.7 | 0.28 | 92.9 | 0.33 |
| 18/04/2020 | 12:39 | Glendell | 106.4 | 0.91 | 103.1 | 1.15 | 101.5 | 1.58 |
| 18/04/2020 | 12:46 | Glendell | 107.5 | 0.79 | 104.6 | 0.52 | 103.7 | 0.65 |
| 22/04/2020 | 13:37 | Glendell | 108.2 | 0.5 | 103.4 | 0.34 | 102.5 | 0.49 |
| 27/04/2020 | 13:38 | Glendell | 102.7 | 0.54 | 97.9 | 0.8 | 97.6 | 0.74 |

| | | | | | | | | |
|------------|-------|----------|-------|------|-------|------|-------|------|
| 28/04/2020 | 14:29 | Glendell | 96.5 | 0.22 | 93.4 | 0.14 | 103.4 | 0.09 |
| 28/04/2020 | 16:11 | Glendell | 100.3 | 0.39 | 95.4 | 0.25 | 92.1 | 0.39 |
| 4/05/2020 | 14:03 | Glendell | 105 | 0.21 | 102.9 | 0.1 | 102 | 0.07 |
| 4/05/2020 | 14:06 | Glendell | 101 | 0.19 | 94.1 | 0.09 | 98.4 | 0.19 |
| 5/05/2020 | 13:33 | Glendell | 103.8 | 0.55 | 102.1 | 0.71 | 100.2 | 0.46 |
| 7/05/2020 | 13:41 | Glendell | 106.3 | 0.55 | 105.6 | 0.52 | 103.7 | 0.56 |
| 14/05/2020 | 13:36 | Glendell | 102 | 0.62 | 100.8 | 0.31 | 99.2 | 0.29 |
| 19/05/2020 | 13:39 | Glendell | 102.5 | 0.38 | 97.6 | 0.21 | 96.3 | 0.22 |
| 21/05/2020 | 13:47 | Glendell | 110.5 | 0.74 | 104.3 | 0.28 | 100.6 | 0.34 |
| 3/06/2020 | 12:31 | Glendell | 107.1 | 0.45 | 105.1 | 0.19 | 104.8 | 0.36 |
| 4/06/2020 | 15:47 | Glendell | 103.8 | 0.95 | 100.2 | 0.63 | 98.3 | 0.74 |
| 11/06/2020 | 13:58 | Glendell | 106.5 | 0.46 | 101.3 | 0.48 | 99.7 | 0.77 |
| 12/06/2020 | 13:37 | Glendell | 103.3 | 0.78 | 98.1 | 0.58 | 97.8 | 0.7 |
| 16/06/2020 | 13:27 | Glendell | 95.7 | 0.56 | 92.8 | 0.4 | 91.7 | 0.29 |
| 17/06/2020 | 13:36 | Glendell | 100.1 | 0.65 | 98 | 0.64 | 96.7 | 0.88 |
| 23/06/2020 | 15:52 | Glendell | 110 | 1.08 | 103.1 | 0.62 | 103.8 | 0.63 |
| 25/06/2020 | 09:36 | Glendell | 92.4 | 0.37 | 92 | 0.19 | 93.2 | 0.12 |
| 26/06/2020 | 13:44 | Glendell | 104 | 0.55 | 102.2 | 0.41 | 98.6 | 0.41 |
| 29/06/2020 | 16:02 | Glendell | 106.2 | 1.17 | 101.4 | 0.33 | 98.2 | 0.48 |
| 3/07/2020 | 12:48 | Glendell | 108 | 0.52 | 104.8 | 0.23 | 103.2 | 0.27 |
| 8/07/2020 | 13:36 | Glendell | 100.7 | 0.51 | 101.4 | 0.25 | 99.8 | 0.25 |
| 10/07/2020 | 10:48 | Glendell | 99.5 | 0.46 | 97.3 | 0.19 | 99.2 | 0.22 |
| 10/07/2020 | 10:51 | Glendell | 99.6 | 0.61 | 98.8 | 0.29 | 97.9 | 0.36 |
| 21/07/2020 | 13:48 | Glendell | 100.8 | 0.68 | 98 | 0.61 | 95.8 | 0.5 |
| 21/07/2020 | 13:50 | Glendell | 107.7 | 0.42 | 105.5 | 0.47 | 103.7 | 0.44 |
| 30/07/2020 | 13:29 | Glendell | 97.7 | 0.74 | 101 | 0.41 | 96.2 | 0.52 |
| 31/07/2020 | 14:14 | Glendell | 94.9 | 0.38 | 88.5 | 0.23 | 89.7 | 0.15 |
| 31/07/2020 | 14:15 | Glendell | 102.3 | 0.77 | 107.3 | 0.39 | 100.7 | 0.52 |
| 6/08/2020 | 13:30 | Glendell | 107.7 | 0.92 | 103.5 | 0.69 | 104.3 | 0.76 |
| 13/08/2020 | 14:03 | Glendell | 107.7 | 0.49 | 106.5 | 0.53 | 109.7 | 0.44 |
| 24/08/2020 | 12:39 | Glendell | 102.6 | 0.46 | 101.4 | 0.35 | 99.3 | 0.41 |
| 25/08/2020 | 13:40 | Glendell | 110 | 0.7 | 106 | 0.43 | 103.3 | 0.39 |
| 25/08/2020 | 13:43 | Glendell | 97.6 | 0.28 | 95.4 | 0.35 | 97.4 | 0.2 |
| 28/08/2020 | 13:27 | Glendell | 98.7 | 0.35 | 102.1 | 0.35 | 106.8 | 0.34 |
| 31/08/2020 | 16:16 | Glendell | 110.8 | 0.54 | 99.2 | 0.31 | 101.1 | 0.27 |
| 31/08/2020 | 16:19 | Glendell | 107.4 | 0.25 | 103.2 | 0.27 | 106.3 | 0.16 |
| 4/09/2020 | 9:03 | Glendell | 113.1 | 0.99 | 108.8 | 0.41 | 106.5 | 0.45 |
| 4/09/2020 | 9:04 | Glendell | 105.6 | 0.92 | 105.1 | 0.39 | 102.6 | 0.30 |
| 8/09/2020 | 13:40 | Glendell | 103.7 | 0.69 | 99.2 | 0.40 | 101.3 | 0.55 |
| 9/09/2020 | 13:45 | Glendell | 88.0 | 0.12 | 85.6 | 0.05 | 84.1 | 0.03 |
| 10/09/2020 | 13:42 | Glendell | 98.5 | 0.28 | 94.6 | 0.29 | 102.1 | 0.38 |
| 11/09/2020 | 13:37 | Glendell | 99.2 | 0.33 | 95.9 | 0.16 | 95.6 | 0.23 |
| 15/09/2020 | 13:33 | Glendell | 101.4 | 0.49 | 98.1 | 0.22 | 96.2 | 0.20 |
| 18/09/2020 | 13:20 | Glendell | 91.9 | 0.15 | 94.0 | 0.05 | 97.1 | 0.07 |
| 18/09/2020 | 13:21 | Glendell | 83.9 | 0.15 | 91.7 | 0.08 | 88.2 | 0.11 |
| 22/09/2020 | 11:01 | Glendell | 113.8 | 0.70 | 106.4 | 0.58 | 106.3 | 0.74 |

| | | | | | | | | |
|------------|-------|----------|-------|------|-------|------|-------|------|
| 24/09/2020 | 9:13 | Glendell | 101.4 | 0.37 | 97.6 | 0.37 | 94.5 | 0.22 |
| 24/09/2020 | 9:15 | Glendell | 105.6 | 0.57 | 105.1 | 0.28 | 106.6 | 0.26 |
| 24/09/2020 | 13:31 | Glendell | 107.3 | 0.14 | 95.2 | 0.08 | 81.6 | 0.17 |
| 28/09/2020 | 12:34 | Glendell | 102.4 | 0.63 | 100.7 | 0.40 | 97.6 | 0.45 |
| 2/10/2020 | 10:29 | Glendell | 103.1 | 0.48 | 102.6 | 0.33 | 100.6 | 0.32 |
| 2/10/2020 | 10:31 | Glendell | 105.8 | 1.07 | 103.1 | 0.52 | 100.4 | 0.49 |
| 13/10/2020 | 13:37 | Glendell | 89.5 | 0.21 | 89.9 | 0.10 | 87.4 | 0.28 |
| 14/10/2020 | 14:47 | Glendell | 106.2 | 0.33 | 94.6 | 0.26 | 95.7 | 0.26 |
| 14/10/2020 | 14:50 | Glendell | 99.9 | 0.45 | 98.8 | 0.50 | 100.9 | 0.70 |
| 16/10/2020 | 13:34 | Glendell | 104.6 | 0.47 | 103.6 | 0.49 | 100.6 | 0.54 |
| 20/10/2020 | 13:30 | Glendell | 101 | 0.44 | 100.7 | 0.35 | 102.8 | 0.55 |
| 21/10/2020 | 13:39 | Glendell | 85.1 | 0.15 | 86.4 | 0.06 | 85.8 | 0.09 |
| 22/10/2020 | 13:29 | Glendell | 92.0 | 0.34 | 92.7 | 0.30 | 96.2 | 0.18 |
| 23/10/2020 | 11:22 | Glendell | 102.1 | 0.45 | 102.8 | 0.30 | 97.4 | 0.44 |
| 29/10/2020 | 13:26 | Glendell | 102.2 | 0.66 | 99.0 | 0.51 | 97.5 | 0.66 |
| 4/11/2020 | 13:34 | Glendell | 97.2 | 0.15 | 75 | 0.08 | 84.6 | 0.03 |
| 4/11/2020 | 13:37 | Glendell | 103.1 | 0.84 | 106 | 0.32 | 103.5 | 0.34 |
| 6/11/2020 | 13:30 | Glendell | 97.8 | 0.36 | 95.7 | 0.22 | 94.6 | 0.24 |
| 10/11/2020 | 13:38 | Glendell | 95.1 | 0.35 | 96.1 | 0.19 | 91.9 | 0.22 |
| 11/11/2020 | 13:38 | Glendell | 98.4 | 0.41 | 97.7 | 0.29 | 93.7 | 0.18 |
| 17/11/2020 | 11:16 | Glendell | 99.1 | 0.46 | 98.9 | 0.19 | 98.3 | 0.21 |
| 19/11/2020 | 13:27 | Glendell | 103.8 | 0.98 | 99.1 | 1.39 | 98.9 | 0.99 |
| 24/11/2020 | 13:33 | Glendell | 94.6 | 0.34 | 96.4 | 0.21 | 91.8 | 0.23 |
| 27/11/2020 | 13:37 | Glendell | 104.4 | 0.64 | 102.4 | 0.52 | 98.7 | 0.56 |
| 3/12/2020 | 13:45 | Glendell | 99 | 0.31 | 98.9 | 0.24 | 93.8 | 0.17 |
| 3/12/2020 | 13:47 | Glendell | 104.5 | 0.8 | 100 | 0.87 | 99 | 0.58 |
| 8/12/2020 | 13:58 | Glendell | 98.3 | 0.61 | 102.4 | 0.65 | 100.5 | 0.79 |
| 9/12/20 | 11:07 | Glendell | 109.6 | 0.79 | 101.5 | 0.73 | 96.8 | 0.76 |
| 11/12/2020 | 13:28 | Glendell | 100.7 | 0.19 | 98.9 | 0.12 | 92.8 | 0.05 |
| 17/12/2020 | 10:48 | Glendell | 106.1 | 0.68 | 104.7 | 0.83 | 101.4 | 0.75 |
| 21/12/2020 | 13:34 | Glendell | 101.1 | 0.45 | 100.4 | 0.36 | 99.6 | 0.48 |

Table 14: Glendell Blast Monitoring Results – Integra Surface, Homestead

| Date fired | Time fired | Site | Integra Surface | | Homestead | |
|------------|------------|----------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | | Peak Overpressure dB(L) | Peak Vibration (mm/s) | Peak Overpressure dB(L) | Peak Vibration (mm/s) |
| 3/01/2020 | 13:39 | Glendell | 100.4 | 0.29 | 96.8 | 0.27 |
| 9/01/2020 | 13:40 | Glendell | 103.1 | 0.05 | 104.3 | 0.06 |
| 9/01/2020 | 13:42 | Glendell | 103.5 | 0.2 | 101.3 | 0.38 |
| 13/01/2020 | 10:36 | Glendell | 98.5 | 0.6 | 103.8 | 0.6 |
| 15/01/2020 | 15:32 | Glendell | 99.8 | 0.61 | 91.4 | 0.35 |
| 22/01/2020 | 10:33 | Glendell | 95.8 | 0.23 | 101.8 | 0.55 |
| 24/01/2020 | 15:23 | Glendell | 101.3 | 0.21 | 101 | 0.17 |
| 25/01/2020 | 9:24 | Glendell | 101.9 | 0.44 | 95.1 | 0.38 |
| 29/01/2020 | 13:42 | Glendell | 98.3 | 0.18 | 106.7 | 0.52 |
| 3/02/2020 | 11:04 | Glendell | 99.2 | 0.62 | 98.8 | 0.25 |
| 7/02/2020 | 12:53 | Glendell | 99.1 | 0.28 | 103.9 | 0.49 |
| 7/02/2020 | 12:56 | Glendell | 96.9 | 0.42 | 103.5 | 0.55 |
| 18/02/2020 | 13:59 | Glendell | 101.6 | 0.34 | 90.9 | 0.49 |
| 21/02/2020 | 12:02 | Glendell | 114.1 | 0.14 | 88.4 | 0.09 |
| 25/02/2020 | 13:21 | Glendell | 104.6 | 0.24 | 92.4 | 0.32 |
| 28/02/2020 | 13:30 | Glendell | 98.5 | 0.23 | 93.1 | 0.28 |
| 28/02/2020 | 13:33 | Glendell | 98.8 | 0.51 | 88.3 | 0.29 |
| 3/03/2020 | 13:27 | Glendell | 106.4 | 0.1 | 104.6 | 0.08 |
| 7/03/2020 | 10:05 | Glendell | 101.9 | 0.22 | 99.8 | 0.41 |
| 9/03/2020 | 13:27 | Glendell | 101.8 | 0.13 | 99.6 | 0.1 |
| 12/03/2020 | 13:30 | Glendell | 103.8 | 0.31 | 106.4 | 0.25 |
| 12/03/2020 | 14:00 | Glendell | 94.5 | 0.27 | 106.9 | 0.38 |
| 18/03/2020 | 13:50 | Glendell | 96.8 | 0.11 | 98.9 | 0.09 |
| 18/03/2020 | 13:53 | Glendell | 83.9 | 0.12 | 100.5 | 0.17 |
| 31/03/2020 | 13:57 | Glendell | 104.4 | 1.56 | 107.5 | 0.37 |
| 2/04/2020 | 15:00 | Glendell | 105 | 0.42 | 92.9 | 0.98 |
| 2/04/2020 | 15:02 | Glendell | 103.6 | 0.16 | 87.2 | 0.19 |
| 8/04/2020 | 12:43 | Glendell | 102.2 | 0.24 | 107 | 0.37 |
| 9/04/2020 | 13:36 | Glendell | 101.5 | 0.19 | 99.6 | 0.28 |
| 18/04/2020 | 12:39 | Glendell | 95.9 | 0.53 | 98.6 | 0.33 |
| 18/04/2020 | 12:46 | Glendell | 97.1 | 0.46 | 97.2 | 0.72 |
| 22/04/2020 | 13:37 | Glendell | 97.2 | 0.31 | 90.4 | 0.38 |
| 27/04/2020 | 13:38 | Glendell | 91.9 | 0.42 | 101.7 | 0.44 |
| 28/04/2020 | 14:29 | Glendell | 92.5 | 0.06 | 98.8 | 0.13 |
| 28/04/2020 | 16:11 | Glendell | 89.2 | 0.39 | 94.3 | 0.32 |
| 4/05/2020 | 14:03 | Glendell | 93.6 | 0.07 | 97.4 | 0.19 |
| 4/05/2020 | 14:06 | Glendell | 94.7 | 0.09 | 99.7 | 0.11 |
| 5/05/2020 | 13:33 | Glendell | 93.5 | 0.25 | 93.2 | 0.21 |
| 7/05/2020 | 13:41 | Glendell | 99.3 | 0.3 | 96.6 | 0.54 |
| 14/05/2020 | 13:36 | Glendell | 97.2 | 0.21 | 104.7 | 0.61 |

| | | | | | | |
|------------|-------|----------|-------|------|-------|------|
| 19/05/2020 | 13:39 | Glendell | 95.1 | 0.28 | 90.1 | 0.29 |
| 21/05/2020 | 13:47 | Glendell | 97.8 | 0.21 | 93.3 | 0.34 |
| 3/06/2020 | 12:31 | Glendell | 102.4 | 0.47 | 96.8 | 0.15 |
| 4/06/2020 | 15:47 | Glendell | 91.1 | 0.39 | 88.4 | 0.39 |
| 11/06/2020 | 13:58 | Glendell | 93.3 | 0.59 | 92.5 | 0.48 |
| 12/06/2020 | 13:37 | Glendell | 92.3 | 0.27 | 86.6 | 0.47 |
| 16/06/2020 | 13:27 | Glendell | 98.9 | 0.23 | 95 | 0.15 |
| 17/06/2020 | 13:36 | Glendell | 95 | 0.48 | 93.2 | 0.55 |
| 23/06/2020 | 15:52 | Glendell | 104.8 | 0.49 | 104.4 | 0.56 |
| 25/06/2020 | 09:36 | Glendell | 98.2 | 0.37 | 102.5 | 0.12 |
| 26/06/2020 | 13:44 | Glendell | 98.5 | 0.62 | 100.9 | 0.61 |
| 29/06/2020 | 16:02 | Glendell | 101.3 | 0.82 | 100 | 0.39 |
| 3/07/2020 | 12:48 | Glendell | 107.9 | 0.56 | 100.8 | 0.21 |
| 8/07/2020 | 13:36 | Glendell | 95.9 | 0.19 | 104.7 | 0.19 |
| 10/07/2020 | 10:48 | Glendell | 90.9 | 0.31 | 99.5 | 0.14 |
| 10/07/2020 | 10:51 | Glendell | 95.9 | 0.5 | 99.3 | 0.24 |
| 21/07/2020 | 13:48 | Glendell | 101.1 | 0.24 | 105.7 | 0.34 |
| 21/07/2020 | 13:50 | Glendell | 94.6 | 0.82 | 107.3 | 0.29 |
| 30/07/2020 | 13:29 | Glendell | 90.6 | 0.26 | 106.3 | 0.31 |
| 31/07/2020 | 14:14 | Glendell | 100 | 0.23 | 105.9 | 0.16 |
| 31/07/2020 | 14:15 | Glendell | 101.1 | 0.67 | 106.4 | 0.38 |
| 6/08/2020 | 13:30 | Glendell | 104 | 0.47 | 97.5 | 0.41 |
| 13/08/2020 | 14:03 | Glendell | 108.4 | 0.31 | 108.5 | 0.17 |
| 24/08/2020 | 12:39 | Glendell | 109.8 | 0.34 | 108.2 | 0.73 |
| 25/08/2020 | 13:40 | Glendell | 104.6 | 0.37 | 91.1 | 0.44 |
| 25/08/2020 | 13:43 | Glendell | 107.2 | 0.09 | 101.9 | 0.22 |
| 28/08/2020 | 13:27 | Glendell | 119.7 | 0.15 | 102.9 | 0.75 |
| 31/08/2020 | 16:16 | Glendell | 111.5 | 0.24 | 99 | 0.57 |
| 31/08/2020 | 16:19 | Glendell | 109.6 | 0.16 | 100.6 | 0.18 |
| 4/09/2020 | 9:03 | Glendell | 103.4 | 0.40 | 92.1 | 0.69 |
| 4/09/2020 | 9:04 | Glendell | 103.1 | 0.23 | 100.6 | 0.59 |
| 8/09/2020 | 13:40 | Glendell | 103.4 | 0.86 | 93.4 | 1.41 |
| 9/09/2020 | 13:45 | Glendell | 102.4 | 0.06 | 100.7 | 0.16 |
| 10/09/2020 | 13:42 | Glendell | 101.6 | 0.20 | 110.2 | 0.71 |
| 11/09/2020 | 13:37 | Glendell | 105.7 | 0.14 | 100.8 | 0.25 |
| 15/09/2020 | 13:33 | Glendell | 104.8 | 0.25 | 104.4 | 0.55 |
| 18/09/2020 | 13:20 | Glendell | 101.4 | 0.11 | 102.7 | 0.45 |
| 18/09/2020 | 13:21 | Glendell | 100.6 | 0.22 | 105.2 | 0.82 |
| 22/09/2020 | 11:01 | Glendell | 103.5 | 0.43 | 97.8 | 0.54 |
| 24/09/2020 | 9:13 | Glendell | 103.9 | 0.26 | 93.2 | 0.25 |
| 24/09/2020 | 9:15 | Glendell | 105.2 | 0.22 | 109.1 | 0.44 |
| 24/09/2020 | 13:31 | Glendell | 105.0 | 0.29 | 101.2 | 0.52 |
| 28/09/2020 | 12:34 | Glendell | 109.3 | 0.27 | 89 | 0.31 |
| 2/10/2020 | 10:29 | Glendell | 103.7 | 0.20 | 93.4 | 0.25 |
| 2/10/2020 | 10:31 | Glendell | 102.3 | 0.37 | 95.0 | 0.47 |
| 13/10/2020 | 13:37 | Glendell | 96.8 | 0.35 | 111.9 | 2.09 |

| | | | | | | |
|------------|-------|----------|-------|------|-------|------|
| 14/10/2020 | 14:47 | Glendell | 98.8 | 0.30 | 110.0 | 0.29 |
| 14/10/2020 | 14:50 | Glendell | 100.7 | 0.36 | 110.5 | 0.22 |
| 16/10/2020 | 13:34 | Glendell | 100.9 | 0.30 | 95.2 | 0.54 |
| 20/10/2020 | 13:30 | Glendell | 99.9 | 0.37 | 106.7 | 0.54 |
| 21/10/2020 | 13:39 | Glendell | 100.5 | 0.09 | 101.4 | 0.32 |
| 22/10/2020 | 13:29 | Glendell | 97.6 | 0.15 | 96.5 | 0.30 |
| 23/10/2020 | 11:22 | Glendell | 100.9 | 0.24 | 97.2 | 0.34 |
| 29/10/2020 | 13:26 | Glendell | 98.6 | 0.34 | 94.2 | 0.45 |
| 4/11/2020 | 13:34 | Glendell | 99 | 0.03 | 88 | 0.04 |
| 4/11/2020 | 13:37 | Glendell | 97 | 0.3 | 95.4 | 0.43 |
| 6/11/2020 | 13:30 | Glendell | 98.3 | 0.17 | 103.6 | 0.3 |
| 10/11/2020 | 13:38 | Glendell | 93.7 | 0.17 | 98.6 | 0.69 |
| 11/11/2020 | 13:38 | Glendell | 93.3 | 0.17 | 93.9 | 0.15 |
| 17/11/2020 | 11:16 | Glendell | 93.1 | 0.2 | 105.8 | 0.25 |
| 19/11/2020 | 13:27 | Glendell | 95.7 | 0.55 | 100 | 1.03 |
| 24/11/2020 | 13:33 | Glendell | 95.2 | 0.19 | 98.3 | 0.28 |
| 27/11/2020 | 13:37 | Glendell | 95.1 | 0.33 | 92.6 | 0.56 |
| 3/12/2020 | 13:45 | Glendell | 95.7 | 0.15 | 101.1 | 0.37 |
| 3/12/2020 | 13:47 | Glendell | 95 | 0.43 | 96.3 | 0.32 |
| 8/12/2020 | 13:58 | Glendell | 97.1 | 0.35 | 91.3 | 0.43 |
| 9/12/20 | 11:07 | Glendell | 99.8 | 0.52 | 96.1 | 0.51 |
| 11/12/2020 | 13:28 | Glendell | 96.9 | 0.07 | 106.7 | 0.05 |
| 17/12/2020 | 10:48 | Glendell | 98.8 | 1.03 | 91.5 | 1.2 |
| 21/12/2020 | 13:34 | Glendell | 94.4 | 0.31 | 99 | 0.57 |

Appendix F: Air Quality

Table 15: MGO Depositional Dust Gauge Results 2020 (g/m2/month)

| Gauge Ref. | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----------------|-----|-------|-------|------|-------|------|-----|-----|-------|-----|-------|------|
| Mt Owen | | | | | | | | | | | | |
| DD6 | 1.7 | 5.3 | 1.7 | 1.2 | 2.4 | 1.8 | 1.1 | 1.7 | 1.4 | 1.9 | 1.3 | 2.8c |
| DD7 (DG2) | 2.3 | 4.9c | 10.6 | 1.9 | 6.9 | 0 | 1.6 | 2.7 | 2 | 1.8 | 1.7 | 3.2 |
| DD12 | 2.3 | 4.7 | 1.5 | 1 | 5.8 | 4 | 2.4 | 3.6 | 3.9 | 3.3 | 1.6 | 3.4 |
| DD14 | 3.1 | 4.9 | 1.1 | 6.4c | 2.2 | 2.7 | 1.2 | 4.1 | 3.3 | 2.8 | 1.6 | 1.7 |
| DD16 | 0.6 | 5.3 | 1.3 | 1.9 | 5.6 | 4.4 | 4.6 | 4.9 | 5.7 | 4.7 | 11.6c | 3.2 |
| Glendell | | | | | | | | | | | | |
| DG3 | 1.5 | 5 | 1.5 | 1.3 | 2 | 1.8 | 0.6 | 1 | 1.2 | 1.5 | 1 | 2.2 |
| DG4 (DD15) | 2.9 | 6.4c | 2 | 1 | 2.8 | 1.8 | 1 | 2.5 | 9c | 1.4 | 1.6 | 3.2 |
| DG5 | 2.4 | 4 | 1.3 | 8.8c | 2.8 | 2 | 1.4 | 3.4 | 2 | 1.2 | 3.7 | 1.8 |
| DG6 | 1.7 | 5.3 | 1.7 | 1.2 | 2.4 | 1.8 | 1.1 | 1.7 | 1.4 | 1.9 | 1.3 | 2.8 |
| DG7 | 2.3 | 4.9 | 10.6c | 1.9 | 6.9c | 0 | 1.6 | 2.7 | 2 | 1.8 | 1.7 | 3.2 |
| DG8 | 1.3 | 14.1c | 2.2 | 9.9c | 11.9c | 7.8c | 4.2 | 2.9 | 17.6c | 2.4 | 9.6c | 8.3c |

c – Dust gauge deemed contaminated after analysis of influencing factors. These factors include an ash residue result of <50%, the presence of bird droppings or other contaminants such as insects in the dust gauge and analysis of historical results from the dust gauge.

Table 16: MGO Total Suspended Particulate Monitoring Results 2020 (µg/m3 24hr period/wk)

| Sampling Date | TSP 1 (Picton) | TSP 2 (Middle Falbrook) | TSP 3 (Camberwell) |
|---------------|----------------------|-------------------------|----------------------|
| | (µg/m ³) | (µg/m ³) | (µg/m ³) |
| 3-Jan | 84 | 36 | 114 |
| 9-Jan | 84 | 58 | 61 |
| 15-Jan | 83 | 30 | 55 |
| 21-Jan | 129 | 145 | 80 |
| 27-Jan | 88 | 58 | 61 |
| 2-Feb | 82 | 175 | 127 |
| 8-Feb | 16 | 21 | 18 |
| 14-Feb | 45 | 22 | 34 |
| 20-Feb | 52 | 69 | 92 |
| 26-Feb | 40 | 72 | 64 |
| 3-Mar | 61 | 48 | 54 |
| 9-Mar | 52 | 17 | 27 |

| | | | |
|--------|------|------|-----|
| 15-Mar | 34 | 15 | 23 |
| 21-Mar | 68 | 68 | 92 |
| 27-Mar | 27 | 16 | 39 |
| 2-Apr | 61 | 26 | 30 |
| 8-Apr | 37 | 12 | 26 |
| 14-Apr | 48 | 90 | 76 |
| 20-Apr | 37 | 154 | 135 |
| 26-Apr | 55 | 152 | 146 |
| 2-May | 19 | 61 | 85 |
| 8-May | 51 | 85 | 98 |
| 14-May | 58 | 76 | 54 |
| 20-May | 44 | 72 | 160 |
| 26-May | 21 | 12 | 28 |
| 1-Jun | 36 | 101 | 102 |
| 7-Jun | 49 | 118 | 60 |
| 13-Jun | 40 | 23 | 33 |
| 19-Jun | 42 | 34 | 29 |
| 25-Jun | 15 | 119 | 54 |
| 1-Jul | 38 | 127 | 116 |
| 7-Jul | 86 | 46 | 71 |
| 13-Jul | 24 | 66 | 40 |
| 19-Jul | 13 | 132 | 74 |
| 25-Jul | 36 | 17 | 20 |
| 31-Jul | 41.5 | 47.5 | 20 |
| 6-Aug | 27 | 71 | 75 |
| 12-Aug | 19 | 51 | 46 |
| 18-Aug | 29 | 73 | 63 |
| 24-Aug | 17 | 101 | 84 |
| 30-Aug | 29 | 101 | 122 |
| 5-Sep | 40 | 59 | 59 |
| 11-Sep | 28 | 16 | 29 |
| 17-Sep | 67 | 86 | 115 |
| 23-Sep | 29 | 123 | 95 |
| 29-Sep | 23 | 23 | 36 |
| 5-Oct | 20 | 33 | 90 |
| 11-Oct | 49 | 73 | 65 |
| 17-Oct | 80 | 104 | 103 |
| 23-Oct | 58 | 29 | 36 |
| 29-Oct | 32 | 13 | 12 |
| 4-Nov | 45 | 56 | 103 |
| 10-Nov | 30 | 10 | 35 |
| 16-Nov | 60 | 71 | 89 |

| | | | |
|---------------|----|-----|-----|
| 22-Nov | 75 | 75 | 109 |
| 28-Nov | 53 | 106 | 150 |
| 4-Dec | 79 | 74 | 89 |
| 10-Dec | 73 | 53 | 69 |
| 16-Dec | 28 | 13 | 22 |
| 22-Dec | 21 | 39 | 42 |
| 28-Dec | 17 | 28 | 42 |

Note: Days highlighted blue have been denoted as 'extraordinary events' as advised by DPIE. As advised by DPIE, days which were identified as 'extraordinary events' were not included in Long term impact assessment criteria.

Table 17: Continuous PM10 (µg/m3) Monitoring Results 2020

| Date (those highlighted blue represent extraordinary events) | DPIE PM10 Monitoring 24 Hr Avg | | | | |
|--|--------------------------------|----------------------|-------------------|-------------------|---|
| | Sx13 D1 Project Office | Sx13 D4 McInerney | Sx13 D8 Picton | Sx13 D9 Nobles | Sx D11 Middle Falbrook |
| 1-Jan | 68.9 | 83.2 | 66.1 | 61.3 | 44.7 |
| 2-Jan | 45.8 | 55 | 43.4 | 42.1 | 20.7 |
| 3-Jan | 31.1 | 32.8 | 56.3 | 39.1 | 27.2 |
| 4-Jan | 40.1 | 52.6 | 43 | 39.6 | 24.3 |
| 5-Jan | 91.6 | 100.7 | 99.2 | 86.9 | 50 |
| 6-Jan | 42.8 | 45.5 | 46.9 | 38.5 | 17.5 |
| 7-Jan | 27.7 | 42.3 | 28.8 | 27.3 | Data was manually excluded due to faulty operations |
| 8-Jan | 65 | 76.9 | 69.7 | 60.8 | 45 |
| 9-Jan | 33.6 | 38.3 | 38.5 | 36.4 | 30.9 |
| 10-Jan | 31.2 | 43.5 | 43.1 | 39.5 | 24.2 |
| 11-Jan | 49.9 | 61.7 | 62.7 | 59 | 33.6 |
| 12-Jan | 46.7 | 54.5 | 50.8 | 46.2 | 32.2 |
| 13-Jan | 30.6 | 33.2 | 33.5 | 26.4 | 9.1 |
| 14-Jan | 26.8 | 29.8 | 31.7 | 19.3 | 4.5 |
| 15-Jan | 18.2 | 18.6 | 24.9 | 16.2 | 4 |
| 16-Jan | 19.2 | 20.1 | 30.2 | 17.9 | 6.5 |
| 17-Jan | 27.4 | 27 | 33.1 | 25.8 | 24.8 |
| 18-Jan | 15 | 17.1 | 19.2 | 18 | 23 |
| 19-Jan | 13.2 | 14.8 | 20.3 | 15.1 | 18 |
| 20-Jan | 34.6 | 38.2 | 58 | 32.3 | 34 |
| 21-Jan | 61.9 | 65.8 | 56.3 | 65 | 48.6 |
| 22-Jan | 26.2 | 33.7 | 37.8 | 30.5 | 27.5 |
| 23-Jan | 75.1 | 93.2 | 65.2 | 82.2 | 58.5 |
| 24-Jan | 43.7 | 57.6 | 47.7 | 45.6 | 44.8 |
| 25-Jan | 36.6 | 40.4 | 45.2 | 41.2 | 32.6 |
| 26-Jan | 17.6 | 24.8 | 19.6 | 17.9 | 19.2 |
| 27-Jan | 29.7 | 36.3 | 33.3 | 30.3 | 25.6 |
| 28-Jan | 30 | 32.4 | 32.2 | 27.4 | 22.1 |
| 29-Jan | 27.1 | 32.9 | 34.9 | 28.3 | 28.6 |
| 30-Jan | 32.6 | 31.9 | 38.5 | 28.7 | 25.3 23.6 |
| 31-Jan | 21.5 | 27.6 | 33.8 | 23.1 | |
| 1-Feb | 28.2 | 53.8 | 30.2 | 33.5 | 38.9 |
| 2-Feb | 46.6 | 68.6 | 32 | 42.2 | 41.3 |
| 3-Feb | 19 | 29 | 29.2 | 23.2 | 28.1 |
| 4-Feb | 34.4 | 42.4 | 37.8 | 34.2 | 33.1 |
| 5-Feb | 19.7 | 18.9 | 28.6 | 15.8 | 10.3 |
| 6-Feb | Power Outage | 11.4 | 11.9 | 10.5 | 5.7 |
| 7-Feb | Power Outage | 4.9 | 4.6 | 4.5 | 4.2 |
| 8-Feb | 1.9 | 4.9 | 5.8 | 4.9 | 5.2 |

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|--------|------|-------------------------|------|------|------|
| 9-Feb | 1.2 | Water Damage | 5.1 | 4 | 4.8 |
| 10-Feb | 6.3 | Water Damage | 12.4 | 7.3 | 8.2 |
| 11-Feb | 15.3 | 12 month maintenance | 15.4 | 9.5 | 9.4 |
| 12-Feb | 10.5 | 8.4 | 13.8 | 10.6 | 9.7 |
| 13-Feb | 13.2 | 11.1 | 12.9 | 10.9 | 8.2 |
| 14-Feb | 15.5 | 16.2 | 20 | 18.3 | 13.8 |
| 15-Feb | 16.9 | 25.3 | 16.8 | 24.7 | 19.8 |
| 16-Feb | 11.4 | 13.7 | 15 | 13.8 | 11.4 |
| 17-Feb | 11 | 12.8 | 13.8 | 11.6 | 8 |
| 18-Feb | 16.9 | 23.8 | 20.1 | 17.6 | 17.3 |
| 19-Feb | 50.6 | 53.9 | 52.4 | 56.5 | 44.7 |
| 20-Feb | 21.7 | 25.4 | 22.4 | 24.3 | 19.3 |
| 21-Feb | 15.3 | 19 | 17.7 | 17.9 | 12.2 |
| 22-Feb | 12.7 | 14.4 | 16.9 | 13.6 | 9 |
| 23-Feb | 12.1 | 12.8 | 13.5 | 11.6 | 8.9 |
| 24-Feb | 9.6 | 10.4 | 24.2 | 10.5 | 7.7 |
| 25-Feb | 11.1 | 14.9 | 15.2 | 13.6 | 12.5 |
| 26-Feb | 13.9 | 23.8 | 16 | 16.7 | 18.6 |
| 27-Feb | 22.5 | 27.2 | 24.3 | 25.7 | 19.3 |
| 28-Feb | 25.4 | 25.7 | 37 | 25.3 | 25.5 |
| 29-Feb | 17.1 | 18.7 | 20.9 | 14 | 12.1 |
| 1-Mar | 17.7 | 25.6 | 17.6 | 17.3 | 15.5 |
| 2-Mar | 37 | 48.9 | 32.2 | 33.2 | 39 |
| 3-Mar | 21.3 | 24.9 | 22.1 | 20.8 | 16.9 |
| 4-Mar | 12.6 | 15.1 | 15.8 | 11.9 | 10.3 |
| 5-Mar | 8.2 | 11 | 13.1 | 9.5 | 8.5 |
| 6-Mar | 8.7 | 13.3 | 9.7 | 11.4 | 10.2 |
| 7-Mar | 11.5 | 14.6 | 12.7 | 13.4 | 10 |
| 8-Mar | 8.2 | 11.5 | 13.4 | 10.3 | 7.8 |
| 9-Mar | 9 | 11.7 | 14.2 | 9.6 | 6.7 |
| 10-Mar | 8.7 | 12 | 11.5 | 9.5 | 6.7 |
| 11-Mar | 9.6 | 11.6 | 12 | 7.8 | 4.9 |
| 12-Mar | 8.3 | 11.7 | 16.3 | 8.4 | 5.8 |
| 13-Mar | 12.8 | 12 | 21.3 | 9.7 | 6.8 |
| 14-Mar | 12.4 | 12.5 | 23.3 | 14.1 | 8.7 |
| 15-Mar | 16.5 | 14.2 | 14.4 | 12.5 | 7.8 |
| 16-Mar | 10 | 8.6 | 11 | 7.9 | 4.3 |
| 17-Mar | 7.9 | 9.4 | 9.3 | 8.7 | 5 |
| 18-Mar | 14.4 | 15.1 | 13.7 | 11.8 | 9.9 |
| 19-Mar | 25.5 | 29.3 | 30.2 | 31 | 27 |
| 20-Mar | 43.6 | 56.3 | 29.7 | 44.6 | 34.4 |
| 21-Mar | 36.9 | 37.2 | 29.5 | 34.6 | 23.7 |
| 22-Mar | 23.8 | 32.1 | 23.1 | 26.2 | 20.1 |
| 23-Mar | 15.8 | 21.1 | 15.8 | 16.4 | 11.8 |

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| 24-Mar | 14.6 | 14.2 | 23 | 10.9 | 7.4 |
| 25-Mar | 15.1 | 24.7 | 17.9 | 17.9 | 11 |
| 26-Mar | 7.6 | Water Damage | 8.7 | 9.2 | 6.8 |
| 27-Mar | 11.4 | Water Damage | 13.2 | 13.1 | 9.5 |
| 28-Mar | 10.8 | Water Damage | 14.3 | 11.7 | 8.3 |
| 29-Mar | 9.5 | Water Damage | 12.8 | 8.1 | 5.7 |
| 30-Mar | 10.4 | Water Damage | 14.8 | 11.4 | 11.8 |
| 31-Mar | 11.3 | Water Damage | 13.5 | 14.2 | 11.8 |
| 1-Apr | 11.4 | Water Damage | 18 | 10.4 | 8 |
| 2-Apr | 12.4 | Water Damage | 18.9 | 11.4 | 10.5 |
| 3-Apr | 8.3 | Water Damage | 11.6 | 10.8 | 8.5 |
| 4-Apr | 19.1 | Water Damage | 19.1 | 19 | 14.2 |
| 5-Apr | 23.4 | 29.9 | 23.4 | 24 | 20.8 |
| 6-Apr | 16.7 | 20.1 | 17.8 | 18.6 | 14.2 |
| 7-Apr | 10.1 | 11.5 | 13.1 | 10.3 | 5.8 |
| 8-Apr | 11.3 | 11 | 13.1 | 9.8 | 6.3 |
| 9-Apr | 10.7 | 12.8 | 14.2 | 10.8 | 6.4 |
| 10-Apr | 6.6 | 9.6 | 9.3 | 8.8 | 7.6 |
| 11-Apr | 27 | 40.2 | 24.4 | 24.8 | 17.4 |
| 12-Apr | 14.8 | 20.2 | 16 | 17.4 | 10.5 |
| 13-Apr | 22.4 | 23.3 | 19.6 | 25.3 | 23 |
| 14-Apr | 18.3 | 25.9 | 25.4 | 23.2 | 27.1 |
| 15-Apr | 20 | 32.3 | 37.6 | 27.6 | 30.2 |
| 16-Apr | 27.8 | 40.9 | 21.6 | 29.2 | 24.6 |
| 17-Apr | 29 | 46.7 | 23 | 27.9 | 32.4 |
| 18-Apr | 19 | 30.3 | 14.3 | 19.6 | 20.5 |
| 19-Apr | 25.1 | 23.7 | 18.1 | 23.9 | 27.9 |
| 20-Apr | 21.8 | 32.8 | 21.3 | 28.9 | 38.9 |
| 21-Apr | 25.6 | 47 | 44.8 | 28.8 | 21.7 |
| 22-Apr | 27.4 | 38.7 | 25 | 27.9 | 25.6 |
| 23-Apr | 27.8 | 44.4 | 34.7 | 32.5 | 27.5 |
| 24-Apr | 39.6 | 48 | 31.5 | 37.7 | 29.9 |
| 25-Apr | 26.6 | 35.1 | 18 | 32.7 | 32.4 |
| 26-Apr | 51.5 | 58.4 | 33.5 | 44.2 | 41.2 |
| 27-Apr | 23.7 | 19.7 | 21.8 | 18.6 | 11.4 |
| 28-Apr | 13.1 | 14.7 | 26.7 | 13.3 | 8.2 |
| 29-Apr | 18 | 27.3 | 16.4 | 16.8 | 12.3 |
| 30-Apr | 18.2 | 15.4 | 11 | 11.8 | 7.3 |
| 1-May | 17.6 | 30.4 | 12.3 | 15 | 11 |
| 2-May | 17.8 | 38 | 11.2 | 16.9 | 12.6 |
| 3-May | 11.6 | 21.2 | 7.8 | 12.7 | 8.3 |
| 4-May | 14.3 | 14.6 | 18.6 | 20.1 | 21.2 |
| 5-May | 11.1 | 13.4 | 18.2 | 10.7 | 5.3 |
| 6-May | 13 | 14.7 | 12.9 | 15.9 | 15.4 |

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| 7-May | 19.2 | 27.6 | 19.9 | 24.7 | 29.9 |
| 8-May | 29.1 | 28.7 | 26.6 | 22.6 | 24.1 |
| 9-May | 29.8 | 28 | 17.6 | 25.8 | 17.9 |
| 10-May | 13.7 | 22.7 | 7.5 | 15.7 | 14.8 |
| 11-May | 14.3 | 16.9 | 19.7 | 14.6 | 21.1 |
| 12-May | 19.5 | 24.8 | 29.5 | 25.8 | 40.8 |
| 13-May | 15.7 | 34.5 | 27.6 | 28.8 | 26.9 |
| 14-May | 17.1 | 21.2 | 28.6 | 17 | 35.9 |
| 15-May | 12.8 | 11.6 | 13.5 | 10.8 | 6.5 |
| 16-May | 10.1 | 10 | 8.1 | 7.1 | 5.4 |
| 17-May | 16.5 | 17.1 | 12 | 11.5 | 8.6 |
| 18-May | 13.4 | 14.3 | 14.7 | 8.6 | 6.7 |
| 19-May | 4.5 | 10.6 | 7.5 | 3.8 | 6 |
| 20-May | 14.8 | 25.7 | 16.2 | 16.5 | 16.1 |
| 21-May | 13.8 | 22.5 | 7.1 | 15.6 | 13.4 |
| 22-May | 12.1 | 19.7 | 8.2 | 11.6 | 12.4 |
| 23-May | 11.7 | 22.4 | 5.2 | 6.7 | 7.1 |
| 24-May | 8.8 | 17.4 | 6.6 | 11 | 8.5 |
| 25-May | 7.6 | 13.9 | 8.8 | 9.7 | 8 |
| 26-May | 10.3 | 11.5 | 10.2 | 11.4 | 5.4 |
| 27-May | 12.3 | 17.4 | 12.2 | 13.4 | 9.8 |
| 28-May | 14.7 | 18.3 | 12.4 | 16.7 | 19.6 |
| 29-May | 13.8 | 18.8 | 12.8 | 16.5 | 15.7 |
| 30-May | 9.9 | 15 | 8.7 | 8.7 | 7.1 |
| 31-May | 24.4 | 21.5 | 12.3 | 16.4 | 14.8 |
| 1-Jun | 41.3 | 46.4 | 20.5 | 23.6 | 21.4 |
| 2-Jun | 22.6 | 21.4 | 8.7 | 14.4 | 22.8 |
| 3-Jun | 13 | 13.4 | 9 | 9.3 | 9.1 |
| 4-Jun | 13.6 | 9.1 | 14.6 | 9.4 | 6.4 |
| 5-Jun | 10.6 | 16.4 | 11.6 | 15.6 | 21 |
| 6-Jun | 17 | 34.9 | 11.3 | 21 | 23.4 |
| 7-Jun | 18.5 | 25 | 18.9 | 22.6 | 32.5 |
| 8-Jun | 18.5 | 15.1 | 19.5 | 18.8 | 10.2 |
| 9-Jun | 6.7 | 6.9 | 11 | 7.6 | 3.5 |
| 10-Jun | 4.1 | 5.1 | 8.4 | 5.6 | 2 |
| 11-Jun | 12.5 | 12 | 9.7 | 11.2 | 8.4 |
| 12-Jun | 17.4 | 12.7 | 17.1 | 13.8 | 8.3 |
| 13-Jun | 15.6 | 12 | 13.9 | 10.8 | 7.9 |
| 14-Jun | 12.1 | 15.7 | 9.7 | 12.2 | 11.6 |
| 15-Jun | 14.4 | 27.3 | 12.1 | 15.5 | 9.3 |
| 16-Jun | 17 | 22.8 | 12.4 | 17.8 | 15.9 |
| 17-Jun | 13.9 | 16.7 | 24.1 | 14.6 | 8.7 |
| 18-Jun | 10.7 | 11.9 | 11.2 | 10.8 | 5.5 |
| 19-Jun | 12.8 | 11.4 | 13.3 | 9.1 | 10.5 |

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| 20-Jun | 16.7 | 12.7 | 13.1 | 10.9 | 12.1 |
| 21-Jun | 15.9 | 13.9 | 7.8 | 12.2 | 13.1 |
| 22-Jun | 15.6 | 13.2 | 7.7 | 14.4 | 8.6 |
| 23-Jun | 17.3 | 16.1 | 7.4 | 9.2 | 6.3 |
| 24-Jun | 19.1 | 24.9 | 8.2 | 9.5 | 9.6 |
| 25-Jun | 14 | 20.7 | 8.3 | 10.1 | 11.6 |
| 26-Jun | 12.7 | 12.7 | 12 | 12.8 | 8.1 |
| 27-Jun | 18.2 | 21 | 16.6 | 18.9 | 14.2 |
| 28-Jun | 10.7 | 10.6 | 13 | 11 | 8.2 |
| 29-Jun | 11.8 | 12.4 | 12.6 | 8.7 | 7.9 |
| 30-Jun | 13 | 15.9 | 16.2 | 14.7 | 18.6 |
| 1-Jul | 20.7 | 10.8 | 15.5 | 23.4 | 28.5 |
| 2-Jul | 34 | 6.5 | 22 | 29.1 | 23.3 |
| 3-Jul | 26.3 | 37.6 | 22 | 24.8 | 20.3 |
| 4-Jul | 18 | 28 | 8.1 | 11.6 | 12.8 |
| 5-Jul | 9.1 | 28.8 | 5.3 | 8 | 4.3 |
| 6-Jul | 11.7 | 17.4 | 13.5 | 14.6 | 12.3 |
| 7-Jul | 15 | 17 | 19.3 | 16.8 | 27.9 |
| 8-Jul | 9.7 | 10.4 | 7.9 | 9 | 7.6 |
| 9-Jul | 13.9 | 19.2 | 12.1 | 11.4 | 12.3 |
| 10-Jul | 16.6 | 27.7 | 13.7 | 19.6 | 17.1 |
| 11-Jul | 8.6 | 14.5 | 7.5 | 9.1 | 6.8 |
| 12-Jul | 5.8 | 11 | 4.5 | 8.8 | 6.4 |
| 15-Jul | 12.1 | 12.2 | 12.1 | 12.8 | 12.7 |
| 16-Jul | 13.7 | 17.2 | 15.9 | 16.6 | 10.5 |
| 17-Jul | 15.2 | 19.2 | 14.8 | 15.4 | 20.9 |
| 18-Jul | 9 | 12.2 | 8.8 | 8.1 | 5.9 |
| 19-Jul | 17.9 | 24.6 | 7.9 | 14.2 | 19.4 |
| 20-Jul | 24.8 | 29.4 | 16.5 | 23.2 | 22.8 |
| 21-Jul | 17.2 | 20.9 | 14 | 16 | 10.5 |
| 22-Jul | 21 | 27.6 | 23.3 | 24.5 | 27.9 |
| 23-Jul | 15.5 | 17.1 | 17.7 | 17 | 18.1 |
| 24-Jul | 17.9 | 16.6 | 15.7 | 12.2 | 9.3 |
| 25-Jul | 11.1 | 11.4 | 13.6 | 9.6 | 8.3 |
| 26-Jul | 3.2 | 4.6 | 5.2 | 4.5 | 3.9 |
| 27-Jul | 2.3 | 6.4 | 4.1 | 5 | 3.1 |
| 28-Jul | 2.2 | 7.6 | 4.1 | 5.3 | 1 |
| 29-Jul | 6 | 8.4 | 7.7 | 11.5 | 8.8 |
| 30-Jul | 12.1 | 11.6 | 11 | 11 | 9.4 |
| 31-Jul | 15.9 | 12.9 | 13.6 | 12.8 | 8.7 |
| 1-Aug | 12.4 | 16.4 | 11.3 | 15.1 | 15.2 |
| 2-Aug | 13.3 | 21.8 | 9.4 | 16.5 | 17.5 |
| 3-Aug | 15.2 | 23.9 | 9.6 | 20.1 | 20.2 |
| 4-Aug | 19.8 | 36.8 | 15 | 25.5 | 23.4 |

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| 5-Aug | 21.8 | 26.4 | 10.3 | 16.5 | 18.4 |
| 6-Aug | 15.6 | 20 | 14.7 | 16.4 | 9.8 |
| 7-Aug | 13.7 | 12.6 | 21.7 | 11.7 | 8 |
| 8-Aug | 7.2 | 10.2 | 6.6 | 7.9 | 9.4 |
| 9-Aug | 7.7 | 10.8 | 4.8 | 7.5 | 9.3 |
| 10-Aug | 10.8 | 14.7 | 10.1 | 11.4 | 5.9 |
| 11-Aug | 9.9 | 12 | 9.7 | 11 | 7.1 |
| 12-Aug | 12.7 | 21 | 12.9 | 18.3 | 15.5 |
| 13-Aug | 12.5 | 19.6 | 10.2 | 15.7 | 10.4 |
| 14-Aug | 17.3 | 28.8 | 17.2 | 19.4 | 31.7 |
| 15-Aug | 11.1 | 15.4 | 7.3 | 8.2 | 10.1 |
| 16-Aug | 14.4 | 18.1 | 6.3 | 6.9 | 9.7 |
| 17-Aug | 12 month maintenance | 25.3 | 12 month maintenance | 7.8 | 8.8 |
| 18-Aug | 12 month maintenance | 18.4 | 12 month maintenance | 11.7 | 10.2 |
| 19-Aug | 63.5 | 75 | 39.7 | 58.7 | 47.9 |
| 20-Aug | 27.7 | 37.4 | 22.9 | 26.7 | 22.5 |
| 21-Aug | 19.5 | 23.8 | 8 | 14.7 | 14.4 |
| 22-Aug | 15.5 | 17.5 | 7.4 | 12.6 | 14.5 |
| 23-Aug | 20.4 | 22.1 | 8.7 | 14.4 | 14.2 |
| 24-Aug | 25 | 26 | 9 | 15.4 | 11.2 |
| 25-Aug | 18 | 21 | 17.9 | 15.5 | 8 |
| 26-Aug | 15 | 22.1 | 18.7 | 19.1 | 15.3 |
| 27-Aug | 28.4 | 32.2 | 14.7 | 28.5 | 28.7 |
| 28-Aug | 22.7 | 23.5 | 11.9 | 15.2 | 13.2 |
| 29-Aug | 21.3 | 26.1 | 16.6 | 16.7 | 19.9 |
| 30-Aug | 23.4 | 29.4 | 17.4 | 27.6 | 27.3 |
| 31-Aug | 30.4 | 43.9 | 36.4 | 35.3 | 23.8 |
| 1-Sep | 17.1 | 21.2 | 19.4 | 17.4 | 12.7 |
| 2-Sep | 31.3 | 38.3 | 19.5 | 25.1 | 27.2 |
| 3-Sep | 49.4 | 49.2 | 19.6 | 41.1 | 38.8 |
| 4-Sep | 37.2 | 43.3 | 22.3 | 32.2 | 23.5 |
| 5-Sep | 13 | 17.4 | 12.3 | 15.4 | 12.2 |
| 6-Sep | 14.3 | 16.9 | 16.9 | 14.7 | 10.3 |
| 7-Sep | 11.1 | 12.4 | 12.8 | 10.9 | 15.4 |
| 8-Sep | 20.6 | 18.9 | 16.5 | 19.9 | 17.4 |
| 9-Sep | 16.7 | 21.5 | 16.4 | 20.6 | 14.8 |
| 10-Sep | 10.2 | 9.4 | 11.3 | 9.8 | 12.7 |
| 11-Sep | 7.6 | 10.3 | 8.5 | 8.3 | 12.2 |
| 12-Sep | 10.6 | 15.1 | 8.2 | 13.8 | 13 |
| 13-Sep | 19.1 | 27.8 | 9.4 | 23.2 | 13.9 |
| 14-Sep | 24 | 25 | 17 | 21 | 13.1 |
| 15-Sep | 13.3 | 13.6 | 14.2 | 14.2 | 12.3 |
| 16-Sep | 15.9 | 19.5 | 16.6 | 16.8 | 13.2 |
| 17-Sep | 31.2 | 31.4 | 26.9 | 27.3 | 13.7 |

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| 18-Sep | 20.9 | 21.5 | 21.9 | 20.6 | 11.9 |
| 19-Sep | 13.6 | 13.2 | 13.6 | 12 | 11.4 |
| 20-Sep | 9.6 | 9.8 | 11.3 | 10.7 | 10.3 |
| 21-Sep | 12.2 | 14.7 | 14.1 | 13.4 | 8.4 |
| 22-Sep | 16.1 | 24.7 | Power Outage | 19.3 | 11.3 |
| 23-Sep | 24.5 | 31.4 | 17.5 | 28.4 | 18 |
| 24-Sep | 14.9 | 30.5 | 11.8 | 20.2 | 12.4 |
| 25-Sep | 21 | 37.6 | 22.2 | 27 | 12 |
| 26-Sep | 15.4 | 25.1 | 9.1 | 13 | 2.4 |
| 27-Sep | 13.4 | 17.8 | 9.6 | 15.1 | 3.4 |
| 28-Sep | 13 | 16.5 | 12.5 | 14.6 | 6.5 |
| 29-Sep | 10.8 | 16.6 | 11.7 | 12.1 | 5.9 |
| 30-Sep | 14.9 | 20.8 | 13.8 | 16.6 | 9.2 |
| 1-Oct | 19.9 | 27.1 | 12.7 | 21.3 | 8.9 |
| 2-Oct | 17.5 | 21.1 | 10.8 | 15.5 | 8 |
| 3-Oct | 18.4 | 22.3 | 15.4 | 17.1 | 13.1 |
| 4-Oct | 23.8 | 22.3 | 15.8 | 23.1 | 11.5 |
| 5-Oct | 23.6 | 28.4 | 15.2 | 18.8 | 15.4 |
| 6-Oct | 19.8 | 18 | 18.8 | 18.7 | 11.3 |
| 7-Oct | 11 | 15 | 14.6 | 13.8 | 11.2 |
| 8-Oct | 29.2 | 32.1 | 23.2 | 24.2 | 17.2 |
| 9-Oct | 40.7 | 30.2 | 16.3 | 21.6 | 17.3 |
| 10-Oct | 32.4 | 26.1 | 10.8 | 19 | 17.8 |
| 11-Oct | 20.7 | 18.9 | 13.9 | 22 | 14.9 |
| 12-Oct | 26.5 | 26.2 | 29 | 21.4 | 15.2 |
| 13-Oct | 25.9 | 27.7 | 24.4 | 21.8 | 12 month maintenance |
| 14-Oct | 28.2 | 27.7 | 27.8 | 24.6 | 12 month maintenance |
| 15-Oct | 25.4 | 33.6 | 17.8 | 22.6 | 17.9 |
| 16-Oct | 36.4 | 41.1 | 24.9 | 30.9 | 22.8 |
| 17-Oct | 36.2 | 35.1 | 24.2 | 28.1 | 25.2 |
| 18-Oct | 15.3 | 21.4 | 13 | 15.6 | 11.3 |
| 19-Oct | 10.2 | 11.8 | 10.8 | 11.6 | 7.7 |
| 20-Oct | 10.6 | 11.6 | 12.9 | 9 | 6.4 |
| 21-Oct | 15 | 16.7 | 16.7 | 12.7 | 9.6 |
| 22-Oct | 25.3 | 21.7 | 16 | 18.4 | 14.4 |
| 23-Oct | 19 | 15.3 | 19.9 | 14.3 | 11.8 |
| 24-Oct | 6.2 | 10.5 | 9.5 | 8.8 | 8.6 |
| 25-Oct | 2.7 | 5.7 | Power Outage | 4.6 | 4 |
| 26-Oct | 6.7 | 4.4 | Power Outage | 4.3 | 1.5 |
| 27-Oct | 4.9 | 7.3 | 2.5 | 7.2 | 3.8 |
| 28-Oct | 6.9 | 9.3 | 7.5 | 8.7 | 5.5 |
| 29-Oct | 6.7 | 7.5 | 7.9 | 7.3 | 5.8 |
| 30-Oct | 12 | 11.6 | 12.2 | 11.4 | 8.2 |
| 31-Oct | 12.6 | 22.3 | 12.4 | 15.9 | 12.9 |

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| 1-Nov | 11.3 | 12.7 | 10.1 | 12.5 | 8.4 |
| 2-Nov | 13.6 | 15.6 | 14.1 | 14.7 | 10 |
| 3-Nov | 13.2 | 13.3 | 12 | 11.4 | 8.8 |
| 4-Nov | 19.1 | 37.5 | 16.9 | 22.8 | 15.2 |
| 5-Nov | 15.3 | 23.5 | 13.6 | 19.3 | 12.6 |
| 6-Nov | 10.4 | 12 | 10.5 | 11.1 | 7.4 |
| 7-Nov | 15.9 | 17.6 | 16.1 | 18.1 | 12.2 |
| 8-Nov | 11.2 | 13.4 | 11.2 | 11.4 | 7.3 |
| 9-Nov | 8.3 | 9.6 | 11.7 | 8.4 | 4.8 |
| 10-Nov | 9.9 | 12.1 | 11.1 | 9.3 | 5.4 |
| 11-Nov | 15.3 | 20.6 | 17.8 | 15.7 | 12.2 |
| 12-Nov | 18.3 | 29.7 | 23.7 | 23.3 | 20 |
| 13-Nov | 19.7 | 24.5 | 25.5 | 21.2 | 15.8 |
| 14-Nov | 15.1 | 20.8 | 13.8 | 19.7 | 15.6 |
| 15-Nov | 19.1 | 29.4 | 14.1 | 20.9 | 14.9 |
| 16-Nov | 24.7 | 42.1 | 24.3 | 27.4 | 23 |
| 17-Nov | 30.9 | 33.1 | 33.5 | 29.4 | 22 |
| 18-Nov | 28.3 | 24.3 | 21.4 | 19.9 | 16.9 |
| 19-Nov | 19.6 | 20.9 | 24.3 | 17.6 | 14.1 |
| 20-Nov | 29.8 | 31.9 | 36.8 | 24.4 | 20.1 |
| 21-Nov | 30.2 | 31.2 | 34.1 | 28.2 | 24.9 |
| 22-Nov | 32.1 | 43.3 | 29.4 | 32.3 | 28.1 |
| 23-Nov | 36.2 | 38.9 | 28.5 | 28.2 | 29.1 |
| 24-Nov | 13.1 | 15.9 | 15.8 | 14.2 | 11 |
| 25-Nov | 12.9 | 13.9 | 15.5 | 10.7 | 8.6 |
| 26-Nov | 28.4 | 33.6 | 29.6 | 25.4 | 21 |
| 27-Nov | 33.5 | 36.7 | 34.8 | 30.8 | 26.1 |
| 28-Nov | 31.3 | 32.4 | 18.2 | 25.6 | 28.8 |
| 29-Nov | 64.2 | 95.9 | 47.2 | 67.1 | 40 |
| 30-Nov | 24.7 | 28 | 27.4 | 23.4 | 20.7 |
| 1-Dec | 40.2 | 42.5 | 42.6 | 36.4 | 23.7 |
| 2-Dec | 25.2 | 27.5 | 28 | 24.6 | 24.9 |
| 3-Dec | 14.5 | 17 | 14.5 | 13.8 | 9.4 |
| 4-Dec | 24.1 | 25.8 | 24.7 | 19.2 | 19.6 |
| 5-Dec | 23.8 | 28.9 | 27.4 | 25 | 15.7 |
| 6-Dec | 24 | 32.2 | 22.7 | 26.7 | 26 |
| 7-Dec | 32.7 | 38.4 | 23.4 | 33.9 | 28.3 |
| 8-Dec | 18 | 25.7 | 28 | 27.6 | 12.6 |
| 9-Dec | 23.6 | 21.2 | 22.7 | 17.2 | 11.4 |
| 10-Dec | 32.1 | 32.2 | 34.3 | 27.6 | 19.2 |
| 11-Dec | 14.3 | 14.6 | 14.8 | 11.4 | 10.8 |
| 12-Dec | 13.8 | 14.7 | 13.9 | 11.6 | 8.3 |
| 13-Dec | 12.4 | 10.5 | 14.2 | 8.8 | 6 |
| 14-Dec | 13.3 | 13.7 | 13.4 | 11 | 8 |

| | | | | | |
|--------|------|------|------|------|------|
| 15-Dec | 6 | 8.6 | 8.8 | 7.5 | 4.3 |
| 16-Dec | 7.4 | 10 | 10 | 8.3 | 5.8 |
| 17-Dec | 11.5 | 13.2 | 11.7 | 11.5 | 11.7 |
| 18-Dec | 18.8 | 19.9 | 15.7 | 19.8 | 15.3 |
| 19-Dec | 12.6 | 13.6 | 12.6 | 12.7 | 12.2 |
| 20-Dec | 10.2 | 11.2 | 11.6 | 10 | 8.3 |
| 21-Dec | 7.4 | 8.8 | 8.5 | 8.9 | 5.1 |
| 22-Dec | 4.9 | 10.5 | 5.8 | 6 | 10.1 |
| 23-Dec | 11.2 | 19.7 | 13.7 | 15 | 10.4 |
| 24-Dec | 14.2 | 18.9 | 14.8 | 15.6 | 12.1 |
| 25-Dec | 12.9 | 17.2 | 15.2 | 15.7 | 12.5 |
| 26-Dec | 7.3 | 11.8 | 9.7 | 10.6 | 8.2 |
| 27-Dec | 8.2 | 16.9 | 10.4 | 12.5 | 10.1 |
| 28-Dec | 9.9 | 15.2 | 10.9 | 14.7 | 9.8 |
| 29-Dec | 6.2 | 9.5 | 9.8 | 9.8 | 7.8 |
| 30-Dec | 4.2 | 7.3 | 8.9 | 8.3 | 6.3 |
| 31-Dec | 6.6 | 10 | 9.8 | 10.5 | 8.4 |

Note: Days highlighted blue have been denoted as 'extraordinary events' as advised by DPIE. As advised by DPIE, days which are identified as 'extraordinary events' are not included in Long term impact assessment criteria.

Table 18: 2015 to 2020 Depositional Dust Air Quality Monitoring Results (g/m²/month)

| Dust Gauge Code | 2015 Annual Average (g/m ² /month) | 2016 Annual Average (g/m ² /month) | 2017 Annual Average (g/m ² /month) | 2018 Annual Average (g/ m ² /month) | 2019 Annual Average (g/m ² /month) | 2020 Annual Average (g/m ² /month) |
|-----------------|---|---|---|--|---|---|
| DD6 | 0.9 | 1.0 | 0.9 | 0.9 | 1.5 | 1.2 |
| DD7 | 2.0 | 2.3 | 2.5 | 2.6 | 2.9 | 2. |
| DD12 | 2.4 | 4.3 | 2.7 | 1.0 | 3.3 | 3.1 |
| DD14 | 1.4 | 2.6 | 1.8 | 2.5 | 1.7 | 2.6 |
| DD16 | 2.3 | 1.8 | 4.0 | 2.8 | 3.5 | 3.8 |
| DG3 | 1.3 | 3.3 | 1.7 | 1.4 | 1.9 | 1.7 |
| DG4 | 1.9 | 1.6 | 2.4 | 2.5 | 3 | 2 |
| DG5 | 1.5 | 1.8 | 2.5 | 2.3 | 3.1 | 2.4 |
| DG6 | 2.8 | 1.6 | 2.0 | 1.9 | 2.4 | 2 |
| DG7 | 2.1 | 2.0 | 2.2 | 2.6 | 2.7 | 2.5 |
| DG8 | 2.6 | 4.0 | 2.7 | 3.6 | 4.7 | 2.6 |

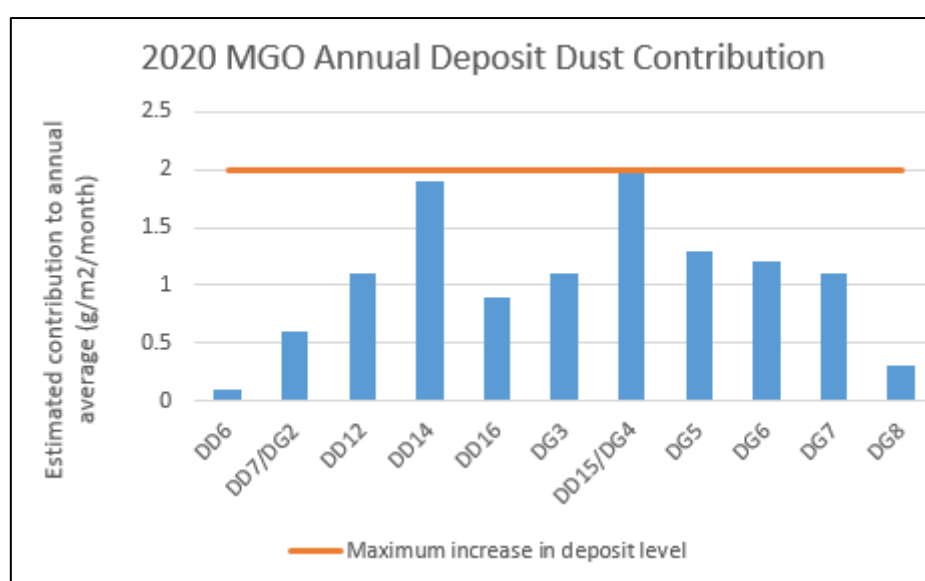


Figure 3: MGO estimated Depositional Dust contribution to annual average

Table 19: 2015 to 2020 Continuous PM10 Monitoring Comparison

| Year | Sx13 D8 Picton | SX13 D1 Project Office | Sx D11 Middle Falbrook | Sx13 D9 Nobles | Sx13 D4 McInerney | Criterion |
|---|-------------------|---------------------------|------------------------------|-------------------|----------------------|-----------|
| Maximum 24-hour average in µg/m3 | | | | | | |
| 2015 | 70 | 71 | 61 | 74 | 64 | 50 |
| 2016 | 51 | 56 | 61 | 76 | 54 | |
| 2017 | 111 | 63 | 86 | 66 | 79 | |
| 2018 | 168 | 144 | 163 | 166 | 210 | |
| 2019 | 220.6 | 201 | 175 | 191 | 243 | |
| 2019 (excluding extraordinary events) | 60 | 70 | 77 | 64 | 69 | |
| 2020 | 99 | 92 | 59 | 87 | 101 | |
| 2020 (excluding extraordinary events) | 45 | 52 | 41 | 45 | 58 | |
| Number of days above 24-hour average criteria | | | | | | |
| 2015 | 7 | 6 | 2 | 4 | 3 | N/A |
| 2016 | 1 | 2 | 1 | 2 | 5 | |
| 2017 | 28 | 6 | 17 | 4 | 20 | |
| 2018 | 15 | 13 | 27 | 11 | 34 | |
| 2019 | 49 | 58 | 62 | 55 | 81 | |
| 2019 (excluding extraordinary events) | 7 | 11 | 22 | 14 | 28 | |
| 2020 | 10 | 9 | 2 | 9 | 17 | |
| 2020 (excluding extraordinary events) | 0 | 1 | 0 | 0 | 2 | |
| Annual average in µg/m3 | | | | | | |
| 2015 | 20 | 18 | 14 | 18 | 20 | 30** |
| 2016 | 19 | 20 | 14 | 18 | 23 | |
| 2017 | 24 | 20 | 23 | 19 | 24 | |
| 2018 | 23 | 23 | 25 | 22 | 29 | |
| 2019* | 22 | 23 | 27 | 23 | 28 | |
| 2019 (1 January 2019 – 3 September 2019 SSD- 5850)* | 21 | 22 | 26 | 22 | 26 | |

| Year | Sx13 D8 Picton | SX13 D1 Project Office | Sx D11 Middle Falbrook | Sx13 D9 Nobles | Sx13 D4 McInerney | Criterion |
|--|-------------------|---------------------------|------------------------------|-------------------|----------------------|---------------|
| 2019 (4 September 2019 – 31 December 2019 SSD- 5850)* | 26 | 27 | 28 | 27 | 33 | 25** |
| 2020 | 19** | 19 | 15 | 19 | 24 | 25** 30*** |
| 2020 (excluding extraordinary events) | 0** | 2*** | 2** | 4**** | 5*** | |

Note: Days have been denoted as 'extraordinary events' as advised by DPIE. As advised by DPIE, days which are identified as 'extraordinary events' are not included in Long term impact assessment criteria.

** MOCO Mod 2 (SSD-5850) has a criteria of 25 µg/m³

*** Glendell Mod 4 (DA 80-952) has a criteria of 30 µg/m³

**** Both approvals

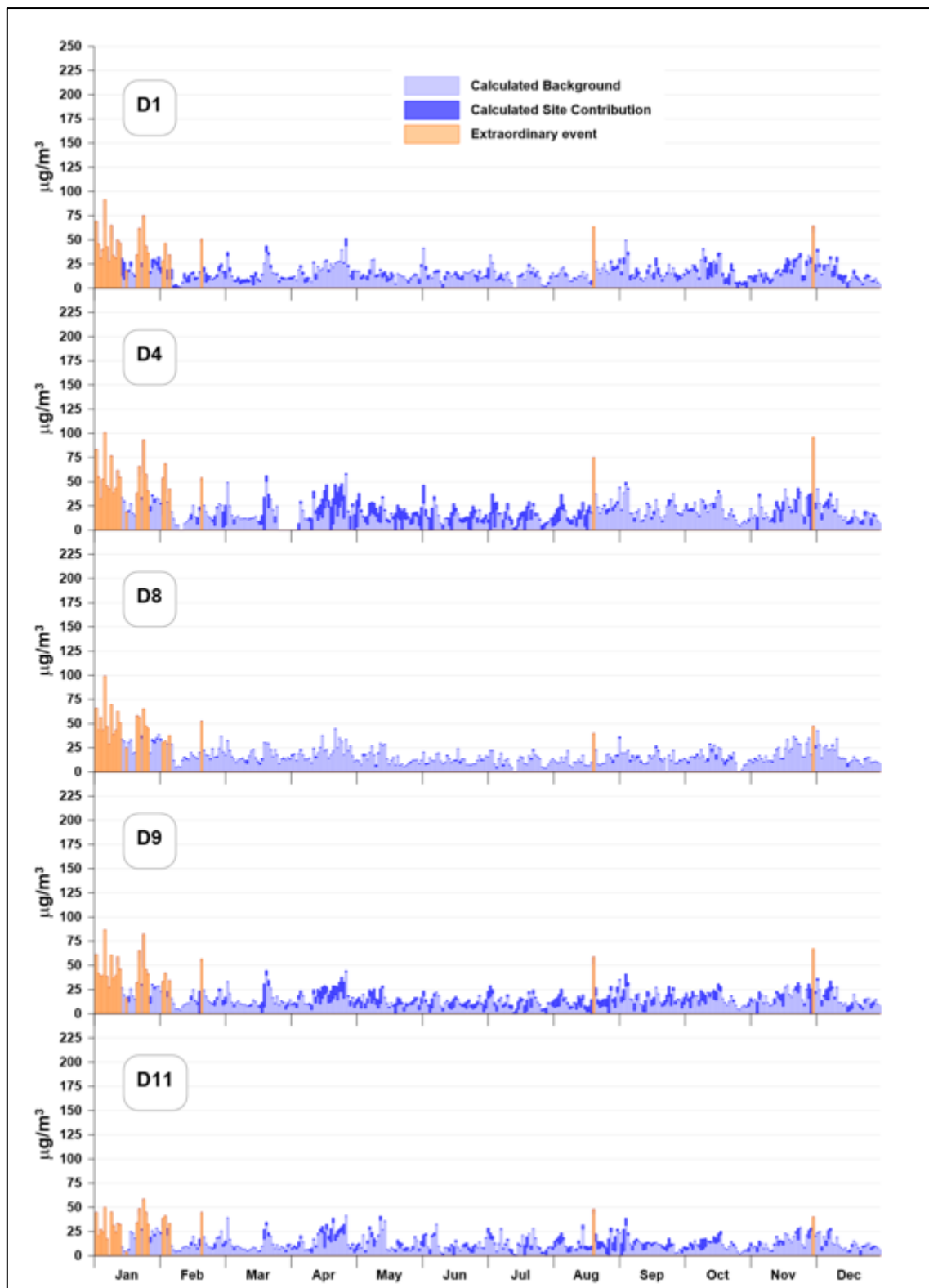


Figure 4: Measured 24-hour average PM₁₀ summary 2020

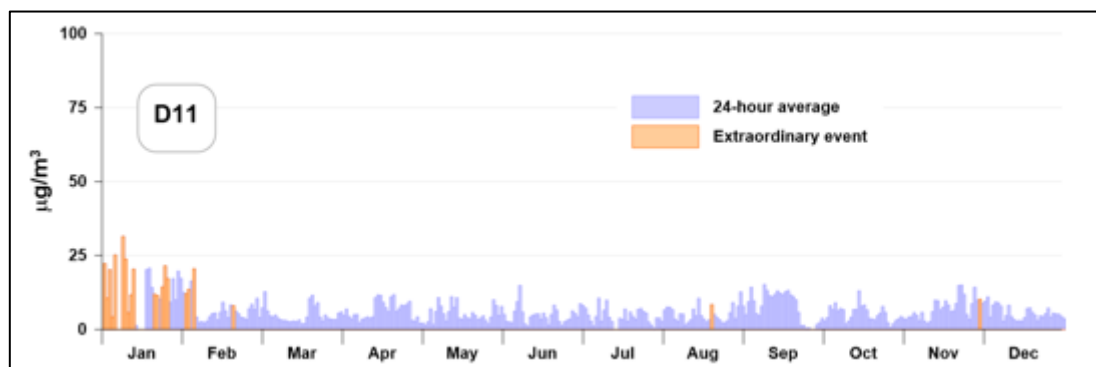


Figure 5: Measured 24-hour average PM_{2.5} summary 2020

Table 20: 2015 to 2020 HVAS TSP Comparison

| HVAS Site | Location | 2015 Annual Average (µg/m³) | 2016 Annual Average (µg/m³) | 2017 Annual Average (µg/m³) | 2018 Annual Average (µg/m³) | 2019 Annual Average (µg/m³) | 2019 Annual Average (µg/m³) |
|-----------|-------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| TSP 1 | Picton | 55 | 53 | 60 | 59 | 60 | 42 |
| TSP 2 | Falbrook Road | 60 | 76 | 73 | 78 | 76 | 62 |
| TSP 3 | Camberwell Church | 57 | 62 | 68 | 80 | 79 | 67 |

Appendix G: Water

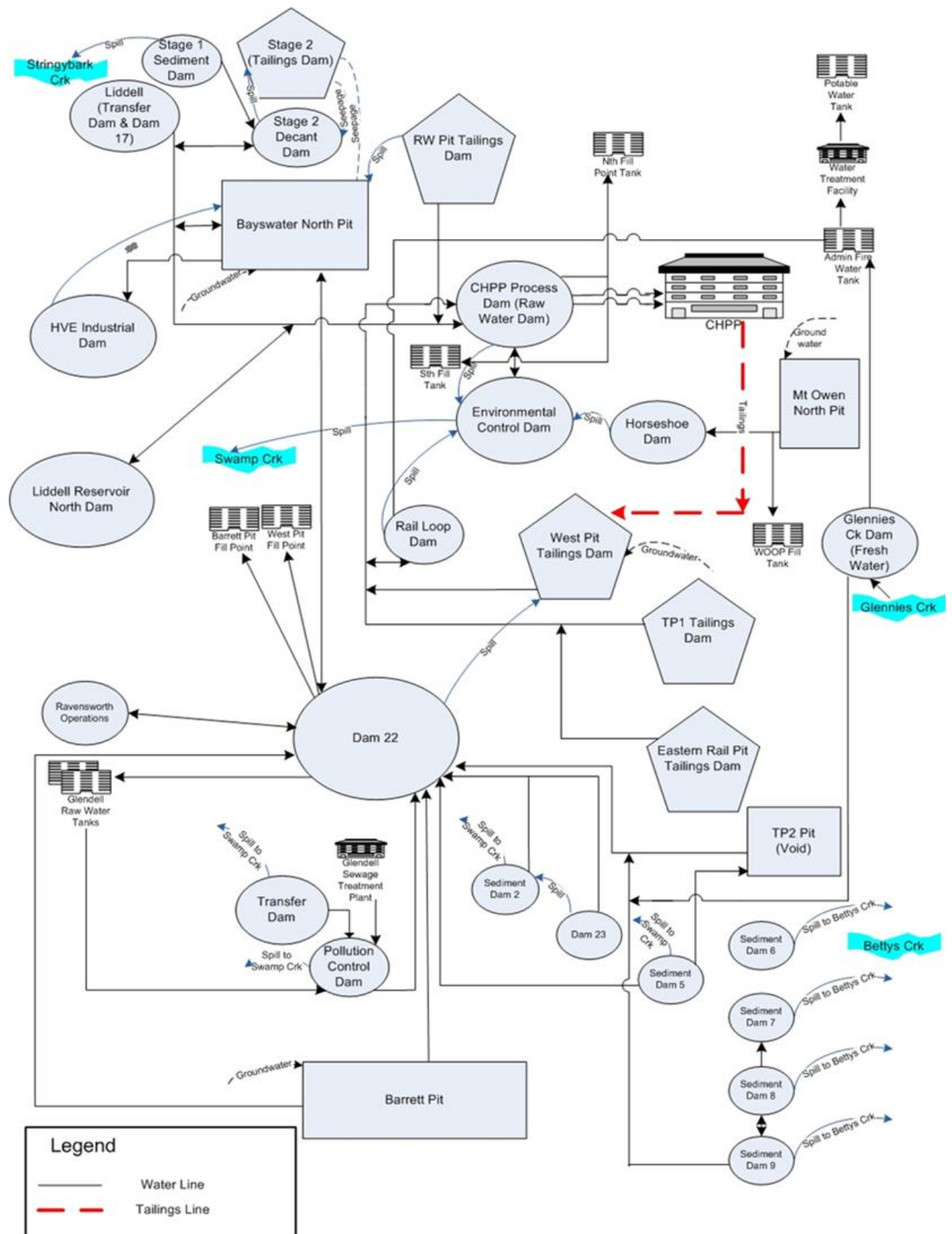


Figure 6: MGO Water Schematic

Surface Water

Table 21: Surface Monitoring Results Bowmans Creek

| Sampling Date | BMC1 – Bowman's Creek Upstream | | | | BMC2 – Bowman's Creek Midstream | | | |
|---------------|--------------------------------|---------------------------|---------------------------|---------------------------|---------------------------------|---------------------------|---------------------------|---------------------------|
| | pH | EC (uS.cm ⁻¹) | TSS (mg.L ⁻¹) | TDS (mg.L ⁻¹) | pH | EC (uS.cm ⁻¹) | TSS (mg.L ⁻¹) | TDS (mg.L ⁻¹) |
| 24/01/2020 | 7.50 | 7,880 | 7 | 6,360 | Dry | Dry | Dry | Dry |
| 21/02/2020 | 7.30 | 3,140 | 1 | 2,360 | 6.00 | 1,873 | 45 | 1,320 |
| 26/03/2020 | No Safe Access | | | | 7.10 | 1,818 | 92 | 1,440 |
| 28/04/2020 | 7.80 | 1,835 | 2 | 1,260 | 7.80 | 1,770 | 5 | 1,240 |
| 26/05/2020 | 7.50 | 1,654 | 1 | 1,170 | 7.60 | 1,703 | 3 | 1,260 |
| 26/06/2020 | 7.70 | 1,675 | 1 | 1,100 | 7.40 | 1,752 | 12 | 1,230 |
| 30/07/2020 | 7.80 | 628 | 9 | 347 | 7.70 | 491 | 6 | 329 |
| 27/08/2020 | 7.80 | 945 | 1 | 594 | 7.80 | 944 | 5 | 630 |
| 24/09/2020 | 7.90 | 1,268 | 4 | 922 | 7.90 | 1,259 | 5 | 853 |
| 22/10/2020 | 7.60 | 1,286 | 1 | 772 | 7.70 | 1,249 | 2 | 792 |
| 19/11/2020 | 7.80 | 997 | 6 | 607 | 7.80 | 978 | 5 | 784 |
| 22/12/2020 | 7.70 | 1,108 | 4 | 836 | 7.60 | 1,098 | 17 | 697 |

| Sampling Date | BMC3 – Bowman's Creek Downstream | | | | BMC4 – Bowman's Creek (Hebden Road) | | | |
|---------------|----------------------------------|------------|------------|------------|-------------------------------------|------------|------------|------------|
| | pH | EC (uS.cm) | TSS (mg.L) | TDS (mg.L) | pH | EC (uS.cm) | TSS (mg.L) | TDS (mg.L) |
| 24/01/2020 | Dry | | | | 7.30 | 2,100 | 25 | 1,270 |
| 21/02/2020 | | | | | 6.90 | 1,442 | 2 | 992 |
| 26/03/2020 | | | | | 7.10 | 1,368 | 9 | 870 |
| 28/04/2020 | | | | | 7.40 | 1,584 | 7 | 1,090 |
| 26/05/2020 | 7.40 | 7.30 | 3 | 1,160 | 7.30 | 1,555 | 1 | 1,090 |
| 26/06/2020 | 7.40 | 7.50 | 6 | 1,120 | 7.50 | 1,555 | 3 | 1,030 |
| 30/07/2020 | 7.70 | 7.60 | 7 | 352 | 7.60 | 484 | 10 | 327 |
| 27/08/2020 | 8.00 | 8.00 | 1 | 605 | 8.00 | 946 | 2 | 583 |
| 24/09/2020 | 8.00 | 7.90 | 1 | 783 | 7.90 | 1,180 | 25 | 811 |
| 22/10/2020 | 7.70 | 7.20 | 17 | 821 | 7.20 | 1,224 | 1 | 799 |
| 19/11/2020 | 7.80 | 7.50 | 9 | 593 | 7.50 | 1,002 | 3 | 607 |
| 22/12/2020 | 7.60 | 7.20 | 6 | 705 | 7.20 | 1,188 | 4 | 782 |

| Sampling Date | BMC5 – Bowman's Creek NEH Bridge | | | |
|---------------|----------------------------------|------------|------------|------------|
| | pH | EC (uS.cm) | TSS (mg.L) | TDS (mg.L) |
| 09/01/2020 | Dry | | | |
| 10/02/2020 | 7.60 | 2,130 | 49 | 1,290 |
| 11/03/2020 | Dry | | | |
| 08/04/2020 | 7.10 | 877 | 14 | 607 |
| 13/05/2020 | 7.50 | 1,764 | 4 | 1,210 |
| 10/06/2020 | 7.80 | 1,755 | 16 | 1,130 |
| 08/07/2020 | 8.20 | 1,786 | 7 | 1,310 |
| 13/08/2020 | 7.70 | 668 | 7 | 423 |
| 07/09/2020 | 7.30 | 1,031 | 4 | 624 |
| 13/10/2020 | 7.40 | 1,224 | <1 | 772 |
| 10/11/2020 | 7.60 | 904 | 3 | 552 |
| 07/12/2020 | 7.50 | 1,069 | 13 | 955 |

Table 22: Surface Water Monitoring Results Yorks Creek

| Sampling Date | YC1 – Yorks Creek Upstream | | | | YC2 – Yorks Creek Midstream | | | |
|---------------|----------------------------|------------|------------|------------|-----------------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | Dry | | | | | | | |

| | | | | | | | | |
|------------|------|-------|-----|-------|------|-------|-----|-------|
| 21/02/2020 | | | | | Dry | | | |
| 25/03/2020 | | | | | | | | |
| 28/04/2020 | 7.20 | 2,390 | 26 | 1,550 | 7.40 | 2,090 | 3 | 1,330 |
| 26/05/2020 | 7.00 | 2,650 | 14 | 1,790 | Dry | | | |
| 26/06/2020 | 7.20 | 3,190 | 8 | 2,090 | 7.20 | 1,248 | 34 | 811 |
| 30/07/2020 | 7.10 | 687 | 29 | 514 | 7.10 | 563 | 30 | 450 |
| 27/08/2020 | 7.10 | 1,460 | 12 | 918 | 7.20 | 1,401 | 13 | 874 |
| 24/09/2020 | Dry | | | | Dry | | | |
| 22/10/2020 | | | | | | | | |
| 19/11/2020 | | | | | 7.10 | 1,538 | 14 | 1,830 |
| 22/12/2020 | 6.90 | 654 | 148 | 648 | 6.90 | 491 | 389 | 649 |

| Sampling Date | YC3 – Yorks Creek Downstream | | | |
|---------------|------------------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | Dry | | | |
| 21/02/2020 | | | | |
| 25/03/2020 | | | | |
| 28/04/2020 | | | | |
| 26/05/2020 | | | | |
| 26/06/2020 | | | | |
| 30/07/2020 | 7.10 | 433 | 35 | 377 |
| 27/08/2020 | 7.20 | 1329 | 13 | 839 |
| 24/09/2020 | Dry | | | |
| 22/10/2020 | | | | |
| 19/11/2020 | | | | |
| 22/12/2020 | 7.10 | 119 | 321 | 259 |

Table 23: Surface Water Monitoring Swamp Creek

| Sampling Date | SC1 – Swamp Creek Upstream (Dam 5) | | | | SC2 – Swamp Creek Midstream (Dam 1) | | | |
|---------------|------------------------------------|------------|------------|------------|-------------------------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | 9.30 | 640 | 5 | 407 | 7.90 | 1,190 | 93 | 724 |
| 21/02/2020 | 9.30 | 609 | 4 | 392 | 6.80 | 250 | 67 | 276 |
| 25/03/2020 | 9.10 | 612 | 3 | 319 | 7.10 | 293 | 10 | 183 |
| 28/04/2020 | 8.60 | 588 | 8 | 374 | 7.10 | 168 | 40 | 253 |
| 26/05/2020 | 7.90 | 585 | 3 | 399 | 7.20 | 179 | 29 | 244 |
| 26/06/2020 | 8.30 | 595 | 8 | 373 | 7.40 | 222 | 34 | 268 |
| 31/07/2020 | 8.60 | 552 | 10 | 372 | 7.10 | 141 | 205 | 336 |
| 27/08/2020 | 7.90 | 288 | 3 | 204 | 7.40 | 209 | 133 | 479 |
| 24/09/2020 | 9.40 | 562 | 3 | 378 | 7.30 | 222 | 159 | 374 |
| 22/10/2020 | 9.60 | 573 | 6 | 386 | 7.40 | 248 | 42 | 358 |
| 19/11/2020 | 9.80 | 564 | 7 | 312 | 7.10 | 216 | 81 | 307 |
| 22/12/2020 | 9.30 | 570 | 19 | 355 | 7.20 | 252 | 131 | 277 |

| Sampling Date | SC3 – Swamp Creek Downstream | | | | SC4 – Prior to Ashton | | | |
|---------------|------------------------------|------------|-----|------------|-----------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |

| | | | (mg/L) | | | | | |
|------------|-----|--------------|--------|--|--|--|--|--|
| 24/01/2020 | Dry | Dry | | | | | | |
| 21/02/2020 | | | | | | | | |
| 25/03/2020 | | | | | | | | |
| 28/04/2020 | | | | | | | | |
| 26/05/2020 | | | | | | | | |
| 26/06/2020 | | | | | | | | |
| 30/07/2020 | | 6.8022254214 | | | | | | |
| 27/08/2020 | | Dry | | | | | | |
| 24/09/2020 | | | | | | | | |
| 22/10/2020 | | | | | | | | |
| 19/11/2020 | | | | | | | | |
| 22/12/2020 | | | | | | | | |

Table 24: Surface Water Monitoring Betty's Creek

| Sampling Date | BC1 – Bettys Creek Upstream | | | | BC2 – Bettys Creek Downstream | | | |
|---------------|-----------------------------|------------|------------|------------|-------------------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | Dry | | | | Dry | | | |
| 21/02/2020 | 6.80 | 508 | 12 | 394 | 7.20 | 433 | 37 | 323 |
| 25/03/2020 | Dry | | | | 8.20 | 749 | 985 | 603 |
| 28/04/2020 | | | | | Dry | | | |
| 26/05/2020 | | | | | | | | |
| 26/06/2020 | | | | | | | | |
| 30/07/2020 | 7.30 | 376 | 15 | 321 | 7.30 | 76 | 21 | 183 |
| 27/08/2020 | Dry | | | | Dry | | | |
| 24/09/2020 | | | | | | | | |
| 22/10/2020 | | | | | | | | |
| 19/11/2020 | | | | | | | | |
| 22/12/2020 | | | | | | | | |

| Sampling Date | BC3 – Bettys Creek Prior to Ashton | | | | BC4 – Bettys Creek 4 | | | |
|---------------|------------------------------------|------------|------------|------------|----------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | Dry | | | | Dry | | | |
| 21/02/2020 | | | | | 6.80 | 331 | 30 | 301 |
| 25/03/2020 | 6.90 | 105 | 25 | 160 | 7.00 | 402 | 25 | 318 |
| 28/04/2020 | 7.10 | 327 | 37 | 344 | 6.90 | 307 | 10 | 356 |
| 26/05/2020 | Dry | | | | 6.80 | 303 | 13 | 287 |
| 26/06/2020 | | | | | 6.90 | 300 | 8 | 243 |
| 30/07/2020 | 6.70 | 161 | 54 | 248 | 6.90 | 233 | 59 | 233 |
| 27/08/2020 | 6.70 | 269 | 36 | 373 | 6.90 | 438 | 16 | 349 |
| 24/09/2020 | Dry | | | | 7.20 | 448 | 5 | 338 |
| 22/10/2020 | 7.10 | 293 | 6 | 248 | 7.10 | 466 | 21 | 351 |
| 19/11/2020 | 7.10 | 293 | 6 | 248 | 6.90 | 335 | 13 | 290 |
| 22/12/2020 | 6.80 | 281 | 94 | 256 | 7.00 | 320 | 21 | 238 |

Table 25: Surface Water Monitoring Main Creek

| Sampling Date | MC1 – Main Creek Upstream | | | | MC2 – Main Creek Downstream | | | |
|---------------|---------------------------|------------|------------|------------|-----------------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | Dry | | | | Dry | | | |
| 21/02/2020 | 6.80 | 420 | 28 | 354 | 6.80 | 995 | 77 | 638 |
| 25/03/2020 | 7.80 | 874 | 32 | 532 | Dry | | | |
| 28/04/2020 | Dry | | | | | | | |
| 26/05/2020 | 7.50 | 314 | 46 | 254 | | | | |
| 26/06/2020 | Dry | | | | | | | |
| 31/07/2020 | 7.00 | 303 | 29 | 268 | 7.00 | 303 | 70 | 267 |
| 27/08/2020 | Dry | | | | 7.10 | 455 | 16 | 385 |
| 24/09/2020 | | | | | Dry | | | |
| 22/10/2020 | | | | | | | | |
| 19/11/2020 | 7.10 | 530 | 19 | 400 | 6.90 | 401 | 15 | 387 |
| 22/12/2020 | 6.70 | 236 | 56 | 178 | 7.10 | 421 | 99 | 376 |

| Sampling Date | MC3 – Main Creek Upstream | | | |
|---------------|---------------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |
| 24/01/2020 | Dry | | | |
| 21/02/2020 | | | | |
| 25/03/2020 | | | | |
| 28/04/2020 | | | | |
| 26/05/2020 | | | | |
| 26/06/2020 | | | | |
| 31/07/2020 | 7.10 | 304 | 25 | 273 |
| 27/08/2020 | 7.10 | 574 | 15 | 420 |
| 24/09/2020 | 7.00 | 457 | 36 | 342 |
| 22/10/2020 | 7.40 | 513 | 5 | 322 |
| 19/11/2020 | 6.90 | 429 | 38 | 405 |
| 22/12/2020 | 7.10 | 362 | 19 | 226 |

Table 26: Surface Water Monitoring Glennies Creek (monitoring program commenced October 2020).

| Sampling Date | GC2 – Nobles Crossing | | | | GC3 – Glennies Creek | | | |
|---------------|-----------------------|------------|------------|------------|----------------------|------------|------------|------------|
| | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) | pH | EC (µS/cm) | TSS (mg/L) | TDS (mg/L) |

| | | | | | | | | |
|------------|------|-----|----|-----|------|-----|---|-----|
| 26/10/2020 | 7.70 | 406 | - | - | 7.70 | 406 | 7 | 222 |
| 16/11/2020 | 7.73 | 792 | 10 | 402 | 7.74 | 771 | 6 | 414 |
| 14/12/2020 | 7.68 | 430 | 0 | 0 | 7.72 | 435 | 8 | 252 |

Table 27: MGO Summary Surface Water Monitoring Results

| Site | pH | | | EC (µS/cm) | | | TSS (mg/L) | | | Data Capture (%) | Comment |
|------|------|------|------|------------|-------|-------|------------|------|-----|------------------|--|
| | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg | | |
| BMC1 | 7.10 | 7.90 | 7.63 | 571 | 7,880 | 1,916 | 1 | 1620 | 138 | 100% | Samples collected under trickle/steady flow conditions |
| BMC2 | 6.00 | 7.90 | 7.49 | 491 | 1,873 | 1,358 | 2 | 92 | 18 | 100% | Samples collected under low or no flow conditions |
| BMC3 | 7.40 | 8.00 | 7.70 | 483 | 1,751 | 1,165 | 1 | 17 | 6 | 100% | Dry from January to April (samples collected under no flow conditions) |
| BMC4 | 6.90 | 8.00 | 7.40 | 484 | 2,100 | 1,330 | 1 | 25 | 8 | 100% | Dry in November. Samples collected under no flow conditions |
| BMC5 | 7.10 | 8.20 | 7.57 | 668 | 2,130 | 1,321 | 1 | 49 | 13 | 100% | Dry in January and March (samples collected under no flow conditions) |
| YC1 | 6.90 | 7.20 | 7.08 | 563 | 3,190 | 1,818 | 8 | 148 | 40 | 100% | Dry all year except from April to August and December |
| YC2 | 6.90 | 7.40 | 7.15 | 433 | 2,090 | 1,200 | 3 | 389 | 81 | 100% | Dry from January to March, May and October to September (samples collected under no flow conditions) |
| YC3 | 7.10 | 7.20 | 7.13 | 119 | 1,329 | 724 | 13 | 331 | 126 | 100% | Dry in all months except July – August and December (samples collected under no flow conditions) |
| SC1 | 7.90 | 9.80 | 8.93 | 288 | 640 | 562 | 3 | 19 | 7 | 100% | Samples collected under no flow conditions |
| SC2 | 7.10 | 7.90 | 7.34 | 141 | 1,190 | 302 | 10 | 205 | 85 | 100% | |
| SC3 | - | - | - | - | - | - | - | - | - | - | Dry from January – December (no samples able to be taken). |
| SC4 | 6.80 | 6.80 | 6.80 | 222 | 222 | 222 | 54 | 54 | 54 | 100% | Dry in all months except July (samples collected under no flow conditions) |
| BC1 | 6.80 | 7.30 | 7.05 | 376 | 508 | 442 | 12 | 15 | 14 | 100% | Dry in all months except February and July (samples collected under no flow conditions) |
| BC2 | 7.20 | 8.20 | 7.57 | 76 | 749 | 419 | 21 | 985 | 348 | 100% | Dry in all months except February – March and July (samples collected under no flow conditions) |
| BC3 | 6.70 | 7.10 | 6.84 | 105 | 327 | 229 | 25 | 94 | 49 | 100% | Dry in January – February, May – June and September to November (samples collected under no flow conditions) |
| BC4 | 6.80 | 7.20 | 6.95 | 223 | 466 | 353 | 5 | 59 | 21 | 100% | Dry in January and November (samples collected under no flow conditions) |
| MC1 | 6.70 | 7.80 | 7.15 | 236 | 874 | 446 | 19 | 56 | 35 | 100% | Dry in January, April, June and August to October (samples |

| | | | | | | | | | | | |
|-----|------|------|------|-----|-----|-----|----|----|------|------|---|
| | | | | | | | | | | | collected under no flow conditions) |
| MC2 | 6.80 | 7.10 | 6.98 | 303 | 995 | 515 | 15 | 99 | 55 | 100% | Dry in January, March to June and September to October (samples collected under no flow conditions) |
| MC3 | 6.90 | 7.40 | 7.10 | 304 | 574 | 440 | 5 | 38 | 23 | 100% | Dry from January to June (samples collected under no flow conditions) |
| GC2 | 7.68 | 7.73 | 7.71 | 430 | 792 | 611 | 8 | 10 | 9 | 100% | Monitoring commenced in November 2020. 2 samples collected. |
| GC3 | 7.72 | 7.74 | 7.73 | 435 | 771 | 603 | 6 | 13 | 9.50 | 100% | Monitoring commenced in November 2020. 2 Samples collected |

Table 28 Historical Surface Water Data Comparison – pH

| Site Name | Trigger Level | | Annual Average | | | | | | |
|---------------|---------------|-------|----------------|------|------|------|------|------|------|
| | Lower | Upper | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Bowmans Creek | | | | | | | | | |
| BMC1 | 6.5 | 8.0 | 7.9 | 7.8 | 8.01 | 7.88 | 7.69 | 7.82 | 7.63 |
| BMC2 | 6.5 | 8.0 | 8 | 7.9 | 7.99 | 7.96 | 7.78 | 7.77 | 7.49 |
| BMC3 | 6.5 | 8.0 | 7.9 | 8 | 8.05 | 8.05 | 7.87 | 7.90 | 7.70 |
| BMC4 | 6.5 | 8.0 | 7.7 | 7.7 | 7.87 | 7.63 | 7.40 | 7.47 | 7.40 |
| BMC 5 | 6.5 | 8.0 | N/A | 7.9 | 7.76 | 7.78 | 8.11 | 7.96 | 7.57 |
| Yorks Creek | | | | | | | | | |
| YC1 | 6.5 | 8.6 | 7.5 | 7.5 | 7.6 | 7.25 | 6.7 | N/A | 7.08 |
| YC2 | 6.5 | 8.6 | 7.5 | 7.6 | 7.77 | 7.28 | N/A | N/A | 7.15 |
| YC3 | 6.5 | 8.6 | 7.3 | 7.5 | 7.79 | 7.4 | N/A | N/A | 7.13 |
| Swamp Creek | | | | | | | | | |
| SC1 | 6.5 | 8.6 | 8.1 | 8 | 8.16 | 8.18 | 9.13 | 8.69 | 8.93 |
| SC2 | 6.5 | 8.6 | 7.5 | 7.7 | 7.88 | 7.42 | 7.64 | 8.04 | 7.34 |
| SC3 | 6.5 | 8.6 | 8.1 | 8.1 | 8.03 | 7.3 | N/A | N/A | N/A |
| SC4 | 6.5 | 8.6 | N/A | 7.2 | 7.27 | 6.75 | N/A | N/A | 6.80 |
| Bettys Creek | | | | | | | | | |
| BC1 | 7.7 | 6.9 | 7.69 | 7.5 | 7.7 | 6.9 | N/A | N/A | 7.05 |
| BC2 | 7.5 | 8.2 | 7.7 | 7.4 | 7.5 | 8.2 | N/A | N/A | 7.57 |
| BC3 | 8 | 8.1 | 7.3 | 6.97 | 8 | 8.1 | N/A | N/A | 6.84 |
| BC4 | 7.9 | 7.6 | 7.55 | 7.27 | 7.9 | 7.6 | 6.65 | 6.97 | 6.95 |
| Main Creek | | | | | | | | | |
| MC1 | N/A | N/A | 7.49 | 7.24 | N/A | N/A | 7.10 | 6.8 | 7.15 |
| MC2 | N/A | N/A | 7.49 | 7.55 | N/A | N/A | 7.00 | N/A | 6.98 |
| MC3 | N/A | N/A | N/A | 7.46 | N/A | N/A | N/A | N/A | 7.10 |

Table 29 Historical Surface Water Data Comparison – Electrical Conductivity (µS/cm)

| Site Name | Trigger Level | Annual Average | | | | | | |
|---------------|---------------|----------------|-------|-------|-------|-------|-------|-------|
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Bowmans Creek | | | | | | | | |
| BMC1 | 2,200 | 1,201 | 1,026 | 940 | 767 | 1,447 | 2,056 | 1,916 |
| BMC2 | 2,200 | 1,353 | 1,114 | 964 | 860 | 1,293 | 1,948 | 1,358 |
| BMC3 | 2,200 | 1,942 | 1,337 | 1,344 | 1,354 | 1,656 | 2,505 | 1,165 |
| BMC4 | 2,200 | 1,356 | 1,065 | 1,124 | 1,115 | 1,274 | 1,399 | 1,330 |
| BMC 5 | 2,200 | N/A | 1,415 | 1,179 | 1,461 | 3,888 | 4,306 | 1,321 |
| Yorks Creek | | | | | | | | |

| | | | | | | | | |
|--------------|-------|--------|-------|-------|-------|-------|-----|-------|
| YC1 | 6,668 | 4,344 | 3,012 | 3,818 | 3,422 | 4,990 | N/A | 1,818 |
| YC2 | 6,668 | 13,074 | 7,194 | 5,241 | 9,002 | N/A | N/A | 1,200 |
| YC3 | 6,668 | 4,532 | 4,971 | 2,903 | 6,739 | N/A | N/A | 724 |
| Swamp Creek | | | | | | | | |
| SC1 | 6,668 | 396 | 392 | 351 | 393 | 524 | 531 | 562 |
| SC2 | 6,668 | 241 | 265 | 315 | 227 | 469 | 601 | 302 |
| SC3 | 6,668 | 6,608 | 4,184 | 5,075 | 7,180 | N/A | N/A | N/A |
| SC4 | 6,668 | N/A | 898 | 720 | 281 | N/A | N/A | 222 |
| Bettys Creek | | | | | | | | |
| BC1 | 6,668 | 21 | 926 | 1,096 | 776 | N/A | N/A | 442 |
| BC2 | 6,668 | 6,093 | 529 | 696 | 188 | N/A | N/A | 419 |
| BC3 | 6,668 | 4,447 | 763 | 529 | 288 | N/A | N/A | 229 |
| BC4 | 6,668 | 2,755 | 559 | 1,227 | 427 | 300 | 403 | 353 |
| Main Creek | | | | | | | | |
| MC1 | 6,668 | N/A | 1,253 | 1,207 | 872 | 1,321 | 207 | 446 |
| MC2 | 6,668 | N/A | 1,634 | 1,311 | 1,968 | 1,720 | N/A | 515 |
| MC3 | 6,668 | N/A | N/A | N/A | 1,103 | N/A | N/A | 440 |

Table 30: Historical Surface Water Data Comparison – TSS (mg/L)

| Site Name | Trigger Level | Annual Average | | | | | | |
|---------------|---------------|----------------|------|------|------|------|------|------|
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Bowmans Creek | | | | | | | | |
| BMC1 | 21 | 6.3 | 10.3 | 9 | 26 | 5 | 7 | 138 |
| BMC2 | 21 | 14.4 | 47.5 | 14.1 | 12 | 19 | 116 | 18 |
| BMC3 | 21 | 23.9 | 13.4 | 17.3 | 13 | 33 | 69 | 6 |
| BMC4 | 21 | 8.3 | 13.5 | 15.2 | 6 | 10 | 34 | 8 |
| BMC 5 | 21 | N/A | 9.4 | 9.9 | 14 | 20 | 18 | 13 |
| Yorks Creek | | | | | | | | |
| YC1 | 68 | 7 | 48.6 | 32.7 | 12 | 14 | N/A | 40 |
| YC2 | 68 | 11.3 | 58.5 | 17.4 | 9 | N/A | N/A | 81 |
| YC3 | 68 | 12.5 | 38 | 35.3 | 33 | N/A | N/A | 126 |
| Swamp Creek | | | | | | | | |
| SC1 | 68 | 15 | 9.3 | 8.2 | 8 | 7.3 | 11 | 7 |
| SC2 | 68 | 13.2 | 13.5 | 8 | 19 | 25.6 | 24 | 85 |
| SC3 | 68 | 29 | 46.9 | 53.6 | 7 | N/A | N/A | N/A |
| SC4 | 68 | N/A | 27.3 | 31 | 37 | N/A | N/A | 54 |
| Bettys Creek | | | | | | | | |
| BC1 | 68 | 21 | 9.5 | 64.5 | 6 | N/A | N/A | 14 |
| BC2 | 68 | 2.6 | 41.1 | 11.5 | 7 | N/A | N/A | 348 |
| BC3 | 68 | 51.7 | 106 | 37.7 | 14 | N/A | N/A | 49 |

| | | | | | | | | |
|------------|----|------|-------|-------|-----|-----|-----|----|
| BC4 | 68 | 61.7 | 38 | 21.6 | 46 | 56 | 24 | 21 |
| Main Creek | | | | | | | | |
| MC1 | 68 | N/A | 144.8 | 187.5 | 252 | 100 | 39 | 35 |
| MC2 | 68 | N/A | 239.6 | 56.9 | 153 | 56 | N/A | 55 |
| MC3 | 68 | N/A | N/A | N/A | 6.8 | N/A | N/A | 23 |

Table 31: Historical Surface Water Data Comparison – TDS (mg/L)

| Site Name | Trigger Level | Annual Average | | | | | | |
|---------------|---------------|----------------|---------|---------|-------|-------|-------|------|
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Bowmans Creek | | | | | | | | |
| BMC1 | 890 | 690.3 | 586.6 | 529.5 | 615 | 964 | 1,397 | 1484 |
| BMC2 | 890 | 782.5 | 649.3 | 557.7 | 636 | 827 | 1,298 | 961 |
| BMC3 | 890 | 1,136 | 766.8 | 779.3 | 710 | 1,052 | 1,625 | 767 |
| BMC4 | 890 | 746 | 575.7 | 651.4 | 687 | 781 | 908 | 854 |
| BMC 5 | 890 | N/A | 902.9 | 714.6 | 721 | 2,463 | 2,800 | 887 |
| Yorks Creek | | | | | | | | |
| YC1 | 4,384 | 2,641 | 1822 | 2,278.2 | 2,013 | 3,240 | N/A | 1252 |
| YC2 | 4,384 | 8,500 | 4,797.3 | 3,375.4 | 6,476 | N/A | N/A | 991 |
| YC3 | 4,384 | 2,814 | 3,051.3 | 1914 | 4,210 | N/A | N/A | 492 |
| Swamp Creek | | | | | | | | |
| SC1 | 4,384 | 297.9 | 236.8 | 218.4 | 295 | 344.2 | 342 | 356 |
| SC2 | 4,384 | 253.9 | 179 | 211.1 | 199 | 331 | 388 | 340 |
| SC3 | 4,384 | 3,954 | 2,204.3 | 3,072.9 | 4,890 | N/A | N/A | N/A |
| SC4 | 4,384 | N/A | 618.2 | 501.33 | 295 | N/A | N/A | 214 |
| Bettys Creek | | | | | | | | |
| BC1 | 4,384 | 568 | 513 | 644.8 | 515 | N/A | N/A | 358 |
| BC2 | 4,384 | 3,932 | 338.6 | 473.3 | 187 | N/A | N/A | 370 |
| BC3 | 4,384 | 2,726 | 530.4 | 277.7 | 293 | N/A | N/A | 268 |
| BC4 | 4,384 | 1,743 | 342.3 | 797.7 | 322 | 265 | 338 | 300 |
| Main Creek | | | | | | | | |
| MC1 | 4,384 | N/A | 837.9 | 918.6 | 739 | 812 | 228 | 331 |
| MC2 | 4,384 | N/A | 986.8 | 875.1 | 1,258 | 1,080 | N/A | 411 |
| MC3 | 4,384 | N/A | N/A | N/A | 678 | N/A | N/A | 331 |

Ground Water

Table 32: MGO Ground Water Monitoring Results

| | BC-SP01 | | | BC-SP02 | | | BC-SP03 | | | BC-SP04 | | | BC-SP05 | | | BC-SP06 | | |
|---------------|---|------------|----------------------------------|------------------------------|------------|----------------------------------|------------------------------|------------|----------------------------------|------------------------------|------------|----------------------------------|------------------------------|------------|----------------------------------|------------------------------|------------|----------------------------------|
| Sampling Date | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) |
| Mar. 2020 | Insufficient water to Sample | | | 8.23 | 6.8 | 4770 | Insufficient water to Sample | | | 8.02 | 7.1 | 9990 | 8.07 | 7.2 | 10710 | 8.70 | 7.1 | 8460 |
| Jun. 2020 | | | | 8.33 | 6.7 | 7960 | | | | 7.99 | 7.0 | 15040 | 7.85 | 7.1 | 14980 | 8.77 | 7.2 | 12360 |
| Sept. 2020 | | | | 8.49 | 6.9 | 9940 | | | | Insufficient water to Sample | | | 8.62 | 7.3 | 14540 | 8.89 | 7.3 | 12260 |
| Nov. 2020 | | | | 7.09 | 7.1 | 8690 | | | | 7.87 | 7.2 | 13710 | 7.28 | 7.3 | 13860 | 9.04 | 7.3 | 11500 |
| | BC-SP07 | | | BC-SP08 | | | BC-SP09 | | | BC-SP10 | | | BC-SP11 | | | BC-SP12 | | |
| Sampling Date | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) |
| Mar. 2020 | Insufficient water to Sample | | | 8.11 | 7.0 | 12460 | Insufficient water to Sample | | | Insufficient water to Sample | | | 5.97 | 6.5 | 9530 | Insufficient water to Sample | | |
| Jun. 2020 | | | | 8.17 | 6.9 | 15840 | Insufficient water to Sample | | | | | | 5.77 | 6.6 | 9500 | 6.5 | 6.8 | 12320 |
| Sept. 2020 | | | | 8.05 | 7.0 | 16610 | 8.23 | 7.3 | 13550 | | | | 5.56 | 6.6 | 6390 | 3.39 | 7.3 | 1574 |
| Nov. 2020 | | | | 7.86 | 7.0 | 16520 | Insufficient water to Sample | | | | | | 5.40 | 6.5 | 9550 | 3.62 | 7.1 | 1514 |
| | BC-SP13 | | | BC-SP14 | | | BC-SP15 | | | BC-SP16 | | | BC-SP17 | | | BC-SP18 | | |
| Sampling Date | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ^m) |
| Mar. 2020 | Insufficient water to sample/bore damaged | | | Insufficient water to Sample | | | Insufficient water to Sample | | | Insufficient water to Sample | | | Insufficient water to Sample | | | Insufficient water to Sample | | |
| Jun. 2020 | | | | 5.78 | 7.3 | 11790 | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|---------------|----------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|
| Sept. 2020 | | | | Insufficient water to Sample | | | | | | | | | | | | | | |
| Nov. 2020 | | | | Insufficient water to Sample | | | | | | | | | | | | | | |
| Sampling Date | BC-SP19 | | | BC-SP20 | | | BC-SP21 | | | BC-SP22 | | | GA1 | | | GA2 | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) |
| Mar. 2020 | Insufficient water to Sample | | | Insufficient water to Sample | | | Insufficient water to Sample | | | 5.49 | 7.3 | 4860 | Insufficient water to Sample | | | 7.81 | 6.7 | 3500 |
| Jun. 2020 | | | | | | | | | | 5.65 | 7.7 | 2092 | | | | 7.02 | 6.7 | 3410 |
| Sept. 2020 | | | | | | | | | | 5.28 | 7.3 | 676 | | | | 6.82 | 6.9 | 3840 |
| Nov. 2020 | | | | | | | | | | 5.35 | 7.2 | 1211 | | | | 6.46 | 6.6 | 3590 |
| Sampling Date | GNPS-01 | | | GNPS-02 | | | GNPS-03 | | | GNPS-05 | | | GNPS-06 | | | GNPS-07 | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) |
| Mar. 2020 | Insufficient water to Sample | | | 6.00 | 6.6 | 1155 | Insufficient water to Sample | | | Insufficient water to Sample | | | 8.04 | 6.4 | 5270 | Insufficient water to Sample | | |
| Jun. 2020 | Insufficient water to Sample | | | 5.35 | 6.5 | 1488 | | | | | | | 6.84 | 6.5 | 1960 | | | |
| Sept. 2020 | Removed due to mining operations | | | 4.74 | 6.6 | 1481 | | | | | | | 4.23 | 6.8 | 788 | | | |
| Nov. 2020 | Removed due to mining operations | | | 4.50 | 7.1 | 1254 | | | | | | | 3.50 | 7.2 | 550 | | | |
| Sampling Date | GNP09D | | | GNP09S | | | GNP10D | | | GNP10S | | | GNP11D | | | GNP11S | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) |
| Mar. 2020 | Insufficient water to Sample | | | Insufficient water to Sample | | | 5.74 | 7.3 | 988 | 5.58 | 7.1 | 2030 | 5.95 | 7.3 | 1627 | Insufficient water to Sample | | |
| Jun. 2020 | 8.32 | 7.0 | 1926 | Insufficient water to Sample | | | 4.80 | 7.6 | 1188 | 4.69 | 7.3 | 1816 | 6.13 | 7.3 | 1769 | 6.08 | 7.1 | 1925 |
| Sept. 2020 | 6.41 | 6.8 | 1817 | 6.02 | 7.2 | 1882 | 4.05 | 7.4 | 1114 | 3.71 | 7.2 | 1036 | 4.43 | 7.5 | 1755 | 4.36 | 7.1 | 1517 |
| Nov. 2020 | 6.29 | 6.8 | 1518 | 5.90 | 7.3 | 1589 | 3.97 | 7.4 | 1297 | 3.62 | 7.4 | 967 | 4.37 | 7.0 | 1260 | 4.30 | 7.2 | 1600 |

| Sampling Date | GW1 | | | North | | | NPZ101 | | | NPZ102 | | | NPZ103 | | | NPZ104 | | |
|---------------|------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|--------------------|------------|-----------------------------------|--------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|------------------------------|------------|-----------------------------------|
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) |
| Mar. 2020 | Bore obstructed/damaged | | | 10.58 | 7.2 | 4820 | 5.99 | 7.0 | 10620 | 3.28 | 7.0 | 5450 | Insufficient water to Sample | | | Insufficient water to Sample | | |
| Jun. 2020 | | | | 9.49 | 6.7 | 4000 | 6.08 | 6.4 | 14270 | 3.29 | 6.4 | 6510 | | | | | | |
| Sept. 2020 | | | | 10.38 | 7.5 | 4810 | 6.10 | 7.2 | 16830 | 2.96 | 7.2 | 7130 | | | | | | |
| Nov. 2020 | | | | 10.78 | 7.3 | 4610 | 6.12 | 7.2 | 16130 | 3.10 | 7.0 | 6620 | | | | | | |
| Sampling Date | NPZ105 | | | NPZ106 | | | NPZ107D | | | NPZ107S | | | NPZ108D | | | NPZ108S | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) |
| Mar. 2020 | Insufficient water to Sample | | | Insufficient water to Sample | | | 20.08 | 11.7 | 6830 | 7.83 | 6.8 | 9800 | 8.25 | 11.2 | 7940 | 7.87 | 7.0 | 11190 |
| Jun. 2020 | | | | | | | 20.10 | 11.1 | 8230 | 7.88 | 6.2 | 13280 | 8.25 | 10.5 | 8510 | 7.91 | 6.4 | 14960 |
| Sept. 2020 | | | | | | | 20.30 | 11.6 | 7710 | 7.95 | 7.0 | 14830 | 8.22 | 11.4 | 9960 | 7.95 | 7.2 | 17750 |
| Nov. 2020 | | | | | | | 20.38 | 12.1 | 8860 | 7.99 | 7.1 | 14840 | 8.28 | 11.4 | 9330 | 7.97 | 7.3 | 16740 |
| Sampling Date | NPZ109D | | | NPZ109S | | | NPZ1 | | | NPZ1a | | | NPZ3 | | | NPZ3a | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ⁻¹) |
| Mar. 2020 | Insufficient water to Sample | | | Insufficient water to Sample | | | 16.02 | 7.0 | 11500 | 39.61 | 8.3 | 10300 | Insufficient water to Sample | | | 11.56 | 6.7 | 16360 |
| Jun. 2020 | | | | | | | 16.19 | 6.4 | 15490 | 45.27 | 7.9 | 11640 | | | | 11.60 | 6.6 | 18500 |
| Sept. 2020 | | | | | | | 16.07 | 7.1 | 21970 | 45.12 | 8.8 | 13290 | | | | 11.88 | 6.8 | 18700 |
| Nov. 2020 | | | | | | | 16.36 | 6.8 | 16810 | 46.05 | 8.7 | 14240 | | | | 11.98 | 6.6 | 17730 |
| | NPZ4 | | | NPZ4a | | | NPZ6 | | | NPZ6a | | | NPZ7 | | | NPZ7a | | |

| Sampling Date | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) |
|---------------|--------------------|------------|----------------------------------|--------------------|------------|----------------------------------|------------------------------|------------|----------------------------------|---|------------|----------------------------------|------------------------------|------------|----------------------------------|---|------------|----------------------------------|
| Mar. 2020 | 6.90 | 7.0 | 20000 | 6.92 | 7.0 | 17750 | Insufficient water to Sample | | | Insufficient water to Sample | | | 16.87 | 7.3 | 7490 | 38.41 | 7.3 | 6330 |
| Jun. 2020 | 6.85 | 6.3 | 23790 | 6.99 | 6.3 | 21670 | | | | | | | 16.90 | 6.7 | 8620 | 39.76 | 6.8 | 7290 |
| Sept. 2020 | 6.45 | 7.0 | 28080 | 7.02 | 7.2 | 24660 | | | | | | | 17.12 | 7.5 | 11700 | 39.77 | 7.5 | 10050 |
| Nov. 2020 | 6.58 | 6.9 | 24670 | 7.12 | 7.0 | 22850 | | | | | | | 17.09 | 7.5 | 9700 | 41.24 | 7.6 | 8230 |
| Sampling Date | NPZ8 | | | NPZ8a | | | NPZ9 | | | NPZ9a | | | NPZ10 | | | NPZ10a | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) |
| Mar. 2020 | 10.75 | 7.6 | 13130 | 36.26 | 7.4 | 2460 | 4.88 | 6.6 | 9730 | Insufficient water to Sample/Bore obstruction | | | 25.98 | 7.1 | 7780 | 6.92 | 37.72 | 14310 |
| Jun. 2020 | 10.47 | 7.0 | 16200 | 36.54 | 6.7 | 2790 | 4.82 | 6.1 | 8790 | | | | 26.44 | 6.6 | 7130 | 6.41 | 37.81 | 13010 |
| Sept. 2020 | 10.23 | 7.8 | 19910 | 36.72 | 7.5 | 3370 | 4.67 | 7.1 | 9970 | | | | 25.98 | 7.2 | 7380 | Insufficient water to Sample/Bore obstruction | | |
| Nov. 2020 | 10.40 | 7.4 | 18690 | 36.83 | 7.3 | 2910 | 4.64 | 6.7 | 8840 | | | | 26.37 | 7.0 | 5730 | | | |
| Sampling Date | NPZ11 | | | NPZ11a | | | NPZ13 | | | NPZ13a | | | NPZ15 | | | NPZ15a | | |
| | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) | Depth to Water (m) | pH (field) | EC (field) (μS.cm ¹) |
| Mar. 2020 | 26.44 | 7.0 | 9880 | 60.83 | 8.3 | 9150 | 19.99 | 7.1 | 11650 | 53.26 | 7.2 | 13620 | Insufficient water to Sample | | | 126.68 | 7.0 | 8340 |
| Jun. 2020 | 26.58 | 7.0 | 13260 | 61.42 | 8.2 | 12100 | 20.67 | 7.2 | 12170 | 53.54 | 7.2 | 13980 | | | | 126.53 | 7.1 | 9080 |
| Sept. 2020 | 26.61 | 7.2 | 13550 | 61.87 | 8.5 | 11960 | 21.76 | 7.3 | 12180 | 53.94 | 7.2 | 13390 | | | | 126.49 | 7.2 | 8990 |
| Nov. 2020 | 26.83 | 7.2 | 13210 | 62.27 | 8.5 | 11610 | 23.36 | 7.1 | 10800 | 54.33 | 7.3 | 12430 | | | | 126.9 | 7.1 | 8020 |
| | NPZ16 | | | NPZ16a | | | | | | | | | | | | | | |

| Sampling Date | Depth to Water (m) | pH (field) | EC (field) (μS.c m) | Depth to Water (m) | pH (field) | EC (field) (μS.c m) |
|---------------|--------------------|------------|---------------------|---|------------|---------------------|
| Mar. 2020 | 9.26 | 7.2 | 13730 | Insufficient water to Sample/Bore obstruction | | |
| Jun. 2020 | 11.65 | 7.2 | 14330 | | | |
| Sept. 2020 | 19.52 | 7.3 | 14500 | | | |
| Nov. 2020 | 20.82 | 7.2 | 13220 | | | |

Table 33: MGO Summary Ground Water Monitoring Results 2020

| Piezometer | EC (µS/cm) (Field) | | | pH (field) | | | Depth to Water (m) | | |
|------------|--------------------|-------|-------|------------|-----|-----|--------------------|-------|------|
| | Min | Max | Ave | Min | Max | Ave | Min | Max | Ave |
| BC-SP01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP02 | 4770 | 9940 | 7840 | 6.7 | 7.1 | 6.9 | 8.2 | 8.5 | 8.4 |
| BC-SP03 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP04 | 9990 | 15040 | 12913 | 7.0 | 7.2 | 7.1 | 7.9 | 8.0 | 8.0 |
| BC-SP05 | 10710 | 14980 | 13523 | 7.1 | 7.3 | 7.2 | 7.3 | 8.6 | 8.0 |
| BC-SP06 | 8460 | 12360 | 11145 | 7.1 | 7.3 | 7.2 | 8.7 | 9.0 | 8.9 |
| BC-SP07 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP08 | 12460 | 16610 | 15358 | 6.9 | 7.0 | 7.0 | 7.9 | 8.2 | 8.0 |
| BC-SP09 | 13550 | 13550 | 13550 | 7.3 | 7.3 | 7.3 | 8.2 | 8.6 | 8.4 |
| BC-SP10 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP11 | 6390 | 9550 | 8743 | 6.5 | 6.6 | 6.6 | 5.4 | 6.0 | 5.7 |
| BC-SP12 | 1514 | 12320 | 5136 | 6.8 | 7.3 | 7.1 | 3.4 | 6.5 | 4.5 |
| BC-SP13 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP14 | 11790 | 11790 | 11790 | 7.3 | 7.3 | 7.3 | 5.8 | 6.0 | 5.9 |
| BC-SP15 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP16 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP17 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP18 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP19 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP20 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP21 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BC-SP22 | 676 | 4860 | 2210 | 7.2 | 7.7 | 7.4 | 5.3 | 5.7 | 5.4 |
| BNO009 | 14840 | 14840 | 14840 | 6.8 | 6.8 | 6.8 | 95.9 | 100.9 | 99.0 |
| GA1 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| GA2 | 3410 | 3840 | 3585 | 6.6 | 6.9 | 6.7 | 6.5 | 7.8 | 7.0 |
| GNP10D | 988 | 1297 | 1147 | 7.3 | 7.6 | 7.4 | 4.0 | 5.7 | 4.6 |
| GNP10S | 967 | 2030 | 1462 | 7.1 | 7.4 | 7.2 | 3.6 | 5.6 | 4.4 |
| GNP11D | 1260 | 1769 | 1603 | 7.0 | 7.5 | 7.3 | 4.4 | 6.1 | 5.2 |
| GNP11S | 1517 | 1925 | 1681 | 7.1 | 7.2 | 7.1 | 4.3 | 6.1 | 5.1 |
| GNP9D | 1518 | 1926 | 1754 | 6.8 | 7.0 | 6.9 | 6.3 | 8.3 | 7.0 |
| GNP9S | 1589 | 1882 | 1736 | 7.2 | 7.3 | 7.2 | 5.9 | 6.0 | 6.0 |
| GNPS-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| GNPS-02 | 1155 | 1488 | 1345 | 6.5 | 7.1 | 6.7 | 4.5 | 6.0 | 5.1 |
| GNPS-03 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| GNPS-05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| GNPS-06 | 550 | 5270 | 2142 | 6.4 | 7.2 | 6.7 | 3.5 | 8.0 | 5.7 |
| GNPS-07 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| North | 4000 | 4820 | 4560 | 6.7 | 7.5 | 7.2 | 9.5 | 10.8 | 10.3 |
| NPZ1 | 11500 | 21970 | 16443 | 6.4 | 7.1 | 6.8 | 16.0 | 16.4 | 16.2 |
| NPZ10 | 5730 | 7780 | 7005 | 6.6 | 7.2 | 7.0 | 26.0 | 26.4 | 26.2 |
| NPZ101 | 10620 | 16830 | 14463 | 6.4 | 7.2 | 6.9 | 6.0 | 6.1 | 6.1 |
| NPZ102 | 5450 | 7130 | 6428 | 6.4 | 7.2 | 6.9 | 3.0 | 3.3 | 3.2 |
| NPZ103 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ104 | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| Piezometer | EC (µS/cm) (Field) | | | pH (field) | | | Depth to Water (m) | | |
|------------|--------------------|-------|-------|------------|------|------|--------------------|-------|-------|
| | Min | Max | Ave | Min | Max | Ave | Min | Max | Ave |
| NPZ105 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ106 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ107D | 6830 | 8860 | 7908 | 11.1 | 12.1 | 11.6 | 20.1 | 20.4 | 20.2 |
| NPZ107S | 9800 | 14840 | 13188 | 6.2 | 7.1 | 6.8 | 7.8 | 8.0 | 7.9 |
| NPZ108D | 7940 | 9960 | 8935 | 10.5 | 11.4 | 11.1 | 8.2 | 8.3 | 8.3 |
| NPZ108S | 11190 | 17750 | 15160 | 6.4 | 7.3 | 7.0 | 7.9 | 8.0 | 7.9 |
| NPZ109D | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ109S | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ10a | 13010 | 14310 | 13660 | 6.4 | 6.9 | 6.7 | 36.4 | 37.8 | 37.2 |
| NPZ11 | 9880 | 13550 | 12475 | 7.0 | 7.2 | 7.1 | 26.4 | 26.8 | 26.6 |
| NPZ11a | 9150 | 12100 | 11205 | 8.2 | 8.5 | 8.4 | 60.8 | 62.3 | 61.6 |
| NPZ13 | 10600 | 12180 | 11650 | 7.1 | 7.3 | 7.2 | 20.0 | 23.4 | 21.4 |
| NPZ13a | 12430 | 13980 | 13355 | 7.2 | 7.3 | 7.2 | 53.3 | 54.3 | 53.8 |
| NPZ15 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 59.4 | 29.7 |
| NPZ15a | 8020 | 9080 | 8608 | 7.0 | 7.2 | 7.1 | 126.2 | 126.7 | 126.5 |
| NPZ16 | 13220 | 14500 | 13945 | 7.2 | 7.3 | 7.2 | 9.3 | 20.8 | 15.3 |
| NPZ16a | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ1a | 10300 | 14240 | 12368 | 7.9 | 8.8 | 8.4 | 39.6 | 46.1 | 44.0 |
| NPZ3 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ3a | 16360 | 18700 | 17823 | 6.6 | 6.8 | 6.6 | 11.6 | 12.0 | 11.8 |
| NPZ4 | 20000 | 28080 | 24135 | 6.3 | 7.0 | 6.8 | 6.5 | 6.9 | 6.7 |
| NPZ4a | 17750 | 24660 | 21733 | 6.3 | 7.2 | 6.9 | 6.9 | 7.1 | 7.0 |
| NPZ6 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ6a | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NPZ7 | 7490 | 11700 | 9378 | 6.7 | 7.5 | 7.3 | 16.9 | 17.1 | 17.0 |
| NPZ7a | 6330 | 10050 | 7975 | 6.8 | 7.6 | 7.3 | 38.4 | 41.2 | 39.8 |
| NPZ8 | 13130 | 19910 | 16983 | 7.0 | 7.8 | 7.4 | 10.2 | 10.8 | 10.5 |
| NPZ8a | 2460 | 3370 | 2883 | 6.7 | 7.5 | 7.2 | 36.3 | 36.8 | 36.6 |
| NPZ9 | 8790 | 9970 | 9333 | 6.1 | 7.1 | 6.6 | 4.6 | 4.9 | 4.8 |
| NPZ9a | ND | ND | ND | ND | ND | ND | ND | ND | ND |

ND: no data

Appendix H: Community

Table 34: MGO Summary of Community Complaints (Glendell)

| Date | Time | Site | Nature of Complaint | Company Response |
|----------------------------------|---------------|----------|---------------------|---|
| January | | | | |
| No Community Complaints Received | | | | |
| February | | | | |
| No Community Complaints Received | | | | |
| March | | | | |
| 30/3/2020 | 9:36pm | Glendell | Noise | A complaint was received via the MGO Complaints Hotline by a Camberwell community member regarding operational noise. The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. The complainant did not wish to be contacted and no further action was required. |
| April | | | | |
| 24/04/2020 | 8:00am | Glendell | Air quality | A complaint was received via the MGO Complaints Hotline by a Camberwell community member regarding operational noise. The complaint was in relation to dust associated with Glendell mine on 24th of April 2020 at 8am. The Mining Supervisor reviewed operational activities and monitoring data. Two water carts were running at Barrett Pit and the crusher plant had already ceased operations earlier for noise management. Inspections of the operation did not note and prevalent dust sources. The complainant did not wish to be contacted and no further action was required. |
| 24/4/2020 | 5.58am | Glendell | Noise | A complaint was received via the MGO Complaints Hotline by a Camberwell community member regarding operational noise. No noise alarms had been received. The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. The complainant did not wish to be contacted and no further action was required. |
| 24/04/2020 | 4.00am-6.00am | Glendell | Noise | A complaint was received via the EPA by a Camberwell community member regarding operational noise. No noise alarms had been received. The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. The complainant did not wish to be contacted and no further action was required. |
| May | | | | |
| No Community Complaints Received | | | | |
| June | | | | |
| 23/6/2020 | 4:06pm | Glendell | Blast | <p>A complaint was received via the Glendell Administration phone number regarding dust from a blast. The complaint followed a Glendell blast that was fired at 3:52pm.</p> <p>A dust monitor located at complainants residence recorded PM₁₀ 1hr average = 10ug/m³ at time of complaint. The site PM₁₀ contribution was estimated to be 4ug/m³ at time of complaint (criteria = 50ug/m³). PM₁₀ data was reviewed for the 24-hour period with no</p> |

| | | | | |
|----------------------------------|--------|----------|-------|--|
| | | | | spikes at time of blast or following blast. No further action was required. |
| July | | | | |
| 02/07/2020 | 8:55 | Glendell | Noise | <p>An anonymous noise complaint was received via the MGO Complaints Hotline.</p> <p>The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| August | | | | |
| 01/08/20 20 | 23:15 | Glendell | Noise | <p>An anonymous noise complaint was received via the MGO Complaints Hotline.</p> <p>The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| 14/08/20 20 | 8:59am | Glendell | Noise | <p>A complaint was received via the MGO Complaints Hotline.</p> <p>The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| September | | | | |
| 14/09/2020 | 1:15am | Glendell | Noise | <p>A complaint was received via the MGO Complaints Hotline by a Camberwell Community member regarding operational noise.</p> <p>No noise alarms had been received, the mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| 14/09/2020 | 2:05am | Glendell | Noise | <p>A complaint was received via the MGO Complaints Hotline by a Camberwell Community member regarding operational noise.</p> <p>No noise alarms had been received, the mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| 21/09/2020 | 7:59pm | Glendell | Noise | <p>A complaint was received via the MGO Complaints Hotline by a Camberwell Community member regarding operational noise.</p> <p>The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| 22/09/2020 | 3:40am | Glendell | Noise | <p>A complaint was received via the MGO Complaints Hotline by a Camberwell Community member regarding operational noise.</p> <p>The mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. No further action was required.</p> |
| October | | | | |
| No Community Complaints Received | | | | |
| November | | | | |
| No Community Complaints Received | | | | |
| December | | | | |
| No Community Complaints Received | | | | |

Table 47: MGO Summary of Community Complaints (Mt Owen/Ravensworth East)

| Date | Time | Site | Nature of Complaint | Company Response |
|----------------------------------|-------|---------|---------------------|--|
| January | | | | |
| No Community Complaints Received | | | | |
| February | | | | |
| 14/02 2020 | 21:23 | Mt Owen | Noise | <p>A complaint was received via the MGO Complaints Hotline from a resident of Mount Olive regarding noise at Mt Owen.</p> <p>No noise alarms had been received, the mining supervisor reviewed operations at the time of the complaint, and amended operations accordingly. The complainant was contacted to discuss concerns, no further action was required.</p> |
| March | | | | |
| No Community Complaints Received | | | | |
| April | | | | |
| No Community Complaints Received | | | | |
| May | | | | |
| No Community Complaints Received | | | | |
| June | | | | |
| 05/06/2020 | 15:56 | Mt Owen | Blast | <p>A complaint was received via email by a community member from Middle Falbrook regarding blasting impact from a blast fired at Mt Owen North Pit earlier the same day.</p> <p>The vibration and overpressure results were reviewed and it was deemed that both parameters were compliant. The complainant was contacted to discuss concerns and monitoring results. No further action was required.</p> |
| July | | | | |
| No Community Complaints Received | | | | |
| August | | | | |
| 13/08/2020 | 13:30 | Mt Owen | Blast | <p>A complaint was received via the MGO Complaints Hotline by a community member from Middle Falbrook regarding blasting impact from a blast fired at Mt Owen North Pit earlier the same day.</p> <p>The vibration and overpressure results were reviewed and it was deemed that both parameters were compliant. The Complainant was contacted to discuss concerns and monitoring results. No further action was required.</p> |

| | | | | |
|----------------------------------|-------|---------|-------|--|
| 13/08/2020 | 13:30 | Mt Owen | Blast | <p>A complaint was received via the MGO Complaints Hotline by a community member from Middle Falbrook regarding blasting impact from a blast fired at Mt Owen North Pit earlier the same day.</p> <p>The vibration and overpressure results were reviewed and it was deemed that both parameters were compliant. The Complainant was contacted to discuss concerns and monitoring results. No further action was required.</p> |
| September | | | | |
| No Community Complaints Received | | | | |
| October | | | | |
| No Community Complaints Received | | | | |
| November | | | | |
| No Community Complaints Received | | | | |
| December | | | | |
| No Community Complaints Received | | | | |

Appendix I: Independent Audit

Independent Environmental Audit

Independent Environmental Audit

Rev A | Final

18 February 2021

Mt Owen Mining Complex



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Appendix A. Appendix A. Independent Audit Team Approval

Appendix B. Independent Audit Table

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Appendix D. Independent Audit Declaration Form

Executive Summary

Mount Owen, Ravensworth East and Glendell (Mount Owen/Glendell Operations) are open cut coal mines operating as a mine complex under a single overarching management structure and individual operations teams.

All mines are owned and managed by Mt Owen Pty Limited (Mt Owen) on behalf of Glencore Coal Australia Pty Limited (Glencore). Mt Owen is a wholly owned subsidiary of Glencore. Thiess Pty Ltd operates Mt Owen Mine (excluding the Coal Handling and Preparation Plant and associated infrastructure) under a contracting agreement.

An audit of compliance with environmental conditions at the Mt Owen/Glendell Operations by a third-party environmental auditor is required every three years. MGO has commissioned Jacobs Group (Australia) Pty Ltd (Jacobs) to complete an independent environmental audit for the 2017 – 2020 auditing period.

The audit was undertaken for Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine. The Independent Environmental Audit (IEA) was undertaken in accordance with the requirements of Schedule 5, Conditions 11 and 12 of **SSD-5850** (Mt Owen & Ravensworth East approval) and Schedule 5, Conditions 11 and 12 of **DA 80/952** (Glendell approval).

The audit team was endorsed by the Department of Planning Industry and Environment (DPIE) on 29 September 2020. The audit took place between November 2020 and January 2021 which included a two-day site inspection in December and interviews with MGO staff. This IEA has been undertaken in accordance with the *DPIE Post-approval requirements for State significant developments Independent Audit Guideline*, October 2015 and these International Standards Organisation standards:

- ISO 19011:2018 Guidelines for auditing management systems; and
- ISO 14001:2015 Environmental management systems — Requirements with guidance for use.

Both Development Approvals were audited with some conditions found to be not compliant, generally due to administrative errors, monitoring and report inconsistencies.

There were no non-compliances identified with water licences.

As MGO progresses towards some rehabilitation targets, the recommendations provided in the annual site rehabilitation inspections (included in the Annual Review) should be utilised to develop an action plan to ensure the site continues trends to meet rehabilitation criteria.

Generally, the level of compliance was good in relation to the level of operational activity on the site.

Should the current approval still be in place at the time, the next IEA is required by December 2023.

Glossary

| Term | Meaning |
|---------------|--|
| ACHMP | Aboriginal Cultural Heritage Management Plan |
| AEMR | Annual Environmental Management Report |
| BOS | Biodiversity Offset Strategy |
| BOMP | Biodiversity and Offset Management Plan |
| C | Condition |
| CHA | Compensatory Habitat Area |
| CCC | Community Consultative Committee |
| CL | Coal Lease |
| CCL | Consolidated Coal Lease |
| DA | Development Approval |
| DD | Deposited Dust |
| DPIE | NSW Department of Planning, Industry and Environment. |
| DRE | NSW Department of Industry, Division of Resources and Energy |
| DRG | NSW Division of Resources and Geosciences |
| EA | Environmental Assessment |
| EBAM | Environmental Beta-Attenuation Mass Monitor |
| EIS | Environmental Impact Statement |
| EL | Exploration Licence |
| EMS | Environmental Management Strategy |
| EPA | Environment Protection Authority |
| EPL | Environment Protection Licence |
| GDP | Ground Disturbance Procedure |
| GSS | Global Soil Services |
| GRAWTS | Greater Ravensworth Area Water and Tailings System |
| HHMP | Historic Heritage Management Plan |
| HVAS | High Volume Air Sampler |
| IEA | Independent Environmental Audit |
| MOC | Mount Owen Complex |
| MGO | Mount Owen Glendell Operations |
| ML | Mining Lease |
| MOP | Mining Operations Plan |
| MP | Management Plan |
| NMP | Noise Management Plan |

| | |
|-------------------------|---|
| OEH | NSW Office of Environment and Heritage |
| OMP | Offset Management Plan |
| PIRMP | Pollution Incident Response Management Plan |
| PM₁₀ | Particulate Matter <10µm in diameter |
| PM_{2.5} | Particulate Matter <2.5µm in diameter |
| s | Section |
| Sch. | Schedule |
| SSD | State Significant Development |
| TEOM | Tapered Element Oscillating Microbalance |
| TSP | Total Suspended Particulates |
| WMP | Water Management Plan |
| WAL | Water Access Licence |

1. Introduction

1.1 Background of the project

Mt Owen commenced open cut mining operations in 1993 under the management of Hunter Valley Coal Corporation Pty Limited (HVCC) with production increasing following subsequent approvals.

- On 3 November 2016 Mt Owen was granted a new Development Approval (SSD 5850) which allowed for the continued operation of the Mt Owen and Ravensworth East Mines.
- On 4 September 2019 DPIE approved Mt Owen Continued Operations Modification 2 (SSD-5850) and on 12 September 2019 EPA approved the surrender of EPL 10860 (Ravensworth East) and activities within this EPL has now been amalgamated with EPL 4460 (Mt Owen).
- Mt Owen/Glendell Operations consists of Mt Owen, Glendell and the previously mined Ravensworth East open cut coal mines and is managed by Mt Owen Pty Limited on behalf of Glencore Coal Australia Pty Limited (Glencore).

Mt Owen/Glendell Operations has approval to extract and process up to 15 Mtpa of Run of Mine (ROM) coal. These high quality export thermal and semi-soft coking coals are predominantly exported to South-East Asia for domestic power generation and use in steel production.

As part of their Development Approvals (DA's), MGO are required to undertake an Independent (Third-party) Environmental Audit (IEA) every three years.

MGO engaged Lead Auditor Peter Horn from Jacobs Group (Australia) Pty Ltd (Jacobs) to carry out an IEA of the operation of the Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine (Mt Owen/Glendell Operation).

The Mt Owen/Glendell Operation includes.

- All mines are owned and managed by Mt Owen Pty Limited (Mt Owen) on behalf of Glencore Coal Australia Pty Limited (Glencore).
- Mt Owen is a wholly owned subsidiary of Glencore.
- Thiess Pty Ltd operates Mt Owen Mine (excluding the Coal Handling and Preparation Plant and associated infrastructure) under a contracting agreement.

1.1.1 Department of Planning Industry and Environment Endorsement

The audit team received endorsement to conduct the IEA by the Department of Planning and Environment (DP&E) on 29 September 2020. The letter of endorsement is included in Appendix A.

An extension of time was requested by Mount Owen to account for the holiday shutdown period, this shifted the audit reporting date to 19th February 2021 with approval granted 26 October 2020. The extension letter is provided in Appendix A.

1.1.2 Period covered by the audit

The audit period is from the 31 October 2017 (last day of previous Independent Environmental Audit by Hansen Bailey) to 2 December 2020, last day of IEA 2020 site inspection. A site audit was conducted on 1 and 2 December 2020 at the three mine sites comprising the Mount Owen/Glendell Operation.

1.2 Site Description & History

Mt Owen/Glendell Operations is located within the Hunter Coalfields at Hebden in the Upper Hunter Valley of New South Wales, approximately 25 kilometres northwest of Singleton, and 26 kilometres southeast of Muswellbrook.

1.2.1 Mount Owen

In December 2004, Mt Owen was granted a new Development Approval (DA 14-1-2004) for an expansion to existing approved mining operations at Mt Owen. The Approval allowed for the following:

- continuation of existing and approved mining operations at Mt Owen;
- extension of mining operations over a 21 year mine life;
- development of the Eastern Rail Pit;
- development of an out of pit overburden emplacement area known as the West Dump;
- increased Run of Mine (ROM) coal production at Mt Owen from 8 Mtpa to 10 Mtpa;
- construction and operation of a ROM coal receival facility and haul road to enable Mt Owen Coal Handling and Preparation Plant (CHPP) to receive and process ROM coal from Ravensworth East and Glendell mines;
- modifications to the Mt Owen CHPP allowing for the increased throughput of up to 15 Mtpa ROM coal, and establishment of an additional product coal stockpile;
- increase in the approved handling capacity of the rail loading facility and the Mt Owen rail spur to transport up to 15 Mtpa ROM coal equivalent;
- continued disposal of tailings from the Mt Owen CHPP in voids at Ravensworth East mine;
- associated modifications to the mine water management system; and
- minor changes to infrastructure.

The approved expansion of Mt Owen secures Mt Owen's future as a key coal producer and exporter in the region.

On 1 December 2005, HVCC, owner of, and holder of Leases and Approvals associated with the Mt Owen Mine changed its name to Xstrata Mt Owen. In June 2013, Xstrata Mt Owen changed its name to Mt Owen, following the merger between Xstrata and Glencore.

On 3 November 2016 Mt Owen was granted a new Development Approval (SSD 5850) which allowed for the continued operation of the Mt Owen and Ravensworth East Mines.

On 4 September 2019 DPIE approved Mt Owen Continued Operations Modification 2 (SSD-5850) and on 12 September 2019 EPA approved the surrender of EPL 10860 (Ravensworth East) and activities within this EPL has now been amalgamated with EPL 4460 (Mt Owen).

1.2.2 Ravensworth East

The Ravensworth East Mine, formally known as Swamp Creek Mine, was previously mined by Hebden Mining Company. Mining ceased at Swamp Creek Mine in April 1991 following the completion of contracted coal supplies. Prior to its reopening, the site was under a care and maintenance contract.

Development Consent for Ravensworth East Mine was obtained in March 2000, approving the Mine to produce up to 4Mt of ROM coal per annum. Mining re-commenced at Ravensworth East in 2000.

Ravensworth East Mine was purchased by Xstrata Coal in 2002 and was integrated into the Mt Owen Complex in 2004.

On 3 November 2016 Mt Owen was granted a new Development Approval (SSD 5850) which allowed for the continued operation of the Mt Owen and Ravensworth East Mines. Ravensworth East is now included under SSD 5850 and operates under the management of Mt Owen.

1.2.3 Glendell

Glendell was granted DA 80/952 by the then Minister for Planning and Environment on 2 May 1983 whilst under the joint venture ownership of Renison Goldfields Limited and Dalgety Australia Ltd.

In 1997, DA 80/952 was modified to enable the extraction of coal from an undeveloped coal reserve of 3.6 Mtpa of ROM coal via open cut methods, and the construction of ancillary infrastructure including a CHPP and the Mt Owen rail loop. The modification also allowed for the integration of the management of Glendell Mine into the Mt Owen Complex.

DA 80/952 was modified under section 75W of the Environmental Planning and Assessment Act 1979 (EPA Act) on 25 February 2008. This modification is supported by Environmental Assessment (EA) for the Modification of Glendell Mine Operations (Umwelt, 2007) (Glendell EA) and permits mining operations to take place until the end of June 2024. This Modification generally permitted the following changes to operations and infrastructure at Glendell:

- An extraction of up to 4.5 Mtpa ROM Coal;
- Utilising existing and approved Mt Owen Complex services and infrastructure;
- Relocation of mine infrastructure area and access road;
- An extension of the mining lease out to 2024; and
- Mining in a general north to south direction.

Glendell operates under the management of Glendell Tenements Pty Limited. Construction activities commenced in April 2008 with the first coal extracted at Glendell in June 2008.

Modification 3 of Glendell's DA 80/952 was approved in late 2016 which allowed for the relocation of a 2.7 km section of the 132 kV powerlines further to the west of their current position to allow for the continuation of mining in the Barrett Pit.

Modification 4 of Glendell's DA 80/952 was approved on the 4th of March 2020. This is a small variance along the western boundary allowing access to an additional ~1.97 Mt ROM and the construction of a haul Road along the western boundary.

1.3 Audit Requirements

The IEA requirements of the Development Application approvals are detailed in Table 1.1.

The audit would be of the Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine. The IEA was undertaken in accordance with the requirements of Schedule 5, Conditions 11 and 12 of SSD-5850 and Schedule 5, Conditions 11 and 12 of DA 80/952.

Table 1.1: Requirements for this IEA

| Condition | Requirement | Location in report |
|--|---|--|
| Mount Owen Continued Operations Project | | |
| Schedule 5, condition 11 | Within one year of the date of commencement of development under this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. This audit must: | |
| a) | be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; | Certification Appendix A |
| b) | include consultation with the relevant agencies and the CCC; | Document wide Section 2 |
| c) | assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease or necessary water licences (including any assessment, plan or program required under these approvals); | Section 4 |
| d) | review the adequacy of strategies, plans or programs required under the abovementioned approvals (including whether the development has met or is trended towards the progressive performance and completion criteria detailed in these strategies, plans or programs); | Section 4.7 Sections 7, 8, 9, 10 and 11 Appendix B |
| e) | recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under these approvals; and | Section 12 |
| f) | be conducted and reported to the satisfaction of the Secretary | Outside the audit process |
| Note | This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary. | Certification Appendix A |
| The Glendell Open Cut Coal Mine and Associated Infrastructure | | |
| Schedule 5, conditions 11 and 12 | By the end of December 2010, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. This audit must: | |
| a) | be led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Secretary; | Appendix A |
| b) | be conducted by a suitably qualified, experienced, and independent team of experts (including any expert in field/s specified by the Secretary) whose appointment has been endorsed by the Secretary; | Appendix A |
| c) | include consultation with the relevant agencies and the CCC; | Section 2 |

| | | |
|---------------------------------|--|-------------------------------|
| d) | assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease or necessary water licences (including any assessment, plan or program required under these approvals); | Section 4 |
| e) | review the adequacy of strategies, plans or programs required under the abovementioned approvals (including whether the development has met or is trended towards the progressive performance and completion criteria detailed in these strategies, plans or programs); | Section 4, 7, 8, 9, 10 and 11 |
| f) | recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under these approvals; and | Section 12 |
| g) | be conducted and reported to the satisfaction of the Secretary. | Outside the audit process |
| Schedule 5, condition 12 | Within 12 weeks of commissioning of this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary and any other NSW Government agency that request it, together with its response to any recommendations contained in the audit report and a timetable for the implementation of these recommendations, as required. The Applicant must implement the audit report recommendations, to the satisfaction of the Secretary. | Outside the audit process |

1.3.1 Audit commencement meeting

This IEA process commenced with an implementation meeting with MGO to discuss the scope, criteria and schedule for audit activities on 29 October 2020.

1.4 Audit Methodology

This IEA was undertaken in accordance with *AS/NZS ISO 19011:2018 – Guidelines for quality and/or environmental management systems auditing* and the *Post-approval requirements for state significant developments – Independent Audit Guideline*, October 2015 (DPIE).

A desktop review of all relevant documents including management plans, monitoring data and complaints was used to determine the contents of the audit protocol to be used during the site inspection and personnel interviews. The site inspection was undertaken on 2 and 3 December 2020. During the inspection site documentation and the physical aspects of environmental management as well as implementation of plans and programs were reviewed.

1.4.1 Audit team

This IEA was conducted by the following Jacobs personnel:

- Peter Horn (Principal Environmental Scientist) – Lead Auditor;
- Luke Spencer – Air Quality and Noise Specialist;
- Mat Constantine – Ecology Specialist;
- Samantha Bourke – Audit Assistant; and
- Kim Collings (Associate Environmental Scientist) – Quality Assurance and peer review.

Specialist Subconsultant:

- Clayton Richards (Minesoils) undertook the rehabilitation portion of the audit.

1.4.2 IEA 2020 Site inspection Agenda

| Key component | Sub components |
|----------------------------|---|
| Workshop | Maintenance planning |
| Waste Management | Waste management systems and bins |
| Rehabilitated areas | Creek Diversion (Clayton and Peter to attend) <ul style="list-style-type: none"> ▪ Topsoil storage ▪ A range of different age rehab ▪ Tailings rehab ▪ NEH and Middle Fallbrook Road tree screens ▪ Landform, slopes, compliance with approved plans ▪ Rehab area signage ▪ Management of weeds ▪ All of the very specific requirements for Glendell re compensatory planting |
| Water management | Discharge point (s) <ul style="list-style-type: none"> ▪ Dirty water / clean water separation ▪ Water sharing |
| Monitoring | Some of the critical monitoring points for <ul style="list-style-type: none"> ▪ air, ▪ noise and vibration |

| | |
|--|---|
| | <ul style="list-style-type: none"> ▪ Salinity trading infrastructure |
| MOP (Clayton Richards and Peter Horn) | <ul style="list-style-type: none"> ▪ MOP versus current operation ▪ Operation in MOP boundaries ▪ Staged rehabilitation in accordance with the MOP ▪ Rehab management, inspections and remediation of any substandard results ▪ A discussion around completion criteria ▪ Final Voids (Clayton Richards and Peter Horn) ▪ General discussion and review of planning. |
| Noise Management Plan | <ul style="list-style-type: none"> ▪ Discussion around non-compliances/ complaints ▪ Operation adapting to adverse conditions ▪ Provision and maintaining suitable go to areas for adverse conditions ▪ Equipment lists and noise modelling |
| Air Quality Management Plan | <ul style="list-style-type: none"> ▪ Discussion around non-compliances/ complaints ▪ Operation adapting to adverse conditions ▪ Provision and maintaining suitable go to areas for adverse conditions ▪ Operation logs showing shutdown times for adverse condition ▪ Shift planning to account for adverse conditions. |
| Blast Management Plan | <ul style="list-style-type: none"> ▪ Discussion around non-compliances/ complaints ▪ Process run through. |
| Water management plans | <ul style="list-style-type: none"> ▪ Discussion around non-compliances/ complaints ▪ Adaption of Water Management to site changes with MODS |
| Heritage Management Plan | <ul style="list-style-type: none"> ▪ Discussion around non-compliances/ complaints ▪ View sites signage (Aboriginal and European) and fencing / protection |
| Tailings MP | <ul style="list-style-type: none"> ▪ General Tailings Management ▪ Life of mine tailings planning |
| Hebden Road | <ul style="list-style-type: none"> ▪ General discussion |

1.4.3 Site interviews

Site interviews were conducted with the following staff:

- Environment and Community Manager – Mt Owen / Glendell Operations, Glencore;
- Environment and Community Coordinator - Mt Owen / Glendell Operations, Glencore;
- Technical Service Manager – Mt Owen / Glendell Operations, Glencore;
- Thiess Senior Environmental Officer; and
- Thiess Environmental Officer.

1.4.4 Site inspection

During the site inspection (1 – 2 December 2020) climatic conditions were as follows:

- Maximum Wind gust 37km/h from the east south east
- Temperature range from 17.1 – 36.3°C

- Some rain on 2 December (15.4mm)
- Relative humidity was high, with a maximum relative humidity on 2 December being 83% and 66% on 1 December.

Considering it was summer in the Hunter Valley, the weather conditions were relatively benign.

1.5 Report Structure

This report is structured as follows:

Executive Summary

Section 1 provides an introduction, background and description of Mount Owen and describes the requirements for the IEA and provides a guide to the structure of the report.

Section 2 discusses consultation with the relevant departments.

Section 3 lists the planning approvals in place at Mount Owen Complex and confirms those which have been the subject of this IEA.

Section 4 provides a discussion of non-compliances against the project approval, licences, permits and supporting documents.

Section 5 provides a review of the action status from the previous Independent Environmental Audit.

Section 6 reviews Complaints and Reportable incidents for the audit period.

Section 7 reviews the adequacy of air quality management at the site both documented and observed.

Section 8 reviews the adequacy of rehabilitation management at the site both documented and observed.

Section 9 reviews the adequacy of biodiversity management at the site both documented and observed.

Section 10 reviews the adequacy of noise and vibration management at the site both documented and observed.

Section 11 comments on general environmental management at the site both documented and observed.

Section 12 provides recommendations for measures or actions to improve the environmental performance of the Mount Owen-Glendell Operation.

2. Consultation

2.1 Department / Administrative Consultation

The audit team attempted consultation via email with the following departments and administrative organisations on 20 October 2020:

- Resources Regulator
- Singleton Council
- Department of Planning, Industry and Environment (DPIE)
- DPIE Environment, Energy and Science (DPIE – EES) (previously Office of Environment and Heritage), and
- Community Consultative Committee (CCC).

Department and administrative IEA requirements are included in Table 2.1.

Table 2.1: Department and administrative IEA requirements

| Feedback item | Section in Report |
|---|---|
| Resources Regulator | |
| <p>Review relevant mining leases</p> <ul style="list-style-type: none"> • CCL715 (1973) • CL358 (1973) • CL383 (1973) • ML1355 (1992) • ML1410 (1992) • ML1415 (1992) • ML1419 (1992) • ML1453 (1992) • ML1475 (1992) • ML1476 (1992) • ML1561 (1992) • ML1608 (1992) • ML1629 (1992) • ML1673 (1992) • ML1694 (1992) • MPL343 (1973) | <p>Section 4.5</p> <p>The auditor reviewed the relevance of the mining leases and audited ML 1355 and CL 358 as those most relevant to the current operation of the MGO Complex noting that many lease clauses are the same</p> |
| The Resources Regulator requires that the following issues be addressed in independent environmental audits undertaken in accordance with a planning consent condition. | |
| ▪ Review relevant mining leases and exploration licences as agreed with Resources Regulator; | Section 4.5 Appendix B |
| ▪ Undertake an assessment of compliance against the conditions of title related to environmental management; | Section 4.5 Appendix B |
| ▪ Verify that there is a current Mining Operations Plan (MOP) in place and it has been approved by the Regulator – review compliance against any conditions of approval of the MOP; | Section 4.5 Appendix B |
| ▪ Undertake a critical review of the MOP, including an assessment of its compatibility with the description of operations contained in the planning approval. In particular: <ul style="list-style-type: none"> ▪ Review the rehabilitation strategy as outlined in the MOP to determine if it is consistent with the Project Approval in terms of progressive rehabilitation schedule; and proposed final land use(s); | Section 4.5 Section 4.7.5 Section 8 Appendix B |

| Feedback item | Section in Report |
|---|-----------------------------|
| <ul style="list-style-type: none"> Review the rehabilitation objectives and completion criteria as outlined in the MOP to determine if they have been developed in accordance with the proposed final land use(s) as outlined in the Project Approval; | |
| <ul style="list-style-type: none"> Review the development and implementation of any rehabilitation monitoring programs to assess performance against the nominated objectives and completion criteria – verified by reviewing monitoring reports and rehabilitation inspection records; | Section 8 Appendix B |
| <ul style="list-style-type: none"> Determine if a rehabilitation care and maintenance program has been developed and implemented based on the outcomes of monitoring program – verified by reviewing Annual Rehabilitation Programs or similar documentation; | Section 8 Appendix B |
| <ul style="list-style-type: none"> Confirm that mining operations are being conducted in accordance with the approved MOP (production, mining sequence etc.), including within the designated MOP approval boundary – to be verified by site plans and site inspection; | Section 4.7.5 Appendix B |
| <ul style="list-style-type: none"> Confirm that rehabilitation progress is consistent with the approved MOP as verified by site plans and a site inspection. This should include an evaluation against rehabilitation targets and whether the final landform is being developed in accordance with conceptual final landform in the Project Approval; and | Section 4.7.5 Appendix B |
| <ul style="list-style-type: none"> Based on a visual inspection, determine if there are any rehabilitation areas that appear to have failed or that have incurred an issue that may result in a delay in achieving the successful rehabilitation outcomes. | Section 8 Appendix B |
| <p>In addition to the above, the audit should note observations where rehabilitation procedures, practices and outcomes represent best industry practice.</p> <p>It would be appreciated if a copy of the final audit report could be sent to the Regulator at nswresourcesregulator@service-now.com upon completion of the audit.</p> | Noted |
| Singleton Council | |
| Consultation | |
| The conditions of approval for SSD 5850, require consultation with council on a number of matters, including, but not limited to: | |
| <ul style="list-style-type: none"> Planning Agreement | Appendix B |
| <ul style="list-style-type: none"> Historic Heritage Management Plan | Appendix B |
| <ul style="list-style-type: none"> Hebden Road | Appendix B |
| <ul style="list-style-type: none"> Waste (Onsite Sewerage Management System) | Appendix B |
| <ul style="list-style-type: none"> Rehabilitation Strategy | Appendix B |
| <ul style="list-style-type: none"> Rehabilitation Management Plan | Appendix B |
| <ul style="list-style-type: none"> Mine Closure Plan | Appendix B |
| <ul style="list-style-type: none"> Community Consultative Committee | Appendix B |
| <p>Additionally, the conditions of approval require the Applicant to establish a community consultative committee with representation from Council and provide a copy of the Audit Report to Council.</p> | Appendix B Noted |
| The conditions of approval under D80/592, require consultation with council on a number of matters, including, but not limited to: | |
| <ul style="list-style-type: none"> Development contributions | Appendix B |
| <ul style="list-style-type: none"> Road closures as a result of blasting | Appendix B |
| <ul style="list-style-type: none"> New England Highway tree screening | Appendix B |

| Feedback item | Section in Report |
|--|--|
| <ul style="list-style-type: none"> Landscape Management Plan, including a Rehabilitation and Offsets Management Plan, Final Void Management Plan and Mine Closure Plan | Appendix B |
| <ul style="list-style-type: none"> Traffic Management Plan | Appendix B |
| Community Consultative Committee | |
| Additionally, the conditions of approval require the Applicant to establish a community consultative committee with representation from Council. | Reviewed in CCC minutes - Compliant |
| Council would expect that the audit will include evidence to support the compliance status of these conditions of approval, and of interest to council, evidence to support the following: | |
| <ul style="list-style-type: none"> The extent to which development contributions made under either a Planning Agreement or Contributions Plan have been made; | This would require a full review of the Planning agreement which is beyond the scope of this audit. The consent requires a planning agreement to be negotiated and in place, both points have been verified in the audit. |
| <ul style="list-style-type: none"> The extent of consultation with council on the Hebden Road realignment works, particularly in relation to transfer of ownership, the impacts to the Ravensworth Public School and subdivision to support completion of the works; | Beyond the audit scope – this is an environmental management audit, the audit team do not have the necessary expertise to address this request. Further information is in Appendix B |
| <ul style="list-style-type: none"> Mine closure planning for the Glendell Mine, given development consent for the current operation will expire in 2022; | Appendix B |
| <ul style="list-style-type: none"> The extent to which the applicant has complied with the requirements of Table 10 in SSD-5850, notably how the applicant intends to minimise adverse socioeconomic impacts associated with mine closure; | Appendix B |
| <ul style="list-style-type: none"> Compliance with requirements of any OSSM approval; and Whether the various rehabilitation management and closure planning objectives/ plans/ strategies required under the various consents align to local, regional and State strategic land use planning documents, including whether these documents incorporate final land use outcomes consistent with these strategic land use planning documents. | <p>OSSM approval reviewed and found compliant, Note – the audit team did not include a wastewater expert so that aspect of the audit was necessarily superficial.</p> <p>Strategic planning is considered at the EIS stage of the development and is therefore covered by consent conditions and controls on the MOP and associated plans, See Appendix B.</p> |
| Planning | |
| <p>Council notes that the applicant is currently seeking a modification to SSD 5850 to address the inability to secure the Travelling Stock Route as an offset site for the Mount Owen Mine. Council has provided a response to the SoEE for this proposed modification. Council would expect that this audit will identify:</p> | |

| Feedback item | Section in Report |
|---|--|
| <ul style="list-style-type: none"> Evidence as to why the applicant continued to propose the TSR as a viable offset site under the EIS for SSD 5850 and subsequent modifications, despite not securing it in accordance with condition 42 of DA 1-14-2004 and condition 27 of SSD 5850; What, if any, actions have been taken to secure the TSR since 2014, and if none, what actions were taken to prevent biodiversity impacts as a result of mining until such time as a suitable offset could be secured; and; Evidence of the offset management actions that were to be applied at the TSR offset site to compensate for the impacts assessed under DA 1-14-2004 and SSD 5850, and whether these actions were undertaken. | <p>This issue has been resolved through SSD 5850 MOD 5, that was approved post audit period.</p> <p>If the offset has not been secured then the management actions cannot be undertaken.</p> <p>Section 9 Appendix B</p> |
| DPIE EES (previously OEH) | |
| No specific matters tendered. | N.A. |
| Environment Protection Authority | |
| No response tendered. | N.A. |
| DPIE | |
| Environmental Services | |
| Noise management - implementation of the noise management plan, including the response to an exceedance of criteria, i.e. notification of affected receivers, notification of exceedances or non-compliances to the Department, and follow-up monitoring. | Section 10 Appendix B |
| Air quality management and performance against criteria and previous years' performance. | Section 7 Appendix B |
| Operation of the Community Consultation Committee in accordance with the consent and relevant CCC Guidelines (2019 version). | Section 2.2 Appendix B |
| Notification and reporting of incidents and non-compliances. | Section 6.2 |
| Maintenance and rehabilitation of creek diversions constructed at the Mt Owen Complex, including the implementation of any diversion plans and diversion remediation plans. | Section 8 Appendix B |

2.2 Community Consultation

The audit team consulted with the CCC, the CCC meets twice per year and on reviewing the CCC Meeting Minutes, most of the discussion in recent meetings has been on the dust and air quality, buffer land management, biodiversity offsets, rehabilitation, water management, European heritage, Aboriginal heritage, community complaints, operational noise, blasting, modifications and approval process for the Mount Owen Complex. The last meeting was held on 29 October 2020. The opportunity to ask the committee at a sitting date was not available to the auditor, however comments were requested by email and a committee member phoned and discussed with the auditor their comments regarding air quality and noise.

The audit team received one response from the CCC that was offered in confidence. The individual was concerned as to whether the methodologies for assessing the dust, noise and vibration levels between the monitoring stations was adequate. The Lead Auditor was able to respond regarding dust and noise immediately as the results are generated through modelling of generally a similar type to that used for the Environmental Impact Statement (EIS). Vibration is more difficult as there are anomalies due to geology/ground conditions that can be difficult to predict and make allowances for. The Lead Auditor suggested the individual get in contact with the mine and ask for monitoring of vibration at the individual's residence if there were any concerns regarding compliance at that location. It is difficult to go beyond this response in an audit as there are extensive

explanations of the methodologies required for a non-technical person to understand the way these investigations are conducted. The EIS provides good information on these issues should more information be required.

3. Documents Audited

3.1 Approval Documents

Licences and approvals reviewed for environmental compliance are listed in Table 3.1.

Table 3.1: Approval Documents Audited

| Approval Document | Section in Report |
|--|-------------------|
| Development consent: Mount Owen Continued Operations Project SSD-5850 | Appendix B |
| Development consent: The Glendell Open Cut Coal Mine and Associated Infrastructure DA 80/952 | Appendix B |
| Environmental assessment for Modification 2 of DA 80/952, titled Environmental Assessment for Modification of Glendell Mine Operations, Volumes 1-3, dated August 2007 and prepared by Umwelt (Australia) Pty Limited, including the response to submissions document dated October 2007 | Appendix B |
| Environmental assessment for Modification 3 of DA 80/952, titled Glendell Mine 132 kV Powerline Relocation Modification 3 Environmental Assessment, dated August 2016 and prepared by Hansen Bailey, including the response to submissions document dated September 2016 | Appendix B |
| Environmental Assessment titled Integra to Mount Owen Complex Water Pipeline Modification Environmental Assessment dated June 2017, including the Response to Submissions titled Integra to Mount Owen Complex Water Pipeline Modification EA Response to Submissions, dated 11 July 2017 | Appendix B |
| Environmental Impact Statement titled Mount Owen Continued Operations Project: Environmental Impact Statement (10 volumes) dated January 2015, response to submissions titled Mount Owen Continued Operations Project Response to Submissions: Report A dated June 2015 (including Addendum dated October 2015) and Report B dated August 2015, Response to Queries Raised by Agencies Following Response to Submissions dated November 2015, the Mount Owen Continued Operations Project Response to PAC Review Report dated May 2016 and the Mount Owen Continued Operations Project Clarification of Project and Assessment Findings Report dated October 2016. | Appendix B |
| Environment Protection Licence 4460 | Section 4.2 |
| Environment Protection Licence 10860 (On 4 September 2019 DPIE approved Mt Owen Continued Operations Modification 2 (SSD-5850) and on 12 September 2019 EPA approved the surrender of EPL 10860 (Ravensworth East) and activities within this EPL has now been amalgamated with EPL 4460 (Mt Owen)). | Section 4.3 |
| Environment Protection Licence 12840 | Section 4.4 |
| Mining Lease 1355 | Section 4.5 |
| Mining Lease 358 | Section 4.5 |
| MGO water licences | Section 4.6 |
| Non-compliances and recommendations from the previous Mt Owen Complex IEA (2017). | Section 5 |

Other relevant documentation:
All other regulatory reporting required by the consents as modified.

Section 4.7, 6, 7,
8, 9 and 10
Section 6

3.2 Management Plans

Management plans, to support the approvals, that were audited are included in Table 3.2.

Table 3.2: Audited Management Plans

| Management plan / program | Version date | Available |
|--|---|-----------|
| Pollution Incident Response Management Plan | June 2020 | Online |
| Water Management Plan | October 2020 | Online |
| Surface Water Management and Monitoring Plan | October 2020 | Online |
| Groundwater Management and Monitoring Plan. Version 3.0, Effective 7/09/2020 | September 2020 | Online |
| Groundwater Management and Monitoring Plan, Version 4.0, Effective 19/10/2020 | October 2020 | Online |
| Erosion and Sediment Control Plan | September 2020 | Online |
| Erosion and Sediment Control Plan | October 2020 | Online |
| Surface Water and Groundwater Response Plan | September 2020 | Online |
| Surface Water and Groundwater Response Plan | October 2020 | Online |
| Creek Diversion Management Plan | May 2020 | Online |
| Air Quality Management Plan | October 2018 | Online |
| Noise Management Plan | February 2019 | Online |
| Blast Management Plan | May 2020 | Online |
| Aboriginal Cultural Heritage Management Plan | April 2020 | Online |
| Historic Heritage Management Plan | April 2020 | Online |
| Biodiversity and Offset Management Plan | December 2018 | Online |
| Greenhouse Gas and Energy Efficiency Plan | October 2017 | Online |
| Rehabilitation Management Plan Amendment A | April 2020 | Online |
| Rehabilitation Strategy | May 2020 | Online |
| Environmental Management Framework | June 2020 | Online |
| Mining Operations Plan (1 January 2020 to 30 June 2024) | Amendment A March 2020 | Online |
| Mt Owen/Glendell Operations Biodiversity Offset Strategy - BOS described in EIS and summarised in Table 9. | BOS described in EIS and summarised in Table 9 of BOMP. | Online |
| Biodiversity and Offset Management Plan | December 2018 | Online |

| Management plan / program | Version date | Available |
|---|-------------------------------|-----------|
| Mt Owen Complex Flora and Fauna Management Plan - Flora and fauna management strategies for rehabilitation and offset areas at MGO are outlined in the Biodiversity and Offset Management Plan | BOMP December 2018 | Online |
| Landscape Management Plan | Now in BOMP, December 2018 | Online |

4. Environmental Compliance

In the assessment of compliance, the status of each condition or commitment is described as:

- Compliant
- Non-compliant
- Not Triggered (a timing trigger had not been reached or had passed)
- Observation, or
- Note (a fact or statement that does not require action for compliance).

The audit identified 9 requirements that were not compliant with the two consents (planning approvals).

4.1 Issues Resulting in Non-compliance

The issues relating to non-compliance during the audit period are listed in Table 4.1.

Table 4.1: Issues resulting in non-compliance

| Ref | Requirement | Issue |
|---|---|--|
| DA SSD5850, Schedule 2, Condition 17 (Evidence of Consultation) SSD 5850 NC001 | Where conditions of this consent require consultation with an identified party, the Applicant must: <ul style="list-style-type: none"> (a) consult with the relevant party prior to submitting the subject document; and (b) provide the Department with details of the consultation undertaken including: <ul style="list-style-type: none"> • the outcome of that consultation, matters resolved and unresolved; and • details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. | No evidence of consultation in the development of the VA noted in Schedule 2 Condition 16 Not Compliant |
| DA SSD5850, Schedule 3, Condition 5 (Noise Criteria) SSD5850 NC002 | The Applicant must ensure that the noise generated by the development (including rail movements along the Mount Owen Rail Loop, but excluding the construction works specified in condition 3), does not exceed the criteria in Table 3 at any residence on privately-owned land. | N1 from 17 June exceeded site criteria and were valid measurements with regard to meteorological conditions, indicating a non-compliance against SSD-5850 noise criteria. As per Section 4.1, Table 4.1 of the NMP, additional noise monitoring was performed on the 24 June 2020 with suitable weather conditions and following DPIE approval for a time extension Not Compliant |
| DA SSD5850, Schedule 3, Condition 15 (Blast Management Plan) | The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must: <ul style="list-style-type: none"> (a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise; | A blast was fired on 5 September 2018 while the MOC 1 Blast monitor was offline being serviced. Resulted in a failure to monitor which is a non-compliance with the approved MOC Blast Management Plan, Condition 5(b). The Blast Management Plan does not include a road closure plan in contravention of (c). |

| Ref | Requirement | Issue |
|--|---|--|
| SSD 5850 NC003 | <p>(b) describe the measures that will be implemented to ensure compliance with the blast criteria and operating conditions of this consent;</p> <p>(c) include a road closure management plan for blasting within 500 metres of a public road, that has been prepared in consultation with applicable roads authorities and includes provisions for:</p> <ul style="list-style-type: none"> • notifying relevant roads authorities of any planned public road closures; • minimising the duration of closures, both on a per event basis and weekly basis; • avoiding peak traffic periods as far as practicable; and • coordinating with neighbouring mines to minimise the cumulative effect of road closures; <p>(d) propose and justify any agreed alternative ground vibration limits for public infrastructure in the vicinity of the site (if relevant);</p> <p>(e) include an agreed strategy for the management of potential blast interactions within 500 metres of any approved and/or developed underground workings for the Integra Underground Mine, and includes details of:</p> <ul style="list-style-type: none"> ▪ systems for the prior and timely notification of scheduled blasting and subsidence activities; ▪ personnel evacuation and safety protocols for specific blast events; and ▪ procedures and protocols for managing the interaction of the two mines; and <p>(f) include a monitoring program for evaluating and reporting on compliance with the blasting criteria and operating conditions of this consent.</p> <p>The Applicant must implement the Blast Management Plan as approved by the Secretary.</p> | Not Compliant |
| <p>DA SSD5850, Schedule 3, Condition 16 (Table 6: Short term impact assessment criteria for PM₁₀)</p> <p>SSD 5850 NC004</p> | <p>AIR QUALITY</p> <p>AIR QUALITY CRITERIA</p> <p>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 5, 6 and 7 at any residence on privately-owned land, except for the residences shown in Table 1 as being eligible for acquisition on request on the basis of air quality impacts.</p> <p>(Appendix B has the full reference).</p> | <p>DPIE</p> <p>2018 Annual Review: PM₁₀ dust monitor Sx10-G2 recorded a project specific result of 50.6 µg/m³ on 24 July 2018. This exceeded the short-term impact assessment criterion of 50 µg/m³ for PM₁₀.</p> <p>Non-Compliant with Table 6 (Short term impact assessment criteria for PM₁₀ in Schedule 3, Condition 1.</p> <p>Not Compliant</p> |
| Schedule 3, Condition 18 (Air Quality Operating Conditions) | <p>The Applicant must:</p> <p>a) implement all reasonable and feasible measures to minimise the odour, fume, spontaneous combustion and dust (including PM₁₀ and PM_{2.5}) emissions of the development, including through the proactive and reactive</p> | <p>DPIE</p> <p>A breach of Air Quality Operating Conditions Penalty Notice was received due to an event on 16 August 2019.</p> |

| Ref | Requirement | Issue | | | | |
|---|--|--|---------------------|---|--|---|
| SSD 5850 NC005 | management for all emission sources (crustal and combustion); (b) minimise visible air pollution generated by the development; (Appendix B has the full reference). | Particulars of the Breach received by DPIE:- "Mt Owen has failed to comply with Schedule 3, Condition 18 (a) and (b) of SSD-5850 (the consent) for the Mt Owen Open Cut". Not Compliant | | | | |
| DA SSD5850, Schedule 3, Condition 25 (Water Management Performance Measures – Table 8) SSD5850 NC006 | The Applicant must comply with the performance measures in Table 8. (see Appendix B for full Table 8) <table border="1"><caption>Table 8: Water management performance measures</caption><thead><tr><th>Feature</th><th>Performance Measure</th></tr></thead><tbody><tr><td>Main, Glennies and Bowman's Creek alluvial aquifers</td><td><ul style="list-style-type: none">Negligible environmental consequences to the alluvial aquifer as a result of the development, including:<ul style="list-style-type: none">negligible change in groundwater levels;negligible change in groundwater quality; andnegligible impact to other groundwater users, beyond those predicted in the documents listed in condition 2(a) of Schedule 2.</td></tr></tbody></table> | Feature | Performance Measure | Main, Glennies and Bowman's Creek alluvial aquifers | <ul style="list-style-type: none">Negligible environmental consequences to the alluvial aquifer as a result of the development, including:<ul style="list-style-type: none">negligible change in groundwater levels;negligible change in groundwater quality; andnegligible impact to other groundwater users, beyond those predicted in the documents listed in condition 2(a) of Schedule 2. | In severe drought conditions, the alluvial aquifers (along with permian aquifers) dropped below trigger limits for an extended period of time. This is not in accordance with the section of Table 8 reproduced to the left. Not Compliant |
| Feature | Performance Measure | | | | | |
| Main, Glennies and Bowman's Creek alluvial aquifers | <ul style="list-style-type: none">Negligible environmental consequences to the alluvial aquifer as a result of the development, including:<ul style="list-style-type: none">negligible change in groundwater levels;negligible change in groundwater quality; andnegligible impact to other groundwater users, beyond those predicted in the documents listed in condition 2(a) of Schedule 2. | | | | | |
| DA SSD5850, Schedule 3, Condition 29 (Long Term Security of Offsets) SSD 5850 NC007 | The Applicant must make suitable arrangements for the long term protection of the areas identified in Table 9, to the satisfaction of the Secretary. These arrangements must be implemented by: (a) the end of June 2018, unless the Secretary agrees otherwise, for all on-site and off-site offsets excluding the Rehabilitation Woodland offset area; and (b) within 12 months of the finalisation of the location of the Rehabilitated Woodland (see Table 9) under condition 31(c) below, unless the Secretary agrees otherwise. The Applicant must make suitable arrangements for the long term protection of the areas identified in Table 9, to the satisfaction of the Secretary. These arrangements must be implemented by: (Appendix B has the full reference). | Arrangements have been made for the sites listed in Table 9 except for the Travelling Stock Reserve (TSR). Not Compliant | | | | |
| DA 80-952, Schedule 3, Condition 4 Cumulative Noise Criteria DA 80-952 NC008 | The Applicant must take all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately-owned land, or on more than 25% of any privately owned land, excluding the land listed in Table 1, to the satisfaction of the Secretary: LAeq (11 hour) 50 dB(A) Day; LAeq (4 hour) 45 dB(A) Evening; and LAeq (9 hour) 40 dB(A) Night. | There is no evidence the noise monitoring reports or in the Annual Reviews that compliance against this condition is assessed. There is no statement of compliance in the quarterly noise summary in accordance with the approved NMP. Not Compliant | | | | |
| DA 80-952, Schedule 3, Condition 20 | The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the | PM ₁₀ dust monitor Sx10-G2 recorded a project specific result of 50.6 µg/m ³ on 24 July 2018. This exceeded the short- | | | | |

| Ref | Requirement | Issue |
|--|--|---|
| Air Quality DA 80-952 NC009 | development do not cause exceedances of the criteria listed in Tables 8, 9 and 10 at any residence on privately-owned land, except for the residences shown in Table 1 as being eligible for acquisition on request on the basis of air quality impacts. (See Appendix B for more detail) | term impact assessment criterion of 50 µg/m ³ for PM ₁₀ . Auditor sighted the action and response to non-compliance in the 2018 Annual Return by MGO and noting MGO conducted extensive action taken 24 hours prior to the exceedance to minimise generation from the north pit and Bayswater operations. Notification sighted by Auditor to DPIE and no further action was required Not Compliant |

4.2 Compliance with Environmental Protection Licence 4460

EPL 4460 applies to the Mt Owen & Ravensworth East site. There were two conditions that were reported as not compliant in the EPL Annual Returns over the audit period.

4.2.1 July 2017 to June 2018

There was a non-compliance in the Annual Return 1 July 2017 – 30 June 2018. The non-compliance applied to licence condition number M2.1 Monitoring Point 8 "TEOM Mt Owen Upstream". This occurred once on the 27th July 2017, 7,9-10 December 2017, 8-16 March 2018 and the 10,12-13 May 2018.

'24 hour average PM10 results were not captured by Monitoring Point 8 "TEOM Mt Owen Upstream" Continuous air quality monitor due to power interruptions or technical faults during the Annual Return reporting period.'

This equates to a 96% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2017 – 30 June 2018. The non-compliance applied to licence condition number M2.1 Monitoring Point 9 "TEOM Mt Owen Downstream". This occurred once on the following dates 1-3 July 2017, 28 July 2017, 2-3 October 2017, 27 October 2017, 16 November 2017, 5 April 2018 and 16 May 2018.

'24 hour average PM10 results were not captured by Monitoring Point 9 "TEOM Mt Owen Downstream" Continuous air quality monitor due to power interruptions or technical faults during the Annual Return reporting period.'

This equates to a 97% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2017 – 30 June 2018. The non-compliance applied to licence condition number M2.1 Monitoring Point 10 "TEOM Mt Owen Downstream". This occurred on the following dates 26 October – 10 November 2017 and 16 May 2018.

'24 hour average PM10 results were not captured by Monitoring Point 10 "TEOM Ravensworth East Downstream" Continuous air quality monitor due to power interruptions or technical faults during the Annual Return reporting period.'

This equates to a 95% data recovery for this reporting period.

4.2.2 July 2018 to June 2019

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019. The non-compliance applied to licence condition number M2.1 Monitoring point 10. This occurred 13 times.

'24 hour average PM10 results were not captured at Monitoring Point 10 (Sx13 D9 TEOM "Ravensworth East Downstream" air quality monitor) due to a technical fault, planned maintenance or Telstra services outage during the reporting period.'

This equates to a 96% data recovery for this reporting period

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019. The non-compliance applied to licence condition number M2.2 Monitoring Point 8. This occurred 4 times.

'24 hour average PM10 results were not captured at Monitoring Point 8 ((Sx13 D8) TEOM "Mt Owen Upstream" air quality monitor) due to a technical fault, planned maintenance or Telstra services outage during the reporting period.'

This equates to a 99% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019. The non-compliance applied to licence condition number M2.2 Monitoring Point 9. The following summary of non-compliance occurred 3 times.

'24 hour average PM10 results were not captured at Monitoring Point 9 ((Sx13 D10) TEOM "Mt Owen Downstream" air quality monitor) due to a technical fault and a Telstra services outage during the reporting period.'

This equates to a 99% data recovery for this reporting period.

4.2.3 July 2019 to June 2020

There was a non-compliance in the Annual Return 1 July 2019 – 30 June 2020. The non-compliance applied to licence condition number M2.2 Monitoring Point 10 SX13 D9. The following non-compliance occurred 5 times.

'24 hour average PM10 results were not captured at Monitoring Point 10 SX13 D9 due to a technical fault or planned maintenance during the reporting period.'

SX13 D11 (TEOM PM10 Continuous air quality monitor) or EPA Monitoring Point 9 for EPL 4460 (SX13 D10) located to south east and south, respectively of EPL 4460 boundary used for management purposes during periods of outages. Refer to Annual Return attachment 2c_C2 Details of Non-Compliance EPL 4460 Point 10 for further details.'

This equates to a 99% data recovery for this reporting period.

The planned maintenance, unplanned maintenance and technical issues were the cause of all non-compliance's.

There was a non-compliance in the Annual Return 1 July 2019 – 30 June 2020. The non-compliance applied to licence condition number M2.2 Monitoring Point 8 "TEOM Mt Owen Upstream". The following non-compliance occurred 10 times.

'24 hour average PM10 results were not captured at Monitoring Point 8 (identified as TEOM Sx13 D8) due to a power outage or maintenance during the reporting period.'

Where available, SX13 D1 (TEOM PM10 Continuous air quality monitor) or EPA Monitoring Point 13 for EPL 12840 (EBAM 2 - Project Office) located to west of EPL 4460 boundary were used for management purposes during periods of outages. Refer to Annual Return attachment 2a_C2 Details of Non-Compliance EPL 4460_Point_8.'

The cause of non-compliance was planned maintenance and technical issues.

This equates to a 97% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2019 – 30 June 2020. The non-compliance applied to licence condition number M2.2 Monitoring Point 9 "TEOM SX13 D10". The following non-compliance occurred 5 times.

'24 hour average PM10 results were not captured at Monitoring Point 9 (identified as TEOM Sx13 D10) due to a technical issue or planned maintenance during the reporting period.'

'Where available, SX13 D11 (TEOM PM10 Continuous air quality monitor) or EPA Monitoring Point 10 for EPL4460 "TEOM SX13 D9" located to south east and south, respectively of EPL 4460 boundary were used for management purposes during periods of outages. Refer to Annual Return attachment 2b_C2 Details of Non-Compliance EPL 4460_Point_9.'

The cause of non-compliance was planned maintenance and technical issues.

This equates to a 99% data recovery for this reporting period.

Generally

Mount Owen utilised other monitoring points to monitor downstream particulate matter emissions during TEOM and EBAM downtime. Following the identification of each issue or outage, remote (including remote reset) or onsite maintenance was undertaken as soon as practicable. Where required, repairs were made to the unit by a qualified technician as soon as practicable to prevent reoccurrence and future monitor downtime. Maintenance continues to be undertaken on a regular basis in accordance with the requirements of Approved Method -22 (Australian Standard 3580.9.8 -2001) to prevent additional monitor downtime.

95% data recovery is relatively low, equating to a loss of one days monitoring in every 20.

4.3 Compliance with Environmental Protection Licence 10860

EPL 10860 applies to the Mt Owen & Ravensworth East site, the licence was surrendered on November 2019. Two conditions were found non-compliant within the audit period.

There was 1 condition that was reported as not compliant in the EPL Annual Returns over the audit period.

4.3.1 July 2017 to June 2018

There was a non-compliance in the Annual Return 1 July 2017 – 30 June 2018. The non-compliance applied to licence condition number M2.1 Monitoring failed to occur due to outages and down time.

'As advised by the EPA via email on 8 February 2018, Mount Owen Coal Mine is required to report all Monitoring Point 6 "TEOM Mt Owen Upstream" outages and downtime during the Annual Return reporting period).'

There was a non-compliance in the Annual Return 1 July 2017 – 30 June 2018. The non-compliance applied to licence condition number M2.1 Monitoring failed to occur due to outages and down time.

'As advised by the EPA via email on 8 February 2018, Mount Owen Coal Mine is required to report all Monitoring Point 7 "TEOM Mt Owen Downstream" outages and downtime during the Annual Return reporting period.'

There was a non-compliance in the Annual Return 1 July 2017 – 30 June 2018. The non-compliance applied to licence condition number M2.1 Monitoring Point 8 "TEOM Ravensworth East Downstream"

'As advised by the EPA via email on 8 February 2018, Mount Owen Coal Mine is required to report all Monitoring Point 8 "TEOM Ravensworth East Downstream" outages and downtime during the Annual Return reporting period.'

4.3.2 July 2018 to June 2019

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019, date received 23 August 2019. The non-compliance applied to licence condition number L2.1 Blasting and occurred twice.

'Mt Owen conducted two blast events within the Ravensworth East EPL Boundary during the reporting period prior to 9:00am on the day of the blasts. Community members were notified prior to the blasts in accordance with Mt Owen procedures and no community complaints were recorded' (NSW EPA POEO Public Register)

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019, date received 23 August 2019. The non-compliance applied to licence condition number M2.1 Monitoring did not occur 4 times.

'24 hour average PM10 results were not captured at Monitoring Point 6 ((Sx13 D8) TEOM "Mt Owen Upstream" air quality monitor) due to a technical fault, planned maintenance or Telstra services outage during the reporting period.'

This equates to a 99% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019, date received 23 August 2019. The non-compliance applied to licence condition number M2.1 Monitoring did not occur 3 times.

'24 hour average PM10 results were not captured at Monitoring Point 7 ((Sx13 D10) TEOM "Mt Owen Downstream" air quality monitor) due to a technical fault and a Telstra services outage during the reporting period.'

This equates to a 99% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2018 – 30 June 2019, date received 23 August 2019. The non-compliance applied to licence condition number M2.1 Monitoring Point 8 "TEOM Ravensworth East Downstream." Monitoring did not occur 13 times.

'24 hour average PM10 results were not captured at Monitoring Point 8 ((Sx13 D9) TEOM "Ravensworth East Downstream" air quality monitor) due to a technical fault, planned maintenance or Telstra services outage during the reporting period.'

This equates to a 96% data recovery for this reporting period.

No further non-compliances were received for the audit period.

4.3.3 July 2019 to September 2019

There was a non-compliance in the Annual Return 1 July 2019 – 19 September 2019, date received 6 November 2019. The non-compliance applied to licence condition number M2.1 Monitoring Point 6 "TEOM Mt Owen Upstream". Monitoring did not occur 4 times.

'24 hour average PM10 results were not captured at Monitoring Point 6 ((Sx13 D8) TEOM "Mt Owen Upstream" air quality monitor) due to planned maintenance and Ausgrid power outage during the reporting period.'

This equates to a 99% data recovery for this reporting period.

There was a non-compliance in the Annual Return 1 July 2019 – 19 September 2019 date received 6 November 2019. The non-compliance applied to licence condition number M2.1 Monitoring Point 7 "TEOM Mt Owen Downstream". Monitoring did not occur 4 times due to contamination.

'24 hour average PM10 results were not captured at Monitoring Point 7 ((Sx13 D10) TEOM "Mt Owen Downstream" air quality monitor) due to a contaminated sampled and planned twelve monthly maintenance outage during the reporting period.'

This equates to a 99% data recovery for this reporting period.

4.4 4.3 Compliance with Environmental Protection Licence 12840

EPL 12840 applies to the Glendell site. There following conditions were reported as not compliant in the EPL Annual Returns over the audit period.

4.4.1 April 2017-April 2018

There was a non-compliance in the Annual Return 2017 –2018, date received 3 May 2017. The non-compliance applied to licence condition number M2.1 Point 12 (SX13 D1). Monitoring did not occur during the following dates below due to a technical fault, planned maintenance and energy outage.

'Point 12 (located north of Glendell Mine) – 24 hour average PM10 results were not captured by SX13 D1 PM10 TEOM Continuous air quality monitor due to technical faults during the reporting year.'

Monitor was not operational or an insufficient level of data was obtained (i.e. below 90% capture rate) from Sentinex 13 D1 PM10 TEOM on the following dates: 6-10 April 2017, 8-10 July 2017, 14 July 2017 and 27-31 July 2017.

This equates to a 97% data recovery for this reporting period, it's not clear where the <90% noted in the non-compliance details attached to the Annual Return came from unless there are other data loss dates not reported.

There was a non-compliance in the Annual Return 2017 –2018, date received 3 May 2017. The non-compliance applied to licence condition number M2.1 Point 12 (EBAM 1). Monitoring did not occur during the following dates below due to planned maintenance.

'Point 12 – 24 hour average PM10 results not captured by SX13 D6 (EBAM 1) Continuous air quality monitor due to a technical fault.

SX9 monitor (PM10 Continuous air quality monitor located to south east of Mt Owen (Monitoring Point 10 for EPL 4460)) was used for management purposes during this period.'

This equates to a 99% data recovery for this reporting period.

The cause of the non-compliance was Glendell's downwind monitor SX13 D6 (EBAM 1) provided insufficient data (i.e. <90%) to appropriately calculate a 24 hour average on Wednesday 18 October 2017. Routine maintenance identified the need for a pump replacement, resulting in extended downtime.

An action taken to mitigate adverse effects of the non-compliance is that on this occasion, Glendell utilised SX9 (EPL 4460 Monitoring Point 10) to monitor air quality downwind of operations.

Action that was undertaken involved SX13 D6 (EBAM 1) examination by a qualified technician during the routine maintenance event. Repairs were made to the unit at the time of the maintenance event.

There was a non-compliance in the Annual Return 2017 –2018, date received 3 May 2017. The non-compliance applied to licence condition number M2.1 Point 13 (EBAM 2). Monitoring did not occur during the following dates below due to a technical fault.

'Point 13 – 24 hour average PM10 results not captured by SX13 D5 (EBAM – Project Office) Continuous air quality monitor due to technical fault(s)

Monitor was either not operational or recorded insufficient level of data (i.e. <90%) from the Glendell continuous air quality monitor on the below dates. 19-21 August 2017, 1 October 2017, 19 December 2017, 29 December 2017 and 8 January 2017.

On each occasion the monitor recorded an insufficient level data, Glendell utilised SX8 (EPL 4460 Monitoring Point 8) and SX13 D1 (DA 80_952 monitoring location) to monitor air quality upwind of operations.'

This equates to a 98% data recovery for this reporting period.

The action by MGO to mitigate adverse impacts of the non-compliance involved on each occasion the monitor recorded an insufficient level data, Glendell utilised SX8 (EPL 4460 Monitoring Point 8) and SX13 D1 (DA 80_952 monitoring location) to monitor air quality upwind of operations.

The action taken to prevent a reoccurrence of the non-compliance involved the inspection of the air quality monitor (SX13 D5) by a qualified technician during each maintenance event or monitor malfunction. Where required, repairs were made to the unit at the time of the inspection or as soon as practicable to prevent reoccurrence and future monitor downtime

4.4.2 March 2018 to March 2019

There was a non-compliance in the Annual Return 3 March 2018 – 2 March 2019. The non-compliance applied to licence condition number M2.1 Point 12 (EBAM 1). Monitoring did not occur 11 times due to a technical fault, planned maintenance and Telstra outage.

'Point 12 – 24 hour average PM10 results not captured by SX13 D6 (EBAM 1) Continuous air quality monitor due to a technical fault, planned maintenance and Telstra outage.'

This equates to a 97% data recovery for this reporting period.

There was a non-compliance in the Annual Return 3 March 2018 – 2 March 2019. The non-compliance applied to licence condition number M2.1 Point 13 (EBAM 2). Monitoring did not occur 21 times due to a technical fault and Telstra outage.

'Point 13 – 24 hour average PM10 results not captured by SX13 D5 (EBAM - Project Office) Continuous air quality monitor due to technical fault(s) and Telstra outage.'

This equates to a 94% data recovery for this reporting period.

Note the EPL was not included in the protocol (Appendix C) as the EPA did not register any interest or requirements for the audit and the EPL conditions were replicated in the project approval

4.4.3 March 2019 to March 2020

There was a non-compliance in the Annual Return 3 March 2019 – 2 March 2020. The non-compliance applied to licence condition number M2.1 Point 12 (EBAM 1)). Monitoring did not occur 8 times due to a technical fault, planned maintenance and reasons outside the foreseeable control of MGO.

'Point 12 -24 hour average PM10 results not captured by SX13 D6 (EBAM 1) Continuous air quality monitor due to a technical fault, routine maintenance or reasons outside foreseeable control of MGO.

SX9 monitor (PM10 Continuous air quality monitor located to south east of Mt Owen (Monitoring Point 10 for EPL 4460)) and the Camberwell Upper Hunter Air Quality Monitoring Network monitor was used for

management purposes during periods of SX13D6 (EBAM 1) downtime. Dates and details of non-compliances listed in Attachment 2.'

This equates to a 98% data recovery for this reporting period.

There was a non-compliance in the Annual Return 3 March 2019 – 2 March 2020. The non-compliance applied to licence condition number M2.1 Point 13 (EBAM 2). Monitoring did not occur 8 times due to a technical fault, planned maintenance and reasons outside the foreseeable control of MGO.

'Point 13 -24 hour average PM10 results not captured by SX13 D5 (EBAM 2) Continuous air quality monitor due to a technical fault, routine maintenance or reasons outside foreseeable control of MGO.'

'Monitor was either not operational or recorded insufficient level of data from the Glendell continuous air quality monitor on the dates listed in Attachment 3. On each occasion the monitor recorded an insufficient level data or was not operational, Glendell utilised SX8 (EPL 4460 Monitoring Point 8) and SX13 D1 (DA 80_952 monitoring location) to monitor air quality upwind of operations.'

This equates to a 98% data recovery for this reporting period.

The cause of non-compliance is point 13 - 24 hour average PM10 results not captured by Sx13 D5 (EBAM 2) Continuous air quality monitor due to technical fault(s) and planned maintenance.

4.5 Compliance with Mining Lease 1355 and Coal Lease 358

MGO was compliant with all conditions and evidence was provided below for ML1355 and CL 358. Mount Owen and Glendell conducted no underground extraction during the audit period therefore the conditions that apply to subsidence are not triggered. Many of the conditions are consistent between the two leases so they are denoted as applying to one lease or both by use of the CL ML abbreviation prior to the condition number.

ML & CL 1a. Notice to landowner: evidence of landowner notification within 3 months of date of grant/renewal of the mining lease was not undertaken. However this requirement is not within the audit period, therefore is not triggered.

ML & CL 1b. The licence renewal is outside the audit period, therefore this condition is not triggered.

ML 2. All areas have been and are progressively being rehabilitated to the satisfaction of the Secretary.

CL 2. A) No instances of actual environmental harm were identified in the audit.

CL 2b) i) and ii) Noted.

ML & CL 3a. The lease holder generally complies with the approved MOP in carrying out any significant surface disturbing activities. MOP viewed to be approved by Minister/Secretary. MOP in place prior to commencing surface disturbing activities.

ML & CL 3b. The MOP includes the identification of post mining land use and set out a detailed rehabilitation strategy that includes ML conditions 3b(i) to 3b(v).

ML 3c. The MOP is prepared in accordance with the ESG3: Mining Operations Plan (MOP) Guidelines September 2013.

ML 3d and CL 3c. Noted

ML & CL 3e. noted

ML 3f. Auditor viewed Minister satisfaction rehabilitation reports provided in accordance with the condition.

ML and CL 4a to d. Compliance report submitted to the Minister is the Annual Review completed annually and is sighted each of the reports were to the satisfaction of the Minister/Secretary and to the condition

ML 4e. Noted. No further additional compliance reports were required from the Minister/Secretary.

ML 4f. Mining lease has not expired, therefore this condition is not triggered.

ML & CL 5a,b, c Lease holder has notified the Department of breaches of the conditions as soon as they become aware of the breach and within 24 hours of becoming aware. The lease holder has provided a follow up report after a breach of the conditions within seven (7) days of the breach or as discussed and approved by the Secretary.

ML 6. (all) No underground mining operations were undertaken that may cause subsidence except in accordance in the approved Extraction Plan. This is not triggered in the audit period.

ML 7. Noted.

CL 7. Noted.

ML 8. Sighted security deposit to secure funding for the mining lease.

CL 8. (all) No underground mining operations were undertaken that may cause subsidence except in accordance in the approved Extraction Plan. This is not triggered in the audit period.

ML 9. No overlapping of surface titles within audit period. Exploration reporting is provided in the Annual Reviews from 2017 – 2020. Underground titles are also Glencore.

CL 9. a. MGO employs many more than 30 competent people, all machinery operators and maintenance people are competent (as defined by Resource Regulator), those alone would be many more than 30.

CL 9 b. this is an or condition (i.e. 9a or 9b), by satisfying 9a, it becomes redundant.

CL 10 a & b. Blasting measurements for overpressure and vibration were below limits for the audit period.

CL 11 – Not an environmental condition

CL 12. No significant and unchecked soil erosion was observed on the site or in the documentation, one section that was identified had a plan in place to remediate that area.

CL 14. Roads and Tracks offsite were not used in wet weather and any damage that may occur is repaired in consultation with the infrastructure owner.

CL 15. No disturbance offsite without prior approval in the audit period.

CL 16. No condition on the lease copy the auditors received.

CL 17. Noted

CL 18. Not an environmental condition.

CL 19. No condition on the lease copy the auditors received.

CL 20. No condition on the lease copy the auditors received.

CL 21. Sighted security deposit to secure funding for the coal lease.

CL 22. Prescribed dams are marked on mine planning databases and mapping and there are processes in place to manage this requirement

CL 23. Mining has not been suspended in the audit period

CL 24. No overlapping of surface titles within audit period. Exploration reporting is provided in the Annual Reviews from 2017 – 2020. Underground titles are also Glencore.

CL 25. There have been no restrictions to travelling stock.

CL 26. The railway is a key piece of infrastructure for Mount Owen and is managed in that respect, that is, if it were to be damaged by actions of Mount Owen then it would prevent the mine from operating. All precautions are therefore taken to prevent disruption to the rail.

4.6 Compliance with Water Access Licences

4.6.1 Water Licences held by MGO under Water Management Act 2000 (WM Act)

MGO holds water access licences (WALs), water supply works and water use approvals under the WM Act for extraction of water from Glennies Creek (Glennies Creek management zone), under the *Water Sharing Plan for the Hunter Regulated River Water Source (2016)*.

Table 2 – Compliance with Water Access Licences

| Condition | Compliance Assessment |
|--|--|
| Any device for measuring the volume of water extracted from Glennies Creek will be installed, maintained and operated in accordance with any manufacturers specifications; | Sighted maintenance management system, all site equipment is managed through this system. |
| A certificate issued by the manufacturer or by a suitably qualified person certifying the accuracy of any device used for measuring the volume of water extracted from Glennies Creek will be provided to the NSW Department of Planning, Industry and Environment – Water (DPIE – Water) as required; | Calibration certificates provided for pump meters |
| DPIE – Water will be notified within seven days if any device for measuring the volume of water taken from Glennies Creek ceases to record water usage accurately, including the duration of the failure and the total hours that water was extracted while the measuring device was not functioning | No evidence identified of this occurring the audit period |
| A report detailing the quantity of water extracted from Glennies Creek will be provided to DPIE – Water as required. For the high security and general security regulated river WALs for extraction from Glennies Creek, the following additional conditions will be met: | |
| Water will only be extracted up to the limit specified by the relevant WALs | See Table 4.3 below, extraction for each of the periods in the audit period were below the allocated licence amount. |
| Water will only be taken from Glennies Creek in accordance with a water supply order lodged with and approved by the nominated WaterNSW customer service officer at least four days prior to when the water will be taken, except when water is | Water was only extracted during controlled flow periods. Notice appears to have been given for Wal 7814 |

| | |
|--|--|
| extracted in accordance with an announcement made by the Minister for Lands and Water declaring an uncontrolled water allocation accounting period | |
| For the supplementary water WALs for extractions from Glennies Creek, the following additional conditions will be met: | No extraction using the supplementary WALs |
| Water will only be extracted up to the limit specified by the relevant WALs, when the Minister for Lands and Water announces that supplementary water is available, at the rate that the Minister announces; | No evidence of exceedance of limits. |
| <p>WaterNSW will be notified in writing at least three days prior to when the water will be taken, providing the following information:</p> <ul style="list-style-type: none"> ▪ The intent to take water; ▪ The maximum volume of water that will be taken; ▪ The rate at which the water will be taken; ▪ The period of time in which the water will be taken; and ▪ The volume of water already taken under the relevant WAL during the year commencing 1 July; and ▪ Within 24 hours of the cessation of pumping or as otherwise directed, WaterNSW will be notified of the volume of water extracted; For the domestic and stock WALs for extractions from Glennies Creek, the following additional conditions will be met: <ul style="list-style-type: none"> ▪ Water will only be extracted up to the limit specified by the relevant WALs; and ▪ Water will only be taken for the purpose of domestic consumption (i.e. potable water activities such as use in the administration offices, workshop, bath houses). | Not Applicable |

Table 4.3 Water access licence and groundwater licence utilised

| Licence Number | Sharing plan, source and management zone | Licensed / Approved Activity (ML) | Water take (ML) 2017 Annual Review | Water take (ML) 2018 Annual Review | Water take (ML) 2019 Annual Review | Water take (ML) 2020 Annual Review |
|---|--|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| High Security Water Access Licences (Glennies Creek Management Zone) | | | | | | |
| WAL7814 | Hunter Regulated Water Sharing Plan, Zone 3A (Glennies Ck) | Licence to pump 1000 ML | 339 | 240 | 679 | 679 |
| General Security Water Access Licences (Glennies Creek Management Zone) | | | | | | |
| No water take during audit period. | | | | | | |
| Supplementary Water Access Licences (Glennies Creek Management Zone) | | | | | | |
| No water take during audit period. | | | | | | |
| Domestic and Stock Licences (Glennies Creek Management Zone) | | | | | | |
| No water take during audit period. | | | | | | |
| Unregulated River Licences (Jerrys Water Source) | | | | | | |
| No water take during audit period. | | | | | | |
| Groundwater Licences | | | | | | |
| 20BL169337 | | Dewatering purposes –Mt Owen North Pit 140 units | N/A | 1/7/2017 – 30/06/2018 3,598 | 867 | N/A |
| 20BL170294 | | Dewatering purposes – Eastern Rail Tailings Pit 220 units | | | | |
| 20BL170295 | | Dewatering purposes – Bayswater North and West Pit 800 units | | | | |
| 20BL168209 | | Saline water extraction | | | | |

| Licence Number | Sharing plan, source and management zone | Licensed / Approved Activity (ML) | Water take (ML) 2017 Annual Review | Water take (ML) 2018 Annual Review | Water take (ML) 2019 Annual Review | Water take (ML) 2020 Annual Review |
|----------------|--|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| 20BL169544 | | bore - 2,500 units. Saline water extraction bore - 2,500 units | | | | |

4.6.2 WAL and groundwater licence non-compliances

Mount Owen was compliant with Water Licences and Groundwater Licence conditions through the audit period based on the evidence reviewed by the audit team.

4.6.3 Other water licences

Other water licences were not reviewed, the licenses reviewed were thought to best represent the active licenses with available reporting information.

4.7 Compliance with Management Plans

To simplify environmental management during the operational phase, Management Plans have been consolidated to include relevant requirements. In operation, the MGO EMS is now comprised of the management plans in Table 3.2, located in Section 3.

4.7.1 Erosion and Sediment Control Management Plan

The management plan has been written and implemented in accordance with the consent conditions. The plan has been updated during the audit period to improve the measures within the plan.

4.7.2 Compensatory Habitat Management Plan

In the site inspection there was no evidence of rubbish dumping in the rehabilitation / habitat areas. There was evidence of weeds in high numbers in some areas.

This plan is adequate for the management of the rehabilitation / habitat area.

4.7.3 Environmental Management Strategy

Like the other management plans, the EMS has been modified to ensure it is appropriate and relevant for operation of the site.

The EMS was reviewed with site staff in the site inspection.

The Community Consultative Committee is in place and is compliant with the *Community Consultative Committee Guidelines, State Significant Projects*, DP&E November 2016 (CCC Guideline).

The CCC Guideline recommends an independent chair. The current chair is not associated with the mine site and fits the requirements of the CCC Guideline. During audit period, there was a chair in place (representing Council) who had a conflict of interest thus diminishing independence. Once the issue was identified, the chair was replaced with a Council chair with no perceived conflicts.

The Monthly meeting minutes were reviewed along with consulting with the CCC within the audit period. CCC minutes were available on the Mount Owen website. The CCC meeting regime is considered adequate for the level of activity at the site at the time of the audit.

4.7.4 Environmental Monitoring Program

The Environmental Monitoring Program reflects the requirements of the approvals and Environment Protection Licence. It is an adequate representation of the MGO site and the reporting requirements are reflected in the Annual Environmental Management Reports/ Annual Reviews.

4.7.5 Mining Operations Plan - 2020

The MOP in place at the time of the audit was dated March 2020 covering the period 1 January 2020 through to 30 June 2024. The MOP was prepared to manage the continued operations of the complex.

Over the MOP term, all mining related works on the site were in operation and included:

- Open cut mining in the Bayswater North Pit (BNP) (Ravensworth East) at a rate of up to 4 Mtpa ROM coal;
- Open cut mining in the North Pit (MTO) at a rate of up to 10 Mtpa ROM coal;
- Open cut mining in the Barrett Pit (Glendell) at a rate of up to 4.5 Mtpa ROM coal;
- Overburden emplacement out of pit and in-pit;

- Co-disposal of coarse rejects with overburden within the North Pit Continuation and the West Pit / BNP as mining progresses;
- Continued use of the West Pit and Eastern Rail Pit (ERP) tailings facilities for tailings emplacement;
- Continued participation (receipt and transfer of tailings and water) as part of the Greater Ravensworth Area Water & Tailings Scheme (GRAWTS); continued utilisation of all existing mining infrastructure, including the existing crushing plant for the crushing of overburden, the product coal conveyor to Bayswater and Liddell power stations and the CHPP;
- Continuation of ROM coal processing at the CHPP at a capacity of up to 17 Mtpa, to produce thermal and semi-soft coal product;
- Transportation of up to 2 Mtpa ROM coal and crushed gravel on an as required basis via the existing overland conveyor to Liddell Coal Operations and the RCT, in addition to maintaining the current approval to transport ROM coal to Bayswater and Liddell power stations;
- Upgrades to infrastructure; and progressive rehabilitation of tailings pits that have reached capacity (NVS2, TP1 and RW Pit) and completed areas of overburden dumps (North Pit, Barrett Pit and BNP).

Operation plan was detailed in Section 2.2 including exploration, construction, mining operations, rock/overburden emplacement, processing residues and tailings, waste management, decommissioning and demolition activities, temporary stabilisation Progressive rehabilitation and completion, and material production schedule.

Mine closure planning was detailed in Section 2.2.7 and Section 4.5 of the MOP with specific closure activities including rehabilitation implementation for the MOP Term in Section 7.2. The auditor reviewed the completion status whilst on site:

Table 4.4 MOP 2020 proposed and actual

| Domain | Status at MOP Commencement | Proposed Rehabilitation Activities during the MOP Term | Status and activities in the audit period (Lead Auditor/Rehab Specialist observations) |
|------------------------------------|---|--|--|
| Primary Domains | | | |
| Domain 1 – Active Mining | This domain is active and subject to ongoing operations. Active mining areas are BNP, North Pit and at the Barrett Pit. Mined areas within the pit have been progressively backfilled and rehabilitated as depicted on Plan 2. At MOP commencement 494.4 ha is classified as Active Mining. | This domain will remain active in the MOP term. Pit areas will continue to be progressively back filled with overburden and coarse rejects through the MOP term as depicted on Plans 3A to 3E. | Active at the time of the site inspection |
| Domain 2 – Water Management | This domain is currently active and subject to ongoing operations. At MOP commencement 42.0 ha is classified as Water Management. | This domain will remain active in the MOP term. No operational dams are proposed to be decommissioned or converted to clean water dams for post mining land use during the MOP term. | Active at the time of the site inspection |

| Domain | Status at MOP Commencement | Proposed Rehabilitation Activities during the MOP Term | Status and activities in the audit period (Lead Auditor/Rehab Specialist observations) |
|---|--|---|--|
| Domain 3 – Infrastructure Area | All areas disturbed for infrastructure are active and subject to ongoing operations. At MOP commencement 355.2 ha is classified as Infrastructure. | This domain will remain active in the MOP term. Decommissioning of the Ravensworth East infrastructure will commence during the MOP term. | Active at the time of the site inspection |
| Domain 4 – Tailings Storage Facility | At the commencement of the MOP term NVS2, TP1 and RW Pit are currently undergoing capping and rehabilitation. These dams will continue to be capped during the MOP term. The West Pit and ERP tailings facilities are active, and receive tailings from the MGO CHPP and the Ravensworth Operations CHPP under GRAWTS. At MOP commencement 171.0 ha is classified as Tailings Storage Facility | NVS2, TP1, and RW Pit will be progressively capped during the MOP term as shown on Plan 3A to Plan 3E, and summarised in Table 10. Capped tailings emplacements will be rehabilitated to establish Open Grassland (Domain C). | Active at the time of the site inspection Tailings capping is progressing though settlement and fluidity issues have slowed progress |
| Domain 5 – Overburden Emplacement Area | Overburden emplacement areas associated with the BNP, North Pit and the Barrett Pit are currently active and are depicted on Plan 2. At MOP commencement 313.3 ha is classified as overburden emplacement. | Domain 5 will be progressively rehabilitated during the MOP term as emplacement areas are dumped to the final height as depicted on Plans 3A to 3E. | Active at the time of the site inspection, rehabilitation progressing, not complete. |
| Domain 6 – Soil Stockpiles and Capping Source Material | This domain is active, and subject to on-going operations. Long term stockpiles are stabilised with vegetation and maintained to minimise disturbance. At MOP commencement 20.0 ha is classified as Soil Stockpiles and Capping Source Material | Following re-spreading on rehabilitation areas, soil stockpile areas and capping material borrow areas will be de-compacted and vegetated. | Active at the time of the site inspection. Some weed control has been conducted on topsoil stockpiles. Further review of weeds on topsoil stockpiles will be required. |
| Domain 7 – Current Grassland Rehabilitation | This domain includes all rehabilitated grassland areas at MOP commencement. At MOP commencement 245.8 ha is classified as current grassland rehabilitation. | This domain will continue to be managed during the MOP term. At the end of the MOP term there would be an estimated 299.1 ha 297.4 ha of grassland rehabilitation. | Continues to be managed, some sections are being considered for interplanting to generate a woodland endpoint rather than pure grassland |

| Domain | Status at MOP Commencement | Proposed Rehabilitation Activities during the MOP Term | Status and activities in the audit period (Lead Auditor/Rehab Specialist observations) |
|--|---|--|--|
| Domain 8 – Current Woodland Rehabilitation | This domain includes all rehabilitated woodland areas at MOP commencement. At MOP commencement 936.8 ha is classified as current woodland rehabilitation. | This domain will continue to be managed during the MOP term. At the end of the MOP term there would be an estimated 1,142.9 ha 1,139.3 ha of woodland rehabilitation. | Evidence of weed control and other initiatives to maintain these areas |
| Domain 9 – Current Corridor/Shelter Belt Rehabilitation | This domain includes all rehabilitated corridor/shelter belt areas at Glendell at MOP commencement. At MOP commencement 236.4 ha is classified as current corridor/shelter belt rehabilitation. | This domain will continue to be managed during the MOP term. At the end of the MOP term there would be an estimated 293.9 ha 292.6 ha of corridor/shelter belt rehabilitation. | Continues to be managed |
| Domain 10 – Offset Areas | Includes all offsets related to MGO. At MOP commencement there were 1,564.5 ha of established offsets. | This domain is currently active. There are no rehabilitation activities proposed for the offset areas during the MOP term. | Continues to be managed |
| Secondary Domains | | | |
| Domain A – Final Void | Active mining is currently occurring in the vicinity of the final voids at Glendell at Ravensworth East. Mining within North Pit has not yet reached the location of the proposed final void. | No final voids will be formed during the MOP term, with all pits (BNP, Barrett Pit and North Pit) remaining active. | Noted |
| Domain B – Water Management Rehabilitation Area | Includes the current dams that will remain in the final landform, as shown on Plan 2. | This domain refers to the surface water management structures (dams) that will be retained in the final landform following mine closure. This domain is active and subject to on-going operations. The locality of the structures that will be retained in the final landform have been shown on Plan 4. | No changes from the MOP description |
| Domain C – Open Grassland Rehabilitation Area | Plan 2 outlines areas of current grassland rehabilitation at MOP commencement. Pasture rehabilitation is generally | This domain includes the grassland rehabilitation in the final landform at MGO, as shown on Plan 4. This rehabilitation will be | Noted, grassland areas generally in good condition. |

| Domain | Status at MOP Commencement | Proposed Rehabilitation Activities during the MOP Term | Status and activities in the audit period (Lead Auditor/Rehab Specialist observations) |
|---|--|---|--|
| | located across the Glendell and Ravensworth East sites, and the former tailings emplacement areas. | undertaken at Glendell, MTO and Ravensworth East. | |
| Domain D – Open Woodland Rehabilitation Area | Plan 2 outlines areas of current open woodland rehabilitation at MOP commencement. Woodland rehabilitation is generally located across the MTO and Ravensworth East sites. | This domain includes the woodland rehabilitation in the final landform at MGO, as shown on Plan 4. This rehabilitation will be undertaken across Mount Owen and Ravensworth East. | Noted |
| Domain E – Corridors/Shelter Belts Rehabilitation Area | Plan 2 outlines areas of current corridors/shelter belts rehabilitation at Glendell at MOP commencement. | This domain includes the corridor/shelter belt rehabilitation in the final landform at MGO, as shown on Plan 4. This rehabilitation will be undertaken at areas of Glendell and Ravensworth East. | Noted |

Section 3.1 of the MOP discussed a Risk Assessment conducted in the development of the MOP. The Risk assessment was provided as evidence to the audit team.

There has been progress towards the rehabilitation objectives whilst the mine has been in operation.

5. Previous Audit Action Status

The previous IEA was undertaken by Hansen Bailey in August 2018 the period from 1 November 2014 to 31 October 2017 in accordance with the Independent Environmental Audit Guidelines (DP&E October 2015), ISO 14010 and ISO 14011.

5.1 Key recommendations from the previous audit

MGO kept the audit recommendations live until they were closed out. Not all recommendations were closed out in the audit period.

Table 5.1: Previous Audit Action Status

| Reference | Recommendation | Notes from this audit | Complete |
|--|--|--|---------------|
| Previous IEA | | | |
| 16 | Recommend a modification to mining authority conditions referring to dam notification areas which are not applicable to MOC operations sought during the next renewal / variation (due in 2020). | 2018 Annual Review: - MGO Response: 'Not Triggered'. If the dams are not there/ close to operations then no modification is required. If they are present, then Mount Owen would manage appropriately. | Not Triggered |
| SSD-5850 Non-compliance Recommendations | | | |
| Sch 3, Con 6 | Recommend that written records of selection of rolling stock are kept to confirm future compliance. | 2018 Annual Review MGO Response: 'ARTC direct the rail and site cannot restrict those movements, and are unable to retain those records.' The action was cancelled. | Yes |
| Sch 3, Con 13 | Blasting notices to be updated on the website to ensure they remain current. | Auditor viewed current weekly schedule of blasting notices on website. Blasting information is now provided on the Community notice board. Sample notice sighted the Glendell Mine Blasting Schedule from 6 Dec to 12 Dec 2020 viewed 9/12/2020. | Yes |
| Sch 3, Con 16 | It is noted that while DD11 is discussed in all Annual Reviews, it is not detailed within the approved air quality management plan. This should be updated, clarified that it is for internal monitoring only or justification for its removal provided to regulators. | DD11 is not sighted in the version 4.0 Air Quality Plan, Effective 12/10/2018. 2018 Annual Review response: 'AQMP reviewed and approved by DPE in 2018.' | Yes |
| Sch 3, Con 19 | Recommend that monitoring networks are reviewed to ensure consistency with management plans. TSP monitoring was not relocated until recently to comply with SSD-5850 AQMP location. | 2018 Annual Review response: AQMP reviewed and approved by DPE on 2018. Auditor sighted DPIE approving current AQMP. | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|---------------|--|---|----------|
| Sch 3, Con 21 | Seek written confirmation from DPI-Water to combine water licences or adjust operations to ensure water take is within that allocated by the existing water licences held. | Sighted message to DPI Water 2-10-2018. No response from DPI Water was tabled, noted that MGO have permission to report against all and not individual hard rock licences. | Yes |
| Sch 3, Con 25 | Undertake a review to ensure monitoring results are accurate as drawdown was reported as >3 m in the Annual Review at some locations. | A.R 2018 – MGO Response: 'Hydro Engineering and Consulting was engaged to investigate the causes for drawdown in some of the MOC monitoring bores in 2018. SLR completed the 2018 Annual Groundwater review with recommendations in this Annual Review. A copy of the report is in Appendix G of the 2018 Annual Review. Appendix G of the Annual Review 2018. A.R 2019 - Monitoring results for a number of bores exceeded the decline in level (drawdown) during 2019 Review of water quality results and comparison to trigger levels for EC and pH identified several trigger exceedances in 2019. Generally, these exceedances were either in line with historical trends or correlated with rainfall events. A.R 2018 - The Surface Water Management and Monitoring Plan (SWMMP), Groundwater Management and Monitoring Plan (GWMMP) and Surface Water and Groundwater Response Plan (SWGWRP) were all reviewed during 2018, in consultation with relevant government agencies. Surface water and groundwater quality triggers and groundwater drawdown triggers were revised as part of this review. MTO will seek approval for the revised water management plans in 2019. A. R 2017 - Only a small component of the MOC water usage (119 ML) was drawn from Glennies Creek under licence for use as treated potable water. Results from the salt balance | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|---|--|---|----------|
| | | indicate a stable trend in site salt inventory. Water quality results do not show a significant change in EC levels within site storages either. | |
| Sch 3, Con 26 | See Schedule 3, Condition 21 | | Yes |
| Sch 3, Con 33 | Recommend that OEH is followed up to ensure that the amended site cards that were developed following the archaeology incident are included on the AHIMS database. | MGO Response to Recommendations from the previous audit did not have an action plan associated with this recommendation. No action was required. | Yes |
| Sch 3, Con 41 | Approval from council should be followed up for the Sewerage Treatment Plants. | Auditor sighted onsite the approval of the STP from Council. All STP have been constructed and in operation. No mining operations occur at the STPs. Council conducted a site visit on 27/02/2019. Final requests were completed and returned to council. | Yes |
| Sch 5, Con 6 | Recommend that a register/record is kept to confirm reviews of strategies, plans, and programs required under this condition are undertaken following each trigger specified in a-d. | There is a more formal system for recording reviews. Reviews are stored in CMO and a SharePoint site was observed that showed planning of reviews. | Yes |
| Sch 5, Con 9 | All exceedances to be reported to the Secretary within 7 days of an incident. Noise exceedance on the 10 March 2016 was not reported until the 18 March 2016 (i.e. 1 day late). | 2018 A.R MGO response 'Noted'. | Yes |
| SSD-5850 Continual Improvement Recommendations | | | |
| Sch 3, Con 13 | Review and utilise a more formal blast coordination protocol with surrounding mines e.g. Rix's Creek North. | Auditor has sighted meeting minutes regarding coordination with surrounding mines in regards to improving air quality including both noise and dust. The blast package also lists the mines around the MGO which also have blasts including the timing of the other mine blasts on their blasting day with the time of proposed blast. Annual Reveiw 2018 confirms this: Pre-blast Assessment updated to include risk of cumulative blast from surrounding mines complete. | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|---------------|--|--|----------|
| Sch 3, Con 13 | Check and document surrounding other mine blasting schedules as part of documented pre-blast checks. | As above, this is done through coordinating blast times and adding surrounding mines to notification lists | Yes |
| Sch 3, Con 24 | Add actions from the Creek stabilisation reports to CMO to ensure they are followed up. | Auditor as sighted the CMO. The actions have been captured in the CMO. | Yes |
| Sch 3, Con 24 | Disused sediment fence at the northern plug is removed if no longer required. | MGO removed sediment fence in 2018 as reported in 2018 Annual Review and confirmed onsite as sighted by the Auditor. | Yes |
| Sch 3, Con 24 | Continue monitoring for rill erosion on the batters of the diversion. | 2018 Annual Review: monitoring for rill erosion in the Quarterly Creek Diversion inspections. | Yes |
| Sch 3, Con 30 | Report the progress of the River Oak Tree plantings in the Annual Reviews. | <p>Auditor sighted Annual Reviews 2017- 2019 and confirms reporting on the River Oak Tree plantings has occurred in each A.R.</p> <p>2017 Annual Review - Compensatory planting of River Oak trees at a ratio of 10 trees planted for each mature tree removed was undertaken as a result of the transmission line realignment. A total of 198 river oak trees were cleared as a result of the transmission line and tailings line projects.</p> <p>2018 Annual Review - Monitoring of the River Oak compensatory planting program undertaken in 2016/2017 showed that less than 10% survive. Further planting is scheduled for April 2019.</p> <p>2019 Annual Review - 2016/2017 showed that less than 10% survived. A further 2000 trees were planted in April 2019 and the planted area fenced to avoid further animal disturbance, MGO will report the germination rate success in next report period.</p> | Yes |
| Sch 3, Con 43 | Approval from DP&E should be sought for the Rehabilitation Strategy. | Rehabilitation Strategy Version 2.0 Approved 13/05/2020 by DPIE. | Yes |
| Sch 3, Con 45 | All recommendations from DPI-Water letter dated 14/03/17 should be included in the RMP (Updates to Table 20) at next review. | 2018 Annual Review MGO Response: The Rehabilitation Management Plan (MOP) was revised in 2018. Since the MOP has been revised since (and was approved after that edit noted in this non-compliance), no | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|---|---|--|----------|
| | | actions be taken that will can correct the non-compliance. | |
| Sch 5, Con 5 | Recommend a comparison of the environmental performance against the predictions in the environmental assessments is made in the Annual Reviews for all aspects (e.g. waste). | Auditor sighted Annual Reviews 2017-2019 and confirms all aspect comparisons of environmental performance against the predictions in the environmental assessment have been reported in section 6 of the Annual Reviews. | Yes |
| Sch 5, Con 12 | Recommend that responses to the previous audit recommendations are included in future Annual Reviews. | Auditor sighted in 2017 Annual Review (Chapter 10 and Chapter 12), 2018 (Chapter 1, Chapter 5, Chapter 10) and 2019 Annual Review. | Yes |
| DA 80/952 Non-compliance Recommendations | | | |
| Sch 2, Con 10 | Recommend all required approvals for construction of new buildings are obtained and records of approval kept for any future construction. | 2018 Annual Review Response: Construction of new buildings is classified as complying development under Mining SEPP Clause 11. Occupation Certificates are available. | Yes |
| Sch 2, Con 15 | Recommend that a protocol to obtain the final completion report against the GDP or relevant sign off is obtained from contactors to show that works have been completed in accordance with the GDP. The GDP completion should be uploaded to CMO or an equivalent database. | Auditor confirms system is in place during site visit GDP System reviewed in site inspection 2018 Annual Review: The site has a GDP register which includes scans of closed out permits. | Yes |
| Sch 3, Con 13 | Recommend pre-blasting checks are considered prior to blasting and appropriate management measures implemented. | The implementation of the new modelling and the real time video footage of the sites provide information necessary to conduct pre-blasting checks. | Yes |
| Sch 3, Con 16 | See schedule 3 condition 13 of SSD-5850. | The implementation of the new modelling and the real time video footage of the sites provide information necessary to conduct pre-blasting checks. | Yes |
| Sch 3, Con 18 | Recommend that any reports to landholders are provided with a cover letter and recorded internally in a database (or similar) as evidence of compliance. | Auditors requested samples of evidence onsite and through request for information and received the evidence of reports to landowners efficiently. 2018 Annual Review MGO response: 'Historic reports to landowners provided with a cover letter and saved as a meeting referenced to Section 3.9 of the SES.' | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|--|---|---|----------|
| Sch 3, Con 25 | See schedule 3 condition 25 of SSD-5850. | Annual Review 2018 – MGO Response: 'Hydro Engineering and Consulting was engaged to investigate the causes for drawdown in some of the MOC monitoring bores in 2018. SLR completed the 2018 Annual Groundwater review with recommendations in this Annual Review. A copy of the report is in Appendix G of the 2018 Annual Review. Appendix G of the Annual Review 2018. | Yes |
| Sch 3, Con 39 | Recommend EPA and DPI – Water are consulted for future revisions of the LMP. | The MOP (current version at time of audit) noted wide consultation including precursor to Water NSW and the EPA. | Yes |
| Sch 3, Con 40 | Recommend the BOMP is updated to include a description of riparian revegetation and maintenance works associated with the Transmission Line when next updated. | Auditor sighted the approval letter from DPIE for the plans including the BOMP version 2.0 Effective 18/12/2018. | Yes |
| Sch 5, Con 6 | See schedule 5 condition 6 of SSD-5850. | Found compliant this audit | Yes |
| DA 80/952 Continual Improvement Recommendations | | | |
| Sch 3, Con 17 | Recommend that landowners are notified about right to property inspection on a 5 yearly basis to allow for change in ownership and/or good practice. | Auditor viewed sample letters to landowners. | Yes |
| Sch 3, Con 37C | Consider direct seeding for River Oaks for large areas that may be required. | Auditor sighted monitoring reported and action plan in the 2018 Annual Review. | Yes |
| Sch 3, Con 39 | Recommend that Table 2-2 of the BOMP is updated to include this condition at the next revision. Clarification of which documents are contained in the MOP and BOMP under this condition should be added to the plans. | Updated. | Yes |
| EPL 10860 – Ravensworth East | | | |
| N/A | Consider whether the production capacity can be reduced from >2000000-3500000 T annually. | On 4 September 2019 DPIE approved Mt Owen Continued Operations Modification 2 (SSD-5850) and on 12 September 2019 EPA approved the surrender of EPL 10860 (Ravensworth East) and activities within this EPL has now been amalgamated with EPL | N/A |

| Reference | Recommendation | Notes from this audit | Complete |
|--------------------------------|---|---|----------|
| | | 4460 (Mt Owen). | |
| EPL 4460 – Mt Owen | | | |
| 8 | Condition 8 relates to pollution studies and reduction programs that have been finalised. Recommend this condition is removed. | 2018 Annual Review: Condition 8 was taken from EPL variation and will be submitted in 2019. 2020 – Condition 8 removed | Yes |
| EPL 12840 – Glendell | | | |
| P1.1-P1.3 | Recommend map is updated to include monitoring point 6 (N3). | Auditor sighted the approval letter from EPA for the updated plans including the updated premises map. | Yes |
| ML1355 – Mt Owen | | | |
| 4 | Recommend the next Annual Review states it meets the requirements of the Compliance Report and relevant sections included. | 2019 Annual Review: Request will be made at next anniversary of the ML Compliance Report. | Pending |
| 5 | Recommend the Annual Review is updated to include the Environmental Incident Report as part of the Annual Review. | Auditor sighted Incident table report in 2017-2019 Annual Reviews. | Yes |
| N/A | Recommend that the mining lease and coal lease annual report dates are requested to DRG to coincide with the Annual Review submission date. | 2018 and 2019 Annual Reviews: Request not yet made | Pending |
| CL358 - Glendell | | | |
| 5 | Recommend the Annual Review is updated to include the Environmental Incident Report as part of the Annual Review. | 2019 Annual Reviews: Request will be made anniversary of the ML Compliance Report. | Pending |
| General Recommendations | | | |
| Community | Commitment 7 of the SGRP relates to community complaints being investigated in accordance with the GCAA Community Handling Procedure. Suggest this is removed at next update. | Removed | Yes |
| Creeks | The CDP contains several errors for reference sources (e.g. Section 2.1, Section 2.2.3.1 and 2.2.3.3) Recommend this is fixed at next update. | Corrected | Yes |
| Ecology | Recommend pre-clearance surveys are added to the GDP. | Sighted | Yes |
| Heritage | Recommend that completed actions in the ACHMP are added as an appendix at next review. | ACHMP was under review at the time of the audit and was approved by DPIE post audit. | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|----------------|---|--|----------|
| Noise | The NMP states noise monitoring will occur monthly for the initial 12 months following approval and triggering of SSD-5850, then will occur quarterly unless directed otherwise by the Secretary. However, the Glendell EPL 12840 requires monthly noise monitoring at defined locations, therefore quarterly noise monitoring is not sufficient to address this EPL condition. A revision to the NMP is recommended to address this issue. | Completed in updated management plan. | Yes |
| Rehabilitation | Recommended that MOP Plan 3C is changed to amended to '2019' (currently incorrectly says 2017) and rehabilitation in ERP area updated at next Amendment. The southern portion of ERP is indicated as rehabilitated in the MOP, however this is now likely to occur in approximately 2021 (NS, pers comms). | Updated | Yes |
| Rehabilitation | Recommended that confirmation from DRG is sought for the Glendell Southern end OEA slope which appeared to be greater than 10 degrees. The current MOP states that the slope will be generally less than 10 degrees unless otherwise agreed by DRE. | MGO did not identify an action plan in its response to recommendations for the 2018 audit | Yes |
| Rehabilitation | Recommend that all recommendations relating to rehabilitation listed in Section 5.8 and CR's report in Appendix E are implemented. | MGO did not identify an action plan in its response to recommendations for the 2018 audit | Yes |
| Waste | It is suggested that a review or census is conducted to determine the amount of waste tyres on site. | Auditor sighted the review provided in Table 10 in the 2018 Annual Review. | Yes |
| Water | Recommend that an internal checklist is used for inspections of erosion and sediment control structures based on the commitments from Management Plans. Recommend including a check for post rain events >25mm is developed in accordance with the ESCP. | Rainfall alarms have been established from the on site weather stations. A template checklist exists for post rainfall event inspections and for quarterly monitoring erosion and sediment control monitoring events | Yes |
| Water | Recommended that a flow meter is installed to measure groundwater consistent with current best practice. | Flow meter calibration form sighted by auditor | Yes |

| Reference | Recommendation | Notes from this audit | Complete |
|----------------------|---|--|----------|
| Water | Commitment 11 of the GWMP relates to using PAF materials in rehabilitation. NS per comms advised there is none on site used in rehabilitation. Consider gathering data to confirm and therefore enable this commitment to be removed | MGO did not identify an action plan in its response to recommendations for the 2018 audit | Yes |
| Water | Commitment 29 of the GWMP has been completed (additional monitoring location has been installed). Suggest commitment is removed at next modification. | MGO did not identify an action plan in its response to recommendations for the 2018 audit | Yes |
| Water | The estimated groundwater seepage is outlined in Table 23 of the 2016 Annual Review. However, it is not clear as to whether the calculation takes into consideration seepage from the dump. This should be investigated and included in future calculation if not done already. | MGO obtained independent study of the groundwater interactions by SLR. | Yes |
| Water | A search of the DPI NSW Water Register at 22 August 2018 states "This search only return result for 'active' Water Act Licences". This should be further investigated by MOC and clarified with DPI-Water with water licence follow up. | At the time of the audit, the license was current but the DTI Water website listed the license as Not Active. This fault with the DTI Water website has been relayed to DTI Water in 2018. | Yes |
| Erosion and Sediment | Recommend that a summary of the effectiveness and performance of erosion and sediment control measures is reported in future Annual Reviews in accordance with the ESCP. | ERSED is summarised in the Annual Reviews within the audit period. | Yes |

6. Complaints and Reportable Incidents

6.1 Complaints

Glendell consistently generated more complaints than Mount Owen, probably due to its location with regard to Camberwell. Mount Owen averaged 4 complaints per annum across the audit period and Glendell 33.

There were no significant trends in numbers across the audit period though Glendell was trending towards a much lower total in 2020.

Most complaints were regarding noise with several complaints focussed on other environmental aspects of the operation.

6.2 Reportable Incidents

The auditors identified 6 reportable incidents across the audit period, 4 for air quality, one each for blast and noise. Only one incident resulted in a penalty notice from DPIE, an air quality incident on August 2019 identified through a DPIE inspection. The incidents all resulted in non-compliances which are detailed in Section 4.1.

7. Air Quality

7.1 Air quality requirements

Mt Owen Complex consolidated consent SSD 5850 and DA80/952 (Glendell) list environmental monitoring and management requirements from the Department. The requirements related to air quality performance are reproduced in Appendix B

The document, 'Air Quality Management Plan MGOOC-17795626247-4392' (AQMP), (MGO, 2018) approved 8 October 2018 outlines air quality management practices for MGO, including Glendell. The key management actions committed to in the plan are outlined in Section 6 of the document.

The Statement of Commitments related to air quality for SSD-5850 and DA80/952 also apply.

7.2 Air quality results

Air quality monitoring results for the audit period are presented in the 2018, 2019 and 2020 Annual Reviews. Depositional dust, total suspended particulates (TSP), and particulate matter (PM₁₀) results have been reproduced below.

Monitoring of meteorological conditions undertaken at MGO is in accordance with the development consents. This includes three (3) weather stations located west, south east and north east of the active mining areas.

PM₁₀ is measured using monitors on-site. The concentrations are measured using Tapered Element Oscillating Microbalance (TEOM), Environmental Beta Attenuation Monitors (EBAMs) and High Volume Air Samplers (HVAS).



Figure 7-1 TEOM and enclosure

Air quality monitoring results for TSP, PM₁₀, PM_{2.5} and deposited dust reported in the 2017, 2018 and 2019 Annual Environmental Management Reports (AEMRs or Annual Reviews ARs) were reviewed to assess compliance during these periods of the IEA review period. Monthly monitoring results from January to October 2020 were reviewed to evaluate compliance in 2020 to 31 October 2020 (results available at the time of the audit).

2017

- TSP – monitored at 3 locations, TSP-1, TSP-2 and TSP-3. Annually averaged (i.e. 2017) concentrations were measured below the 90 µg/m³ criterion at TSP-1 and TSP-3, with an annual concentration of 91 µg/m³ recorded at TSP-2. The 2017 AEMR notes that this monitor was moved to the nearest residence in December 2017, consistent with the AQMP.
- PM₁₀ – Table 33, Appendix F of the 2018 AEMR notes 146 instances across the six continuous monitoring TEOMs where 24-hour averaged PM₁₀ concentrations exceeded the 50 µg/m³ criterion in Table 6. Drought resulting in elevated regional conditions are cited as the primary cause of the higher number of exceedances in 2017. Investigations found that one day of exceedance (17 September 2017 calculated a site contribution of 51 µg/m³ to a measured value of 65 µg/m³; indicating that operations may have been responsible Section 11 of the AEMR notes management measures that were undertaken in response to the incident.

Annual average concentrations were measured below 30 µg/m³ which was the allowable criterion for the 2017 review period.

- PM_{2.5} – Not monitored, nor a requirement for the 2017 reporting period.
- Deposited Dust – 2017 annually averaged deposited dust levels at the 13 reported monitoring locations were all below the 4 g/m²/month criterion.

2018

- TSP – Annual average concentrations of 59, 78 and 80 $\mu\text{g}/\text{m}^3$ measured at TSP-1, TSP-2 and TSP-3 respectively; below the specified 90 $\mu\text{g}/\text{m}^3$ criterion. It is noted that the TSP-1 rolling annual average rose above the criteria of 90 $\mu\text{g}/\text{m}^3$ in February 2018, however it then returned to below the average criteria following the measurement.
- PM₁₀ – Table 37, Appendix D of the 2017 AEMR notes 134 instances across the 9 monitoring locations where 24-hour averaged PM₁₀ concentrations exceeded the 50 $\mu\text{g}/\text{m}^3$ criterion in Table 6. An investigation of an exceedance on 24 July 2018 found that it was attributable to the project, but also that best-practice measures had been undertaken in the lead-up to and following the exceedance. It is noted that

Annual average concentrations were measured below 30 $\mu\text{g}/\text{m}^3$ which was the allowable criterion for the 2018 review period.

- PM_{2.5} – Not monitored, nor a requirement for the 2018 reporting period.
- Deposited Dust – 2018 annual averaged deposited dust levels at the 11 reported monitoring locations were all below the 4 $\text{g}/\text{m}^2/\text{month}$ criterion.

2019

- TSP – Annual average concentrations of 60, 78 and 82 $\mu\text{g}/\text{m}^3$ measured at TSP-1, TSP-2 and TSP-3 respectively; below the specified 90 $\mu\text{g}/\text{m}^3$ criterion.
- PM₁₀ – An assessment was undertaken for the 2019 AEMR which found that none of the measured exceedances were a result of site operations. Data capture completeness issues were noted at several monitors in 2019.

With exclusions applied for 'extraordinary events', annually measured concentrations were reported below 30 $\mu\text{g}/\text{m}^3$ noting that the lower 25 $\mu\text{g}/\text{m}^3$ was only introduced in September 2019.

- PM_{2.5} – Not monitored, nor a requirement for the 2019 reporting period.
- Deposited Dust – 2019 annually averaged deposited dust levels at the five Mt Owen and Ravensworth East depositional dust gauges and six depositional dust gauges for Glendell ranged between 1.5 and 4.7 $\text{g}/\text{m}^2/\text{month}$. Only DG8 (DA 80/952, Camberwell Village) recorded a value above the 4 $\text{g}/\text{m}^2/\text{month}$ criterion. The AEMR notes how subsequent investigations were undertaken by a suitably qualified air quality specialist which estimated that MGO contributed around 1 $\text{g}/\text{m}^2/\text{month}$ and was not the cause of the exceedance of the total impact criterion.

2020

- TSP – Annual average TSP concentrations to the end of October 2020 (YTD) and 12-month rolling at TSP-1, TSP-2 and TSP-3 were specified 90 $\mu\text{g}/\text{m}^3$ criterion.
- PM₁₀ – The monthly monitoring reports indicate exceedances of the daily criterion, but none were attributed to significant contributions from the site.
- PM_{2.5} – Not monitored.
- Deposited Dust – Rolling 12-month averages from November 2019 to October 2020 were less than 4 $\text{g}/\text{m}^2/\text{month}$ at all of the 11 monitoring locations.

7.2.1 Non compliances

The following issues were identified in documentation reviewed as part of the audit process:

- The Auditor sighted the 2017 Annual Review which included Section 11 noting Incidences and non-compliances.
 - DPIE identified a breach of the Glendell Development consent. Glendell failed to fully consider the results of the pre blasting meteorological assessment and minimising dust.
 - The two breaches resulted in Glendell receiving a Penalty Infringement Notice (PIN).

- 2018 Annual Review and noted a non-compliance with table 6, short term impact assessment criteria.
 - PM₁₀ dust monitor Sx10-G2 recorded a project specific result of 50.6 µg/m³ on 24 July 2018. This exceeded the short-term impact assessment criterion of 50 µg/m³ for PM₁₀.
 - Auditor sighted the action and response to non-compliance in the 2018 Annual Return by MGO and noting MGO conducted extensive action taken 24 hours prior to the exceedance to minimise generation from the north pit and Bayswater operations. Notification to DPIE sighted by Auditor and no further action was required.
- Auditor sighted DPIE notice for dust event on 16 August 2019, a caution was received, response letter from MGO was provided to DPIE within timeframe, MGO contracted SLR to investigate and produced a report in follow up of the dust event and submitted to DPIE within the timeframe provided.
- Auditor sighted the DPIE Penalty Notice for the event on 16 August 2019 "Mt Owen has failed to comply with Schedule 3, Condition 18 (a) and (b) of SSD-5850 (the consent) for the Mt Owen Open Cut".

7.3 Review and discussions

Generally, the overall air quality is reasonable level for the drought conditions within the audit period. However, there was a PIN provided for an event on 16 August 2019. Other non-compliances include issues with data loss including during power outages and maintenance.

7.4 Lead Auditor - Site Observations

There were two days onsite for the site inspection, shortened due to COVID19 compliance issues from both the Jacobs and Glencore businesses.

The first day was hot and still, there was a dust haze over the site in the morning but that dissipated as the air became less stratified. The haze did not appear to be leaving the site boundaries. During site inspections, roads were adequately watered with no excessive dust from mine vehicles or other operations.

The second day was much cooler following a southerly change and rain overnight.

Other observations:

- Haul roads being rehabilitated once no longer needed
- Dust & Noise Analysis Tool (DNAT) which provides predictive forecasting
- Weather station in good working condition
- Discussed how MGO manages to minimise air quality impacts through use of water sprays (coal hopper for example) and timing of blasting
- Sighted meeting minutes discussing air quality management with the mines in the surrounding area.

8. Rehabilitation

As part of this audit, a specialist mine rehabilitation auditor was requested by the DPIE to review the site's compliance with its rehabilitation performance related requirements from its project approvals, including the approved MOP covering SSD 5850 and DA80/952, Statements of Commitments for both Development Approvals and actions required from the previous IEA.

8.1 Progress Against Rehabilitation Planning & Objectives

The site was found to be on track with rehabilitation efforts and whilst some of these requirements are not yet triggered for compliance purposes, the site was generally in accordance with or tracking towards the rehabilitation objectives. The rehabilitation observed on site is compliant with SSD 5850 Table 10 conditions, with observations also made that larger areas being targeted for establishing woodland on overburden dumps to ensure connectivity. The site is fulfilling MOP rehabilitation areas with a decrease in TSF rehabilitation and to offset this, an increase in dump rehabilitation areas.

Weed management continues to be a challenge on site and it was noted the increase in spending and resources towards this aspect was significant in recent years.

It was observed that new areas for rehabilitation are being prepared to sow, indicating regular rehabilitation activities (see Figure 8-1).



Figure 8-1 Gypsum spreading on recent rehabilitation

Onsite evidence and flora surveys indicated much of the rehabilitation was tracking towards completion criteria and furthermore for those areas not tracking towards completion criteria adequately, management actions such as thinning, weed control and supplemental planting was being undertaken. An example seen on site was the Northern area of the WOOP Dump which included re ripping and re-sowing.

CMO is used on site for compliance actions including rehabilitation. This provides a system based actions program without reliance on specific personnel, which reduces the impact of staff turnover on fulfilling rehabilitation actions.

8.2 Erosion

The WOOP dump erosion gully was re-disturbed and rehabilitated in 2020 with ongoing operations. There are some minor erosion rills on rehabilitation areas however these are considered general maintenance issues which are addressed regularly on site. No other observations of significant erosion issues.

8.3 Tailings Management

The integration of tailings management with adjacent sites provides various options for tailings management and future rehabilitation options, more so than operating within a one closed site system. This appears to be win win for the sites and should be encouraged.

8.4 Topsoil

Topsoil stockpiles, one stockpile was covered in thistle however it is understood this was recently sprayed.

It is understood that there is a topsoil shortage of approximately 50 ha to 80 ha and therefore various substitutes/ameliorants are being considered and trialled.

8.5 Creek Diversions

The Lower Bettys Creek diversion remains stable, well grassed and trees continue to develop. The northern plug area has been cleaned up since last audit and minimal rill erosion was evident. The batters of the Bettys Creek upstream diversion were revegetating well with the establishment of both grasses for surface stabilisation and dense tree coverage for deeper batter stabilisation.



Figure 8-2 Upper Bettys Creek diversion, recent rehabilitation refresh

Overall, the diversions appear well constructed and maintained. There was some minor rill erosion noted on the upstream diversion at the base of the batter where jute mesh appears to have washed. This should be monitored and repaired as required.

8.6 General

Rehabilitation tracks and stockpiles were well signposted. Tracks through the rehabilitation require some maintenance in places before the erosion rills become gullies and the repair efforts multiply. Some tracks also require mitre drains and roll overs to be installed to facilitate longer term stability.

As mentioned above the weeds are actively managed and there has been a significant (x3) increase in allocated budget for this in recent years.

It was noted that a seed nursery has been established on site. Nest boxes have been installed, the landform includes a variety of slopes and drainage patterns in line with the MOP.

9. Biodiversity

9.1 Introduction

As part of this audit, the purpose of this section is to review the site's compliance with its biodiversity performance related requirements from its project approval and licences. Noting that there were instances where biodiversity monitoring results were recorded the limits expressed in these requirements over the audit period, further review has been completed to affirm whether these exceedances were a result of contributions from the site.

9.2 Biodiversity requirements

MGO consent SSD 5850 expresses the environmental monitoring and management requirements for MGO from the Department.

9.3 Biodiversity results

This section presents summaries of the biodiversity monitoring results collected over the audit period, as well as relevant discussions from the 2017, 2018, 2019 and 2020 'Annual Review Reports.

Overall, the MGO is generally compliant with the progressive biodiversity conservation measures. Offset areas have increased in number and size and installation of artificial habitats has been undertaken. Resources have been salvaged from impact areas and placed in offset areas.

The monitoring results for 2020 are unknown and have not been assessed at the time of the audit.

9.3.1 Biodiversity offset areas

In 2018, 2019, and 2020 the biodiversity offset areas were generally well maintained. Despite 2018 and 2019 recording very dry conditions (throughout the Hunter Valley), the monitoring results suggest that areas of remnant native vegetation have remained in good health. The impacts of weeds and pest animals remain a threat in offset areas and require ongoing management. Land management tasks such as fencing, removal of grazing, canopy thinning, artificial habitat installation, erosion control and supplementary planting were conducted.

9.3.2 Flora Monitoring in conservation areas

2018

All sites monitoring during the audit period presented issues with weed growth Regular weed control actions have been implemented. However, there hasn't been a significant decline in weeds. Dominance of Coolatai Grass (*Hyparrhenia hirta*) remains problematic at numerous sites. Exotic grass is likely suppressing native regeneration. Exotic vegetation cover increased across the Conservation Area (CA). Most areas of remnant vegetation are remaining in good condition despite dry conditions.

2019

Similar outcomes to 2018 monitoring results despite ongoing weed control. Critically Endangered *Rhodamnia rubescens* was recorded at Mitchell Hills Biodiversity Offset Area (BOA). Subsequently a Myrtle Rust management plan was developed to assist this species.

Prolonged dry conditions meant that many Plant Community Types (PCTs) were found to have decreases in native vegetation cover. Many monitoring sites showed decreases in native species richness and cover. Although despite poor condition a small number of sites performed well. Native species richness increased in 2019 compared to 2017 at all but one monitoring site of Mitchell Hills north offset site.

2020

No monitoring results available at the time of the audit.

9.3.3 Fauna monitoring conservation areas

2018

Comprehensive fauna monitoring surveys (at the nine sites) were not conducted. The monitoring program was instead carried out in 2017 due to the addition of several new Biodiversity offset areas (which required earlier monitoring).

Climatic conditions in 2018 were dry and no significant rainfall events were recorded. For this reason, amphibian surveys were not undertaken. Numerous threatened bird species were recorded during 2018. Nationally threatened Swift Parrot and Regent Honeyeater were not sighted.

2019

The climatic conditions experienced in 2019 were apparently very dry with significant rainfall events only recorded in January and March. The majority of dams and water bodies were dry or at very low water levels from the preceding years 2017 and 2018. Rainfall events recorded in 2019 did not improve water storage at any of the water bodies.

Monitoring of nest boxes shows a range of fauna groups are utilising artificial habitat features. Highest usage of nest boxes was recorded for bird boxes installed in rehabilitation areas, with 50% usage. Glider style boxes were also utilised, with 35% occupied in 2019 for those boxes located in the New Forest Area. Grey corned babbler continue to breed in conservation areas. In the 2019 monitoring period, a total of 66 bird species, 15 native and 4 introduced mammals, 3 reptile and 3 frog species were recorded. The extended drought over the period 2017 – 2019 reflected the low abundance of reptile and amphibian species recorded.

2020

No monitoring results available at the time of the audit.

9.4 Summary

Annual monitoring shows that land management and biodiversity conservation practices have been implemented over the audit period and have been effective in maintaining native vegetation and habitats across the offset areas.

As mentioned above, 2018 and 2019 were characterized by very dry conditions (throughout the Hunter Valley). These conditions would have influenced the biodiversity monitoring results in both years. Despite poor conditions, the monitoring results suggest that areas of remnant native vegetation have remained in good health and fauna assemblages remained at similar levels. The results of 2020 monitoring are not available at the time of the audit, although it is anticipated that the more favourable climatic conditions over much of this year would have maintained native vegetation covers and increased ecosystem health across the sites and wider locality.

Whilst the impacts of weeds and pest animals remain a threat in offset areas and require ongoing management, it is apparent that further progress has been made during each year. Land management practices such as weed control, native tree planting, removal of grazing, canopy thinning, artificial habitat installation, erosion control and supplementary planting were conducted. Annual monitoring generally shows these practices were effective in preserving biodiversity values of the sites.

10. Noise and Vibration

As part of this audit, a specialist noise and vibration auditor was requested by the DPIE to review the site's compliance with its rehabilitation performance related requirements from its project approvals, including the approved Noise Management Plan and Blast Management Plan covering SSD 5850 and DA80/952, Statements of Commitments for both Development Approvals and actions required from the previous IEA.

10.1 Noise Compliance

MGO is in a relatively advantageous position with regard to the location of the nearest sensitive receivers who are (generally speaking) bunched to the south and southeast of the site. Pit progression is moving noise away from the Camberwell residents in the Glendell pit and towards residents for the Mount Owen pit.

Noise levels were generally compliant through the audit period with the following exception:

- N1 from 17 June 2020 exceeded site criteria and were valid measurements with regard to meteorological conditions indicating a non-compliance against SSD-5850 noise criteria. As per Section 4.1, Table 4.1 of the NMP, additional noise monitoring was performed on the 24 June 2020 with suitable weather conditions and following DPIE approval for a time extension.

DA 80-952 for Glendell, Schedule 3 Condition 4 requires the assessment of mine generated noise (all mines) in Day, Evening and Night periods and specifies amenity criteria for those periods:

"The Applicant must take all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately-owned land, or on more than 25% of any privately owned land, excluding the land listed in Table 1, to the satisfaction of the Secretary:

LAeq (11 hour) 50 dB(A) Day;

LAeq (4 hour) 45 dB(A) Evening; and

LAeq (9 hour) 40 dB(A) Night."

There is no evidence the noise monitoring reports or in the Annual Reviews that compliance against this condition is assessed. There is no statement of compliance in accordance with the process in the approved NMP.

10.2 Vibration – Blasting Compliance

Vibration and overpressure levels were compliant with the approval and EPL criteria through the audit period.

There were two procedural non-compliances associated with blasting:

- There was a PIN issued for a failure to follow pre-blast procedures with regard to meteorology.
- One blast was not monitored, 5 September 2018 while the MOC 1 Blast monitor was offline being serviced. This resulted in a failure to monitor which is a non-compliance with the approved MOC Blast Management Plan.

Most vibration and over pressure results were quite low with very few into the 5% ranges (110-115dBA and 5-10mm/s/s resultant vector) and most of those not residential but at the Integra, ARTC or powerline monitoring locations all of which have higher criteria than residential.

Figure 10-1 shows a pad drilled ready for loading.



Figure 10-1 Pit ready for Blasting

10.3 Summary

Blasting and noise monitoring compliance was very good with most non-compliances being procedural and not generally resulting in actual environmental impact.

Some additional effort in ensuring compliance with protocols and the consents would improve the result and remove all non-compliances.

11. General Environmental Management

Noting the limited time at site, the following comments were developed from evidence from the site interviews supported by onsite inspection:

- Equipment lay down areas are tidy and free of contamination.
- Oil recycling areas and wash down oil separators were in good condition and tidy.
- Workshops were relatively free of spills and were tidy and well organised.
- The auditors observed roads to be well watered and unused haul roads in preparation for rehabilitation (see Figure 11-1).
- Rehabilitation was not significantly behind disturbance and area disturbed was trending lower.
- Creek diversions were stable though both those inspected had received recent treatment to improve previous rehab results (see Figure 11-2).
- Erosions were under control with the only area observed planned for treatment.



Figure 11-1 Unused haul road undergoing rehabilitation



Figure 11-2 Bettys Creek diversion (upstream)

12. Recommendations

The following recommendations have been developed to address the audit findings:

| # | Recommendation |
|---|---|
| 1 | SSD 5850, Schedule 2, Condition 17 Ensure all required consultation is documented in CMO |
| 2 | SSD 5850, Schedule 3, Condition 5 Conduct an internal review of the NMP and operating procedures relating to noise to determine if any improvements can be made and communication to those with responsibility for noise control |
| 3 | SSD 5850, Schedule 3, Condition 15 Ensure Preblast procedures are compliant with the Blast Management Plan and the approvals and reinforce with training the timing requirements of the BMP and approvals. |
| 4 | SSD 5850, Schedule 3, Condition 15 (c) is explicit in requiring a Road Closure plan however mine plans indicate that this will not be required in life of mine. MGO should seek permission from DPIE to forego the requirement for a road closure plan. |
| 5 | SSD 5850, Schedule 3, Condition 16 & 18 Ensure compliance with the Air Quality Management Plan and approvals requirements when managing air quality. Review training needs and retrain if required. |
| 6 | DA 80-952, Schedule 3, Condition 4 Revise the quarterly noise monitoring summary report by inclusion of a statement of compliance for cumulative noise |
| 7 | DA 80-952, Schedule 3, Condition 20 Ensure compliance with the Air Quality Management Plan and approvals requirements when managing air quality. Review training needs and retrain if required. |

Appendix A. Independent Audit Team Approval



Jason Desmond
Environment and Community Manager
Mt Owen / Glendell Operations
PO Box 320
Singleton NSW 2330

29/09/2020

Dear Mr Desmond

**Mt Owen Continued Operations (SSD-5850) and Glendell Coal (DA 80/952) |
Independent Environmental Audit**

I refer to your request (SSD-5850-PA-35) for the Secretary's endorsement of the proposed audit scope and team of suitably qualified persons to undertake the Independent Environmental Audit (IEA) for Mt Owen and Glendell Coal mines (Mt Owen Combined Operations) in accordance with Schedule 5 condition 12 of both SSD-5850 (Mt Owen) and DA 80/952 (the consent/s).

The Department has reviewed the information provided and, in accordance with Schedule 5 condition 11 of both consents and the *Post-approval requirements for State significant developments Independent Audit Guideline, October 2015* (IEA Guideline), the Secretary has endorsed the following audit team:

- Mr Peter Horn – Lead Auditor, Rehabilitation and Remediation Specialist
- Ms Sam Bourke – Audit Assistant
- Mr Luke Spencer – Air Quality and Noise Specialist
- Mr Clayton Richards – Rehabilitation (Landform) Specialist and
- Ms Kim Collings – Principal Environmental Scientist

Please ensure this correspondence is appended to the Independent Audit Report.

The Department reserves the right to request an alternate auditor or audit team for future audits.

Notwithstanding the agreement for the above listed audit team for this Project, each respective project approval or consent requires a request for the agreement to the auditor or audit team be submitted to the Department, for consideration of the Secretary. Each request is reviewed and depending on the complexity of future projects, the suitability of a proposed auditor or audit team will be considered.

Please note that the Mt Owen and Glendell consents do not require the IEA scope to be endorsed by the Secretary. Further, I note that Jacobs' proposal references the *2020 Independent Audit Post Approval Requirements (PAR)*. However, the Department's *Independent Audit Guideline* (2015), part of the Integrated Mining Policy, is still relevant for mining operations, and provides a clear process that should be followed during the conduct of an independent audit for mining projects.

If you wish to discuss the matter further, please contact Jennifer Sage, Compliance Officer on 0400 245 170.

Yours sincerely

Heidi Watters
Team Leader Northern
Compliance

As nominee of the Planning Secretary



Jason Desmond
Environment and Community Manager
Mt Owen / Glendell Operations
PO Box 320
Singleton NSW 2330

By Email only: Jason.Desmond@glencore.com.au

26/10/2020

Dear Mr Desmond

**Mt Owen Continued Operations (SSD-5850) and Glendell Coal (DA 80/952)
Extension of Time to Submit the Independent Environmental Audit**

I refer to your request (SSD-5850-PA-35) for an extension of time to submit the Independent Environmental Audit Report, as required under the conditions of consent for the Mt Owen Continued Operations (SSD-5850) and Glendell Coal (DA 80/952).

The Department notes that this extension is sought to accommodate an unplanned two-week shutdown at Mt Owen / Glendell Operations in October 2020, as well as the end-of-year shut down scheduled for both the auditor and project site/s.

Accordingly, the Planning Secretary has granted an extension of time until close of business **Friday 19 February 2020** for the submission of the Independent Environmental Audit report and the response to any auditor recommendations.

If you wish to discuss the matter further, please contact Jennifer Sage, Compliance Officer on 0400 245 170.

Yours sincerely

A handwritten signature in black ink that reads 'H Watters'.

Heidi Watters
Team Leader Northern
Compliance

As nominee of the Planning Secretary

Appendix B. Independent Audit Table

Audit Protocol

Table A -1 Mt Owen and Ravensworth East SSD-5850 Consolidated Conditions of Approval

Blue type represents August 2017 Modification

Purple type represents September 2019 Modification

Red type represents January 2020 Modification

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|--|-----|------|---|--|---|-------------------|---|
| SCHEDULE 2 – ADMINISTRATIVE CONDITIONS | | | | | | | |
| OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT | | | | | | | |
| | 2 | 1 | In addition to meeting the specific performance criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development. | 1. Complaints Registers (2017, 2018, 2019) 2. Incident Registers (2017, 2018, 2019, 2020). 3. Maintenance schedule 4. Complaint register and actions | The audit period is from the last date 31 October 2017 to the last date of the onsite audit 3 December 2020. There is" no significant exceedances or material environmental harm were identified by the audit team for this audit period. | Compliant | |
| TERMS OF CONSENT | | | | | | | |
| | 2 | 2 | The Applicant must carry out the development: (a) generally, in accordance with the EIS, EA (Mod 1) SEE (Mod 2) (b) and the Development Layout Plans; and in accordance with the conditions of this consent. | 1. Annual Return 2017, 2018, 2019. 2. Complaints register 2017, 2018, 2019, 2020. 3. Incident register 2017, 2018, 2019, 2020. 4. Annual Return 2017, 2018, 2019, 2020. | The development is generally consistent with approved EIS, EA (Mod1) SEE (Mod2) and the development layout plan. It is generally in accordance with the conditions of this consent. | Compliant | |
| | 2 | 3 | Consistent with the requirements in this consent, the Secretary may make written directions to the Applicant in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in condition 3(a). | | There are no known inconsistencies with the requirements of the consent within the audit period. There were no written directives from the Department in the audit period provided to the audit team. | Not Triggered | |
| | 2 | 4 | The conditions of this consent and directions of the Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document/s listed in condition 2(a). In the event of an inconsistency, ambiguity | 1.Latest DPIE approved plans 2. DPIE approval evidence of plans | The management plans have been updated in 2018. Compliance against the | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|--|-----|------|--|---|---|-------------------|---|
| | | | or conflict between any of the document/s listed in condition 2(a), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict. | | management plans are provided in the audit report. | | |
| LIMITS ON CONSENT | | | | | | | |
| MINING OPERATIONS | | | | | | | |
| | 2 | 5 | <p>The Applicant may carry out mining operations within the approved disturbance area on the site until 31 December 2037.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> • Under this consent, the Applicant is required to decommission and rehabilitate the site and carry out other requirements in relation to mining operations. Consequently, this consent will continue to apply in all respects other than to permit the carrying out of mining operations until the rehabilitation of the site and other requirements have been carried out to the required standard. • Mining operations and rehabilitation are also regulated under the Mining Act 1992. | <p>1. Auditor sited mining operations and disturbance areas onsite</p> <p>2. Auditor sighted mining and disturbance boundaries on plans.</p> | <p>The auditor has viewed the latest approved plans and the site and confirms the mining operation disturbance matches the plans.</p> <p>Noting the auditor did not conduct any survey and that the site was extensive spatially and it was not possible in reduced site time to review every boundary physically. Site time was reduced due to COVID 19 risk mitigation.</p> | Compliant | |
| COAL EXTRACTION AND TRANSPORTATION | | | | | | | |
| | 2 | 6 | <p>The Applicant must not extract more than 14 million tonnes of ROM coal from the site in any calendar year, comprising:</p> <p>(a) up to 4 million tonnes of ROM coal from the Ravensworth East Mine; and</p> <p>(b) up to 10 million tonnes of ROM coal from the Mount Owen Mine (North Pit).</p> | <p>1. Weight docket output each year from 2017 to 2020 for Ravensworth East and Mt Owen Mine (North Pit).</p> <p>2. Annual Reviews.</p> | Auditor has sighted the Annual Reviews, weight dockets and confirms the output is within the conditions. | Compliant | |
| | 2 | 7 | The Applicant may process up to 17 million tonnes of ROM coal from the Mount Owen Complex at the Mount Owen coal handing and preparation plant in a calendar year. | <p>1. Weight docket output each year from 2017 to 2020 for Ravensworth East and Mt Owen Mine (North Pit).</p> <p>2. Annual Review.</p> | Auditor viewed the Annual Reviews, weight dockets and confirms the output is within the conditions. | Compliant | |
| | 2 | 8 | <p>The Applicant must:</p> <p>(a) transport coal from the site by rail using the Mount Owen Rail Loop or by conveyor to the Bayswater and/or Liddell Power Stations; and</p> <p>(b) not transport more than 2 Mtpa of ROM coal and/or crushed gravel by conveyor to the Liddell Coal Mine and/or Ravensworth Coal Terminal.</p> | <p>1. Transportation of coal by the Mt Owen Rail Loop or Bayswater and Liddell Power station each year from 2017 to 2020</p> <p>2. Weight dockets by conveyor.</p> <p>3. Annual Review 2017-2019.</p> | Auditor sighted the evidence of no transportation of coal by public roads. Coal movements are provided in within the Annual Review 2017-2019 and associated appendices noting Train movements of coal. | Compliant | |
| IDENTIFICATION OF MOD 2 DISTURBANCE AREA | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|------------------------------|-----|------|--|---|--|-------------------|---|
| | 2 | 8A | <p>Prior to commencing mining operations in the Mod 2 disturbance area, or other timeframe agreed by the Secretary, the Applicant must provide to the Department a survey plan (or spatial files in a format agreed by the Secretary) identifying the following:</p> <p>(a) the "Additional Disturbance Area" as shown in Figure 2A of Appendix 2; and</p> <p>(b) the "Proposed Modification Pit Boundary" as shown in Figure 1.3 of SEE (Mod 2).</p> | <p>1. Email containing survey plan sent to DPIE including spatial files in a format agreed by secretary</p> <p>2. Email response from Secretary confirming receipt of plans).</p> | Auditor sighted email to DPIE requesting approval of management plans and the survey plan from DPIE. | Compliant | |
| NOTIFICATION OF COMMENCEMENT | | | | | | | |
| | 2 | 9 | Prior to physically commencing development under this consent, the Applicant must notify the Department in writing of the date that it intends to commence development permitted under this consent. | 2017 IEA. | Commencement of development occurred prior to the audit period and verified in the previous audit. | Not triggered | |
| SURRENDER OF CONSENTS | | | | | | | |
| | 2 | 10 | <p>Within 12 months of the date of commencement of development under this consent, or as otherwise agreed by the Secretary, the Applicant must surrender the existing development consents DA 14-1-2004 for the Mount Owen Mine and DA 52-03-99 for the Ravensworth East Mine, in accordance with Section 104A of the EP&A Act, and to the satisfaction of the Secretary.</p> <p>Following the commencement of development under this consent, the conditions of this consent shall prevail to the extent of any inconsistency with the conditions of the development consents DA 14-1-2004 and DA 52-03-99, prior to the surrender of those consents.</p> <p>Notes:</p> <p>•This consent will apply to all components of the existing operations at the Mount Owen Mine and Ravensworth East Mine, from the commencement of development under this consent.</p> <p>•This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent should not be understood as implying that works legally constructed under a valid consent can no longer be legally maintained or used.</p> | <p>1. Letter sent to the DPIE confirming the surrender of consents l before or on due date 06/02/18 of DA 14-1-2004 for the Mount Owen Mine and DA 52-03-99 for the Ravensworth East Mine, in accordance with Section 104A of the EP&A Act. Letter dated 5/02/2018 to DPIE was sent with the surrender of consent DA 14-1-2004 and SSD 5850 replacing the former DA and Ravensworth East DA 52-03-99.</p> <p>2. Letter response from the DPIE Secretary dated 02/03/2017 acknowledgement of the progression of the surrendered DA's (DA14-1-2004 and DA52-03-99) with the progression of SSD5850.</p> | <p>The auditor sighted the letter from MOC to DPIE to surrender the DA14-1-2004 and DA 52-03-99 on date 5/02/2018 which is within the 12 months of the date of commencement and meets the condition.</p> <p>The letter from DPIE acknowledges the progression of the project from DA14-1-2004 and DA52-03-99 to the replacement of the condition SSD5850</p> | Compliant | |
| STRUCTURAL ADEQUACY | | | | | | | |
| | 2 | 11 | <p>The Applicant must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA and SANSW.</p> <p>Notes:</p> | <p>1.Construction and occupation certificate viewed by auditor for the proposed building works.</p> <p>2.Evidence of Applicant email to obtain the Chief Executive of SANSW's approval before carrying</p> | Auditor viewed the construction and occupation certificates for building works this included the request to obtain the Chief Executive of SANSW's approval, however for the proposed construction it was not | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|-------------------------------------|-----|------|--|---|---|-------------------|---|
| | | | <p><i>Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates (where applicable) for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.</i></p> <p><i>• The development is located in the Patrick Plains Mine Subsidence District. Under section 21 of the Coal Mine Subsidence Compensation Act 2017, the Applicant is required to obtain the Chief Executive of SANSW's approval before carrying out certain development in a Mine Subsidence District.</i></p> | out certain development in a Mine Subsidence District. Was not required as the proposed work was outside the Mine Subsidence District. | required as stated in email response from the Mine Subsidence District representative. | | |
| DEMOLITION | | | | | | | |
| | 2 | 12 | The Applicant must ensure that all demolition work undertaken in relation to the development is carried out in accordance with AS 2601-2001: The Demolition of Structures, or its latest version. | Communications with Mt Owen Staff. | No demolition in the audit period. | Not triggered | |
| PROTECTION OF PUBLIC INFRASTRUCTURE | | | | | | | |
| | 2 | 13 | <p>Unless the Applicant and the applicable authority agree otherwise, the Applicant must:</p> <p>a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and</p> <p>b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</p> <p><i>Note: This condition does not apply to any damage to public infrastructure subject to compensation payable under the Coal Mine Subsidence Compensation Act 2017, or to damage to roads caused as a result of general road usage.</i></p> | Communications with Mt Owen Staff. | <p>No evidence damage of public infrastructure by Mt Owen Complex was provided to the audit team nor was any observed on site or in the infrastructure surrounding the site.</p> <p>The heritage listed Ravensworth Public School was damaged in a fire in May 2019. The remains were structurally assessed, and the school was salvaged as much as possible.</p> | Not triggered | |
| OPERATION OF PLANT EQUIPMENT | | | | | | | |
| | 2 | 14 | <p>The Applicant must ensure that all plant and equipment used on site, or to monitor the performance of the development, is:</p> <p>(a)maintained in a proper and efficient condition; and</p> <p>operated in a proper and efficient manner.</p> | <p>1. Onsite visit to workshop</p> <p>2. Workshop schedule including scheduled out of service.</p> | <p>The auditor sighted the workshop in a good, tidy and maintained condition, the workshop schedule was viewed and confirmed the process was adequate.</p> <p>The auditor also reviewed the maintenance control system which was comprehensive.</p> | Compliant | |
| PLANNING AGREEMENT | | | | | | | |
| | 2 | 15 | Within 6 months of the date of commencement of development under this consent, unless the Secretary agrees otherwise, the Applicant must enter into a VPA with Council in accordance with: | <p>1. 2017 IEA.</p> <p>2. Letter from DPIE dated 12/11/2020 regarding the update of extension until 4 December 2020 regarding the entering of a</p> | Confirmed compliant in 2017 IEA. | Not triggered | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|---|-----|------|--|--|--|-------------------|---|
| | | | (a) Division 6 of Part 4 of the EP&A Act; and the terms of the Applicant's offer in Table 1 of Appendix 8. | Planning Agreement with Council, as required under conditions 15 and 16 of Schedule 2 SSD-5850. 3. No evidence of PA completed and signed with council. | 6 months from the date of commitment of the development under this consent is not within the audit period. | | |
| | 2 | 16 | Within 6 months of the determination of Modification 2, unless the Secretary agrees otherwise, the Applicant must enter into a PA with Council in accordance with: (a) Division 7.1 of Part 7 of the EP&A Act; and (b) the terms of the Applicant's offer in Table 2 of Appendix 8. The VPA required under condition 15 above and the PA required under this condition may be consolidated into a single agreement. | 1. 2017 IEA. 2. Letter from DPIE dated 12/11/2020 regarding the update of extension until 4 December 2020 regarding the entering of a Planning Agreement with Council, as required under conditions 15 and 16 of Schedule 2 SSD-5850. 3. Auditor sighted a sample of the CMO Change Management Form and confirms MOC conducted the consultation required under the consent including for modifications (2,3,4, and 5). 4. Email from MOC to DPIE dated 12/11/2020 confirming consultation booked in with Singleton Council in regard to PA. Singleton Council General Manager is booked in to sign the agreement on 30th November 2020. 5. Evidence of PA signed by MOC and ongoing weekly discussions with council. | MOD 2 Determination September 2019, 6 months ended March 2020. A revised VPA with Council was signed by MOC however Council has not provided signature and evidence of weekly discussions/meetings with Council have been provided. | Compliant | |
| EVIDENCE OF CONSULTATION | | | | | | | |
| | 2 | 17 | Where conditions of this consent require consultation with an identified party, the Applicant must: (a) consult with the relevant party prior to submitting the subject document; and (b) provide the Department with details of the consultation undertaken including: • the outcome of that consultation, matters resolved and unresolved; and • details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. | 1. Strategies approved by the secretary 2. Consultation undertaken for the strategies or plans, however not all consultation was undertaken. | Generally, the Mt Owen Complex is compliant. The auditor sighted consultation with relevant parties, however there was a few instances where not all consulting parties were consulted as required in the condition. In particular, the PA with council required by Schedule 2 condition 16., not all required compliance was conducted and recorded. Recommendation 1 – ensure all required consultation is documented in CMO | Not Compliant | SSD-5850 NC001 |
| STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|-----------------------------|-----|------|---|--|--|-------------------|---|
| | 2 | 18 | <p>With the approval of the Secretary, the Applicant may:</p> <p>(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);</p> <p>(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined);</p> <p>(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and</p> <p>(d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by an adjoining mining consent or approval, in common ownership or management.</p> <p>If the Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.</p> | <p>1. Strategies and plans approved by the secretary</p> <p>2. Consultation undertaken for the strategies and plans.</p> | The auditor sighted consultation with Secretary including a letter of approval regarding plans and updated plans. | Compliant | |
| COMPLIANCE | | | | | | | |
| | 2 | 19 | The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development. | <p>The auditor sighted onsite between 1 and 2 December 2020:</p> <p>1. E. Coms to employees</p> <p>2. E&C Training Packages</p> <p>3. Sighted 1 (one) completed training onsite.</p> | <p>The auditor sighted training packages ensuring Mt Owen Complex employees are made aware of and instructed to comply with the conditions of consent.</p> <p>The auditor sighted and verified a sample of a completed training package. Each employee class and role are different, and the training varies in accordance with the required activity.</p> | Compliant | |
| APPLICABILITY OF GUIDELINES | | | | | | | |
| | 2 | 20 | References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent. | No evidence to the contrary | Noted | Noted | |
| | 2 | 21 | However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them. | No evidence to the contrary | Noted | Noted | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance | | | | | | |
|---|---|------|---|--|---|-------------------|---|-------|--------------------------|---|---|---------------|--|
| CROWN LAND | | | | | | | | | | | | | |
| | 2 | 22 | <p>The Applicant must consult with DPIE – Crown Lands prior to undertaking any development on Crown Land or Crown Roads.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none">• Under section 265 of the Mining Act 1992, the Applicant is required to enter into a compensation agreement with DPIE – Crown Lands prior to undertaking any mining operations or related activities on Crown land or Crown roads within a mining lease.• Under section 141 of the Mining Act 1992, the Applicant is required to enter into an access arrangement with DPIE – Crown Lands prior to undertaking any prospecting operations on Crown land or Crown roads within an exploration licence. | <p>1. Site visit 1-2 December 2020.</p> <p>2. The auditor sighted the consultation with crown lands regarding Travelling Stock Route (T.S.R) as an offset site, in particular from Mitchell Hills – Esparanga Offset site and the Mitchell Hills and North East Offsets.</p> <p>3. Mt Owen Complex</p> <p>Biodiversity Offsets Fauna Monitoring 2017(6 February 2018) by Forest Fauna Surveys Pty Ltd for the Mitchell Hills and North East Offsets.</p> | <p>No development on Crown Land within audit period.</p> <p>The auditor sighted the consultation with crown lands regarding Travelling Stock Route (T.S.R) as an offset site, in particular from Mitchell Hills – Esparanga Offset site and the Mitchell Hills and North East Offsets.</p> <p>Consultation is not completed but close to closed out.</p> <p>This is not finalised though outcomes agreed.</p> | Compliant | | | | | | | |
| SCHEDULE 3 – ENVIRONMENTAL PERFORMANCE CONDITIONS | | | | | | | | | | | | | |
| | 3 | 1 | <p>Upon receiving a written request from the owner of any land listed in Table 1, the Applicant must acquire the land in accordance with the procedures in conditions 5 and 6 of Schedule 4.</p> <p><i>Table 1: Land subject to acquisition upon request</i></p> <table><tr><th>Acquisition Basis</th><th>Land ^a</th></tr><tr><td>Air Quality</td><td>105^b, 114, 115, 116^c, 133^c, 4, 112, 143^d, 150^d, 152^d, 154^d, 155^d, 156^d, Lot 4 DP 1166047^d, Lot 5 DP 1166047^d, Lot 175 DP 1002770^d and Lot 106 DP 855187^d</td></tr><tr><td>Noise</td><td>21, 22^e, 23</td></tr></table> <p><i>a The location of the land referred to in Table 1 is shown on the figure in Appendix 3.</i> <i>b The Applicant is only required to acquire property 105, if its acquisition is not reasonably achievable under the approval for the Rix's Creek North open cut mine.</i> <i>c The Applicant is only required to acquire Lot 31 DP6842 and Lot 2 DP1175728 within property 133.</i> <i>d The Applicant is only required to acquire the identified land if acquisition is not reasonably achievable under the development consents for the Ashton South East Open Cut Project (MP 08_0182), the Glendell Open Cut Coal Mine (DA 80/952), Ravensworth Operations Project (MP 09_0176), Rix's Creek South Continuation of Mining Project (SSD 6300) or the Rix's Creek North Open Cut Project (MP 08_0102).</i> <i>e The identified land has been acquired by the Applicant.</i></p> | Acquisition Basis | Land ^a | Air Quality | 105 ^b , 114, 115, 116 ^c , 133 ^c , 4, 112, 143 ^d , 150 ^d , 152 ^d , 154 ^d , 155 ^d , 156 ^d , Lot 4 DP 1166047 ^d , Lot 5 DP 1166047 ^d , Lot 175 DP 1002770 ^d and Lot 106 DP 855187 ^d | Noise | 21, 22 ^e , 23 | 1. Auditor interviews onsite 1-2 December 2020. | During the audit period there were no written requests from the owners of any land listed in Table 1. | Not Triggered | |
| Acquisition Basis | Land ^a | | | | | | | | | | | | |
| Air Quality | 105 ^b , 114, 115, 116 ^c , 133 ^c , 4, 112, 143 ^d , 150 ^d , 152 ^d , 154 ^d , 155 ^d , 156 ^d , Lot 4 DP 1166047 ^d , Lot 5 DP 1166047 ^d , Lot 175 DP 1002770 ^d and Lot 106 DP 855187 ^d | | | | | | | | | | | | |
| Noise | 21, 22 ^e , 23 | | | | | | | | | | | | |
| ADDITIONAL MITIGATION UPON REQUEST | | | | | | | | | | | | | |
| | 3 | 2 | Upon receiving a written request from the owner of any residence listed in Table 1 or Table 2, the Applicant must implement additional mitigation measures at the residence, in consultation with the landowner, in respect of the basis on which that residence is identified in Table 1 or Table 2. | 1. No written requests from the owners of any residences listed Table 1 or Table 2 in Schedule 3, C2. | During the audit period there have been no written requests from the owner of any residence listed in Table 1 or Table 2 in Schedule 3, c2. | Not Triggered | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance | | | | |
|--|------------------------|------|--|---|---|----------------------|---|--|--|--|--|
| | | | <p>These measures must be reasonable and feasible, and directed towards reducing the air quality and/or noise impacts of the development on the residence. In the case of air quality, mitigation may include measures such as air filters, a first flush drainage system and/or air conditioning. In the case of noise, mitigation may include measures such as double-glazing, insulation and/or air conditioning.</p> <p>If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.</p> <p><i>Table 2: Land subject to additional mitigation upon request</i></p> <table><tr><th>Mitigation Basis</th><th>Residence^a</th></tr><tr><td>Noise</td><td>13, 19, 93</td></tr></table> <p><i>a The location of the land referred to in Table 2 is shown on the figure in Appendix 3.</i></p> | Mitigation Basis | Residence ^a | Noise | 13, 19, 93 | | | | |
| Mitigation Basis | Residence ^a | | | | | | | | | | |
| Noise | 13, 19, 93 | | | | | | | | | | |
| NOISE | | | | | | | | | | | |
| CONSTRUCTION – HEBDEN ROAD AND RAIL LINE WORKS | | | | | | | | | | | |
| | 3 | 3 | <p>The Applicant must manage noise from construction activities associated with the Hebden Road upgrade works and additional rail line, in accordance with the noise management levels defined in Table 2 of the <i>Interim Construction Noise Guideline</i>.</p> <p>The Applicant must also ensure that the combined operational and construction noise from the development does not exceed a level of 5 dB(A) above the daytime operational LAeq(15min) noise criteria in Table 3 during Standard Construction Hours (7 am to 6 pm, Monday to Friday; and 8 am to 1 pm on Saturdays) and does not exceed the evening or night time operational LAeq(15min) noise criteria in Table 3, except where an alternative temporary limit has been approved by the Secretary for specific works or where the Applicant has an agreement with the owner/s of the relevant residence/land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.</p> | <p>1. Noise management Plan</p> <p>2. Complaints register</p> | <p>The auditor sighted the noise management plans and interviewed the Mt Owen Complex staff. No complaints of noise from the construction activities associated with the Hebden Road upgrade works within the audit period.</p> | <p>Compliant</p> | | | | | |
| | 3 | 4 | <p>In seeking an alternative temporary construction noise limit above the levels identified in condition 3, the Applicant must submit a Construction Noise Work Protocol to the Secretary for approval, prior to undertaking the nominated construction works. This protocol must:</p> <p>(a) be prepared to the satisfaction of the Secretary;</p> <p>(b) be prepared in consultation with the EPA and any landowners who may be affected by the proposed variation; and</p> <p>(c) address the relevant requirements of the <i>Interim Construction Noise Guideline</i>.</p> <p>The Applicant may only undertake construction activities that require a Construction Work Noise Protocol, in accordance with an approved Construction Noise Work Protocol as approved from time to time by the Secretary.</p> | | <p>There were no requests to seek alternative noise limits in the audit period.</p> | <p>Not Triggered</p> | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------------------|-------------------|---|--|---|-------------------|---|--------------|----|----|--------------|----|--------|--------------|----|--------|--------------|----|----|--------------|----|-----------------|--------------|----|-----|--------------|----|----|--------------|----|----|--------------|----|--------|--------------|----|-----|--------------|----|-------------------------------------|--------------|----|---|--------------|----|-----------------------------|--------------|----|-----------------------------|--------------|----|------------------------------------|--------------|----|------------------------------------|--------------|----|-----------------------------|--------------|----|----------------------------------|--------------|----|--|--|---------------|-----------------------|
| NOISE CRITERIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 5 | <p>The Applicant must ensure that the noise generated by the development (including rail movements along the Mount Owen Rail Loop, but excluding the construction works specified in condition 3), does not exceed the criteria in Table 3 at any residence on privately-owned land.</p> <p><small>Table 3: Noise criteria dB(A)</small></p> <table><tr><th>Residence^a</th><th>Day / Evening / Night LAeq(15min)</th><th>Night LA(1min)</th></tr><tr><td>41, 48</td><td>36 / 35 / 35</td><td>45</td></tr><tr><td>91</td><td>37 / 37 / 36</td><td>45</td></tr><tr><td>14, 92</td><td>37 / 37 / 37</td><td>45</td></tr><tr><td>10, 11</td><td>37 / 37 / 37</td><td>46</td></tr><tr><td>13</td><td>38 / 38 / 38</td><td>45</td></tr><tr><td>12, 94, 95, 112</td><td>38 / 38 / 38</td><td>46</td></tr><tr><td>111</td><td>39 / 39 / 36</td><td>45</td></tr><tr><td>19</td><td>39 / 39 / 39</td><td>45</td></tr><tr><td>93</td><td>40 / 40 / 40</td><td>46</td></tr><tr><td>21, 23</td><td>41 / 41 / 41</td><td>45</td></tr><tr><td>122</td><td>42 / 42 / 42</td><td>50</td></tr><tr><td>All other residences Area 4 – South</td><td>37 / 37 / 36</td><td>46</td></tr><tr><td>All other residences Area 4 – North and all other residences Area 5</td><td>37 / 37 / 35</td><td>45</td></tr><tr><td>All other residences Area 6</td><td>40 / 40 / 40</td><td>50</td></tr><tr><td>All other residences Area 7</td><td>40 / 40 / 38</td><td>48</td></tr><tr><td>All other residences Area 8 – East</td><td>39 / 39 / 35</td><td>45</td></tr><tr><td>All other residences Area 8 – West</td><td>44 / 44 / 42</td><td>52</td></tr><tr><td>All other residences Area 9</td><td>48 / 48 / 43</td><td>53</td></tr><tr><td>Other privately-owned residences</td><td>35 / 35 / 35</td><td>45</td></tr></table> <p><small>^a The location of the land referred to in Table 3 is shown on the figure in Appendix 3.</small></p> <p>Noise generated by the development is to be measured in accordance with the relevant requirements of the <i>NSW Industrial Noise Policy</i> (as may be updated from time-to-time). Appendix 4 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.</p> <p>However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.</p> | Residence ^a | Day / Evening / Night LAeq(15min) | Night LA(1min) | 41, 48 | 36 / 35 / 35 | 45 | 91 | 37 / 37 / 36 | 45 | 14, 92 | 37 / 37 / 37 | 45 | 10, 11 | 37 / 37 / 37 | 46 | 13 | 38 / 38 / 38 | 45 | 12, 94, 95, 112 | 38 / 38 / 38 | 46 | 111 | 39 / 39 / 36 | 45 | 19 | 39 / 39 / 39 | 45 | 93 | 40 / 40 / 40 | 46 | 21, 23 | 41 / 41 / 41 | 45 | 122 | 42 / 42 / 42 | 50 | All other residences Area 4 – South | 37 / 37 / 36 | 46 | All other residences Area 4 – North and all other residences Area 5 | 37 / 37 / 35 | 45 | All other residences Area 6 | 40 / 40 / 40 | 50 | All other residences Area 7 | 40 / 40 / 38 | 48 | All other residences Area 8 – East | 39 / 39 / 35 | 45 | All other residences Area 8 – West | 44 / 44 / 42 | 52 | All other residences Area 9 | 48 / 48 / 43 | 53 | Other privately-owned residences | 35 / 35 / 35 | 45 | <p>1. Noise monitoring reports from November 2017 to December 2020.</p> <p>2. Annual Review 2017-2019.</p> | <p>No noise exceedances reported within audit period at any residence on privately-owned land.</p> <p>N1 from 17 June 2020 exceeded site criteria and were valid measurements with regard to meteorological conditions, indicating a non-compliance against SSD-5850 noise criteria. As per Section 4.1, Table 4.1 of the NMP, additional noise monitoring was performed on the 24 June 2020 with suitable weather conditions and following DPIE approval for a time extension</p> <p>Recommendation 2 – An internal review of the NMP and operating procedures relating to noise to determine if any improvements can be made and communication to those with responsibility for noise control</p> | Not Compliant | SSD-5850 NC002 |
| Residence ^a | Day / Evening / Night LAeq(15min) | Night LA(1min) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41, 48 | 36 / 35 / 35 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 91 | 37 / 37 / 36 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14, 92 | 37 / 37 / 37 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10, 11 | 37 / 37 / 37 | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 38 / 38 / 38 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12, 94, 95, 112 | 38 / 38 / 38 | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 111 | 39 / 39 / 36 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | 39 / 39 / 39 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 93 | 40 / 40 / 40 | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21, 23 | 41 / 41 / 41 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 122 | 42 / 42 / 42 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 4 – South | 37 / 37 / 36 | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 4 – North and all other residences Area 5 | 37 / 37 / 35 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 6 | 40 / 40 / 40 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 7 | 40 / 40 / 38 | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 8 – East | 39 / 39 / 35 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 8 – West | 44 / 44 / 42 | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other residences Area 9 | 48 / 48 / 43 | 53 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other privately-owned residences | 35 / 35 / 35 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOISE OPERATING CONDITIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 6 | <p>The Applicant must:</p> <p>(a)implement all reasonable and feasible mitigation measures, to minimise the construction, operational, low frequency, road and on-site rail noise of the development, with a particular focus on managing noise impacts during adverse weather conditions;</p> | <p>1. Auditor sighted the Dust Noise Analysis Tool (DNAT) (Umwelt) in operation.</p> <p>2. Noise Management Plan</p> <p>3. Site observations</p> | <p>The auditor sighted the Dust Noise Analysis Tool (DNAT) (Umwelt) in operation during the site visit on 1-2 December 2020. It uses meteorological data and modelling to ensure noise levels are within the criteria.</p> | Compliant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 6 | <p>(b) identify any mobile plant or equipment (other than light vehicles) that will operate in noise sensitive areas (i.e. areas with the potential to generate increased noise at privately-owned residences, such as areas near the boundary of the site or elevated land/overburden emplacements) and ensure that this mobile plant or equipment is fitted with reasonable and feasible noise attenuation within 12 months of commencing development under this consent;</p> | <p>1. Noise Management Plan.</p> <p>2. Site observations</p> <p>3. Complaints register</p> <p>4 Incidents register</p> | <p>Monitoring and complaints have not identified an issue with loud equipment. Site has identified areas where loud equipment presents a risk of impacts to residents. All equipment (mobile) is tested top ensure it is within the levels used for EIS noise modelling</p> | Not Triggered | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|-----------------------|-----|------|---|---|--|-------------------|---|
| | | | | | and operations are adjusted in adverse conditions. To date, there has not been a need to modify equipment as noted in this condition. | | |
| | 3 | 6 | (c)operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent; | See Schedule 3, Condition 6a) | See Schedule 3, Condition 6a) | Compliant | |
| | 3 | 6 | (d)minimise the noise impacts of the development during meteorological conditions when the noise limits in this consent do not apply (see Appendix 4); | See Schedule 3, Condition 6a) | See Schedule 3, Condition 6a) | Compliant | |
| | 3 | 6 | (e)ensure that the Mount Owen Rail Loop is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL; | 1. Auditor sighted email stating the Mount Owen Rail Loop is only accessed by approved locomotives. | The auditor sighted an email during the December 2020 site visit that states the Mount Owen Rail Loop is only accessed by ARTC approved locomotives. MGO do not have any control of the operation of the locomotives on the Mt Owen Rail Loop, this lies with ARTC. | Not Triggered | |
| | 3 | 6 | (f)use reasonable endeavours to ensure that rolling stock is selected to minimise noise; | 1. Auditor sighted email stating the Mount Owen Rail Loop is only accessed by approved locomotives. | The auditor sighted an email during the December 2020 site visit that states the Mount Owen Rail Loop is only accessed by ARTC approved locomotives. MGO do not have any control of the operation of the locomotives on the Mt Owen Rail Loop, this lies with ARTC. | Not Triggered | |
| | 3 | 6 | (g)use its best endeavours to co-ordinate noise management with nearby mines (ie. Glendell, Integra Underground and Rix's Creek North Mines) to reasonably and feasibly minimise cumulative noise impacts; and | 1 Auditor sighted onsite ¼ LV Meeting Minutes for Q1 to Q3 2020 including Noise. | The auditor sighted onsite the ¼ LV Meeting Minutes for Q1 to Q3 2020 including Noise which included the coordination of noise management with nearby mines. | Compliant | |
| | 3 | 6 | (h)engage a suitably qualified and experienced person ^a to carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of this consent. ^a In this condition a 'suitably qualified and experienced person' means a member of the Australian Acoustical Society, the Association of Australian Acoustical Consultants, or an appropriately qualified person whose appointment has been endorsed by the EPA. | 1. Auditor sighted monitoring reports that were conducted by, a suitably qualified personnel at Umwelt and provided monitoring reports. | The auditor sighted the monitoring reports in which both the monitoring and the report are undertaken by suitably qualified consultants from Umwelt. | Complaint | |
| NOISE MANAGEMENT PLAN | | | | | | | |
| | 3 | 7 | The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: | 1. Noise Management Plan February 2019. Sections 2, 3 and 4 specifically | The auditor sighted the Noise Management Plan February 2019 and deemed it to be sufficient including the system, monitoring program, protocol distinguishing noise | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|-------------------|-----|------|--|---|---|-------------------|---|
| | | | <p>(a)be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b)describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this consent;</p> <p>(c)describe the noise management system in detail; and</p> <p>(d)include a monitoring program that:</p> <ul style="list-style-type: none"> evaluates and reports on: <ul style="list-style-type: none"> the effectiveness of the noise management system; compliance with the noise criteria in this consent; and compliance with the noise operating conditions; includes a program to validate the real-time noise monitoring results with the attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria in this consent and a trigger for further attended monitoring); includes a protocol for distinguishing noise emissions of the development from any neighbouring developments; and includes a protocol for identifying a noise-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events. <p>The Applicant must implement the Noise Management Plan as approved by the Secretary.</p> | 2. DPIE Letter dated 17.01.2017 referring to Mt Owen Complex correspondence of 9 to 13 October 2017 for submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans. | <p>emissions from neighbouring developments and identifying a noise related exceedance and for notifying the Department and relevant stakeholders of the events.</p> <p>The management plans including the noise management plan were sent via email from Mt Owen Complex to DPIE for approval. Approval from DPIE was received on 17.01.2017 via email from DPIE to Mt Owen Complex.</p> | | |
| BLASTING CRITERIA | | | | | | | |
| | 3 | 8 | The Applicant must ensure that blasting on site does not cause exceedances of the criteria in Table 4. | <p>1. Non-compliance summary in Annual Reviews 2017-2019.</p> <p>2. DPIE letters of non-compliance with air quality</p> | There was no evidence of exceedances of the criteria in Table 4 from blasting at the site. | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------------|-------------------------|--|--|--|-------------------------|---|--|-----|----|----|-----|---|---|-----------------------------------|--|--|--|--------------------|-----|---|----|-----|---|---|-----------------------|-----|---|----|--------------------|-----|----|----|-----------------------------|-----|---|----|-----------------------------|---|----|----|----------------------|---|-----|----|----------------|--|--|--|---|---|----|----|------------------------------|---|----|----|--------------------------------------|---|----|----|---------------------------|---|-----|----|--|---|------------------------|----|--|---|------------------------|----|--|---|----|----|--|--|--|--|
| | | | <div>Table 4: Blasting criteria</div> <table><thead><tr><th>Location</th><th>Airblast overpressure (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr></thead><tbody><tr><td rowspan="2">Residence on privately-owned land ^a</td><td>120</td><td>10</td><td>0%</td></tr><tr><td>115</td><td>5</td><td>5% of the total number of blasts over a calendar year</td></tr><tr><td colspan="4">Historic buildings and structures</td></tr><tr><td rowspan="2">St Clements Church</td><td>120</td><td>5</td><td>0%</td></tr><tr><td>115</td><td>2</td><td>5% of the total number of blasts over a calendar year</td></tr><tr><td>Ravensworth Homestead</td><td>126</td><td>5</td><td>0%</td></tr><tr><td>Chain of Ponds Inn</td><td>133</td><td>10</td><td>0%</td></tr><tr><td>Kangory (Dulwich) Homestead</td><td>126</td><td>5</td><td>0%</td></tr><tr><td>Former Hebden Public School</td><td>-</td><td>16</td><td>0%</td></tr><tr><td>John Winter Memorial</td><td>-</td><td>250</td><td>0%</td></tr><tr><td colspan="4">Infrastructure</td></tr><tr><td>Electricity transmission lines ^b</td><td>-</td><td>50</td><td>0%</td></tr></tbody></table> <table><tbody><tr><td>Prescribed dams ^c</td><td>-</td><td>50</td><td>0%</td></tr><tr><td>Main Northern Rail Line ^b</td><td>-</td><td>25</td><td>0%</td></tr><tr><td>Public roads ^b</td><td>-</td><td>100</td><td>0%</td></tr><tr><td>Integra Underground Mine's surface facilities ^d</td><td>-</td><td>25 or 100 ^e</td><td>0%</td></tr><tr><td>Integra Underground Mine's underground workings ^d</td><td>-</td><td>10 or 250 ^f</td><td>0%</td></tr><tr><td>All other public infrastructure ^b</td><td>-</td><td>50</td><td>0%</td></tr></tbody></table> <div><p>^a Unless otherwise agreed with the relevant owner/s of the residence, and the Applicant has advised the Department in writing of the terms of this agreement.</p><p>^b Unless otherwise agreed with the relevant infrastructure provider or owner, and the Applicant has advised the Department in writing of the terms of this agreement.</p><p>^c Unless otherwise agreed to by the Dam Safety Committee, and the Applicant has advised the Department in writing of the terms of this agreement.</p><p>^d Unless otherwise agreed to by the relevant infrastructure owner and the Secretary (in writing).</p><p>^e 25 mm/s for occupied non-sensitive sites (e.g. factories or commercial premises) or 100 mm/s for unoccupied structures of reinforced concrete or steel construction.</p><p>^f 10 mm/s safety and personnel withdrawal limit for occupied underground workings and 250 mm/s structural limit for unoccupied workings.</p></div> | Location | Airblast overpressure (dB(Lin Peak)) | Ground vibration (mm/s) | Allowable exceedance | Residence on privately-owned land ^a | 120 | 10 | 0% | 115 | 5 | 5% of the total number of blasts over a calendar year | Historic buildings and structures | | | | St Clements Church | 120 | 5 | 0% | 115 | 2 | 5% of the total number of blasts over a calendar year | Ravensworth Homestead | 126 | 5 | 0% | Chain of Ponds Inn | 133 | 10 | 0% | Kangory (Dulwich) Homestead | 126 | 5 | 0% | Former Hebden Public School | - | 16 | 0% | John Winter Memorial | - | 250 | 0% | Infrastructure | | | | Electricity transmission lines ^b | - | 50 | 0% | Prescribed dams ^c | - | 50 | 0% | Main Northern Rail Line ^b | - | 25 | 0% | Public roads ^b | - | 100 | 0% | Integra Underground Mine's surface facilities ^d | - | 25 or 100 ^e | 0% | Integra Underground Mine's underground workings ^d | - | 10 or 250 ^f | 0% | All other public infrastructure ^b | - | 50 | 0% | | | | |
| Location | Airblast overpressure (dB(Lin Peak)) | Ground vibration (mm/s) | Allowable exceedance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residence on privately-owned land ^a | 120 | 10 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 115 | 5 | 5% of the total number of blasts over a calendar year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Historic buildings and structures | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| St Clements Church | 120 | 5 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 115 | 2 | 5% of the total number of blasts over a calendar year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ravensworth Homestead | 126 | 5 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chain of Ponds Inn | 133 | 10 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kangory (Dulwich) Homestead | 126 | 5 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Former Hebden Public School | - | 16 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| John Winter Memorial | - | 250 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infrastructure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity transmission lines ^b | - | 50 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prescribed dams ^c | - | 50 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Main Northern Rail Line ^b | - | 25 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Public roads ^b | - | 100 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Integra Underground Mine's surface facilities ^d | - | 25 or 100 ^e | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Integra Underground Mine's underground workings ^d | - | 10 or 250 ^f | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other public infrastructure ^b | - | 50 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLASTING HOURS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 9 | The Applicant must only carry out blasting on site between 9 am and 5 pm (Monday to Saturday inclusive), with the exception of an allowable maximum of 12 blasts in a calendar year which may be undertaken between 7 am and 9 am (Monday to Saturday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the agreement of the Secretary. | 1. Mt Owen Complex Monthly Monitoring Reports 2017-2020. 2. Monthly Monitoring Reports 2017-2020. | The auditor sighted the blast monitoring records on the website and confirmed blasting hours were compliant. | Compliant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLASTING FREQUENCY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 10 | The Applicant may carry out a maximum of: | See Sch 3, C9. | See Sch 3, C9. | Compliant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>(a) 2 blasts a day at the Ravensworth East Mine;</p> <p>(b) 2 blasts a day at the Mount Owen Mine;</p> <p>(c) 5 blasts a week at the Ravensworth East Mine, averaged over a calendar year; and</p> <p>(d) 8 blasts a week at the Mount Owen Mine, averaged over a calendar year.</p> <p>This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence</p> <p>on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers</p> <p>or the general public.</p> <p>Notes:</p> <p>• For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual</p> <p>blasts fired in quick succession in a discrete area of the mine.</p> <p>• For the avoidance of doubt, should an additional blast be required after a blast misfire, this additional blast and</p> <p>the blast misfire are counted as a single blast, for the purpose of calculating the maximum number of daily and</p> <p>weekly blasts under this condition.</p> | | | | |
| PROPERTY INSPECTIONS | | | | | | | |
| | 3 | 11 | <p>If the Applicant receives a written request from the owner of any privately-owned land within 3 kilometres</p> <p>of any approved open cut mining pit on site for a property inspection to establish the baseline condition</p> <p>of any buildings and/or structures on his/her land, or to have a previous property inspection updated,</p> <p>then within 2 months of receiving this request the Applicant must:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to:</p> | <p>1. The auditor sighted Inter-mine meeting minutes</p> <p>2. Arkhill Engineers appointment by Mt Owen Complex.</p> | <p>The auditor sighted Inter-mine meeting minutes which satisfies Sch 3 C11.</p> <p>Arkhill Engineers were commissioned for this building and structure inspection activity who are suitably qualified to undertake inspection.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <ul style="list-style-type: none"> establish the baseline condition of any buildings and other structures on the land, or update the previous property inspection report; and identify measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and/or structures; and | | | | |
| | 3 | 11 | (b) give the landowner a copy of the new or updated property inspection report. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property inspection report, either party may refer the matter to the Secretary for resolution. | 1. Registered Australia Post stickers for the provided copy of the property inspection report. | The auditor sighted registered post stickers for the provided copy of the property inspection report. | Compliant | |
| PROPERTY INVESTIGATIONS | | | | | | | |
| | 3 | 12 | If the owner of any privately-owned land within 3 kilometres of any approved open cut mining pit on site claims that buildings and/or structures on his/her land have been damaged as a result of blasting on the site, then within 2 months of receiving this claim the Applicant must: (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and (b) give the landowner a copy of the property investigation report. If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damage to the satisfaction of the Secretary. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution. | 1. Site interviews 2. Complaints register 3. Incidents register | No claims of damage from owners of privately owned land within 3km of the approved open cut pit. | Compliant | |
| | 3 | 13 | The Applicant must: (a) implement all reasonable and feasible measures to: <ul style="list-style-type: none"> protect the safety of people and livestock from blasting impacts in the areas surrounding blasting operations; protect public or private infrastructure/property in the surrounding area from damage from blasting operations; minimise blasting impacts on the Main Creek alluvial aquifer; | 1. Creeks and diversion monitoring within 200m sighted onsite by auditor 2. Highwall monitoring geotechnical report sighted by auditor onsite. 3. Auditor sighted evidence list of SMS messages sent to members of the public that have registered to be notified of blasting schedule and associated public road closures for that day. | The auditor sighted the creeks and diversion monitoring was within 200m and was also confirmed by the highwall monitoring (geotechnical report); (b) Annual Returns were sighted by auditor and no reports of damage from vibration to heritage items from blasting or mine activities. | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|-----------------------|-----|------|---|---|--|-------------------|---|
| | | | <ul style="list-style-type: none"> • minimise the dust and fume emissions of any blasting; (b) ensure that blasting on the site does not damage heritage items, and develop specific measures to protect the Ravensworth Homestead, Chain of Ponds Inn, Kangory (Dulwich) Homestead, Former Hebden Public School and John Winter Memorial from any blasting damage associated with the development; (c) minimise the frequency and duration of any road closures, and use all reasonable efforts to avoid road closures for blasting during peak traffic periods; (d) operate a suitable system to enable members of the public to get up-to-date information on the proposed blasting schedule on site and associated road closures, including, on request, notification via SMS message of the blasting schedule and associated public road closures for that day and any variations to that schedule and closures; (e) use all reasonable endeavours to co-ordinate the timing of blasting at the site with any nearby mines (including the Glendell and Rix's Creek North Mines) to minimise cumulative blasting impacts; and (f) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent. <p><i>Note:</i></p> <ul style="list-style-type: none"> • For the location of the heritage items referred to in paragraph (b) above, refer to Appendix 6 | <p>4. Blast package MGO Operations template from 19 November 2020 lists the mines surrounding and their blasting time for the day.</p> <p>5. Annual Returns</p> | <p>(c) There has not been blasting occur within 500 m of a public road within the audit period.</p> <p>(d) SMS messages are sent to members of the public that have opted for the notification service.</p> <p>(e) Blast package MGO Operations template from 19 November 2020 lists the mines surrounding and their blasting time for the day.</p> <p>(f) Monitors are in working condition and data is reported in the monthly monitoring reports.</p> | | |
| | 3 | 14 | <p>The Applicant must not undertake blasting on site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the Applicant has:</p> <p>(a) a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the infrastructure or land, and the Applicant has advised the Department in writing of the terms of this agreement; or</p> <p>(b) demonstrated to the satisfaction of the Secretary that the blasting can be carried out closer to the infrastructure or land without compromising the safety of people or livestock or damaging the infrastructure and/or other buildings and structures, and the Secretary has approved an updated Blast Management Plan that includes specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the infrastructure or land.</p> | | No blasting within 500 m of public roads or land outside the site not owned by the Applicant has occurred during the audit period. | Not Triggered | |
| BLAST MANAGEMENT PLAN | | | | | | | |
| | 3 | 15 | <p>The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> | <p>1. DPIE Letter dated 17.01.2017 referring to Mt 1. Owen Complex correspondence of 9 to 13 October 2017 for submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans.</p> | <p>The auditor sighted the letter from DPIE approving the revised plans on date 17.01.2017.</p> <p>The auditor sighted in the Blast Management Plan measures to be implemented to ensure compliance with criteria and conditions in the consent via Appendix A. However, a blast was fired on 5 September 2018 while the</p> | Not Compliant | SSD-5850 NC003 |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>(b) describe the measures that will be implemented to ensure compliance with the blast criteria and operating conditions of this consent;</p> <p>(c) include a road closure management plan for blasting within 500 metres of a public road, that has been prepared in consultation with applicable roads authorities and includes provisions for:</p> <ul style="list-style-type: none"> • notifying relevant roads authorities of any planned public road closures; • minimising the duration of closures, both on a per event basis and weekly basis; • avoiding peak traffic periods as far as practicable; and • coordinating with neighbouring mines to minimise the cumulative effect of road closures; <p>(d) propose and justify any agreed alternative ground vibration limits for public infrastructure in the vicinity of the site (if relevant);</p> <p>(e) include an agreed strategy for the management of potential blast interactions within 500 metres of any approved and/or developed underground workings for the Integra Underground Mine, and includes details of:</p> <ul style="list-style-type: none"> • systems for the prior and timely notification of scheduled blasting and subsidence activities; • personnel evacuation and safety protocols for specific blast events; and • procedures and protocols for managing the interaction of the two mines; and <p>(f) include a monitoring program for evaluating and reporting on compliance with the blasting criteria and operating conditions of this consent.</p> <p>The Applicant must implement the Blast Management Plan as approved by the Secretary.</p> | <p>2. Blast Management Plan Version 5.0 Effective 22/04/2020,</p> <p>3. Blast Management Plan Version 5.0 Approved by DPIE in letter 22/04/2020.</p> <p>4. Reporting of noncompliance</p> | <p>MOC 1 Blast monitor was offline being serviced. Resulted in a failure to monitor which is a non-compliance with the approved MOC Blast Management Plan (b) is therefore non-compliant, road closure plan has not been prepared as the blasts are not within 500m of a public road, so this is Not Compliant (c), there are no agreed alternative ground vibration limits for public infrastructure within the audit period, therefore (d) is not triggered, section 3.2.3 of the Blast Management Plan provides the strategy for Integra Underground e), the monitoring program is provided in section 4.1 of the Blast Management Plan (f).</p> <p>Recommendation 3: Ensure Preblast procedures are compliant with the Blast MP and the approvals and reinforce with training the timing requirements of the BMP and approvals.</p> <p>Recommendation 4 – The condition is explicit in requiring a Road Closure plan however mine plans indicate that this will not be required in life of mine. MGO should seek permission from DPIE to forego the requirement for a road closure plan.</p> | | |
| AIR QUALITY | | | | | | | |
| AIR QUALITY CRITERIA | | | | | | | |
| | 3 | 16 | <p>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 5, 6 and 7 at any residence on privately-owned land, except for the residences shown in Table 1 as being eligible for acquisition on request on the basis of air quality impacts.</p> | <p>1. Annual Reviews 2017-2019</p> <p>2. Auditor sighted the action and response to non-compliance in the 2018.</p> <p>3. Notification sighted by Auditor to DPIE and no further action was required.</p> | <p>The Auditor reviewed the 2018 Annual Review and noted a non-compliance with table 6, short term impact assessment criteria.</p> <p>PM₁₀ dust monitor Sx10-G2 recorded a project specific result of 50.6 µg/m³ on 24 July 2018. This exceeded the short-term impact assessment criterion of 50 µg/m³ for PM₁₀.</p> <p>Auditor sighted the action and response to non-compliance in the 2018 Annual Return</p> | Not compliant | SSD-5850 NC004 |

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| | | | <p>Table 5: Long term impact assessment criteria for particulate matter</p> <table><tr><th>Pollutant</th><th>Averaging Period</th><th>^d Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>^a90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>^a25 µg/m³</td></tr><tr><td>Particulate matter < 2.5 µm (PM_{2.5})</td><td>Annual</td><td>^a8 µg/m³</td></tr></table> <p>Table 6: Short term impact assessment criterion for particulate matter</p> <table><tr><th>Pollutant</th><th>Averaging Period</th><th>^d Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM10)</td><td>24 hour</td><td>^b50 µg/m³</td></tr><tr><td>Particulate matter < 2.5 µm (PM2.5)</td><td>24 hour</td><td>^b25 µg/m³</td></tr></table> <p>Table 7: Long term impact assessment criteria for deposited dust</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>^c Deposited dust</td><td>Annual</td><td>^b 2 g/m²/month</td><td>^a 4 g/m²/month</td></tr></table> <p>Tables 5-7: ^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources). ^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own). ^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method. ^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed to by the Secretary.</p> <p>For the purposes of this condition, 'reasonable and feasible avoidance and mitigation measures' includes, but is not limited to, the requirements in conditions 18 and 19 to develop and implement a real time air quality management system that ensures effective operational response to the risk of exceedance of the criteria.</p> | Pollutant | Averaging Period | ^d Criterion | Total suspended particulate (TSP) matter | Annual | ^a 90 µg/m ³ | Particulate matter < 10 µm (PM ₁₀) | Annual | ^a 25 µg/m ³ | Particulate matter < 2.5 µm (PM _{2.5}) | Annual | ^a 8 µg/m ³ | Pollutant | Averaging Period | ^d Criterion | Particulate matter < 10 µm (PM10) | 24 hour | ^b 50 µg/m ³ | Particulate matter < 2.5 µm (PM2.5) | 24 hour | ^b 25 µg/m ³ | Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level | ^c Deposited dust | Annual | ^b 2 g/m ² /month | ^a 4 g/m ² /month | | <p>by MGO and noting MGO conducted extensive action taken 24 hours prior to the exceedance to minimise generation from the north pit and Bayswater operations.</p> <p>Notification sighted by Auditor to DPIE and no further action was required.</p> <p>Recommendation 5 – Ensure compliance with the AQMP and approvals requirements when managing air quality. Review training needs and retrain if required.</p> | | |
| Pollutant | Averaging Period | ^d Criterion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total suspended particulate (TSP) matter | Annual | ^a 90 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 10 µm (PM ₁₀) | Annual | ^a 25 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 2.5 µm (PM _{2.5}) | Annual | ^a 8 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pollutant | Averaging Period | ^d Criterion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 10 µm (PM10) | 24 hour | ^b 50 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 2.5 µm (PM2.5) | 24 hour | ^b 25 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ^c Deposited dust | Annual | ^b 2 g/m ² /month | ^a 4 g/m ² /month | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MINE OWNED LAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 17 | <p>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 5, 6 and 7 at any occupied residence on mine-owned land (including land owned by another mining company) unless:</p> <p>(a) the tenant and landowner (if the residence is owned by another mining company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under Schedule 4 of this consent;</p> <p>(b) the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice;</p> <p>(c) air quality monitoring is regularly undertaken to inform the tenant or landowner (if the residence is owned by another mining company) of the likely particulate emissions at the residence; and</p> | <p>Auditor sighted</p> <p>1. NSW Health “Mine Dust and You” information sheet evidence of sent out to occupied residences.</p> <p>2. Annual Reviews 2017-2019</p> <p>3. Air quality data in Annual Reviews 2017-2019</p> <p>4.Environmental monitoring system.</p> | <p>a) Auditor sighted and confirms that the NSW Health “Mine Dust and You” information sheet was sent, confirmed onsite in the compliance register and in the previous audit period.</p> <p>b) No recorded tenant termination of their tenancy agreement or disputes during the audit period.</p> <p>c) The air quality monitoring network is appropriately designed and operated and is reflective of nearest residential receptors, including mine owned receptors.</p> <p>d) Data has been from the environmental monitoring repository can be extracted in a suitable form to address this condition as required.</p> | Compliant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | (d) data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property. | | The MOC response to this requirement is also documented within Sections 3 and 4.1 of the approved AQMP (DR, 2018). | | |
| AIR QUALITY OPERATING CONDITIONS | | | | | | | |
| | 3 | 18 | <p>The Applicant must:</p> <p>(a) implement all reasonable and feasible measures to minimise the odour, fume, spontaneous combustion and dust (including PM10 and PM2.5) emissions of the development, including through the proactive and reactive management for all emission sources (crustal and combustion);</p> <p>(b) minimise visible air pollution generated by the development;</p> <p>(c) minimise to the greatest extent practicable, the extent of potential dust generating surfaces exposed on the site at any given point in time;</p> <p>(c1) take all reasonable steps to improve energy efficiency and reduce greenhouse gas emissions from the development;</p> <p>(d) operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;</p> <p>(e) install and operate a weather station with a 10 m high tower, located approximately between or at either dust monitoring stations SX9 and SX10, for use in managing potential air quality impacts to receivers situated to the south-east of the development;</p> <p>(f) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Noted above under Tables 5-7);</p> <p>(g) co-ordinate air quality management on site with the air quality management at nearby mines (ie. Glendell and Rix's Creek North mines) to minimise cumulative air quality impacts; and</p> <p>(h) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, and report on this in the annual review referred to in condition 5 of Schedule 5.</p> | <p>1. Auditor sighted onsite.</p> <p>2. Auditor sighted DPIE notice for dust event on 16 August 2019.</p> | <p>a) and b) Auditor sighted the DPIE Penalty Notice for the event on 16 August 2019 "Mt Owen has failed to comply with Schedule 3, Condition 18 (a) and (b) of SSD-5850 (the consent) for the Mt Owen Open Cut".</p> <p>c) The Auditor sighted onsite the Air Quality Management Plan and onsite watercarts to suppress dust.</p> <p>d) The Auditor sighted the DNAT which provides predictive forecasting.</p> <p>e) Auditor sighted the weather station in working and in good condition onsite in December 2020.</p> <p>f) Auditor sighted DNAT and discussed how MGO manages to minimise air quality impacts through use of water sprays and timing of blasting.</p> <p>g) Auditor sighted meeting minutes discussing air quality management with the mines in the surrounding area.</p> <p>h) Monitoring is reported monthly of Blasting, Depositional Dust per month, Total Suspended Particulates measured every 6 days, PM10 measured daily.</p> <p>Repeat Recommendation 5</p> | Not Compliant | SSD-5850 NC005 |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| AIR QUALITY AND GREENHOUSE GAS MANAGEMENT PLAN | | | | | | | |
| | 3 | 19 | <p>The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b) describe the method for the selection of a suitable site and installation timeframe for the weather station to be located approximately between, or at either dust monitoring stations SX9 and SX10;</p> <p>(c) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;</p> <p>(d) describe the air quality management system in detail;</p> <p>(e) include an initial baseline estimate of the emissions of PM2.5 from all diesel engines used for the development; and</p> <p>(f) include an air quality monitoring program that:</p> <ul style="list-style-type: none"> adequately supports the air quality management system; evaluates and reports on the: <ul style="list-style-type: none"> the effectiveness of the air quality management system; compliance with the air quality criteria; compliance with the air quality operating conditions; and defines what constitutes an air quality incident, and includes a - protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents. <p>The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Secretary.</p> | <p>1. Auditor sighted DPIE Secretary approval of the plan via letter dated 02/12/2020</p> <p>2. Consultation and approval from NSW EPA via letter dated 16 March 2020.</p> <p>3. AQGGMP</p> | <p>Auditor sighted Secretary approval of the plan via letter dated 02/12/2020.</p> <p>a) Consultation and approval from NSW EPA via letter dated 16 March 2020.</p> <p>(b) Section 4.1 of the</p> <p>Air Quality and greenhouse gas management plan (AQGGMP) version 5.0 details the three (3) 10 metre tower weather stations, Sentinex 13 (M1), Sentinex 13 (M2) and Sentinex 13 (M8), located to the, west, south-east and north-west of the active mining areas respectively.</p> <p>Sentinex 13 (M2) was installed to the southeast of the active mining area of the Mt Owen North Pit (refer to Figure 4.1) on 21 June 2017.</p> <p>(c) Section 4.1 of the AQGGMP satisfies this condition.</p> <p>(d) Section 4.1 of the AQGGMP satisfies this condition.</p> <p>(e) Section 3.5 of the AQGGMP satisfies this Condition.</p> <p>(f) Section 4 of the AQGGMP satisfies this Condition.</p> <p>The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Secretary is provided as evidence via letter from DPIE in Appendix C dated 02/12/2020.</p> | Compliant | |
| METEOROLOGICAL MONITORING | | | | | | | |
| | 3 | 20 | <p>Prior to the commencement of development, the Applicant must ensure that there is a meteorological station in the vicinity of the site that:</p> | <p>1. Auditor sighted weather station during site audit 1-2 December 2020.</p> | <p>(a) AQGGMP Section 4.1 satisfies the requirement.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>(a) complies with the requirements in the <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> guideline; and</p> <p>(b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the <i>NSW Industrial Noise Policy</i>, unless a suitable alternative (such as wind stability classes) is approved by the Secretary following consultation with the EPA.</p> | 2. AQGGMP version 5. | (b) AQGGMP Section 4.1 satisfies the requirement. | | |
| WATER | | | | | | | |
| WATER SUPPLY | | | | | | | |
| | 3 | 21 | <p>The Applicant must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations on site to match its available water supply.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain all necessary water licences for the development <i>prior to water take occurring</i>. The Applicant should consult with <i>DPIE Water</i> regarding the licensing requirements for the final landform and any associated impacts on the Bowmans Creek and Glennies Creek catchments. | <p>1. Auditor sighted water licences</p> <p>2. Auditor sighted Annual Review 2017-2019.</p> <p>3. Groundwater Management and Monitoring Plan</p> <p>4. Surface Water Management and Monitoring Plan</p> | <p>Water excess is transferred across the sites in accordance to the required water usage. The Annual Reviews 2017-2019 have been reviewed by the auditor and confirms no published non-compliance with exceeding licences.</p> <p>Secretary satisfaction from DPIE letter dated 02/10/2020 for the Surface Water Management and Monitoring Program.</p> <p>Groundwater Management Plan provided an assessment of compliance with the conditions of groundwater licences (refer Section 1.3.1.3); a summary of impact on monitoring bores, new bores or pits constructed during the year (Section 1.3.1.3).</p> | Compliant | |
| COMPENSATORY WATER SUPPLY | | | | | | | |
| | 3 | 22 | <p>The Applicant must provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than a negligible impact) as a result of the development, in consultation with <i>DPIE Water</i>, and to the satisfaction of the Secretary.</p> <p>The compensatory water supply measures must provide an alternative long term supply of water that is equivalent, in quality and volume, to the loss attributable to the development. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.</p> <p>If the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.</p> <p>If the Applicant is unable to provide an alternative long term supply of water, then the Applicant must provide compensation to the satisfaction of the Secretary.</p> | No evidence of water loss by private land owners around the site was provided to the auditors nor observed. | Not Triggered | Not Triggered | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <i>Note: The Water Management Plan (see condition 26) is required to include trigger levels for investigating potentially adverse impacts on water supplies.</i> | | | | |
| WATER POLLUTION | | | | | | | |
| | 3 | 23 | <p>Unless an EPL or the EPA authorises otherwise, the Applicant must comply with Section 120 of the POEO Act.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> • The Applicant is required to obtain any necessary approvals or licences under the EP&A Act, POEO Act and/or Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002 prior to discharging water or tailings off-site via the GRAWTS. • The Applicant is required to comply with the relevant provisions of the POEO Act in relation to any unauthorised discharges. | <p>1. Annual Reports</p> <p>2. Annual Returns</p> | <p>No discharges of the MGO site, Annual Returns reviewed.</p> <p>MGO utilises the Hunter River Salinity Trading Scheme (HRSTS) and shares water within other Glencore owned sites. The site with a HRSTS a licence to discharge is not within the consolidated consents for this audit.</p> <p>MGO does not have an active discharge point. Water is transferred to other sites as part of the GRAWTS where discharges may occur under given conditions. Mt Owen credits would be transferred to the relevant discharge site if discharge was to occur.</p> | Compliant | |
| CREEK DIVERSIONS | | | | | | | |
| | 3 | 24 | The Applicant must construct, maintain and rehabilitate any approved creek diversions associated with the development, including the diversions of Bettys Creek around the Eastern Rail Pit and into Main Creek, to the satisfaction of the Secretary. | Site Inspection and Assessment | <p>The Lower Bettys Creek diversion remains stable, well grassed and trees continue to develop. The northern plug area has been cleaned up since last audit and minimal rill erosion was evident. The batters of the Bettys Creek upstream diversion were revegetating well with the establishment of both grasses for surface stabilisation and dense tree coverage for deeper batter stabilisation. (Photos 1-4)</p> <p>Overall the diversions appear well constructed and maintained. There was some minor rill erosion noted on the upstream diversion at the base of the batter where jute mesh appears to have washed. This should be monitored and repaired as required.</p> | Compliant | |
| WATER MANAGEMENT PERFORMANCE MEASURES | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------|---|----------|--|----------------------------|--|--|--|--|--|--|---|---------------|---|---------------------|---|-------------------|---|-------------------------|---|----------------------------------|---|---|---|---------------------------------|---|---|---|---------------|----------------|
| | 3 | 25 | <p>The Applicant must comply with the performance measures in Table 8.</p> <p><i>Table 8: Water management performance measures</i></p> <table><tr><th>Feature</th><th>Performance Measure</th></tr><tr><td>Water management – General</td><td><ul style="list-style-type: none">Minimise the use of clean water on siteMinimise the need for make-up water from external supplies (other than the GRAWTS)</td></tr><tr><td>Main, Glennies and Bowmans Creek alluvial aquifers</td><td><ul style="list-style-type: none">Negligible environmental consequences to the alluvial aquifer as a result of the development, including:<ul style="list-style-type: none">negligible change in groundwater levels;negligible change in groundwater quality; andnegligible impact to other groundwater users, beyond those predicted in the documents listed in condition 2(a) of Schedule 2.</td></tr><tr><td>Construction and operation of infrastructure</td><td><ul style="list-style-type: none">Design, install and maintain erosion and sediment controls generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction</i> including <i>Volume 1</i>, <i>Volume 2A – Installation of Services</i>, <i>Volume 2C – Unsealed Roads</i>, <i>Volume 2D – Main Road Construction</i> and <i>Volume 2E Mines and Quarries</i>Design, install and maintain any infrastructure within 40 metres of watercourses generally in accordance with the <i>Guidelines for Controlled Activities on Waterfront Land (2007)</i>, or its latest versionDesign, install and maintain any creek crossings generally in accordance with the <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (NSW Fisheries, 2003) and <i>Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings</i> (NSW Fisheries 2003), or their latest versions</td></tr><tr><td>Clean water diversion & storage infrastructure</td><td><ul style="list-style-type: none">Design, install and maintain the clean water system to convey the 100 year 24 hour ARI eventMaximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site</td></tr><tr><td>Sediment dams</td><td><ul style="list-style-type: none">Design, install and maintain the dams generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction – Volume 1</i> and <i>Volume 2E Mines and Quarries</i></td></tr><tr><td>Mine water storages</td><td><ul style="list-style-type: none">Design, install and maintain mine water storage infrastructure to ensure no discharge of mine water to the off-site environmentOn-site storages (including mine infrastructure dams, groundwater storage and treatment dams) are suitably designed, installed and maintained (including to minimise permeability)Ensure adequate freeboards within all pit voids at all times to minimise the risk of discharge to surface waters</td></tr><tr><td>Tailings storages</td><td><ul style="list-style-type: none">Design and maintain tailings storage areas to encapsulate and prevent the movement of tailings seepage/leachate offsite</td></tr><tr><td>Overburden emplacements</td><td><ul style="list-style-type: none">Design, install and maintain emplacements to encapsulate and prevent migration of tailings, acid forming and potentially acid forming materials, and saline and sodic materialDesign, install and maintain out-of-pit emplacements to prevent and/or manage long term saline seepage</td></tr><tr><td>Chemical and hydrocarbon storage</td><td><ul style="list-style-type: none">Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standards</td></tr><tr><td>Creek realignment and restoration works</td><td><ul style="list-style-type: none">Diverted creek lines are hydraulically and geomorphologically stableIncorporate erosion control measures based on vegetation and engineering revetmentsIncorporate persistent/permanent pools for aquatic habitatRevegetate with suitable native species</td></tr><tr><td>Aquatic and riparian ecosystems</td><td><ul style="list-style-type: none">Develop site-specific in-stream water quality objectives in accordance with ANZECC 2000 and <i>Using the ANZECC Guidelines and Water Quality Objectives in NSW</i> procedures (2006), or its latest version</td></tr></table> | Feature | Performance Measure | Water management – General | <ul style="list-style-type: none">Minimise the use of clean water on siteMinimise the need for make-up water from external supplies (other than the GRAWTS) | Main, Glennies and Bowmans Creek alluvial aquifers | <ul style="list-style-type: none">Negligible environmental consequences to the alluvial aquifer as a result of the development, including:<ul style="list-style-type: none">negligible change in groundwater levels;negligible change in groundwater quality; andnegligible impact to other groundwater users, beyond those predicted in the documents listed in condition 2(a) of Schedule 2. | Construction and operation of infrastructure | <ul style="list-style-type: none">Design, install and maintain erosion and sediment controls generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction</i> including <i>Volume 1</i>, <i>Volume 2A – Installation of Services</i>, <i>Volume 2C – Unsealed Roads</i>, <i>Volume 2D – Main Road Construction</i> and <i>Volume 2E Mines and Quarries</i>Design, install and maintain any infrastructure within 40 metres of watercourses generally in accordance with the <i>Guidelines for Controlled Activities on Waterfront Land (2007)</i>, or its latest versionDesign, install and maintain any creek crossings generally in accordance with the <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (NSW Fisheries, 2003) and <i>Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings</i> (NSW Fisheries 2003), or their latest versions | Clean water diversion & storage infrastructure | <ul style="list-style-type: none">Design, install and maintain the clean water system to convey the 100 year 24 hour ARI eventMaximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site | Sediment dams | <ul style="list-style-type: none">Design, install and maintain the dams generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction – Volume 1</i> and <i>Volume 2E Mines and Quarries</i> | Mine water storages | <ul style="list-style-type: none">Design, install and maintain mine water storage infrastructure to ensure no discharge of mine water to the off-site environmentOn-site storages (including mine infrastructure dams, groundwater storage and treatment dams) are suitably designed, installed and maintained (including to minimise permeability)Ensure adequate freeboards within all pit voids at all times to minimise the risk of discharge to surface waters | Tailings storages | <ul style="list-style-type: none">Design and maintain tailings storage areas to encapsulate and prevent the movement of tailings seepage/leachate offsite | Overburden emplacements | <ul style="list-style-type: none">Design, install and maintain emplacements to encapsulate and prevent migration of tailings, acid forming and potentially acid forming materials, and saline and sodic materialDesign, install and maintain out-of-pit emplacements to prevent and/or manage long term saline seepage | Chemical and hydrocarbon storage | <ul style="list-style-type: none">Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standards | Creek realignment and restoration works | <ul style="list-style-type: none">Diverted creek lines are hydraulically and geomorphologically stableIncorporate erosion control measures based on vegetation and engineering revetmentsIncorporate persistent/permanent pools for aquatic habitatRevegetate with suitable native species | Aquatic and riparian ecosystems | <ul style="list-style-type: none">Develop site-specific in-stream water quality objectives in accordance with ANZECC 2000 and <i>Using the ANZECC Guidelines and Water Quality Objectives in NSW</i> procedures (2006), or its latest version | <p>1. Annual Reviews 2017-2019.</p> <p>2. Trigger action response in Surface Water and Groundwater Response Plan version 4.0.</p> | <p>A significant drought across the Hunter for most of the audit period caused groundwater drawdowns triggering the GW criteria for majority of the audit period. At the end of 2019, MGO submitted an updated GWMMP to DPIE following the approval of MOCO MOD2 on 4 September 2019.</p> <p>Investigation criteria triggered for drawdown:</p> <p>2017 Annual Review NPZ12a, GNP 5 (Hebden Seam), GNP 6 (Middle Liddell Seam).</p> <p>In 2018 MOC engaged HEC to undertake a review and assessment of performance criteria associated with surface water and groundwater monitoring at MOC. Recommendations from this review included revising the groundwater drawdown triggers in NPZ12a, GNP5 (Hebden), GNP6 (Middle Liddell) and SM0028 (LCF and LBA/LBB) (to historical average plus one standard deviation)</p> <p>MTO engaged SLR Consultants to undertake a further review of the groundwater level and quality trigger exceedances in 2018.</p> <p>The SWMMP, GWMMP and SWGWRP were all reviewed during 2018, in consultation with relevant government agencies. Surface water and groundwater quality triggers and groundwater drawdown triggers were revised as part of this review, in line with the recommendations from the HEC review mentioned above. MTO will seek approval for the revised water management plans in 2019.</p> <p>Following the annual review for the 2019 monitoring period, groundwater trigger exceedances were identified by MGO. SLR (2019 and 2020) were engaged to conduct initial investigation into the trigger exceedances. The exceedances included:</p> <p>- 48 bores recorded a decline in groundwater level in 2019 of over 1 m, when compared to historical average levels.</p> | Not Compliant | SSD-5850 NC006 |
| Feature | Performance Measure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water management – General | <ul style="list-style-type: none">Minimise the use of clean water on siteMinimise the need for make-up water from external supplies (other than the GRAWTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Main, Glennies and Bowmans Creek alluvial aquifers | <ul style="list-style-type: none">Negligible environmental consequences to the alluvial aquifer as a result of the development, including:<ul style="list-style-type: none">negligible change in groundwater levels;negligible change in groundwater quality; andnegligible impact to other groundwater users, beyond those predicted in the documents listed in condition 2(a) of Schedule 2. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and operation of infrastructure | <ul style="list-style-type: none">Design, install and maintain erosion and sediment controls generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction</i> including <i>Volume 1</i>, <i>Volume 2A – Installation of Services</i>, <i>Volume 2C – Unsealed Roads</i>, <i>Volume 2D – Main Road Construction</i> and <i>Volume 2E Mines and Quarries</i>Design, install and maintain any infrastructure within 40 metres of watercourses generally in accordance with the <i>Guidelines for Controlled Activities on Waterfront Land (2007)</i>, or its latest versionDesign, install and maintain any creek crossings generally in accordance with the <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (NSW Fisheries, 2003) and <i>Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings</i> (NSW Fisheries 2003), or their latest versions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clean water diversion & storage infrastructure | <ul style="list-style-type: none">Design, install and maintain the clean water system to convey the 100 year 24 hour ARI eventMaximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sediment dams | <ul style="list-style-type: none">Design, install and maintain the dams generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction – Volume 1</i> and <i>Volume 2E Mines and Quarries</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mine water storages | <ul style="list-style-type: none">Design, install and maintain mine water storage infrastructure to ensure no discharge of mine water to the off-site environmentOn-site storages (including mine infrastructure dams, groundwater storage and treatment dams) are suitably designed, installed and maintained (including to minimise permeability)Ensure adequate freeboards within all pit voids at all times to minimise the risk of discharge to surface waters | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tailings storages | <ul style="list-style-type: none">Design and maintain tailings storage areas to encapsulate and prevent the movement of tailings seepage/leachate offsite | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Overburden emplacements | <ul style="list-style-type: none">Design, install and maintain emplacements to encapsulate and prevent migration of tailings, acid forming and potentially acid forming materials, and saline and sodic materialDesign, install and maintain out-of-pit emplacements to prevent and/or manage long term saline seepage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chemical and hydrocarbon storage | <ul style="list-style-type: none">Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Creek realignment and restoration works | <ul style="list-style-type: none">Diverted creek lines are hydraulically and geomorphologically stableIncorporate erosion control measures based on vegetation and engineering revetmentsIncorporate persistent/permanent pools for aquatic habitatRevegetate with suitable native species | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aquatic and riparian ecosystems | <ul style="list-style-type: none">Develop site-specific in-stream water quality objectives in accordance with ANZECC 2000 and <i>Using the ANZECC Guidelines and Water Quality Objectives in NSW</i> procedures (2006), or its latest version | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | | | | <p>over more than one consecutive monitoring round. This abundance of groundwater level drawdown trigger events occurs across all aquifers because the currently approved GWMMP does not allow enough variability in water levels to encompass natural variability (low rainfall) and predicted mining impacts for Permian aquifers. The trigger definition will, therefore, be reassessed to decrease sensitivity to natural fluctuations and to only trigger by events that have high likelihood of being mining associated.</p> <p>Review of water quality results and comparison to trigger levels for EC and pH identified several trigger exceedances in 2019.</p> <p>Generally, these exceedances were either in line with historical trends or correlated with rainfall events.</p> <p>As at the end of 2019 calendar year, MGO had submitted an updated GWMMP to DPIE following the approval of MOCO MOD2 on the 4 September 2019.</p> <p>No recommendation – actions already underway are satisfactory</p> | | |
| WATER MANAGEMENT PLAN | | | | | | | |
| | 3 | 26 | <p>The Applicant must prepare a Water Management Plan for the development. This plan must:</p> <p>(a) be prepared in consultation with DPIE Water and EPA, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b) include detailed performance criteria and describe measures to ensure that the Applicant complies with the water management performance measures (see Table 8);</p> <p>(c) in addition to the standard requirements for management plans (see condition 3 of Schedule 5), this plan must include a:</p> <p>(i) Water Balance that:</p> | <ol style="list-style-type: none"> 1. IEA 2017 2. Water Management Plan 3. Erosion and Sediment Control Plan 4. Surface water management plan 5. Groundwater management plan 6. Surface Water and Groundwater Response Plan 7. Trigger Action Response Plan | <p>a) Verified from previous audit. Viewed letter from DPI Water appended to approved WMP (no date) and from EPA dated 18/01/17. Viewed approval letter from DP&E dated 17/10/17. WMP Section 1.5.2.</p> <p>b) Provided in Table 1-2 of the WMP and referenced sections throughout the Plan.</p> <p>c) Auditor sighted Statement of Commitments in the WMP and it is compliant, see main IEA report.</p> <p>ci) Section 3.4, of the WMP.</p> <p>cii) Section 3.4 and 3.5 of the WMP.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <ul style="list-style-type: none"> includes details of: <ul style="list-style-type: none"> - sources and security of water supply, including contingency planning for future reporting periods; - water use and management on site; - any off-site water transfers; and - reporting procedures, including the preparation of a site water balance for each calendar year; and describes the measures that would be implemented to minimise clean water use by the development; <p>(ii) Salt Balance that:</p> <p>includes details of:</p> <ul style="list-style-type: none"> sources of saline material on the site; saline material and saline water management on site; and reporting procedures, including the preparation of a salt balance for each calendar year; <p>(iii) Erosion and Sediment Control Plan, that:</p> <ul style="list-style-type: none"> is consistent with the requirements of Managing Urban Stormwater: Soils and Construction -Volume 1 and Volume 2E Mines and Quarries, or its latest version; identifies activities that could cause soil erosion, generate sediment or affect flooding; describes measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, and manage flood risk; describes the location, function, and capacity of erosion and sediment control structures and flood management structures; and describes what measures would be implemented to maintain the structures over time; <p>(iv) Surface Water Management Plan, that includes:</p> <ul style="list-style-type: none"> relevant baseline data on channel stability, water flows and water quality in the sections and parts of creeks, rivers and waterbodies that are likely to experience a greater than negligible impact as a result of the development; | | <p>ciii) The Erosion and Sediment Control Plan version 4.0 and 5.0 have been sighted by the auditor. It is consistent with Requirements of Managing Urban Stormwater: Soils and Construction - Volume 1 and Volume 2E Mines and Quarries outlined in Section 3.1.1 of the Erosion and Sediment Control Plan (ESCP).</p> <p>Activities are identified in Section 2.2 of the ESCP.</p> <p>Minimisation of soil erosion and transfer of sediment measures is provided in Section 3.1.1 and 3.2 of the ESCP. Control structures detailed in Section 3.1.2.1 and 3.2 of the ESCP.</p> <p>civ) Auditor sighted the SWMMP version 4.0 and the WMP and confirmed the plan contains measures used to measure and manage transfer of water and/or tailings under the GRAWTS.</p> <p>Channel Stability baseline data contained in the Creek Diversion Management Plan (CDMP) in Section 2.2 and Section 2.3.</p> <p>Water Management System details in the WMP Section 3.4.</p> <p>Flood management detailed in Section 2.3.1, 2.3.3 and 2.3.4 of the SWMMP.</p> <p>cv) Reviewed GWMMP and confirmed contained all requirements. Baseline data in Section 2.3 and</p> <p>4.1. Description of Groundwater Management System in Section 3.1 of the GMMP and Section 3.2 Surface Water and Groundwater Response Plan.</p> <p>Groundwater performance criteria in Section 4.2 of the Groundwater Management and Monitoring Plan.</p> <p>GDE's in Surface and Groundwater Response Plan Section 3.2.</p> <p>Monitoring program in Section 4.4 and 5.1.1. Response plan in Section 5.1 and 4.2.</p> | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <ul style="list-style-type: none">• a detailed description of the water management system on site;• a description of measures used to manage, monitor and report on the transfer of water and/or tailings under the GRAWTS;• an appropriately detailed description of the flood warning signage to be installed along Hebden Road;• appropriately detailed plans, design objectives and performance criteria for: the Hebden Road realignment and upgrade works (including the construction of a new bridge over Bowmans creek); construction of an additional rail line and rail bridge crossing over Bettys Creek; any approved creek diversions associated with the development; any restoration works to be undertaken on creeks impacted by the development; sediment and mine water dams; the small height flood levee and proposed modifications to Dams 5 and 6 described in SEE (Mod 2);• emplacement of tailings, acid forming and potentially acid forming materials, and saline and sodic materials;• re-establishment of free draining second and third order creeks, and their associated catchments, in the final post-mining landform; and• any final voids for the development (see the Rehabilitation Objectives in Table 10);<ul style="list-style-type: none">• surface water performance criteria, including trigger levels for investigating any potentially adverse impacts, for the following:<ul style="list-style-type: none">○ the water management system, including mine water storages and sediment dams;○ surface water user supplies;○ downstream surface water quality;○ downstream flooding impacts; and○ stream and riparian vegetation health;• a program to monitor and report on:<ul style="list-style-type: none">○ the effectiveness of the water management system;○ impacts on downstream water users (that are not negligible);○ surface water flows and quality, as well as stream and riparian vegetation health in the watercourses that are likely to experience a greater than negligible impact as a result of the development;○ acid forming and potential acid forming materials, incorporating the recommendations in Appendix 11 of SEE (Mod 2); and | | <p>Trigger Action Response Plan provided in the Surface Water and Groundwater Response Plan in Section 2, Section 3 and Appendix C.</p> <p>WMP exceedances provided in Surface Water and Groundwater Response Plan in Section 2, Section 3 and Appendix C.</p> | | |

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| | | | <ul style="list-style-type: none"> ○ downstream flooding impacts; and • a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the development; <p>(v) Groundwater Management Plan, that includes:</p> <ul style="list-style-type: none"> • relevant baseline data on groundwater levels, yield and quality in the region and privately-owned groundwater bores that are likely to experience a greater than negligible impact as a result of the development; • a detailed description of the groundwater management system on site; • appropriately detailed plans, design objectives and performance criteria, for: emplacement of tailings, acid forming and potentially acid forming materials, and saline and sodic materials; any final voids for the development (see the Rehabilitation Objectives in Table 10); • groundwater performance criteria, including trigger levels for investigating any potentially adverse groundwater impacts, for the following: <p>Main Creek, Glennies Creek, Bettys Creek, York Creek, Swamp Creek and Bowmans Creek alluvial aquifers and the Permian hard rock aquifer; groundwater user bores; groundwater inflows to the mining operations; seepage/leachate from water storages, emplacements, backfilled voids and final voids; and groundwater dependent ecosystems;</p> <ul style="list-style-type: none"> • a program to monitor and report on: groundwater inflows to the mining pits; seepage/leachate from water storages, emplacements, backfilled voids and final voids; background changes in groundwater yield/quality against mine-induced changes; impacts of the development on: regional and local (including alluvial) aquifers; groundwater supply of potentially affected landowners; and groundwater dependent ecosystems and riparian vegetation; • a Trigger Action Response Plan to respond to any exceedances of the groundwater performance criteria, and mitigate any adverse groundwater impacts of the development (including a protocol to install a low permeability barrier in the event that the Main Creek alluvial aquifer is intercepted or a significant decline in alluvial water levels is detected which may be attributable to mining operations); and • consideration of the cumulative groundwater interactions of the development and other nearby mines, including the Glendell Mine and Integra Underground Mine; <p>(vi) a program to periodically validate the water balance, salt balance, surface water take and groundwater model for the development, and compare monitoring results with modelled predictions, unless otherwise agreed by the Secretary;</p> | | | | |

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| | | | <p>(vii) a protocol to report on the measures, monitoring results and performance criteria identified above, in the annual review referred to in condition 5 of Schedule 5; and</p> <p>(viii) a protocol that has been prepared, using all reasonable endeavours, in consultation with the owners of any nearby mines (including the Glendell, Liddell, Ravensworth Operations, Integra Underground and Rix’s Creek North Mines) to:</p> <ul style="list-style-type: none">• minimise cumulative water quantity and quality impacts;• review opportunities for water sharing between the mines;• co-ordinate water quality monitoring programs where practicable; and• undertake joint investigations/studies in relation to complaints/exceedances of trigger levels where cumulative impacts are considered likely. <p>The Applicant must implement the Water Management Plan as approved by the Secretary.</p> | | | | | | | | | | | | | | | | | | |
| BIODIVERSITY | | | | | | | | | | | | | | | | | | | | | |
| BIODIVERSITY OFFSET STRATEGY | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 27 | <p>The Applicant must implement the Biodiversity Offset Strategy described in the documents listed in condition 2(a) of Schedule 2, summarised in Table 9 and shown conceptually in either Appendix 5 or 7.</p> <p><i>Table 9: Summary of the Biodiversity Offset Strategy</i></p> <table><tr><th>Area</th><th>Offset Name ^a</th><th>Size hectares (ha)</th></tr><tr><td rowspan="5">On-site Offsets</td><td>Northwest Offset</td><td>71.4</td></tr><tr><td>Northeast Offset</td><td>83.6</td></tr><tr><td>Southeast Offset</td><td>58.3</td></tr><tr><td>TSR Offset</td><td>25.1</td></tr><tr><td>Forest East Offset</td><td>110.9</td></tr></table> | Area | Offset Name ^a | Size hectares (ha) | On-site Offsets | Northwest Offset | 71.4 | Northeast Offset | 83.6 | Southeast Offset | 58.3 | TSR Offset | 25.1 | Forest East Offset | 110.9 | <p>1. Biodiversity offset strategy</p> <p>2. Annual flora and fauna surveys</p> <p>3. Annual Review</p> | <p>The onsite and offsite biodiversity offsets were generally utilising the correct hectare area in accordance with Table 9.</p> <p>The 2018 year did not include comprehensive fauna monitoring surveys (as per the BOMP Schedule due to a re-arrangement of the schedule in the 2017 year). Consequently, the works comprised:</p> <ul style="list-style-type: none">▪ specific threatened fauna species surveys (winter bird census for Swift Parrot, Regent Honeyeater);▪ an initial frog survey in February 2018 for the endangered Green & Golden Bell Frog;▪ habitat improvement works in the biodiversity offsets, and▪ ongoing assessment of clearing operations in the C-Pit.▪ A total of 101 new nest boxes were installed in 2018, including the rehabilitation areas in both Glendell [20 boxes] and Mt Owen [30 boxes], but also biodiversity offset areas [51 boxes]. | Compliant | |
| Area | Offset Name ^a | Size hectares (ha) | | | | | | | | | | | | | | | | | | | |
| On-site Offsets | Northwest Offset | 71.4 | | | | | | | | | | | | | | | | | | | |
| | Northeast Offset | 83.6 | | | | | | | | | | | | | | | | | | | |
| | Southeast Offset | 58.3 | | | | | | | | | | | | | | | | | | | |
| | TSR Offset | 25.1 | | | | | | | | | | | | | | | | | | | |
| | Forest East Offset | 110.9 | | | | | | | | | | | | | | | | | | | |

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| | | | <table><tr><td rowspan="5"></td><td>Southeast Corridor Offset</td><td>74.1</td></tr><tr><td>Southern Remnant Offset</td><td>4.0</td></tr><tr><td>Cross Creek Offset</td><td>367.0</td></tr><tr><td>Stringybark Creek Habitat Corridor Offset</td><td>97.5</td></tr><tr><td>Rehabilitation Woodland</td><td>518.0</td></tr><tr><td rowspan="2">Off-site Offsets</td><td>Esparanga Offset</td><td>303.0</td></tr><tr><td>Mitchell Hills Offset</td><td>143.7</td></tr><tr><td>Total Area</td><td></td><td>1856.6</td></tr></table> <p>^a To identify the areas referred to in Table 9, see the applicable figures in Appendices 5 and 7.</p> | | Southeast Corridor Offset | 74.1 | Southern Remnant Offset | 4.0 | Cross Creek Offset | 367.0 | Stringybark Creek Habitat Corridor Offset | 97.5 | Rehabilitation Woodland | 518.0 | Off-site Offsets | Esparanga Offset | 303.0 | Mitchell Hills Offset | 143.7 | Total Area | | 1856.6 | | <ul style="list-style-type: none">In 2019 A range of nest box types were installed in 2019 in rehabilitation and biodiversity offset areas at MGO. A total of 72 boxes were installed, in addition to the trialling of chainsaw incisions in established trees to create cavities for tree hollow dependent fauna.Forecasts for 2018 and 2019 differ from values within the current MOP. MGO gained approval of 2020 MOP in December 2019. <p>The main issues identified within the rehabilitation sites are weeds.</p> | | |
| | Southeast Corridor Offset | 74.1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | Southern Remnant Offset | 4.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| | Cross Creek Offset | 367.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| | Stringybark Creek Habitat Corridor Offset | 97.5 | | | | | | | | | | | | | | | | | | | | | | | | |
| | Rehabilitation Woodland | 518.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Off-site Offsets | Esparanga Offset | 303.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| | Mitchell Hills Offset | 143.7 | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Area | | 1856.6 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 27A | The Applicant must rehabilitate the Rehabilitation Woodland offset area required in Table 9 above to a level that meets the EEC listing criteria for the Central Hunter Ironbark – Spotted Gum – Grey Box Forest EEC. | 1. Offset area report 2. Annual Review | Progress has been made to rehabilitate the woodland offset area but has not been achieved. | Not Triggered | | | | | | | | | | | | | | | | | | | | |
| THREATENED SPECIES | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 28 | <p>The Applicant must ensure that the Biodiversity Offset Strategy summarised in Table 9 and the Rehabilitation Strategy for the development focus on the regeneration, enhancement and/or re-establishment of:</p> <p>(a) significant and/or threatened flora communities, including:</p> <ul style="list-style-type: none">Central Hunter Grey Box — Ironbark Woodland EEC; andCentral Hunter Ironbark — Spotted Gum — Grey Box Forest EEC; and <p>(b) habitat and/or foraging resources for other significant and/or threatened flora and fauna species, including:</p> <ul style="list-style-type: none">Spotted-tailed Quoll;Squirrel Glider;Koala;Swift Parrot;Regent Honeyeater;Green and Golden Bell Frog;Brush-tailed Phascogale;Eastern Bent-wing Bat;East-coast Freetail Bat;Southern Myotis;Speckled Warbler;Little Lorikeet;Grey-crowned Babbler;Diamond Firetail; andMasked Owl. | | <p>Overall, the site has been generally compliant. The issues included a lower than normal rainfall within the audit timeframe.</p> <p>Some of the waterways and creeks have been dry for most of the audit period preventing meaningful surveys.</p> | Compliant | | | | | | | | | | | | | | | | | | | | |
| LONG TERM SECURITY OF OFFSETS | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | 3 | 29 | <p>The Applicant must make suitable arrangements for the long term protection of the areas identified in Table 9, to the satisfaction of the Secretary. These arrangements must be implemented by:</p> <p>(a) the end of June 2018, unless the Secretary agrees otherwise, for all on-site and off-site offsets excluding the Rehabilitation Woodland offset area; and</p> <p>(b) within 12 months of the finalisation of the location of the Rehabilitated Woodland (see Table 9) under condition 31(c) below, unless the Secretary agrees otherwise.</p> <p>The Applicant must make suitable arrangements for the long term protection of the areas identified in Table 9, to the satisfaction of the Secretary. These arrangements must be implemented by:</p> <p><i>Note: This condition can be satisfied for any area identified in Table 9 that is already subject to long term protection mechanisms under previous development consents for the Mount Owen or Ravensworth East mines, if the Secretary agrees that the existing mechanism/s provide sufficient protection to address the requirements of this condition.</i></p> | <p>1. Travelling Stock Reserve (T.S.R) site agreement can't be reached, TSR sighted at site by the auditor</p> <p>2. Mt Owen Complex onsite auditor site visit</p> <p>3. Biodiversity Offsets Fauna Monitoring 2017(6 February 2018) by Forest Fauna Surveys Pty Ltd for the Mitchell Hills and North East Offsets.</p> <p>4. Letter of approval of plan dated 06/12/2018 from DPE in regards to MGO letter dated 6/12/2018 submitted the revised Biodiversity and Offset Management Plan for the Mt Owen Open Cut.</p> | <p>The arrangements have been made and to the satisfaction of the Secretary except for the TSR where negotiations have not been able to reach a conclusion.</p> <p>MGO have negotiated an outcome with DPIE and the issue is resolved in the MOD5 Approval (approved outside the audit period).</p> <p>No recommendation – actions already underway are satisfactory</p> | Not Compliant | <p>SSD-5850</p> <p>NC007</p> |
| MOD 2 BIODIVERSITY OFFSET STRATEGY | | | | | | | |
| | 3 | 29A | <p>Within 12 months of commencing mining operations in the Mod 2 disturbance area, unless otherwise agreed by the Secretary, the Applicant must provide a Mod 2 Biodiversity Offset Strategy for approval by the Secretary. This strategy must:</p> <p>(a) recalculate, if necessary, in accordance with the BC Act, the number of credits required under condition 29B of Schedule 3;</p> <p>(b) describe how the biodiversity credits in Table 9A (or as recalculated) will be identified, secured and retired; and</p> <p>(c) be prepared in accordance with the NSW Biodiversity Offset Policy for Major Projects and to the satisfaction of BCD.</p> <p>The Applicant must implement the Mod 2 Biodiversity Offset Strategy as approved by the Secretary.</p> | <p>1. Statement of assessment of reasonable equivalence of biodiversity credits. Issued on 3/04/2020. DPIE Director Conservation Programs D.Rutherford.</p> <p>2. Email dated 30/01/2020 to DPIE Biodiversity Offset Credits including Development Consent (SSD -5850) the credit retirement obligation</p> <p>3. Biodiversity Credit Report</p> <p>4. Special data including area of habitat per vegetation zone and relevant shapefiles</p> <p>5. Evidence of legal authority for Mt Owen Pty Directors.</p> <p>6. Letter of approval of plan dated 06/12/2018 from DPE in regards to MGO letter dated 6/12/2018 submitted the revised Biodiversity and Offset Management Plan for the Mt Owen Open Cut.</p> | <p>Mod 2 approved 4 September 2019.</p> <p>Mining commenced in the MOD2 extension area 30-03-2020</p> <p>The current BOMP (MGO website) including the BOS does not include the revisions required for MOD 2.</p> <p>BOMP was submitted in December 2019 (see attached) after the MOCO Mod 2 approval (September 2019). However the approval of the plan was put on hold by DPIE in anticipation of Mod 4 approval (Jan 2020) which would of required a review of the plan again. Mod 5 was then pending with that approval in Jan 2021 which has pushed out the review date again.</p> <p>So extensions have been sought from DPIE.</p> | Compliant | |
| | 3 | 29B | <p>Within 24 months of commencing mining operations in the Mod 2 disturbance area, unless otherwise agreed by the Secretary, the Applicant must retire the biodiversity credits specified in Table 9A below (or the equivalent number of credits calculated in accordance with the BC Act) as set out in the Mod 2 Biodiversity Offset Strategy.</p> | | <p>The Mod 2 has not been in operation for 24 months during the audit period.</p> | Not Triggered | |

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| | | | <p>Table 9A: Biodiversity credit requirements</p> <table><tr><th>Credit Type</th><th>Credits Required</th></tr><tr><td colspan="2">Ecosystem Credits</td></tr><tr><td>HU815 – Spotted Gum – Narrow-leaved Ironbark – Red Ironbark Shrub – Grass Open Forest Slopes of the Central and Lower Hunter</td><td>984</td></tr><tr><td>HU906 – Bull Oak Grassy Woodland of the Central Hunter Valley</td><td>86</td></tr><tr><td>HU945 – Swamp Oak – Weeping Grass Grassy Riparian Forest of the Hunter Valley</td><td>12</td></tr><tr><td colspan="2">Species Credits</td></tr><tr><td>Brush-tailed Phascogale</td><td>177</td></tr></table> <p>Note: The credits in Table 9A were calculated in accordance with Framework for Biodiversity Assessment of the NSW Biodiversity Offset Policy for Major Projects (OEH, 2014) and may need to be converted to reasonably equivalent 'biodiversity credits', within the meaning of the BC Act, to facilitate retirement.</p> <p>The retirement of the biodiversity credits specified in Table 9A must be carried out in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.</p> | Credit Type | Credits Required | Ecosystem Credits | | HU815 – Spotted Gum – Narrow-leaved Ironbark – Red Ironbark Shrub – Grass Open Forest Slopes of the Central and Lower Hunter | 984 | HU906 – Bull Oak Grassy Woodland of the Central Hunter Valley | 86 | HU945 – Swamp Oak – Weeping Grass Grassy Riparian Forest of the Hunter Valley | 12 | Species Credits | | Brush-tailed Phascogale | 177 | | | | |
| Credit Type | Credits Required | | | | | | | | | | | | | | | | | | | | |
| Ecosystem Credits | | | | | | | | | | | | | | | | | | | | | |
| HU815 – Spotted Gum – Narrow-leaved Ironbark – Red Ironbark Shrub – Grass Open Forest Slopes of the Central and Lower Hunter | 984 | | | | | | | | | | | | | | | | | | | | |
| HU906 – Bull Oak Grassy Woodland of the Central Hunter Valley | 86 | | | | | | | | | | | | | | | | | | | | |
| HU945 – Swamp Oak – Weeping Grass Grassy Riparian Forest of the Hunter Valley | 12 | | | | | | | | | | | | | | | | | | | | |
| Species Credits | | | | | | | | | | | | | | | | | | | | | |
| Brush-tailed Phascogale | 177 | | | | | | | | | | | | | | | | | | | | |
| | 3 | 30 | <p>The Applicant must plant and maintain, until established, 10 River Oak trees for every established River Oak tree removed during construction of the Greater Ravensworth tailings management infrastructure.</p> <p>Notes:</p> <ul style="list-style-type: none">An established River Oak tree is considered to be two metres or greater in height. The Greater Ravensworth tailings management infrastructure is shown in Appendix 2. | <p>1. Flora Surveys</p> <p>2. Site audit</p> <p>Previous Audit finding of fulfilling establishment of trees, exceeding requirements, however survival rate needed to be monitored and reported.</p> <p>The approved Biodiversity and Offset management Plan – Section 3.2.2 covers this condition.</p> | <p>Annual Review 2019 indicated only 10% survival rate from first planting (2016/2017). An additional 2,000 trees were planted in April 2019 and fenced. The survival rate will be reported on in the 2020 Annual Review. This is compliant as during the audit period efforts were undertaken to plant and maintain. Despite low survival from initial plantings, this area is being replanted and managed.</p> <p>Monitoring of the plantings continued through the audit period.</p> | Compliant | | | | | | | | | | | | | | | |
| WATER PIPELINE INFRASTRUCTURE | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 30A | <p>The Applicant must implement the mitigation and management measures specified in EA (Mod 1) during construction of the water pipeline infrastructure, including avoiding disturbance of stags, hollow bearing trees and the Bettys Creek Habitat Management Area.</p> | <p>1. Reviewed Biodiversity and Offset Management Plan 18/12/2018</p> <p>2. Email from Umwelt to MOC dated 5/12/2017 regarding outcomes of the preclearance survey conducted by Umwelt ecologist for Bettys Creek area on 1/12/2017.</p> <p>3. Email from Umwelt to MOC dated 17/10/2017 regarding summary of outcomes of the preclearance survey of Bettys Creek area and helipad area on 16/10/2017. Included mitigation measures including erosion and sediment controls, ecologist present during tree felling of hollow bearing trees.</p> | <p>Biodiversity and Offset Management Plan 18/12/2018</p> <p>a) Section 1.6</p> <p>b) Section 3.0.</p> <p>- Section 4.0</p> <p>- Section 1.7</p> <p>- Section 3.1</p> <p>- Section 1.7</p> <p>c) Section 6 & Appendix D</p> | Compliant | | | | | | | | | | | | | | | |

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| | | | | | <div>d) Table 9 as default however potential for changes with approval.</div> <div>e) Section 3.2<ul style="list-style-type: none">- Section 4.1 and 4.8- Section 3.2.1 and Section 4.1.1- Section 3.1.3 and Section 4.1.1- Section 3.2.4.1 and Section 4.8.5- Section 3.4- Section 3.1- Section 3.1.2- Section 3.1.3.2- Section 3.1.5 and Section 4.2- Section 3.1.6 and Section 4.3- Section 3.1.7 and Section 4.6- Section 4.4- Section 3.1.4 and Section 4.5- Section 3.3 and Section 4.7- Section 3.5</div> <div>e1) Section 3.1 and Section 3.2.2</div> <div>f) Section 4.1.2 and Appendix D Table D.3</div> <div>g) – Section 4.8.3<ul style="list-style-type: none">- Appendix D- Table D.3- Section 7.0- Section 7.0- Appendix D-Table D.3</div> <div>h) Section 5.0 and Appendix C</div> <div>i) Section 8.1 to 8.3</div> <div>j) Section 5.1.3</div> | | |

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| | | | | | k) Section 8.3 and Appendix D l) Section 7 m) Section 10 Section 8 | | |
| BIODIVERSITY MANAGEMENT PLAN | | | | | | | |
| | 3 | 31 | <p>The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with BCD, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b) describe the short, medium, and long term measures that would be undertaken to:</p> <ul style="list-style-type: none"> manage the remnant vegetation and fauna habitat on the site and in the offset areas (see Table 9); implement the Biodiversity Offset Strategies minimise the impacts of the development on threatened species, in particular those listed in condition 28 above, and where appropriate, enhance available habitat for and support the recovery of these species on the site; and integrate the implementation of the Biodiversity Offset Strategies to the greatest extent practicable with the rehabilitation of the Mount Owen Complex and any conservation activities being undertaken in the Ravensworth State Forest and New Forest Area; <p>(c) include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategies and include triggers for remedial action, where these performance or completion criteria are not met;</p> <p>(d) include a final location for the Rehabilitated Woodland offset area (see Table 9) within 5 years (or such other period as agreed by the Secretary) of the commencement of development under this consent;</p> <p>(e) include a detailed description of the measures that would be implemented to:</p> <ul style="list-style-type: none"> enhance the quality of existing vegetation, vegetation connectivity and fauna habitat on the site, within the East-West Corridor Management Area (see Figure 7B in Appendix 7) and in the biodiversity offset areas, including through the assisted regeneration and/or targeted revegetation of appropriate canopy, sub-canopy, understorey and ground strata; | <p>1. DPIE Letter dated 17.01.2017 referring to Mt Owen Complex correspondence of 9 to 13 October 2017 for submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans.</p> <p>2. Biodiversity Management Plan</p> | <p>a) DPIE Letter dated 17.01.2017 referring to Mt Owen Complex correspondence of 9 to 13 October 2017 for submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans.</p> <p>Section 1.6 of the BMP</p> <p>b) BMP Section 3.0, Section 4.0, Section 1.7, Section 3.1, and Section 1.7.</p> <p>c) BMP Section 6.0 and Appendix D.</p> <p>d) Not triggered.</p> <p>e) BMP Section 3.2.</p> <p>BMP Section 4.1, and Section 4.8.</p> <p>BMP Section 3.2.1 and Section 4.1.1.</p> <p>BMP Section 3.1.3 and Section 4.1.1.</p> <p>BMP Section 3.2.4.1 and Section 4.8.5.</p> <p>BMP Section 3.4.</p> <p>BMP Section 3.1.</p> <p>BMP Section 3.1.2.</p> <p>BMP Section 3.1.3.2.</p> <p>BMP Section 3.1.5 and Section 4.2.</p> <p>BMP Section 3.1.6 and Section 4.3.</p> <p>BMP Section 3.1.7 and Section 4.6.</p> <p>BMP Section 4.4.</p> <p>BMP Section 3.1.4 and Section 4.5.</p> | Compliant | |

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| | | | <ul style="list-style-type: none"> • introduce naturally scarce fauna habitat features such as den structures, nest boxes and salvaged tree hollows, where appropriate and with a particular focus on the regenerated and rehabilitated woodland areas, and use all reasonable and feasible efforts to promote the use of these introduced habitat features by threatened fauna species; • maximise the salvage of resources within the approved disturbance area - including tree hollows, vegetative and soil resources – for beneficial reuse in the enhancement of the rehabilitation woodland areas and, where practicable, the biodiversity offset areas; • manage any potential conflicts between regeneration and restoration works in the biodiversity offset areas and the East-West Corridor Management Area, and any Aboriginal heritage values (both cultural and archaeological) in these areas; • manage the collection and propagation of seed; • protect vegetation and fauna habitat outside the approved disturbance area on-site; • minimise the impacts on fauna on site, including undertaking pre-clearance surveys; • provide for the salvage, transplanting and/or propagation of any threatened flora (including, but not limited to, threatened orchid species) found during pre-clearance surveys, in accordance with the Guidelines for the Translocation of Threatened Plants in Australia (Vallee et al., 2004); • avoid and mitigate the spread of noxious weeds; • control weeds and feral pests, including but not limited to goats, rabbits, red fox, cats and pigs, with consideration of actions identified in relevant threat abatement plans; • control erosion on the site and in the biodiversity offset areas; • manage any grazing and agriculture on the site or in the biodiversity offset areas; • control access to the site and the biodiversity offset areas; • manage bushfire hazards on the site and in the biodiversity offset areas; and • rehabilitate any sections or parts of creeks and drainage lines that are impacted by the development (both inside and outside the approved disturbance area); <p>(e1) include a detailed description of the measures and procedures to be implemented to:</p> <ul style="list-style-type: none"> • minimise, to the greatest extent practicable, the disturbance of threatened species and EECs, and rehabilitate any areas of disturbed land associated with the construction of the water pipeline infrastructure; and • satisfy the requirements of conditions 30 and 30A of Schedule 3; | | <p>BMP Section 3.3 and Section 4.7.</p> <p>BMP Section 3.5.</p> <p>BMP</p> <p>e1) BMP Section 3.1 and Section 3.2.2.</p> <p>f) BMP Section 4.1.2 and Appendix D –Table D.3.</p> <p>g) BMP Section 4.8.3.</p> <p>BMP Appendix D – Table D.3</p> <p>BMP Section 7.0.</p> <p>BMP Section 7.0 and Appendix D –Table D.3.</p> <p>h)BMP Section 5.0 and Appendix C.</p> <p>i) BMP Section 8.1, Section 8.2 and Section 8.3</p> <p>j) BMP Section 5.1.3.</p> <p>k) BMP Section 8.3 and Appendix D.</p> <p>l) BMP Section 7.0.</p> <p>m) BMP Section 10.0</p> <p>BMP Section 8.0</p> | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>(f) include details of the proactive measures and completion criteria proposed to manage the impacts of the development on habitat connectivity, with particular reference to the resilience, width and function of woodland corridors and specific measures to prioritise supplementary planting activities in the Southeastern Corridor Offset during Year 1 of the development;</p> <p>(g) include a strategy for the regeneration of woodland areas within the offset areas (see Table 9), including details of:</p> <ul style="list-style-type: none">• the level of direct management required to achieve the target woodland community at each offset area;• periodic targets for the regeneration of woodland communities;• trigger levels where additional management activities (such as weed management and direct seeding or planting of underrepresented species) would be required; and• any specific controls or management activities required to ensure this regeneration is trending towards the target communities. <p>(h) include a seasonally-based program to monitor and report on the effectiveness of the above measures (including the use of anthropogenic habitat features by native and threatened fauna), the progress against the detailed performance and completion criteria, and any progressive improvements that could be implemented to improve biodiversity outcomes;</p> <p>(i) include measures to report on the results of the monitoring activities required under paragraph (h) above, to facilitate shared learnings and research into the application of regeneration and rehabilitation techniques and methods for EECs and native vegetation in the Hunter Valley;</p> <p>(j) monitor and report on the impacts of the development on groundwater dependent ecosystems and riparian vegetation (having regard to the requirements of the Groundwater Management Plan and focusing on areas that are likely to experience a greater than negligible impact as a result of the development), and identify trigger levels for the remediation of any material impacts to these ecosystems;</p> <p>(k) report on the effectiveness of the above measures against the periodic performance and completion criteria, as part of the annual review referred to in condition 5 of Schedule 5;</p> <p>(l) identify the potential risks to the successful implementation of the Biodiversity Offset Strategies, and include a description of the contingency measures that would be implemented to mitigate against these risks, including provisions for alternative direct and/or supplementary offset measures where regeneration of EECs and/or the</p> | | | | |

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| | | | <p>propagation/translocation of threatened flora do not meet the performance and completion criteria; and</p> <p>(m) include details of who would be responsible for monitoring, reviewing, and implementing the plan.</p> <p>The Applicant must implement the Biodiversity Management Plan as approved by the Secretary.</p> | | | | |
| CONSERVATION BOND | | | | | | | |
| | 3 | 32 | <p>Within 6 months of the approval of the Biodiversity Management Plan, unless otherwise agreed by the Secretary, the Applicant must lodge a Conservation Bond with the Department to ensure that the Biodiversity Offset Strategy summarised in Table 9 is implemented in accordance with the performance and completion criteria in the Biodiversity Management Plan. The sum of the bond must be determined by:</p> <p>(a) calculating the full cost of implementing the Biodiversity Offset Strategy (other than land acquisition costs); and</p> <p>(b) employing a suitably qualified, independent and experienced person to verify the calculated costs,</p> <p>to the satisfaction of the Secretary.</p> <p>The calculation of the Conservation Bond must be submitted to the Department for approval at least 1 month prior to the lodgement of the bond.</p> <p>The Conservation Bond must be reviewed and if required, an updated bond must be lodged with the Department within 3 months following:</p> <p>(a) an update or revision to the Biodiversity Management Plan;</p> <p>(b) the completion of an Independent Environmental Audit in which recommendations relating to the implementation of the Biodiversity Offset Strategy have been made; or</p> <p>(c) in response to a request by the Secretary.</p> <p>If the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the Secretary, the Secretary will release the bond.</p> <p>If the Biodiversity Offset Strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Secretary will call in all, or part of, the conservation bond, and arrange for the completion of the relevant works.</p> <p>Notes:</p> <p>• Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by BCD as part of a Biobanking Agreement or transfer to conservation reserve estate, can be used to reduce</p> | <p>1. Viewed DPIE letter from H.Reed dated 28.05.2019 RE_SSD and DA 80-952 Approved Conservation Bond revised calculation.</p> <p>2. Viewed OEH letter from K.Thumm dated 25.01.2017 Preliminary Review of the revised Mount Owen Complex Biodiversity and Offset Management Plan.</p> <p>3. Viewed DPIE Letter dated 17.01.2017 referring to Mt Owen Complex correspondence of 9 to 13 October 2017 of submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans.</p> | The auditor viewed the DPIE letter dated 28.05.2019 confirming approval of the revised calculation. | Compliant | |

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| | | | <p><i>the liability of the conservation bond. The sum of the bond may be reviewed in conjunction with any revision to the Biodiversity Offset Strategy.</i></p> <p>• <i>The sum of the Conservation Bond required under this condition excludes the costs associated with the establishment of the Rehabilitated Woodland area, to the extent that these costs are covered by a separate rehabilitation security required under the mining lease.</i></p> | | | | |
| HERITAGE | | | | | | | |
| PROTECTION OF ABORIGINAL HERITAGE ITEMS | | | | | | | |
| | 3 | 33 | Unless otherwise authorised under the NP&W Act, the Applicant must ensure that the development does not cause any direct or indirect impact on identified Aboriginal heritage items located outside the approved disturbance area of the development. | <p>1. Auditor sighted fencing onsite.</p> <p>2. Photos of ceremonial area for Aboriginal peoples.</p> | There was no evidence of any unauthorised damage to Aboriginal heritage sites either observed or documented and sighted by the auditors. | Compliant | |
| ABORIGINAL HERITAGE MANAGEMENT PLAN | | | | | | | |
| | 3 | 34 | <p>The Applicant must prepare an Aboriginal Heritage Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;</p> <p>(b) be prepared in consultation with BCD, RAPs and relevant landowners, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise; and</p> <p>(c) include the following for the management of Aboriginal heritage:</p> <ul style="list-style-type: none"> • an Aboriginal cultural heritage education program, to be developed in consultation with relevant RAPs, and used for the induction of all personnel and contractors involved in construction or surface disturbance activities approved under this consent; • details regarding the establishment and role of the Aboriginal Cultural Heritage Working Group in monitoring and managing cultural heritage; • details regarding the management of the Yorks Creek Voluntary Conservation Area and Aboriginal heritage sites within the Mount Owen Complex that would not be disturbed by the development; • a program and description of the measures/procedures that would be implemented for: <ul style="list-style-type: none"> • protecting, monitoring and/or managing (including any proposed archaeological investigations and/or salvage measures) Aboriginal cultural heritage on site including specific measures to protect AHIMS Site #37-3-0687 (unless separate approval is obtained for its salvage); | 1. ACHMP | <p>a) ACHMP Appendix A (this endorsement is for the preceding version of this Plan, however, the preceding version was authored by Ben Churcher of OzArk Environment & Heritage). This version (V7) was review ed and endorsed by Ben Churcher.</p> <p>b) ACHMP Section 1.4 and Appendix B (all heritage items to be managed by this ACHMP are located on land owned by Glencore Coal Assets Australia Pty Limited. As such, additional landholder consultation was not required)</p> <p>c) ACHMP:</p> <ul style="list-style-type: none"> ▪ Section 4 ▪ Section 1.4.3.1 and Appendix D ▪ Section 3 and Appendix E ▪ Section 5.5, 6 and 6.3.1 ▪ Section 6.1 and Section 6.2 ▪ Section 1.4.3.2 | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <ul style="list-style-type: none"> managing any new Aboriginal objects or skeletal remains discovered during the development; maintaining and managing reasonable access for relevant Aboriginal stakeholders to heritage items on site and within offset areas; and ongoing consultation and involvement of relevant Aboriginal stakeholders (including RAPs) in the conservation and/or management of Aboriginal cultural heritage on the site; and a strategy for the storage of heritage items salvaged on site, both during the development and in the long term, including: <ul style="list-style-type: none"> an interim strategy for the storage of heritage items pending the completion of the Wollombi Brook VCA Artefact Storage Facility; and a procedure to consult with the Mount Owen Complex Aboriginal Cultural Heritage Working Group in the development of the Plan of Management for the Wollombi Brook VCA Artefact Storage Facility. <p>The Applicant must implement the Aboriginal Heritage Management Plan as approved by the Secretary.</p> | | <ul style="list-style-type: none"> Section 1.4 Section 5.3.7 Section 5.3.7 <p>ACHMP Section 8.</p> | | |
| HISTORIC HERITAGE MANAGEMENT PLAN | | | | | | | |
| | 3 | 35 | <p>The Applicant must prepare a Historic Heritage Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with the Heritage Branch, Council, local historical organisations and relevant landowners, and submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise; and</p> <p>(b) include the following for the management of historic heritage:</p> <ul style="list-style-type: none"> plans/strategies to monitor, mitigate and manage the effects of blasting on historic heritage items, particularly those identified in condition 13(b), and including details of baseline (ie pre-blasting) and ongoing risk-based dilapidation surveys (subject to landowner access arrangements); ensure any workers on site receive suitable heritage inductions prior to carrying out any activities which may cause impacts to historic heritage, and that suitable records are kept of these inductions; a program and description of the measures/procedures that would be implemented for: <ul style="list-style-type: none"> undertaking surface surveys and archaeological investigations (where subsurface disturbance is proposed) of any items of heritage significance (including the former Ravensworth Public School and Ravensworth village) that would be directly impacted by the Hebden Road construction works; protecting heritage items located outside the disturbance area from the impacts of the development; managing any new historic heritage items discovered during the development; and additional archaeological excavation and/or recording of any significant heritage items requiring demolition. <p>The Applicant must implement the Historic Heritage Management Plan as approved by the Secretary.</p> | <p>Historic Heritage Management Plan:</p> <p>a) Appendix A and Appendix B</p> <p>b) Historic Heritage Management Plan:</p> <ul style="list-style-type: none"> Section 5.3 Section 5.4.3 Surveys completed (see Section 5.1.1, 5.1.2 and OzArk 2017) Section 5.1 and 5.2 Section 5.4.1 Section 5.4.1 Section 6.3. | <p>The plan was found to be compliant with these requirements</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <i>Note: Historic heritage items are shown in Appendix 6.</i> | | | | |
| TRANSPORT | | | | | | | |
| MONITORING OF COAL TRANSPORT | | | | | | | |
| | 3 | 36 | <p>The Applicant must:</p> <p>(a) keep accurate records of the:</p> <ul style="list-style-type: none">• amount of coal transported from the site (on a monthly basis);• date and time of each train movement generated by the development; and <p>(b) make these records available on its website at the end of each calendar year.</p> | <p>1. Coal movement and weight log</p> <p>2. Annual Review.</p> | <p>Auditor sighted the coal loader weight dockets which include date and time of movement in monthly reporting and Annual Reviews.</p> <p>Auditor sighted both monthly reports and annual reviews publicly listed on the Glencore Mt Owen Complex website.</p> | Compliant | |
| HEBDEN ROAD | | | | | | | |
| | 3 | 37 | <p>The Applicant must carry out the Hebden Road upgrade works described in the documents listed in condition 2(a) of Schedule 2 (including all road furniture, safety signage and markings required to meet relevant road standards), in consultation with the RMS and to the satisfaction of Council. These construction works are to be commenced within 12 months of the commencement of mining operations within the disturbance areas shown in Figure 2A of Appendix 2, or as otherwise agreed by the Secretary.</p> <p><i>Note:</i></p> <p><i>If there is a dispute between the relevant parties about the implementation of this condition, then any party may refer the matter to the Secretary for resolution.</i></p> | <p>1. IEA 2017.</p> <p>2. Correspondence from RMS dated 21/03/17 in Traffic Management Plan including Hebden Road upgrade works.</p> | Compliance achieved as noted in the 2017 IEA. | Compliant | |
| MOUNT OWEN RAIL LOOP | | | | | | | |
| | 3 | 38 | <p>The Applicant must construct the additional rail line and its connection with the Mount Owen Rail Loop and Main Northern Rail Line (including any rail furniture and safety signage required to meet relevant connection or safety standards), in consultation with and to the satisfaction of the ARTC.</p> <p><i>Note:</i></p> <p><i>If there is a dispute between the parties about the implementation of this condition, then any party may refer the matter to the Secretary for resolution.</i></p> | No evidence | This work was conducted outside the audit period. | Not Triggered | |
| VISUAL | | | | | | | |
| VISUAL OPERATING CONDITIONS | | | | | | | |

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| | 3 | 39 | <p>The Applicant must:</p> <p>(a) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development;</p> <p>(b) ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure;</p> <p>(c) ensure no in-pit mobile lighting rigs shine directly above the pit wall and other mobile lighting rigs do not shine directly above the horizontal (except where required for emergency safety purposes);</p> <p>(d) ensure that all external lighting associated with the development complies with relevant Australian Standards including <i>Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting</i>, or its latest version; and</p> <p>(e) undertake reasonable and feasible measures to shield views of mining operations and associated equipment from users of public roads and privately-owned residences.</p> | <p>1. Complaints and incidents register</p> <p>2. Auditor sighted onsite 1-2 December 2020 all tree screens within the Mt Owen Complex.</p> | No visual complaints regarding lighting or viewing of mining operations. Auditor sighted onsite 1-2 December 2020 all tree screens within the Mt Owen Complex and evidence of gaps being filled in progressively. | Compliant | |
| | 3 | 39A | <p>By 31 December 2020, unless otherwise agreed by the Secretary, the Applicant must plant the vegetated screen described in SEE (Mod 2), adjacent to Falbrook Road.</p> <p>The Applicant must establish and maintain the vegetated screen to the satisfaction of the Secretary.</p> | 1. The auditor sighted the vegetated screen adjacent to Falbrook Road and other areas where screens were proposed and required in the conditions. | <p>The auditor sighted the completed vegetated screen as described in SEE (Mod 2), adjacent to Falbrook Road.</p> <p>The progress of the plantings will be reported in the ARs.</p> | Compliant | |
| BUSHFIRE MANAGEMENT | | | | | | | |
| | 3 | 40 | <p>The Applicant must:</p> <p>(a) ensure that the development is suitably equipped to respond to any fires on site; and</p> <p>(b) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site.</p> | 1. Auditor sighted onsite during 1-2 December 2020 the MOC Bushfire Management Poster for staff and all onsite personnel. Sighted the bushfire management in training template. | Auditor sighted onsite during 1-2 December 2020 the MOC Bushfire Management Poster for staff and all onsite personnel. Sighted the bushfire management in training template. | Compliant | |
| WASTE | | | | | | | |
| | 3 | 41 | <p>The Applicant must:</p> <p>(a) implement all reasonable and feasible measures to minimise the waste (including coal rejects and tailings) generated by the development;</p> <p>(b) ensure that the waste generated by the development is appropriately stored, handled and disposed of;</p> <p>(c) manage on-site sewage treatment and disposal in accordance with the requirements of Council;</p> <p>and</p> | <p>1. The auditor sighted no Coal Mining Operations (C.M.O) at the STPs.</p> <p>2. The auditor has sighted onsite documentation confirming all Sewerage Treatment Plants (STP) have been approved by Council.</p> | <p>The auditor has sighted onsite documentation confirming all Sewerage Treatment Plants (STP) have been approved by Council.</p> <p>Auditor sighted in C.M.O database</p> | Compliant | |

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| | | | (d) monitor and report on the effectiveness of the waste minimisation and management measures in the annual review referred to in condition 5 of Schedule 5. | | | | | | | | | | |
| REHABILITATION | | | | | | | | | | | | | |
| REHABILITATION OBJECTIVES | | | | | | | | | | | | | |
| | 3 | 42 | <div>The Applicant must rehabilitate the site to the satisfaction of Resources Regulator. This rehabilitation must be generally consistent with the proposed rehabilitation activities described in the documents listed in condition 2(a) of Schedule 2 (and shown conceptually in the Rehabilitation Plans in Appendix 7) and comply with the objectives in Table 10.</div> <div><table><tr><th colspan="2">Table 10: Rehabilitation Objectives</th></tr><tr><th>Feature</th><th>Objective</th></tr><tr><td>Mine site (as a whole)</td><td><ul style="list-style-type: none">Safe, stable and non-pollutingFinal landforms (including final voids) designed to incorporate micro-relief and integrate with surrounding natural landformsConstructed landforms maximise surface water drainage to the natural environment (excluding final void catchments)</td></tr></table></div> | Table 10: Rehabilitation Objectives | | Feature | Objective | Mine site (as a whole) | <ul style="list-style-type: none">Safe, stable and non-pollutingFinal landforms (including final voids) designed to incorporate micro-relief and integrate with surrounding natural landformsConstructed landforms maximise surface water drainage to the natural environment (excluding final void catchments) | <div>1. Auditor sighted Mine Operation Plan (MOP)</div> <div>2. Auditor sighted Rehabilitation Strategy</div> <div>3. Auditor sighted the Annual Reviews 2017-2019.</div> | <div>The auditor sighted onsite the MOP, Rehabilitation Strategy and reviewed the rehabilitation during the onsite visit.</div> <div>The auditor also reviewed the rehabilitation and survey sections of the Annual Reviews from 2017-2019.</div> <div>MinSoils Rehab specialist:</div> <div>“The site was found to be on track with rehabilitation efforts and whilst some of these requirements are not yet triggered for compliance purposes, the site was generally in accordance with or tracking towards the rehabilitation objectives. Weed management continues to be a challenge on site and it was noted the increase in spending and resources t towards this aspect was significant in recent years.</div> <div>General Findings:</div> <div>The site is fulfilling MOP rehabilitation areas with a decrease in TSF rehabilitation and to offset this, an increase in dump rehabilitation areas.</div> <div>Erosion: The WOOP dump erosion gully will be re-disturbed and rehabilitated with ongoing operations. There are some minor erosion rills on rehabilitation areas however these are considered general maintenance issues which are addressed regularly on site.</div> <div>It was observed that new areas for rehabilitation are being prepared to sow, indicating regular rehabilitation activities.</div> <div>It is understood that there is a topsoil shortage of approximately 50 ha + 80 ha and therefore various substitutes/ameliorants are being considered and trialled.</div> <div>The integration of tailings management with adjacent sites provides various options for</div> | Compliant | |
| Table 10: Rehabilitation Objectives | | | | | | | | | | | | | |
| Feature | Objective | | | | | | | | | | | | |
| Mine site (as a whole) | <ul style="list-style-type: none">Safe, stable and non-pollutingFinal landforms (including final voids) designed to incorporate micro-relief and integrate with surrounding natural landformsConstructed landforms maximise surface water drainage to the natural environment (excluding final void catchments) | | | | | | | | | | | | |

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| | | | <table><thead><tr><th>Feature</th><th>Objective</th></tr></thead><tbody><tr><td></td><td><ul style="list-style-type: none">Minimise long term groundwater seepage zonesMinimise visual impact of final landforms as far as is reasonable and feasibleFinal landforms designed in consideration of water licensing requirements, as calculated through consultation with DPIE Water</td></tr><tr><td>Final voids</td><td><ul style="list-style-type: none">Designed as long-term groundwater sinks to prevent the release of saline water into the surrounding environment, unless further mine planning and final landform design processes identify a more suitable outcome for the final voids (see condition 43 of Schedule 3)Designed as to ensure sufficient freeboard at all times to minimise the risk of discharge to surface watersMinimise to the greatest extent practicable:<ul style="list-style-type: none">highwall slopes (excluding slopes below the post-mining standing water level);the size and depth of final voids;the drainage catchment of final voids;any high wall instability risk; andthe risk of flood interaction for all flood events up to and including the Probable Maximum FloodVegetate upper benches with a mixture of native species of varied heights</td></tr><tr><td>Rehabilitation areas and other vegetated land</td><td><ul style="list-style-type: none">Restore at least 2037 ha of self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area, as shown conceptually in Figure 7A in Appendix 7Establish areas of self-sustaining:<ul style="list-style-type: none">riparian habitat, within any diverted and/or re-established creek lines and retained water features;potential habitat for threatened flora and fauna species; andwildlife corridors, as far as is reasonable and feasible, and as shown conceptually in Figure 7B in Appendix 7</td></tr><tr><td>Agricultural land</td><td><ul style="list-style-type: none">Rehabilitate grassland areas identified in Appendix 7 as being potential grazing areas to support sustainable grazing activities</td></tr><tr><td>Creek restoration works</td><td><ul style="list-style-type: none">Engineered to be hydraulically and geomorphologically stableIncorporate erosion control measures based on vegetation and engineering revetmentsIncorporate structures for aquatic habitatRevegetate with suitable native species</td></tr><tr><td>Surface infrastructure</td><td><ul style="list-style-type: none">To be decommissioned and removed, unless Resources Regulator agrees otherwise</td></tr><tr><td>Water Quality</td><td><ul style="list-style-type: none">Water retained on the site is fit for the intended post-mining land use/sWater discharged from the site is suitable for receiving waters and is capable of supporting existing aquatic ecology and riparian vegetation</td></tr><tr><td>Community</td><td><ul style="list-style-type: none">Ensure public safetyMinimise adverse socio-economic effects associated with mine closure</td></tr></tbody></table> <p>Note: * The long term conservation of the Rehabilitation Woodland offset area identified in Table 9 will be satisfied in accordance with condition 29. The conservation values of the remaining native woodland restored under this condition will be established in accordance with the Rehabilitation Strategy required under condition 43, and managed and enhanced, in accordance with the Rehabilitation Management Plan required under condition 45.</p> | Feature | Objective | | <ul style="list-style-type: none">Minimise long term groundwater seepage zonesMinimise visual impact of final landforms as far as is reasonable and feasibleFinal landforms designed in consideration of water licensing requirements, as calculated through consultation with DPIE Water | Final voids | <ul style="list-style-type: none">Designed as long-term groundwater sinks to prevent the release of saline water into the surrounding environment, unless further mine planning and final landform design processes identify a more suitable outcome for the final voids (see condition 43 of Schedule 3)Designed as to ensure sufficient freeboard at all times to minimise the risk of discharge to surface watersMinimise to the greatest extent practicable:<ul style="list-style-type: none">highwall slopes (excluding slopes below the post-mining standing water level);the size and depth of final voids;the drainage catchment of final voids;any high wall instability risk; andthe risk of flood interaction for all flood events up to and including the Probable Maximum FloodVegetate upper benches with a mixture of native species of varied heights | Rehabilitation areas and other vegetated land | <ul style="list-style-type: none">Restore at least 2037 ha of self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area, as shown conceptually in Figure 7A in Appendix 7Establish areas of self-sustaining:<ul style="list-style-type: none">riparian habitat, within any diverted and/or re-established creek lines and retained water features;potential habitat for threatened flora and fauna species; andwildlife corridors, as far as is reasonable and feasible, and as shown conceptually in Figure 7B in Appendix 7 | Agricultural land | <ul style="list-style-type: none">Rehabilitate grassland areas identified in Appendix 7 as being potential grazing areas to support sustainable grazing activities | Creek restoration works | <ul style="list-style-type: none">Engineered to be hydraulically and geomorphologically stableIncorporate erosion control measures based on vegetation and engineering revetmentsIncorporate structures for aquatic habitatRevegetate with suitable native species | Surface infrastructure | <ul style="list-style-type: none">To be decommissioned and removed, unless Resources Regulator agrees otherwise | Water Quality | <ul style="list-style-type: none">Water retained on the site is fit for the intended post-mining land use/sWater discharged from the site is suitable for receiving waters and is capable of supporting existing aquatic ecology and riparian vegetation | Community | <ul style="list-style-type: none">Ensure public safetyMinimise adverse socio-economic effects associated with mine closure | | <p>tailings management and future rehabilitation options, more so than operating within a one closed site system. This appears to be win win for the sites and should be encouraged.</p> <p>CMO is used on site for compliance actions including rehabilitation. This provides a system based actions program without reliance on specific personnel, which reduces the impact of staff turnover on fulfilling rehabilitation actions.</p> <p>Onsite evidence and flora surveys indicated much of the rehabilitation was tracking towards completion criteria and furthermore for those areas not tracking towards completion criteria adequately, management actions such as thinning, weed control and supplemental planting was being undertaken. An example seen on site was the Northern area of the WOOP Dump which included re ripping and re-sowing.</p> <p>Topsoil stockpiles: it was noted one stockpile was covered in thistle however it is understood this was recently sprayed.</p> <p>Rehabilitation tracks and stockpiles were well signposted. Tracks through the rehabilitation require some maintenance in places before the erosion rills become gullies and the repair efforts multiply. Some tracks also require mitre drains and roll overs to be installed to facilitate longer term stability.</p> <p>As mentioned above the weeds are actively managed and there has been a significant (x3) increase in allocated budget for this in recent years.</p> <p>It was noted that a seed nursery has been established on site. Nest boxes have been installed, the landform includes a variety of slopes and drainage patterns in line with the MOP."</p> | | |
| Feature | Objective | | | | | | | | | | | | | | | | | | | | | | | | |
| | <ul style="list-style-type: none">Minimise long term groundwater seepage zonesMinimise visual impact of final landforms as far as is reasonable and feasibleFinal landforms designed in consideration of water licensing requirements, as calculated through consultation with DPIE Water | | | | | | | | | | | | | | | | | | | | | | | | |
| Final voids | <ul style="list-style-type: none">Designed as long-term groundwater sinks to prevent the release of saline water into the surrounding environment, unless further mine planning and final landform design processes identify a more suitable outcome for the final voids (see condition 43 of Schedule 3)Designed as to ensure sufficient freeboard at all times to minimise the risk of discharge to surface watersMinimise to the greatest extent practicable:<ul style="list-style-type: none">highwall slopes (excluding slopes below the post-mining standing water level);the size and depth of final voids;the drainage catchment of final voids;any high wall instability risk; andthe risk of flood interaction for all flood events up to and including the Probable Maximum FloodVegetate upper benches with a mixture of native species of varied heights | | | | | | | | | | | | | | | | | | | | | | | | |
| Rehabilitation areas and other vegetated land | <ul style="list-style-type: none">Restore at least 2037 ha of self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area, as shown conceptually in Figure 7A in Appendix 7Establish areas of self-sustaining:<ul style="list-style-type: none">riparian habitat, within any diverted and/or re-established creek lines and retained water features;potential habitat for threatened flora and fauna species; andwildlife corridors, as far as is reasonable and feasible, and as shown conceptually in Figure 7B in Appendix 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| Agricultural land | <ul style="list-style-type: none">Rehabilitate grassland areas identified in Appendix 7 as being potential grazing areas to support sustainable grazing activities | | | | | | | | | | | | | | | | | | | | | | | | |
| Creek restoration works | <ul style="list-style-type: none">Engineered to be hydraulically and geomorphologically stableIncorporate erosion control measures based on vegetation and engineering revetmentsIncorporate structures for aquatic habitatRevegetate with suitable native species | | | | | | | | | | | | | | | | | | | | | | | | |
| Surface infrastructure | <ul style="list-style-type: none">To be decommissioned and removed, unless Resources Regulator agrees otherwise | | | | | | | | | | | | | | | | | | | | | | | | |
| Water Quality | <ul style="list-style-type: none">Water retained on the site is fit for the intended post-mining land use/sWater discharged from the site is suitable for receiving waters and is capable of supporting existing aquatic ecology and riparian vegetation | | | | | | | | | | | | | | | | | | | | | | | | |
| Community | <ul style="list-style-type: none">Ensure public safetyMinimise adverse socio-economic effects associated with mine closure | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 42A | The rehabilitation objectives in Table 10 apply to the entire site, including all landforms constructed under either this consent or previous development consents. However, they do not require any additional earthmoving works to be undertaken for landforms that have been approved and constructed under previous consents. | Site Inspection of Rehabilitation areas | "The site was found to be on track with rehabilitation efforts and whilst some of these requirements are not yet triggered for compliance purposes, the site was generally in accordance with or tracking towards the rehabilitation objectives. Weed management continues to be a challenge on site and it was | Compliant | | | | | | | | | | | | | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | | | noted the increase in spending and resources towards this aspect was significant in recent years." MinSoils | | |
| REHABILITATION STRATEGY | | | | | | | |
| | 3 | 43 | <p>The Applicant must prepare a Rehabilitation Strategy for the Mount Owen Complex to the satisfaction of the Secretary. This strategy must:</p> <p>(a) be prepared in consultation with Resources Regulator and Council, and be submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b) build upon the Rehabilitation Objectives in Table 10 and the Rehabilitation Plans shown in Appendix 7, including identification of opportunities for increasing the areas of woodland and habitat connectivity within the rehabilitated landscape;</p> <p>(c) include details of the canopy, sub-canopy, understorey and ground strata species to be established in the rehabilitation areas, with a particular focus on ensuring the achievement of an appropriate level of diversity and mix of functional groups within each target community;</p> <p>(d) identify opportunities for the incorporation of preferred feed trees, foraging resources and habitat for threatened fauna species identified in condition 28;</p> <p>(e) align with strategic rehabilitation and mine closure objectives and address the principles of the <i>Strategic Framework for Mine Closure</i> (ANZMEC and MCA, 2000);</p> <p>(f) identify and describe all rehabilitation domains, and define completion criteria for each;</p> <p>(g) include indicative mine plans and scheduling for life-of-mine rehabilitation showing each domain;</p> <p>(h) describe how rehabilitation will be integrated with the mine planning process, including a plan to address premature or temporary mine closure;</p> <p>(i) investigate opportunities to refine and improve the final landform and final void outcomes over time;</p> <p>(j) include a risks and opportunities assessment and risk register; and</p> <p>(k) include a stakeholder engagement plan to guide rehabilitation and mine closure planning processes and outcomes.</p> <p>The Applicant must implement the Rehabilitation Strategy as approved by the Secretary.</p> | <p>1. Evidence of consultation with Resources Regulator of the provided Rehabilitation Strategy for the Mt Owen Complex is in the Rehab Plan (MOP).</p> <p>2. Evidence of consultation with stakeholders</p> <p>3. Annual Rehabilitation Monitoring in Rehabilitation Reports 2017-2020</p> | <p>The auditor sighted onsite the MOP, Rehabilitation Strategy and reviewed the rehabilitation during the onsite visit.</p> <p>The auditor also reviewed the rehabilitation and survey sections of the Annual Reviews from 2017-2019.</p> <p>MinSoils Rehab Specialist:</p> <p>"a) Rehabilitation Strategy approved on 13/05/2020. Rehabilitation is conducted in line with MOC MOP (Currently Jan 2020 - June 2024). MOC also rehabilitation results in the MOC Annual Review. Rehabilitation Strategy Section 2.3.</p> <p>b) The rehabilitation observed on site is compliant with Table 10 conditions, with observations also made that larger areas being targeted for establishing woodland on overburden dumps to ensure connectivity. Rehabilitation Strategy Mount Owen Complex: Sections 3.1 and 3.2. See also section 1.4, 2, 5 and Figure 2.1.</p> <p>c) Section 5.7 and Appendix A. Also Flora and Fauna Management Plan.</p> <p>d) Section 5.7.</p> <p>e) Section 2.2.</p> <p>f) Section 3.</p> <p>g) Section 5.7.</p> <p>h) Sections 2.1 and 5.7.</p> <p>i) Sections 2.1 and 5.4.</p> <p>j) Sections 5.10 and Appendix B</p> <p>k) Section 2.3</p> <p>Site inspection indicated the Rehabilitation Strategy was being implemented on site.</p> | Compliant | |
| PROGRESSIVE REHABILITATION | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | 3 | 44 | <p>The Applicant must rehabilitate the site progressively as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation cannot be permanently rehabilitated.</p> <p><i>Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development.</i></p> | <p>1. MOP</p> <p>2. Annual Fauna Monitoring Biodiversity offsets report 2019</p> <p>3. Annual Fauna Monitoring Report 2017-2019</p> <p>4. Annual Flora Monitoring Report 2017</p> <p>5. Annual Flora Monitoring Report 2018 - Conservation Agreements Offsets</p> <p>6. Annual Flora Monitoring Report 2019 - Conservation Agreements Offsets</p> <p>7. Annual Flora Monitoring Report 2019 - Stewardship Agreement Baseline.</p> | <p>The auditor has reviewed the MOP and deems it to be adequate for the objective of progressive rehabilitation.</p> <p>The site was sighted by the auditor, there was no evidence of dust generation onsite 1-2 December 2020.</p> <p>MinSoil rehab Specialist:</p> <p>"The site inspection confirmed areas that were not considered active mining were either rehabilitated or being prepared for rehabilitation (reshaping, topsoiling, ripping, ameliorating or sowing). There was no evidence of significant areas likely to cause dust that were not active mining areas or in the process of being rehabilitated."</p> | Compliant | |
| REHABILITATION MANAGEMENT PLAN | | | | | | | |
| | 3 | 45 | <p>The Applicant must prepare a Rehabilitation Management Plan for the Mount Owen Complex to the satisfaction of Resources Regulator. This plan must:</p> <p>(a) be prepared in consultation with the Department, DPIE Water, BCD, DRG, DSC, Council and the CCC, and submitted to Resources Regulator for approval prior to the commencement of mining operations under this consent, unless the Secretary agrees otherwise;</p> <p>(b) be prepared in accordance with any relevant Resources Regulator guideline;</p> <p>(c) describe how the rehabilitation of the site would achieve the objectives identified in Table 10, the outcomes described in the Rehabilitation Strategy in condition 45 and be integrated with the Biodiversity Offset Strategy described in condition 27;</p> <p>(d) include a detailed Tailings Management Plan for the development;</p> <p>(e) include a detailed soil and growing medium balance for the development;</p> <p>(f) include a detailed plan for the reinstatement and review of the proposed: • agricultural land capability of grassland areas in the final landform, including a protocol for periodic trials to demonstrate that the land capability is being achieved; and</p> <p>• rehabilitated woodland areas and fauna habitat, including a protocol for periodic trials to demonstrate that</p> <p>• the target vegetation community is being achieved;</p> <p>(g) include detailed performance and completion criteria for each rehabilitation domain, and triggers for remedial actions;</p> <p>(g1) include detailed mine plans and scheduling for progressive rehabilitation to be initiated, undertaken and/or completed over the next three years, or other suitable time period as agreed with the Resources Regulator;</p> <p>(h) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform (including final voids), final land uses and water management in the final landform;</p> | <p>1. 2017 IEA</p> <p>2. Rehabilitation Management Plan</p> <p>3. Rehabilitation Strategy</p> <p>4. Biodiversity Management Plan</p> <p>5. Approval from Resources Regulator</p> <p>6. November 2019 Ltr from DPI Water approving of the plan.</p> | <p>a) IEA 2017 confirms compliance. Extract from 2017 IEA: Viewed approval from DRE dated 17/03/17. Viewed letter from DPI-Water dated 14/03/17 with recommendations. Viewed letter from OEH dated 17/02/17. Viewed letter from DPI dated 23/02/17. Comments from Council were received on 12/02/16. A meeting with CCC was held on 11/11/16.</p> <p>All recommendations from DPI-Water should be included (Updates to Table 20).</p> <p>b). IEA 2017 confirms compliance. Extract from 2017 IEA: prepared in accordance with DRE guidelines (Section 1.3), also revised version currently in draft form also in accordance with DRE guidelines.</p> <p>Report has been approved and updated in March 2020.</p> <p>c). Rehabilitation Strategy includes Section 3 & 5. Also, Sections 1.4, 2 and Figure 2.1.</p> <p>d) Tailings Management Plan is in the MOP, adequacy is debatable but there is also a statutory Tailings Management Plan.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>(i) include procedures for the use of interim stabilisation and temporary vegetation strategies, where reasonable and feasible to minimise the area exposed for dust generation;</p> <p>(j) identify how rehabilitation activities will implement the findings of any previous Mount Owen Research programs, research commitments identified in the EIS and the Hunter Ironbark Research Program being undertaken at the Ravensworth Complex;</p> <p>(k) include a program to monitor, independently audit and report on the effectiveness of the measures in paragraph (h) above, and progress against the detailed performance and completion criteria in paragraph (g) above (at a minimum these reporting requirements must be included as part of the annual review referred to in condition 5 of Schedule 5); and</p> <p>(l) build on and integrate with the other management plans required under this consent.</p> <p>The Applicant must implement the Rehabilitation Management Plan as approved to the satisfaction of Resources Regulator.</p> | | <p>e) Section 3.3.6 shows simplified topsoil balance.</p> <p>f) Section 8.2</p> <p>g) Section 6 and 9 and g1) Section 7.3</p> <p>h) Section 6 and 7</p> <p>i) Section 2.2.8</p> <p>j) Section 8.2</p> <p>k) Section 8</p> <p>l) Section 3.2</p> | | |
| | 3 | 46 | <p>By 31 December 2032, the Applicant must prepare a Mine Closure Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with the Resources Regulator, BCD, Council and FCNSW;</p> <p>(b) include a final land use strategy which investigates potential post-mining beneficial land uses for the site (including the final voids), that:</p> <ul style="list-style-type: none"> • reflect local strategic planning instruments; • contribute to a sustainable future for the local community; • utilise existing mining infrastructure, where practicable; and • do not compromise ecological rehabilitation requirements; <p>(c) investigate ways to minimise adverse socio-economic effects associated with mine closure, including reduction in local employment levels;</p> <p>(d) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development and describe how the performance of these measures would be monitored over time; and</p> <p>(e) discuss the results of community consultation regarding potential post-mining land uses.</p> <p>The Applicant must implement the Mine Closure Plan as approved by the Secretary.</p> | | <p>Whilst long term landform planning is an ongoing process on site, and evidence was noted of these considerations in the land management and rehabilitation processes, this condition is not triggered.</p> | Not Triggered | |
| SCHEDULE 4 – ADDITIONAL PROCEDURES | | | | | | | |
| NOTIFICATION OF LANDOWNERS/TENANTS | | | | | | | |
| | 4 | 1 | <p>Within 2 months of the commencement of development under this consent, the Applicant must:</p> | <p>1. Air conditioning subsidy email to MGO dated 20/04/2020 Regarding resident at 762</p> | <p>The condition was deemed compliant in the previous audit in 2017.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>(a) notify in writing the owner of:</p> <ul style="list-style-type: none"> the land listed in Table 1 of Schedule 3 that they have the right to require the Applicant to acquire their land at any stage during the development; the residences listed in Tables 1 and 2 of Schedule 3 that they are entitled to ask the Applicant to install additional noise mitigation measures at the residence; and any privately-owned land within 3 kilometres of the approved open cut mining pit/s that they are entitled to ask the Applicant for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated; <p>(b) notify the tenants of any mine-owned land of their rights under this consent; and</p> <p>(c) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the documents listed in condition 2(a) of Schedule 2 identify that dust emissions generated by the development are likely to be greater than the relevant air quality criteria in Schedule 3 at any time during the life of the development.</p> <p>Within 2 months of any modification to the conditions of this consent that leads to new land being added to Tables 1 or 2 of Schedule 3, the Applicant must notify affected land owners in accordance with the requirements of paragraph (a).</p> | Glennies Creek Road, Glennies Creek residence. | <p>The auditor sighted a request to add air conditioning at a resident that was in in the audit period.</p> <p>Air conditioning subsidy email to MGO dated 20/04/2020 Regarding resident at 762 Glennies Creek Road, Glennies Creek. RE: Please consider this email our formal request for assistance with air conditioning as per Mt Owen MOD2 at our residence: 762 Glennies Creek Road GLENNIES CREEK. This is on accordance with Schedule 3, Condition 2 of SSD5850 was sighted by the auditor.</p> | | |
| | 4 | 2 | <p>Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended dust and/or noise criteria, the Applicant must:</p> <p>(a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and</p> <p>(b) advise the prospective tenants of the rights they would have under this consent, to the satisfaction of the Secretary.</p> | <p>1. Auditor sighted email for the "Mine Dust and You" from Property Lawyers confirming Dust Fact sheet was sent out.</p> <p>2. Auditor sighted letter sent to DPIE Secretary, no acknowledgement to date from Secretary.</p> | <p>Auditor sighted email for the "Mine Dust and You" from Property Lawyers confirming Dust Fact sheet was sent out.</p> <p>b) Clause 34 Tenancy Agreement applies, and auditor sighted letter sent to DPIE Secretary, no acknowledgement to date from Secretary.</p> | Compliant | |
| | 4 | 3 | <p>As soon as practicable after obtaining monitoring results showing:</p> <p>(a) an exceedance of any relevant criteria in Schedule 3, the Applicant must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and</p> <p>(b) an exceedance of the relevant air quality criteria in Schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).</p> | 1. Dust Gauge DG8 sighted by the auditor onsite | | Compliant | |
| INDEPENDENT REVIEW | | | | | | | |
| | 4 | 4 | <p>If an owner of privately-owned land considers the development to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.</p> <p>If the Secretary is not satisfied that an independent review is warranted, the Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.</p> | Not Triggered | Not Triggered | Not Triggered | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <p>If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, the Applicant must:</p> <p>(a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to:</p> <ul style="list-style-type: none"> • consult with the landowner to determine his/her concerns; • conduct monitoring to determine whether the development is complying with the relevant impact assessment criteria in Schedule 3; and ▪ if the development is not complying with these criteria then: <ul style="list-style-type: none"> ○ determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine regarding the impact on the land; ○ identify the measures that could be implemented to ensure compliance with the relevant criteria; and <p>(b) give the Secretary and landowner a copy of the independent review.</p> | | | | |
| LAND ACQUISITION | | | | | | | |
| | 4 | 5 | <p>Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:</p> <p>(a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the development, having regard to the:</p> <ul style="list-style-type: none"> • existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and • presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional noise and/or air quality mitigation measures in condition 2 of Schedule 3; <p>(b) the reasonable costs associated with:</p> <ul style="list-style-type: none"> • relocating within the Singleton, Cessnock or Muswellbrook local government area, or to any other local government area determined by the Secretary; and • obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and <p>(c) reasonable compensation for any disturbance caused by the land acquisition process. If, within two months of the binding written offer being made, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.</p> <p>Upon receiving such a request, the Secretary will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:</p> <ul style="list-style-type: none"> • consider submissions from both parties; • determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above; | <p>1. IEA 2017</p> <p>2. No evidence of written requests from landowners regarding acquisition request.</p> | <p>Previous audit 2017 deemed condition compliant.</p> <p>No written requests from a landowners regarding this condition has occurred within the audit period.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <ul style="list-style-type: none"> prepare a detailed report setting out the reasons for any determination; and provide a copy of the report to both parties. <p>Within 14 days of receiving the independent valuer's report, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.</p> <p>However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.</p> <p>Within 14 days of this determination, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination.</p> <p>If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise.</p> <p>6. The Applicant must pay all reasonable costs associated with the land acquisition process described in condition 5 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.</p> | | | | |
| SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING | | | | | | | |
| ENVIRONMENTAL MANAGEMENT | | | | | | | |
| ADAPTIVE MANAGEMENT | | | | | | | |
| | 5 | 1 | <p>The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.</p> <p>Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:</p> <p>(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;</p> | <p>1. Annual Review 2017-2019</p> <p>2. Letter of approval / Satisfaction from Secretary</p> <p>3. Letters from Secretary regarding review of Annual Reviews in regard to updating the reports to achieve a satisfactory approval from the Secretary.</p> | <p>The auditor sighted the Annual Reviews 2017-2019 and deems the MGO is generally compliant with the conditions.</p> <p>In the Annual Reviews include a list of non-compliances with associated action either undertaken or in process of undertaking. (a-c)</p> <p>The Annual Reviews are submitted to the Secretary for review and to receive satisfaction of the Secretary. (b-c). The auditor has viewed Secretary responses to</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and (c) implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary. | | the Annual Reviews and the report has been updated after this consultation and achieved Secretary satisfaction. | | |
| | 5 | 2 | <p>The Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:</p> <p>(a) be submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b) provide the strategic framework for the environmental management of the development;</p> <p>(c) identify the statutory approvals that apply to the development;</p> <p>(d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;</p> <p>(e) describe the procedures that would be implemented to:</p> <ul style="list-style-type: none"> • keep the local community and relevant agencies informed about the operation and environmental performance of the development; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the development; • respond to any non-compliance; • respond to emergencies; and <p>(f) include:</p> <ul style="list-style-type: none"> • copies of any strategies, plans and programs approved under the conditions of this consent; and • a clear plan depicting all the monitoring required to be carried out under the conditions of this consent. <p>The Applicant must implement the approved Environmental Management Strategy as approved from time to time by the Secretary.</p> | <p>1. IEA 2017</p> <p>2. Revised Environmental Management Framework</p> <p>3. EMF submitted to the DP&E on 8 February 2017</p> <p>4. EMF resubmitted to the DP&E on 12 October 2017.</p> | <p>The condition was compliant in the previous audit in 2017.</p> <p>Changes to the EMS (now named the Environmental Management Framework (EMF) has occurred during the audit period.</p> <p>EMF submitted to the DP&E on 8 February 2017 for review and comment.</p> <p>The Secretary has not yet requested a Framework be prepared, however the DP&E reviewed the draft Framework and comments were provided on 4 April 2017.</p> <p>Framework has since been revised to incorporate these comments and was re-submitted to the DP&E on 12 October 2017.</p> | Compliant | |
| MANAGEMENT PLAN REQUIREMENTS | | | | | | | |
| | 5 | 3 | <p>The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) detailed baseline data;</p> <p>(b) a description of:</p> <ul style="list-style-type: none"> • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; <p>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> • impacts and environmental performance of the development; • effectiveness of any management measures (see c above); <p>(e) a contingency plan to manage any unpredicted impacts and their consequences;</p> <p>(f) a program to investigate and implement ways to improve the environmental performance of the development over time;</p> | <p>1. Annual Reviews 2017 – 2019</p> <p>2. Approved Management Plans on Glencore website.</p> | <p>Auditor sighted the Annual Reviews 2017-2019 which provided the required information to assist in fulfilling conditions a-h. The Annual Reviews list actions in relation to any non-compliances and recommendations within the year and summarises them in Sections 9.3, 9.4, Section 10, 11, and Section 12.</p> <p>See main report for the specific management plans review.</p> | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | (g) a protocol for managing and reporting any: <ul style="list-style-type: none"> incidents; complaints; non-compliances with statutory requirements; and exceedances of the impact assessment criteria and/or performance criteria; and (h) a protocol for periodic review of the plan. <i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i> | | | | |
| RELATIONSHIPS BETWEEN MANAGEMENT PLANS AND ANNUAL REVIEW | | | | | | | |
| | 5 | 4 | With the agreement of the Secretary, the Applicant may combine any strategy, plan, program or Annual review required by this consent with any similar strategy, plan, program or Annual Review required for the Glendell Mine, Integra Underground Mine or any other adjoining operation in common ownership or management. | 1. Glencore website of management plans. | Most of the management plans for the sites are combined and manage issues across the MGO complex. | Compliant | |
| ANNUAL REVIEW | | | | | | | |
| | 5 | 5 | By the end of March each year, or as otherwise agreed with the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must: <ul style="list-style-type: none"> (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year; (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: <ul style="list-style-type: none"> relevant statutory requirements, limits or performance measures/criteria; monitoring results of previous years; and relevant predictions in the documents listed in condition 2(a) of Schedule 2; (c) identify any non-compliance or incident over the past year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence; (d) identify any trends in the monitoring data over the life of the development; (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the next year to improve the environmental performance of the development. | 1. Annual Reviews 2017-2019 2. Letters from DPIE Secretary approval of the following Annual Reviews: 2017 – 14/08/2018 2018 – 08/7/2019 | 2017 IEA Recommendation response: As per letter from DP&E for changes in future annual reviews dated 22/05/17. Changes included showing regional features in plans and assessing environmental performance with predictions in the environmental assessments. Some of these comparisons were made in the past Annual Reviews but not for all aspects e.g. waste. In this audit period waste is included and provided in Section 4. | Compliant | |
| REVISION OF STRATEGIES, PLANS AND PROGRAMS | | | | | | | |
| | 5 | 6 | Within 3 months of: (a) the submission of an annual review under condition 5 above; (b) the submission of an incident report under condition 9 below; (c) the submission of an audit under condition 11 below; or | 1. Annual Reviews 2. Incident register | Auditor sighted all annual reviews and confirmed the incident reports were provided in Section 11 in Annual Reviews. | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|----------------------------------|-----|------|--|---|--|-------------------|---|
| | | | <p>(d) any modification to the conditions of this consent (unless the conditions require otherwise);</p> <p>the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.</p> <p>If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Secretary. Where revisions are required, the revised document must be submitted to the Secretary for approval within six weeks of the review.</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> • This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development. | <p>3. Modifications to the consent</p> <p>4. Strategies and Plans</p> | <p>Compliant, evidence in CMO and SharePoint provided</p> <p>Incident register is provided in Annual Reviews in corresponding years:</p> <p>2017 Annual Review provided in Appendix A, Table 1.</p> <p>2018 Annual Review provided in Appendix C, Table 2.</p> <p>2019 Annual Review provided in Appendix C, Table 2.</p> | | |
| | 5 | 7 | The Applicant must continue to apply existing management strategies, plans or programs approved prior to the approval of Modification 2, until the approval of a similar plan, strategy or program following the approval of Modification 2. | | Noted | Noted | |
| COMMUNITY CONSULTATIVE COMMITTEE | | | | | | | |
| | 5 | 8 | <p>The Applicant must operate a Community Consultative Committee (CCC) for the Mount Owen Complex to the satisfaction of the Secretary. This CCC must be operated in general accordance with the Department's Community Consultative Committee Guidelines State Significant Projects (January 2019), or its latest version.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> • The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent. • In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community. • The Department will accept continued representation by community members of a CCC that is in effect as at the date of this consent for any of the mines in the Complex. The Department will also accept the combination of the Mount Owen Complex CCC with the Integra Underground CCC. | <p>1. CCC meeting minutes on the publicly available Glencore Mt Owen Complex website.</p> <p>2. DPIE letter of biased CCC member.</p> | <p>Auditor sighted CCC meeting minutes on the publicly available Glencore Mt Owen Complex website for the audit period.</p> <p>The CCC is operating in general accordance with the condition.</p> <p>Recommendation from DPIE was to ensure all members do not have a connection to the mine, therefore a member of council was suggested to leave the CCC which was actioned.</p> | Compliant | |
| REPORTING | | | | | | | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|---------------------------------|-----|------|---|--|--|-------------------|---|
| INCIDENT REPORTING | | | | | | | |
| | 5 | 9 | The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident. | 1. Annual Reviews 2017-2019 2. Annual returns 3. Incident register | The Annual Reviews 2017-2019 were reviewed by the Auditor and all reportable incidents were notified. Annual returns for the EPL were reviewed. No evidence of incidents not reported that were known within the audit period. | Compliant | |
| | 5 | 9A | Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. <i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</i> | The Annual Reviews 2017-2019 were reviewed by the Auditor and all non-compliances were notified to DPIE within seven days of MGO becoming aware of the non-compliance. | The Annual Reviews 2017-2019 were reviewed by the Auditor and all non-compliances were notified to DPIE within seven days of MGO becoming aware of the non-compliance. | Compliant | |
| REGULAR REPORTING | | | | | | | |
| | 5 | 10 | The Applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent, and to the satisfaction of the Secretary. | 1. Management Plans 2. Website reporting. | Auditor has sighted reporting including monthly and Annual reporting on public website in accordance with specific management plans. | Compliant | |
| INDEPENDENT ENVIRONMENTAL AUDIT | | | | | | | |
| | 5 | 11 | Within one year of the date of commencement of development under this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. This audit must: (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; (b) include consultation with the relevant agencies and the CCC; (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease or necessary water licences (including any assessment, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals (including whether the development has met or is trended towards the progressive performance and completion criteria detailed in these strategies, plans or programs); (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under these approvals; and (f) be conducted and reported to the satisfaction of the Secretary | 1. IEA 2020 2. Approval letter from DPIE for audit. 3. IEA 2017 | The past IEA and 2020 IEA have been paid and conducted in accordance with the condition. | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|-----------------------|-----|------|--|---|--|-------------------|---|
| | | | <i>Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary.</i> | | | | |
| | 5 | 12 | Within 12 weeks of commissioning of this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary and any other NSW Government agency that request it, together with its response to any recommendations contained in the audit report and a timetable for the implementation of these recommendations, as required. The Applicant must implement the audit report recommendations, to the satisfaction of the Secretary | 1. IEA 2017 | The IEA 2017 was submitted in accordance with the condition. Majority of non-compliances were actioned in accordance with the recommendations however some are still in progress. Progress is reported regularly in the ARs. | Compliant | |
| | 5 | 12A | Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit. <i>Note: For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.</i> | Notes | Noted | Noted | |
| | 5 | 12B | Noise, blast and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Schedule 3, providing that these representative monitoring locations are set out in the respective management plan/s. | | Noted | Noted | |
| ACCESS TO INFORMATION | | | | | | | |
| | 5 | 13 | From the commencement of development under this consent, the Applicant must: (a)make copies of the following publicly available on its website: • the documents listed in condition 2(a) of Schedule 2; • current statutory approvals for the development; • approved strategies, plans or programs required under the conditions of this consent; • a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications of any conditions of this consent, or any approved plans or programs; • a complaint register, which is to be updated monthly; • minutes of CCC meetings; • the annual reviews of the development (for the last five years); • any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit; and | 1. Mt Owen Complex Website 2. Annual Review 3. Secretary approval letters in the appendices of management plans | The auditor sighted the website during the audit period and confirms meets this condition. | Compliant | |

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
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| | | | <div>• any other matter required by the Secretary; and</div> <div>(b) keep this information up to date, to the satisfaction of the Secretary.</div> | | | | |

Table A -2 Glendell DA 80-952 Consolidated Conditions of Approval

Black type represents Feb 2008 modification – replaced all previous conditions (Mod 2)

Blue type represents Dec 2016 modification (Mod 3)

Green type represents March 2020 modification

| Reference | Sch | Cond | Requirement | Evidence | Independent Audit Findings and Recommendations | Compliance Status | Unique Identification on Non-compliance |
|--|-----|------|---|--|--|-------------------|---|
| SCHEDULE 2 – ADMINISTRATIVE CONDITIONS | | | | | | | |
| OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT | | | | | | | |
| | 2 | 1 | In addition to meeting the specific performance criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development. | 1. Complaints Registers (2017, 2018, 2019) 2. Incident Registers (2017, 2018, 2019, 2020). 3. Maintenance schedule 4. Complaint register and actions. | The audit period is from the last date 31 October 2017 to the last date of the onsite audit 3 December 2020. There is" no significant exceedances or material environmental harm were identified by the audit team for this audit period. The site has been in operation for the entire period of this audit. The site continued to remain in operation during the reporting period. | Compliant | |
| TERMS OF CONSENT | | | | | | | |
| | 2 | 2 | The Applicant must carry out the development: (a) generally, in accordance with the EA (Mod 2), EA (Mod 3), SEE (Mod 4) and the Development Layout Plan; and (b) in accordance with the Statement of Commitments and the conditions of this consent. <i>Notes:</i> • The Development Layout Plan is shown in Appendix 2. • The Statement of Commitments is reproduced in Appendix 3. | 1. Annual Return 2017, 2018, 2019. 2. Complaints register 2017, 2018, 2019, 2020. 3. Incident register 2017, 2018, 2019, 2020. 4. Annual Return 2017, 2018, 2019, 2020. | The development is generally consistent with approved EA Mod 2 and Mod 3, SEE Mod 4 and the development layout plan. It is generally in accordance with the statement of commitments. | Compliant | |
| | 2 | 3 | If there is any inconsistency between the above documents, the most recent document must prevail to the extent of the inconsistency. However, the conditions of this consent must prevail to the extent of any inconsistency. | 1. Annual Return 2017, 2018, 2019. 2. Complaints register 2017, 2018, 2019, 2020. 3. Incident register 2017, 2018, 2019, 2020. 4. Annual Return 2017, 2018, 2019, 2020. | There are no known inconsistencies with the requirements of the consent within the audit period. | Compliant | |

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| | 2 | 4 | <p>The Applicant must comply with any requirement/s of the Secretary arising from the Department's assessment of:</p> <p>(a) any strategies, plans or correspondence that are submitted in accordance with this consent;</p> <p>(b) any reports, reviews or audits commissioned by the Department regarding compliance with this consent; and</p> <p>(c) the implementation of any actions or measures contained in these documents.</p> | <p>1. Management Plans and associated version numbers</p> <p>2. Sighted review of each plan in file system.</p> | Plans and strategies have been updated in accordance to the review date on the plans. Compliance is discussed within the main report. | Compliant | |
| LIMITS ON CONSENT | | | | | | | |
| | 2 | 5 | <p>Mining operations may take place until the end of June 2024.</p> <p>Note: Under this consent, the Applicant is required to rehabilitate the site and provide offsets to the satisfaction of the Secretary and Resources Regulator. Consequently this consent will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated and the offsets provided to a satisfactory standard.</p> | <p>1. Auditor sited mining operations and disturbance areas onsite</p> <p>2. Auditor sighted mining and disturbance boundaries on plans.</p> | Mining operations may take place until the end of June 2024. Note: Under this consent, the Applicant is required to rehabilitate the site and provide offsets to the satisfaction of the Secretary and Resources Regulator. Consequently this consent will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated and the offsets provided to a satisfactory standard. | Compliant | |
| | 2 | 6 | The Applicant must not extract more than 4.5 million tonnes of ROM coal from the site in any calendar year. | | | Compliant | |
| | 2 | 7 | The Applicant must not transport any coal from the site using public roads | <p>1. Auditor sited mining operations and disturbance areas onsite</p> <p>2. Auditor sighted mining and disturbance boundaries on plans.</p> | No transport of coal was viewed from the site. | Compliant | |
| | 2 | 8 | Deleted | | | Not triggered | |
| | 2 | 9 | Deleted | | | Not triggered | |
| STRUCTURAL ADEQUACY | | | | | | | |
| | 2 | 10 | <p>The Applicant must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA. Notes:</p> <ul style="list-style-type: none"> Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the development. | <p>1. Construction and occupation certificate viewed by auditor for the proposed building works.</p> <p>2. Evidence of Applicant email to obtain the Chief Executive of SANSW's approval before carrying out certain development in a Mine Subsidence District. Was not required as the proposed work was outside the Mine Subsidence District.</p> | Auditor viewed the construction and occupation certificates for building works this included the request to obtain the Chief Executive of SANSW's approval, however for the proposed construction it was not required as stated in email response from the Mine Subsidence District representative. | Compliant | |
| OPERATION OF PLANT AND EQUIPMENT | | | | | | | |

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| | 2 | 11 | The Applicant must ensure that all plant and equipment used on site is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner. | Onsite visit to workshop and auditor viewed the workshop schedule including scheduled out of service. | The auditor sighted the workshop in a good, tidy and maintained condition, the workshop schedule was viewed and confirmed the process was adequate. | Compliant | |
| DEVELOPMENT CONTRIBUTIONS | | | | | | | |
| | 2 | 12 | By the end of July 2008 (unless otherwise agreed by the Secretary), the Applicant must enter into an agreement with Singleton Council to provide development contributions to Council for the development, in accordance with Division 6 of Part 4 of the EP&A Act. If the Applicant and Council cannot agree on the level or composition of the development contributions, then either party may refer the matter to the Secretary for resolution. | 1. IEA 2017 | Confirmed compliance in previous audit. | Compliant | |
| DEMOLITION | | | | | | | |
| | 2 | 13 | The Applicant must ensure that all demolition work undertaken in relation to the development is carried out in accordance with AS 2601-2001: The Demolition of Structures, or its latest version. | Communications with Mt Owen Staff. | No demolition in period. | Not Triggered | |
| | 2 | 14 | Unless the Applicant and the applicable authority agree otherwise, the Applicant must : (a)repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and (b)relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development. Note: This condition does not apply to any damage to public infrastructure subject to compensation payable under the Coal Mine Subsidence Compensation Act 2017 , or to damage to roads caused as a result of general road usage. | Communications with Mt Owen Complex Staff. | Within the audit period there was no damage of public infrastructure by Mt Owen Complex. The heritage listed Ravensworth Public School was damaged in a fire in May 2019. The remains were structurally assessed, and the school was salvaged as much as possible. | Not Triggered | |
| TRANSMISSION LINE | | | | | | | |
| | 2 | 15 | Prior to mining within 200 metres of the existing electrical 132 kilovolt transmission line, that traverses the site, the Applicant must : (a)relocate the affected section of transmission line to a new alignment as shown conceptually in Appendix 2 (see blue easement) and to the satisfaction of Ausgrid; (b)ensure that any aspects of the new transmission line that occur within or interact with the Main Northern Railway corridor are designed and constructed to the satisfaction of ARTC; and c)design, install and maintain any infrastructure within 40 metres of watercourses generally in accordance with DPI Water's Guidelines for Controlled Activities on Waterfront Land. | Not Triggered. The transmission line was commissioned outside of the audit period. | 1. IEA 2017 2. Site interview | Not Triggered | |
| EVIDENCE OF CONSULTATION | | | | | | | |

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| | 2 | 16 | <p>Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <p>(a) consult with the relevant party prior to submitting the subject document; and</p> <p>(b) provide the Department with details of the consultation undertaken including:</p> <ul style="list-style-type: none"> • the outcome of that consultation, matters resolved and unresolved; and • details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. | <p>1. Strategies approved by the secretary</p> <p>2. Consultation undertaken for the strategies or plans.</p> | <p>Generally, is complaint.</p> <p>The auditor sighted consultation with relevant parties, however there was a few instances where not all consulting parties were consulted.</p> | Complaint | |
| STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS | | | | | | | |
| | 2 | 17 | <p>With the approval of the Secretary, the Applicant may:</p> <p>(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);</p> <p>(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined);</p> <p>(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and</p> <p>(d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by an adjoining mining consent or approval, in common ownership or management.</p> <p>If the Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.</p> | <p>1. Strategies approved by the secretary</p> <p>2. Consultation undertaken for the strategies and plans.</p> | <p>The auditor sighted consultation with Secretary regarding plans and updated plans.</p> | Complaint | |
| COMPLIANCE | | | | | | | |
| | 2 | 18 | <p>The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.</p> | <p>The auditor sighted onsite between 1 and 2 December 2020:</p> <p>1. E. Coms to employees</p> <p>2. E&C Training Packages</p> <p>3. Sighted 1 (one) completed training onsite.</p> | <p>All Mt Owen Complex employees are made aware of and instructed to comply with the conditions of consent through training packages. The auditor sighted and verified a sample of a completed training package. Each employee class and role is different and the training varies in accordance with the required activity.</p> | Compliant | |

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| APPLICABILITY OF GUIDELINES | | | | | | | | | | | | | | | |
| | 2 | 19 | References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent. | Noted | | Noted | | | | | | | | | |
| | 2 | 20 | However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them. | Noted | | Noted | | | | | | | | | |
| CROWN LAND | | | | | | | | | | | | | | | |
| | 2 | 21 | <p>The Applicant must consult with DPIE – Crown Lands prior to undertaking any development on Crown Land or Crown Roads.</p> <p>Notes:</p> <ul style="list-style-type: none">Under section 265 of the Mining Act 1992, the Applicant is required to enter into a compensation agreement with DPIE – Crown Lands prior to undertaking any mining operations or related activities on Crown land or Crown roads within a mining lease.Under section 141 of the Mining Act 1992, the Applicant is required to enter into an access arrangement with DPIE – Crown Lands prior to undertaking any prospecting operations on Crown land or Crown roads within an exploration licence. | <p>1. Site visit 1-2 December 2020.</p> <p>2. The auditor sighted the consultation with crown lands regarding Travelling Stock Route (T.S.R) as an offset site, in particular from Mitchell Hills – Esparanga Offset site and the Mitchell Hills and North East Offsets.</p> <p>3. Mt Owen Complex</p> <p>Biodiversity Offsets Fauna Monitoring 2017(6 February 2018) by Forest Fauna Surveys Pty Ltd for the Mitchell Hills and North East Offsets.</p> | <p>No development on Crown Land within audit period.</p> <p>The auditor sighted the consultation with crown lands regarding Travelling Stock Route (T.S.R) as an offset site, in particular from Mitchell Hills – Esparanga Offset site and the Mitchell Hills and North East Offsets.</p> <p>Consultation is not completed but close to a close out action.</p> <p>This is not finalised though outcomes agreed.</p> | Not Triggered | | | | | | | | | |
| SHEDULE 3 – SPECIFIC ENVIRONMENTAL CONDITIONS | | | | | | | | | | | | | | | |
| ACQUISITION OF AFFECTED PROPERTIES | | | | | | | | | | | | | | | |
| ACQUISITION UPON REQUEST | | | | | | | | | | | | | | | |
| | 3 | 1 | <p>Upon receiving a written request for acquisition from the owner of the land^a listed in Table 1, the Applicant must acquire the land in accordance with the procedures in conditions 9-11 of schedule 4.</p> <p><i>Table 1: Land subject to acquisition upon request</i></p> <table><tr><td>37a & 37b – Richards</td><td>Lot 13 DP 6830 – Gardner</td></tr><tr><td>61 – Donellan</td><td>Lot 12 DP 6830 – Noble</td></tr><tr><td>62 – Noble (b)</td><td>Lot 1 DP 770733 – Noble</td></tr><tr><td>65 – Noble</td><td></td></tr></table> <p><i>^a The locations of the land referred to in Table 1 are shown in Appendix 4</i></p> <p>Note: Lands titled 62 Noble (b), 65 Noble, Lot 13 DP 6830 Gardner, Lot 12 DP 6830 Noble and Lot 1 DP</p> | 37a & 37b – Richards | Lot 13 DP 6830 – Gardner | 61 – Donellan | Lot 12 DP 6830 – Noble | 62 – Noble (b) | Lot 1 DP 770733 – Noble | 65 – Noble | | 1. Auditor interviews onsite 1-2 December 2020. | During the audit period there were no written requests from the owners of any land listed in Table 1. | Not Triggered | |
| 37a & 37b – Richards | Lot 13 DP 6830 – Gardner | | | | | | | | | | | | | | |
| 61 – Donellan | Lot 12 DP 6830 – Noble | | | | | | | | | | | | | | |
| 62 – Noble (b) | Lot 1 DP 770733 – Noble | | | | | | | | | | | | | | |
| 65 – Noble | | | | | | | | | | | | | | | |

| | | | 770733 Noble have been acquired and are now mine-owned. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------------|------------------------|---|------------------------|--------------------------------------|------------------------|-----------------------------|--|--|--------------|--|--|--------------|----|----|----------------|--|--|------------|--|--|---------------|--|--|--------------|----|----|-----------|--|--|--|----|----|-----------------------------|--|--|------------|--|--|----------------------|----|----|----------------|--|--|-------------------------------|--|--|-------------|----|----|------------|--|--|--------------|----|----|-------------|--|--|------------|----|----|----------------|--|--|--|----|----|-----------------------------|--|--|---------------|----|----|---------------|----|----|--|----|----|-----------------------------------|--|--|----------------------|--|--|---------------|----|----|------------|--|--|------------------------|--------------------------------------|------------------------|--------------|----|----|---------------|--|--|-------------|--|--|-----------|----|----|-------------------|--|--|--------------------------------|----|----|--|----|---|--|---|-----------|--|
| NOISE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOISE IMPACT ASSESMENT CRITERIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 2 | <p>The Applicant must ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land^a, or on more than 25% of any privately-owned land.</p> <p><i>Table 2: Noise impact assessment criteria dB(A)</i></p> <table><thead><tr><th>Land Number / Receiver</th><th>Day/Evening/Night LAeq(15 minute)</th><th>Night LA1(1 minute)</th></tr></thead><tbody><tr><td colspan="3">Camberwell Village A</td></tr><tr><td>30 – Ninness</td><td></td><td></td></tr><tr><td>33 – Peachey</td><td>42</td><td>45</td></tr><tr><td>37c – Richards</td><td></td><td></td></tr><tr><td>53 – Yates</td><td></td><td></td></tr><tr><td>11 – Chisholm</td><td></td><td></td></tr><tr><td>22b – Turner</td><td>41</td><td>45</td></tr><tr><td>35 – Pugh</td><td></td><td></td></tr><tr><td>Other privately-owned land in Camberwell Village A</td><td>40</td><td>45</td></tr><tr><td colspan="3">Camberwell Village B</td></tr><tr><td>20 – Foord</td><td></td><td></td></tr><tr><td>21a & 21b – Merchant</td><td>42</td><td>45</td></tr><tr><td>38 – Robertson</td><td></td><td></td></tr><tr><td>47 & 50 – Vollebregt & Clarke</td><td></td><td></td></tr><tr><td>6 – Bennett</td><td>40</td><td>45</td></tr><tr><td>24 – Lopes</td><td></td><td></td></tr><tr><td>4 – Standing</td><td>39</td><td>45</td></tr><tr><td>40 – Smiles</td><td></td><td></td></tr><tr><td>32 – Green</td><td>38</td><td>45</td></tr><tr><td>44 – Stapleton</td><td></td><td></td></tr><tr><td>Other privately-owned land in Camberwell Village B</td><td>37</td><td>45</td></tr><tr><td colspan="3">Camberwell Village C</td></tr><tr><td>27 – McInemey</td><td>40</td><td>45</td></tr><tr><td>31 – Olofsson</td><td>38</td><td>45</td></tr><tr><td>Other privately-owned land in Camberwell Village C</td><td>35</td><td>45</td></tr><tr><td colspan="3">Other Privately-owned Land</td></tr><tr><td>37a & 37b – Richards</td><td></td><td></td></tr><tr><td>83 – Westcott</td><td>38</td><td>45</td></tr><tr><td>110 – Hall</td><td></td><td></td></tr></tbody></table> <table><thead><tr><th>Land Number / Receiver</th><th>Day/Evening/Night LAeq(15 minute)</th><th>Night LA1(1 minute)</th></tr></thead><tbody><tr><td>34 – Poulton</td><td>37</td><td>45</td></tr><tr><td>87 – Fairfull</td><td></td><td></td></tr><tr><td>9 – Burgess</td><td></td><td></td></tr><tr><td>18 – Hall</td><td>36</td><td>45</td></tr><tr><td>45 & 46 – Tisdell</td><td></td><td></td></tr><tr><td>All other privately-owned land</td><td>35</td><td>45</td></tr><tr><td>Camberwell Hall and St Clements Church</td><td>40</td><td>-</td></tr></tbody></table> <p><i>^a The locations of the land and receiver numbers as described in EA (Mod 2) and referred to in Table 2 are shown in Appendix 4</i></p> <p>However, if the Applicant has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and EPA, then the Applicant may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement.</p> <p>Notes:</p> | Land Number / Receiver | Day/Evening/Night LAeq(15 minute) | Night LA1(1 minute) | Camberwell Village A | | | 30 – Ninness | | | 33 – Peachey | 42 | 45 | 37c – Richards | | | 53 – Yates | | | 11 – Chisholm | | | 22b – Turner | 41 | 45 | 35 – Pugh | | | Other privately-owned land in Camberwell Village A | 40 | 45 | Camberwell Village B | | | 20 – Foord | | | 21a & 21b – Merchant | 42 | 45 | 38 – Robertson | | | 47 & 50 – Vollebregt & Clarke | | | 6 – Bennett | 40 | 45 | 24 – Lopes | | | 4 – Standing | 39 | 45 | 40 – Smiles | | | 32 – Green | 38 | 45 | 44 – Stapleton | | | Other privately-owned land in Camberwell Village B | 37 | 45 | Camberwell Village C | | | 27 – McInemey | 40 | 45 | 31 – Olofsson | 38 | 45 | Other privately-owned land in Camberwell Village C | 35 | 45 | Other Privately-owned Land | | | 37a & 37b – Richards | | | 83 – Westcott | 38 | 45 | 110 – Hall | | | Land Number / Receiver | Day/Evening/Night LAeq(15 minute) | Night LA1(1 minute) | 34 – Poulton | 37 | 45 | 87 – Fairfull | | | 9 – Burgess | | | 18 – Hall | 36 | 45 | 45 & 46 – Tisdell | | | All other privately-owned land | 35 | 45 | Camberwell Hall and St Clements Church | 40 | - | <p>1. Evidence of Annual Reviews 2017, 2018, 2019.</p> <p>2. Noise Monitoring results</p> <p>4. No written requests from owners listed in the table of this condition.</p> <p>4. Complaints register</p> <p>5. Letter dated 15/06/2020 from Glencore to DPIE RE: Attended Noise Monitoring Non-Compliance June 2020 – Mt Owen Mine (SSD-5850</p> <p>6. Extension Letter from DPIE dated 22/06/2020</p> | <p>The results at N1 from 17 June 2020 in consultation with DPIE were deemed a 'noise affected period', indicating a non-compliance against SSD-5850 noise criteria.</p> <p>No exceedences against the Glendell approval (DA 80-952)</p> | Compliant | |
| Land Number / Receiver | Day/Evening/Night LAeq(15 minute) | Night LA1(1 minute) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 – Ninness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 – Peachey | 42 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37c – Richards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 53 – Yates | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 – Chisholm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22b – Turner | 41 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 – Pugh | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other privately-owned land in Camberwell Village A | 40 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 – Foord | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21a & 21b – Merchant | 42 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 – Robertson | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 & 50 – Vollebregt & Clarke | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 – Bennett | 40 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 – Lopes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 – Standing | 39 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 – Smiles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 – Green | 38 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 – Stapleton | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other privately-owned land in Camberwell Village B | 37 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 – McInemey | 40 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 – Olofsson | 38 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other privately-owned land in Camberwell Village C | 35 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other Privately-owned Land | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37a & 37b – Richards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 83 – Westcott | 38 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 – Hall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Number / Receiver | Day/Evening/Night LAeq(15 minute) | Night LA1(1 minute) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 – Poulton | 37 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 87 – Fairfull | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 – Burgess | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 – Hall | 36 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 & 46 – Tisdell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other privately-owned land | 35 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Hall and St Clements Church | 40 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | Lands titled 30 Ninness, 33 Peachey, 37c Richards, 53 Yates, 11 Chisholm, 35 Pugh, 20 Foord,21a & 21b Merchant, 38 Robertson, 6 Bennett, 24 Lopes, 4 Standing, 40 Smiles, 32 Green and 44 Stapleton have been acquired and are now mine-owned. | | | | | | | | | | | | | | |
|---|--|----|---|---|--|----------------------|--------------------------------------|----------------------|----|----------------------|----|---|----|---|---|-----------|--|
| | 3 | 2A | Noise generated by the development as described in conditions 2, 3, 4 and 6 of this Schedule is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. The cumulative noise generated by the development as described in condition 5 of this Schedule, combined with the noise generated by other mines is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy. | Noted | Noted | Noted | | | | | | | | | | | |
| LAND ACQUISIIION CRITERIA | | | | | | | | | | | | | | | | | |
| | 3 | 3 | If the noise generated by the development exceeds the criteria in Table 3 at any residence on privately-owned land, or on more than 25% of any privately-owned land, the Applicant must , upon receiving a written request for acquisition from the landowner, acquire the land ^a in accordance with the procedures in conditions 9-11 of schedule 4. <i>Table 3: Land acquisition criteria dB(A)</i> <table><tr><th>Land</th><th>Day/Evening/Night <i>L_{Aeq}(15 minute)</i></th></tr><tr><td>Camberwell Village A</td><td>45</td></tr><tr><td>Camberwell Village B</td><td>42</td></tr><tr><td>Camberwell Village C</td><td>40</td></tr><tr><td>All other privately-owned land, excluding the land listed in Table 1.</td><td>40</td></tr></table> <i>* The locations of the land referred to in Table 3 are shown in Appendix 4</i> | Land | Day/Evening/Night <i>L_{Aeq}(15 minute)</i> | Camberwell Village A | 45 | Camberwell Village B | 42 | Camberwell Village C | 40 | All other privately-owned land, excluding the land listed in Table 1. | 40 | 1. Evidence of Annual Reviews 2017, 2018, 2019. 2. Noise Monitoring results 4. No written requests from owners listed in the table of this condition. 4. Complaints register 5. Letter dated 15/06/2020 from Glencore to DPIE RE: Attended Noise Monitoring Non-Compliance June 2020 – Mt Owen Mine (SSD-5850 6. Extension Letter from DPIE dated 22/06/2020 | Letter dated 15/06/2020 from Glencore to DPIE RE: Attended Noise Monitoring Non-Compliance June 2020 – Mt Owen Mine (SSD-5850 No written request for acquisition from landowner. | Compliant | |
| Land | Day/Evening/Night <i>L_{Aeq}(15 minute)</i> | | | | | | | | | | | | | | | | |
| Camberwell Village A | 45 | | | | | | | | | | | | | | | | |
| Camberwell Village B | 42 | | | | | | | | | | | | | | | | |
| Camberwell Village C | 40 | | | | | | | | | | | | | | | | |
| All other privately-owned land, excluding the land listed in Table 1. | 40 | | | | | | | | | | | | | | | | |
| CUMULATIVE NOISE CRITERIA | | | | | | | | | | | | | | | | | |
| | 3 | 4 | The Applicant must take all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately-owned land, or on more than 25% of any privately owned land, excluding the land listed in Table 1, to the satisfaction of the Secretary : LAeq (11 hour) 50 dB(A) Day; LAeq (4 hour) 45 dB(A) Evening; and LAeq (9 hour) 40 dB(A) Night. | 1. Evidence of Annual Reviews 2017, 2018, 2019. 2. Noise Monitoring results 4. No written requests from owners listed in the table of this condition. | There is no evidence the noise monitoring reports or in the Annual Reviews that compliance against this condition is assessed. There is no statement of compliance in accordance with the approved NMP. Recommendation 6 – revise the quarterly noise monitoring summary report by inclusion of a statement of compliance for cumulative noise | Not compliant | DA 80-952 NC008 | | | | | | | | | | |
| | 3 | 5 | If the noise generated by the development combined with the noise generated by other mines exceeds the following amenity criteria at any residence on privately-owned land, or on more than 25% of any privately-owned land, excluding the land listed in Table 1, then upon receiving a written request for acquisition from the landowner, the Applicant must | 1. Evidence of Annual Reviews 2017, 2018, 2019. | No written request. Landowners were not notified through | Compliant | | | | | | | | | | | |

| | | | | | | | |
|--------------------------------------|---|----|--|---|--|---------------|--|
| | | | <p>acquire the land on as equitable basis as possible with the relevant mines, in accordance with the procedures in conditions 9-11 of schedule 4, to the satisfaction of the Secretary:</p> <p>LAeq (11 hour) 53 dB(A) Day;</p> <p>LAeq (4 hour) 48 dB(A) Evening; and</p> <p>LAeq (9 hour) 43 dB(A) Night.</p> | <p>2. Noise Monitoring results</p> <p>4. No written requests from owners listed in the table of this condition.</p> <p>4. Complaints register</p> <p>5. Letter dated 15/06/2020 from Glencore to DPIE RE: Attended Noise Monitoring Non-Compliance June 2020 – Mt Owen Mine (SSD-5850</p> <p>6. Extension Letter from DPIE dated 22/06/2020</p> | | | |
| CONSTRUCTION NOISE | | | | | | | |
| | 3 | 5A | <p>The Applicant must manage noise associated with construction of the realigned transmission line, the removal of the redundant transmission line and any road works in accordance with the noise management levels defined in Table 2 of the Interim Construction Noise Guideline.</p> | <p>1. Site interview</p> <p>2. Site inspection</p> | No construction occurred within audit period. | Not Triggered | |
| ADDITIONAL NOISE MITIGATION MEASURES | | | | | | | |
| | 3 | 6 | <p>Upon receiving a written request from:</p> <p>a landowner of the land listed in Table 1 (unless the landowner has requested acquisition); or</p> <p>a landowner of the land listed in Table 4 (except where a negotiated noise agreement is in place);</p> <p>or</p> <p>the owner of any residence where subsequent noise monitoring shows the noise generated by the development is greater than, or equal to, the criteria in Table 5 (except where a negotiated noise agreement is in place),</p> <p>the Applicant must implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.</p> <p>These additional mitigation measures must be reasonable and feasible.</p> <p>If within 3 months of receiving this request from the landowner, the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of</p> <p>these measures, then either party may refer the matter to the Secretary for resolution.</p> <p>By the end of April 2008, the Applicant must notify all applicable landowners that they are entitled to receive additional noise mitigation measures, to the satisfaction of the Secretary.</p> | | <p>No requests from landowners of the land in Table 1, Table 4, or the owner of any resident where subsequent noise monitoring shows the noise generated by the development is greater than or equal to the criteria in Table 5.</p> <p>No negotiated noise agreements in place.</p> | Not Triggered | |

| | | | <div>Table 4: Land subject to additional noise mitigation upon request</div> <table><tr><td>6 – Bennett</td><td>37a – Richards</td></tr><tr><td>20 – Foord</td><td>38 – Robertson</td></tr><tr><td>21a & 21b – Merchant</td><td>47 & 50 – Vollebregt & Clarke</td></tr><tr><td>24 – Lopes</td><td>83 – Westcott</td></tr><tr><td>27 – McInerney</td><td>110 – Hall</td></tr><tr><td>31 – Olofsson</td><td></td></tr></table> <div>Table 5: Additional noise mitigation criteria dB(A)</div> <table><tr><th>Land</th><th>Day/Evening/Night L_{Aeq}(15 minute)</th></tr><tr><td>Camberwell Village A</td><td>43</td></tr><tr><td>Camberwell Village B</td><td>40</td></tr><tr><td>Camberwell Village C</td><td>38</td></tr><tr><td>All other privately-owned land, excluding the land listed in Table 1.</td><td>38</td></tr></table> <div>Notes to Tables 4-5:</div> <div><div>• Lands titled 6 – Bennett, 20 – Foord, 21a & 21b – Merchant, 24 – Lopes, 38 – Robertson have been acquired and are now mine-owned.</div></div> <div>Table 5: Additional noise mitigation criteria dB(A)</div> <table><tr><th>Land</th><th>Day/Evening/Night L_{Aeq}(15 minute)</th></tr><tr><td>Camberwell Village A</td><td>43</td></tr><tr><td>Camberwell Village B</td><td>40</td></tr><tr><td>Camberwell Village C</td><td>38</td></tr><tr><td>All other privately-owned land, excluding the land listed in Table 1.</td><td>38</td></tr></table> <div>Notes to Tables 4-5:</div> <div><div>• Lands titled 6 – Bennett, 20 – Foord, 21a & 21b – Merchant, 24 – Lopes, 38 – Robertson have been acquired and are now mine-owned.</div></div> | 6 – Bennett | 37a – Richards | 20 – Foord | 38 – Robertson | 21a & 21b – Merchant | 47 & 50 – Vollebregt & Clarke | 24 – Lopes | 83 – Westcott | 27 – McInerney | 110 – Hall | 31 – Olofsson | | Land | Day/Evening/Night L _{Aeq} (15 minute) | Camberwell Village A | 43 | Camberwell Village B | 40 | Camberwell Village C | 38 | All other privately-owned land, excluding the land listed in Table 1. | 38 | Land | Day/Evening/Night L _{Aeq} (15 minute) | Camberwell Village A | 43 | Camberwell Village B | 40 | Camberwell Village C | 38 | All other privately-owned land, excluding the land listed in Table 1. | 38 | | | | | |
|---|---|---|--|--|---|------------|----------------|----------------------|-------------------------------|------------|---------------|----------------|------------|---------------|--|------|---|----------------------|----|----------------------|----|----------------------|----|---|----|------|---|----------------------|----|----------------------|----|----------------------|----|---|----|--|--|--|--|--|
| 6 – Bennett | 37a – Richards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 – Foord | 38 – Robertson | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21a & 21b – Merchant | 47 & 50 – Vollebregt & Clarke | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 – Lopes | 83 – Westcott | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 – McInerney | 110 – Hall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 – Olofsson | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land | Day/Evening/Night L _{Aeq} (15 minute) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village A | 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village B | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village C | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other privately-owned land, excluding the land listed in Table 1. | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land | Day/Evening/Night L _{Aeq} (15 minute) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village A | 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village B | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Camberwell Village C | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All other privately-owned land, excluding the land listed in Table 1. | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONTINUOUS IMPROVEMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 7 | <div>The Applicant must:</div> <div>(a) implement all reasonable and feasible best practice noise mitigation measures;</div> <div>(b) investigate ways to reduce the noise generated by the development, including maximum noise levels which may result in sleep disturbance; and</div> <div>(c) report on these investigations and the implementation and effectiveness of these measures in the Annual Review.</div> | <div>1. Noise management plan</div> <div>2. Auditor sighted the Dust Noise Analysis Tool (DNAT) (Umwelt) in operation.</div> <div>3. Annual Review 2017-2019.</div> | <div>Auditor sighted updated noise management plan and confirms the noise management plan is undertaken in accordance of the conditions onsite.</div> <div>Dust Noise Analysis Tool (DNAT) (Umwelt) in operation during the site visit on 1-2 December 2020. It uses meteorological data and modelling to ensure noise levels are within the criteria, generally.</div> <div>The noise monitoring data is presented in Annual Reviews 2017-2019, 2020 Annual Review not published at the time of the audit.</div> | Compliant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MONITORING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 8 | <div>The Applicant must prepare a Noise Monitoring Program for the development to the satisfaction of the Secretary. This program must:</div> <div>(a) be prepared in consultation with EPA;</div> <div>(b) be submitted to the Secretary for approval by the end of April 2008; and</div> | <div>1. Auditor sighted monitoring reports that were conducted by, a suitably qualified personnel at Umwelt and provided monitoring reports.</div> <div>2. IEA 2014.</div> | <div>The auditor sighted the monitoring reports in which both the monitoring and the report are undertaken by suitably qualified consultants from Umwelt.</div> | Complaint | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | <p>(c) include a:</p> <ul style="list-style-type: none">• combination of real-time and supplementary attended monitoring measures; and• noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this consent. <p>The Applicant must implement the approved program as approved from time to time by the Secretary.</p> | 3. Secretary approval of Noise management plan. | Previous audit (IEA 2014) confirmed compliance. | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|----------------------|---|-----|---|--------------------------|---|--------------------|---|---|---|----|--|----|----|--------------------------------|----|----|--------------------------|---|-----------|--|
| BLASTING AND VIBRATION | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AIRBLAST OVERPRESSURE IMPACT ASSESSMENT CRITERIA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 9 | <p>The Applicant must ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 6 at any residence on privately-owned land.</p> <p>Table 6: Airblast overpressure impact assessment criteria</p> <table><tr><th>Airblast overpressure level (dB(Lin Peak))</th><th>Allowable exceedance</th></tr><tr><td>115</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td>120</td><td>0%</td></tr></table> | Airblast overpressure level (dB(Lin Peak)) | Allowable exceedance | 115 | 5% of the total number of blasts over a period of 12 months | 120 | 0% | 1. Blast Management Plan | Auditor sighted no exceedances in monitoring or Annual Reviews of overpressure on privately-owned land within the audit period. | Compliant | | | | | | | | | | | | | | |
| Airblast overpressure level (dB(Lin Peak)) | Allowable exceedance | | | | | | | | | | | | | | | | | | | | | | | | | |
| 115 | 5% of the total number of blasts over a period of 12 months | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | |
| GROUND VIBRATION IMPACT ASSESSMENT CRITERIA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 10 | <p>The Applicant must ensure that the ground vibration^a level from blasting at the development does not exceed the criteria at the receivers^b in Table 7.</p> <p>Table 7: Ground vibration impact assessment criteria</p> <p>Table 7: Ground vibration impact assessment criteria</p> <table><tr><th>Receiver</th><th>Peak particle velocity (mm/s)</th><th>Allowable exceedance</th></tr><tr><td rowspan="2">Residence on privately-owned land</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td>10</td><td>0%</td></tr><tr><td rowspan="2">St Clements Church</td><td>2</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td>5</td><td>0%</td></tr><tr><td>Main Northern Railway culverts and bridges</td><td>25</td><td>0%</td></tr><tr><td>Electricity transmission poles</td><td>50</td><td>0%</td></tr></table> <p>^a Vibration must be measured in accordance with applicable guidelines, including EPA's Assessing Vibration: A Technical Guideline (2006).</p> <p>^b The receivers referred to in Table 7 are shown in Appendix 4</p> | Receiver | Peak particle velocity (mm/s) | Allowable exceedance | Residence on privately-owned land | 5 | 5% of the total number of blasts over a period of 12 months | 10 | 0% | St Clements Church | 2 | 5% of the total number of blasts over a period of 12 months | 5 | 0% | Main Northern Railway culverts and bridges | 25 | 0% | Electricity transmission poles | 50 | 0% | 1. Blast Management Plan | Auditor sighted no exceedances in monitoring or Annual Reviews of ground vibration within the audit period. | Compliant | |
| Receiver | Peak particle velocity (mm/s) | Allowable exceedance | | | | | | | | | | | | | | | | | | | | | | | | |
| Residence on privately-owned land | 5 | 5% of the total number of blasts over a period of 12 months | | | | | | | | | | | | | | | | | | | | | | | | |
| | 10 | 0% | | | | | | | | | | | | | | | | | | | | | | | | |
| St Clements Church | 2 | 5% of the total number of blasts over a period of 12 months | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | 0% | | | | | | | | | | | | | | | | | | | | | | | | |
| Main Northern Railway culverts and bridges | 25 | 0% | | | | | | | | | | | | | | | | | | | | | | | | |
| Electricity transmission poles | 50 | 0% | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | | However, if the Applicant has a written negotiated agreement with the relevant service provider, and a copy of this agreement has been forwarded to the Department and EPA, then the Applicant may exceed the criteria for the Main Northern Railway culverts and bridges and electricity transmission poles in accordance with the negotiated agreement. | | | | |
| BLASTING HOURS | | | | | | | |
| | 3 | 11 | The Applicant must only carry out blasting on site between 9am and 5pm Monday to Saturday (EST) inclusive, and 9am to 6pm Monday to Saturday (DST) inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Secretary . | 1. Mt Owen Complex Monthly Monitoring Reports 2017-2020. 2. Monthly Monitoring Reports 2017-2020. | The auditor sighted the blast monitoring records on the website and confirmed blasting hours were generally compliant. | Compliant | |
| BLASTING FREQUENCY | | | | | | | |
| | 3 | 12 | <p>The Applicant may carry out a maximum of:</p> <p>(a) 2 single blast events^a a day; and</p> <p>(b) 5 single blast events^a a week, averaged over a 12 month period.</p> <p>This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public.</p> <p>Notes</p> <p>^a A 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.</p> | 1. Mt Owen Complex Monthly Monitoring Reports 2017-2020. 2. Monthly Monitoring Reports 2017-2020. | The auditor sighted the blast monitoring records on the website and confirmed blasting hours and frequency were generally compliant. | Compliant | |
| OPERATING CONDITIONS | | | | | | | |
| | 3 | 13 | <p>During mining operations on site, the Applicant must implement best blasting practice to:</p> <p>(a) protect the safety of people, property, public infrastructure, and livestock from blasting impacts in the areas surrounding blasting operations; and</p> <p>(b) minimise the dust and fume emissions from blasting at the development, to the satisfaction of the Secretary.</p> | 1. Blast Management Plan V5 Effective 22/04/20 2. Air Quality Management Plan V4 Effective 12/10/2018 3. Complaints and incidents register 4. Notifications from authorities regarding blasts | The Auditor sighted the 2017 Annual Review which included Section 11 noting Incidences and non-compliances. There were none related to blasting safety nor any evidence of any encountered during the audit. | Compliant | |
| | 3 | 14 | The Applicant must not undertake blasting within 500 metres of any privately-owned land or any land not owned by the Applicant, unless suitable arrangements have been made | | No blasting within 500 m of privately owned land in the audit period. | Not Triggered | |

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| | | | with the landowner and any tenants to minimise the risk of flyrock-related impact to the property to the satisfaction of the Secretary . | | | | |
| ROAD CLOSURE | | | | | | | |
| | 3 | 15 | Prior to blasting within 500 metres of any public road, the Applicant must prepare a Road Closure Management Plan for the development in consultation with Council and to the satisfaction of the Secretary . The Applicant must implement the approved plan as approved from time to time by the Secretary . | | Not Triggered. See Sch 3, C14. | Not Triggered | |
| PUBLIC NOTICE | | | | | | | |
| | 3 | 16 | During mining operations on site, the Applicant must : (a) notify the landowner/occupier of any residence within 2 kilometres of the mining area who registers an interest in being notified about the blasting schedule at the mine; (b) operate a Blasting Hotline, or alternate system agreed to by the Secretary , to enable the public to get up-to-date information on the blasting schedule at the development; (c) advertise the blasting hotline number in a local newspaper at least 4 times each year, and (d) publish an up-to-date blasting schedule on its website, to the satisfaction of the Secretary . | | No residence within 2km. | Not Triggered. | |
| PROPERTY INSPECTIONS | | | | | | | |
| | 3 | 17 | At least 6 months prior to blasting within 2 kilometres of any privately-owned land, the Applicant must advise applicable landowners that they are entitled to a structural property inspection. If the Applicant receives a written request for a structural property inspection from the landowner, the Applicant must within 3 months of receiving this request and prior to blasting within 2 kilometres of the property: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary , to inspect the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and (b) give the landowner a copy of the property inspection report. | | No residence within 2km. | Not Triggered. | |
| PROPERTY INVESTIGATIONS | | | | | | | |

| | | | | | | | |
|----------------------------|---|----|---|---|---|----------------|---|
| | 3 | 18 | <p>If any landowner of privately-owned land within 2 kilometres of the mining area claims that buildings and/or structures on his/her land have been damaged as a result of blasting at the development, the Applicant must within 3 months of receiving this claim:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to investigate the claim; and</p> <p>(b) give the landowner a copy of the property investigation report.</p> <p>If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damages to the satisfaction of the Secretary.</p> <p>If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.</p> | | No residence within 2km. | Not Triggered. | |
| | 3 | 19 | <p>The Applicant must prepare a Blast Monitoring Program for the development to the satisfaction of the Secretary. This program must:</p> <p>(a) be prepared in consultation with the EPA;</p> <p>(b) be submitted to the Secretary for approval by the end of April 2008; and</p> <p>(c) include a protocol for evaluating blasting impacts on, and demonstrating compliance with the blasting criteria in this consent for:</p> <ul style="list-style-type: none"> privately-owned residences and structures; St Clements Church; Main Northern Railway; and electricity transmission lines. <p>The Applicant must implement the approved program as approved from time to time by the Secretary.</p> | <p>1. DPIE Letter dated 17.01.2017 referring to Mt 1. Owen Complex correspondence of 9 to 13 October 2017 for submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans.</p> <p>2. Blast Management Plan Version 5.0 Effective 22/04/2020,</p> <p>3. Blast Management Plan Version 5.0 Approved by DPIE in letter 22/04/2020.</p> <p>4. Reporting of noncompliance</p> | <p>The auditor sighted the letter from DPIE approving the revised plans on date 17.01.2017.</p> <p>The auditor sighted in the Blast Management Plan measures to be implemented to ensure compliance with criteria and conditions in the consent via Appendix A. (b) prior to the audit period – not triggered (c), there are no agreed alternative ground vibration limits for public infrastructure within the audit period, therefore (d) is not triggered, section 3.2.3 of the Blast Management Plan provides the strategy for Integra Underground e), the monitoring program is provided in section 4.1 of the Blast Management Plan</p> | Compliant | |
| AIR QUALITY | | | | | | | |
| IMPACT ASSESSMENT CRITERIA | | | | | | | |
| | 3 | 20 | <p>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 8, 9 and 10 at any residence on privately-owned land, except for the residences shown in Table 1 as being</p> | <p>1. Annual Reviews 2017-2019</p> <p>2. Auditor sighted the action and response to non-compliance in the 2018.</p> <p>3. Notification sighted by Auditor to DPIE and no further action was required.</p> | <p>The Auditor reviewed the 2018 Annual Review and noted a non-compliance with table 6, short term impact assessment criteria.</p> <p>PM10 dust monitor Sx10-G2 recorded a project specific result of 50.6 µg/m³ on 24 July 2018. This exceeded the short-term impact assessment criterion of 50 µg/m³ for PM10.</p> | Not compliant | <p>DA 80-952</p> <p>NC009</p> |

| | | | <p>eligible for acquisition on request on the basis of air quality impacts.</p> <p>Table 8: Long term impact assessment criteria for particulate matter</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>^a Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>^a 90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>^a 30 µg/m³</td></tr></table> <p>Table 9: Short term impact assessment criterion for particulate matter</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>^a Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>^b 50 µg/m³</td></tr></table> <p>Table 10: Long term impact assessment criteria for deposited dust</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>^c Deposited dust</td><td>Annual</td><td>^b 2 g/m²/month</td><td>^a 4 g/m²/month</td></tr></table> <p>Notes to Tables 8-10:</p> <ul style="list-style-type: none">• a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).• b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).• c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.• d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed to by the Secretary. | Pollutant | Averaging period | ^a Criterion | Total suspended particulate (TSP) matter | Annual | ^a 90 µg/m ³ | Particulate matter < 10 µm (PM ₁₀) | Annual | ^a 30 µg/m ³ | Pollutant | Averaging period | ^a Criterion | Particulate matter < 10 µm (PM ₁₀) | 24 hour | ^b 50 µg/m ³ | Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level | ^c Deposited dust | Annual | ^b 2 g/m ² /month | ^a 4 g/m ² /month | | Auditor sighted the action and response to non-compliance in the 2018 Annual Return by MGO and noting MGO conducted extensive action taken 24 hours prior to the exceedance to minimise generation from the north pit and Bayswater operations. | Notification sighted by Auditor to DPIE and no further action was required | Recommendation 7 - Ensure compliance with the Air Quality Management Plan and approvals requirements when managing air quality. Review training needs and retrain if required. |
|--|------------------|--|---|---|----------------------------|------------------------|--|--------|-----------------------------------|--|--------|-----------------------------------|-----------|------------------|------------------------|--|---------|-----------------------------------|-----------|------------------|--|------------------------------------|-----------------------------|--------|--|--|--|---|--|--|
| Pollutant | Averaging period | ^a Criterion | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total suspended particulate (TSP) matter | Annual | ^a 90 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 10 µm (PM ₁₀) | Annual | ^a 30 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pollutant | Averaging period | ^a Criterion | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 10 µm (PM ₁₀) | 24 hour | ^b 50 µg/m ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ^c Deposited dust | Annual | ^b 2 g/m ² /month | ^a 4 g/m ² /month | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 21 | (deleted) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OPERATING CONDITIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 22 | <p>The Applicant must:</p> <p>(a) take all reasonable steps to:</p> <p>(i) minimise odour, fume and particulate matter emissions of the development, paying particular attention to minimising wheel-generated haul road emissions;</p> <p>(ii) eliminate or minimise the risk of spontaneous combustion;</p> <p>(iii) minimise any visible off-site air pollution generated by the development; and</p> | <p>1. Auditor sighted onsite.</p> <p>2. Auditor sighted DPIE notice for dust event on 16 August 2019 for Mount Owen</p> <p>3. AQ Management Plan</p> <p>4. Annual Reviews</p> | No exceedences at Glendell | Compliant | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | | <p>(iv) minimise the extent of potential dust generating surfaces exposed on the site at any given point in time;</p> <p>(b) operate a comprehensive air quality management system that uses real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation</p> <p>of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;</p> <p>(c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to Tables 8 - 10 above);</p> <p>(d) use all reasonable efforts to co-ordinate air quality management on the site with the air quality management at nearby mines to minimise cumulative air quality impacts;</p> <p>(e) carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions of this consent; and</p> <p>(f) regularly assess meteorological and air quality monitoring data and modify operations on the site to ensure compliance with the relevant conditions of this consent.</p> | | | | |
| | 3 | 23 | <p>Until approval of the Air Quality and Greenhouse Gas Management Plan required under condition 23A of this Schedule, the Applicant must continue to implement its approved Air Quality Monitoring Program (as previously required by condition 23 of this Schedule) and approved Greenhouse and</p> <p>Energy Efficiency Plan (as previously required by condition 51 of this Schedule).</p> | Noted | | Noted | |
| AIR QUALITY AND GREENHOUSE GAS MANAGEMENT PLAN | | | | | | | |
| | 3 | 23A | <p>Within 3 months of approval of Modification 4 the Applicant must prepare an Air Quality and</p> <p>Greenhouse Gas Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared by a suitably qualified and experienced person/s;</p> <p>(b) be prepared in consultation with the EPA;</p> <p>(c) describe the measures to be implemented to ensure:</p> <p>(i) compliance with the air quality criteria and operating conditions of this consent;</p> <p>(ii) best practice management is being employed to:</p> <ul style="list-style-type: none"> • minimise the development's air quality impacts; • minimise the development's Scope 1 and 2 greenhouse gas emissions; and | <p>Auditor sighted</p> <p>1. Secretary approval of the plan via letter dated 02/12/2020</p> <p>2. Consultation and approval from NSW EPA via letter dated 16 March 2020.</p> <p>3. AQGGMP</p> | <p>Auditor sighted</p> <p>Secretary approval of the plan via letter dated 02/12/2020.</p> <p>a) Consultation and approval from NSW EPA via letter dated 16 March 2020.</p> <p>(b) Section 4.1 of the Air Quality and greenhouse gas management plan (AQGGMP) version 5.0 details the three (3) 10 metre tower weather stations, Sentinex 13 (M1), Sentinex 13 (M2) and Sentinex 13 (M8), located to the, west, south-east and</p> <p>north-west of the active mining areas respectively.</p> <p>Sentinex 13 (M2) was installed to the southeast of the active mining area of the</p> | Compliant | |

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| | | | <ul style="list-style-type: none"> improve the development's energy efficiency; <p>(iii) the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;</p> <p>(d) include a program to monitor greenhouse gas emissions and energy use generated by the development;</p> <p>(e) describe the air quality management system in detail; and</p> <p>(f) include an air quality monitoring program, undertaken in accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007), that:</p> <p>(i) establishes a diesel combustion emissions baseline;</p> <p>(ii) uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of mining operations;</p> <p>(iii) adequately supports the air quality management system; and</p> <p>(iv) includes a protocol for identifying any air quality-related exceedance, incident or noncompliance and for notifying the Department and relevant stakeholders of these events.</p> <p>The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Secretary.</p> | | <p>Mt Owen North Pit (refer to Figure 4.1) on 21 June 2017.</p> <p>(c) Section 4.1 of the AQGGMP satisfies this condition.</p> <p>(d) Section 4.1 of the AQGGMP satisfies this condition.</p> <p>(e) Section 3.5 of the AQGGMP satisfies this Condition.</p> <p>(f) Section 4 of the AQGGMP satisfies this Condition.</p> <p>The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Secretary is provided as evidence via letter from DPIE in Appendix C dated 02/12/2020.</p> | | |
| METEROLOGICAL MONITORING | | | | | | | |
| | 3 | 24 | During the life of the development, the Applicant must ensure that there is a suitable meteorological station in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline. | <p>(a) AQGGMP Section 4.1 satisfies the requirement.</p> <p>(b) AQGGMP Section 4.1 satisfies the requirement.</p> | <p>1. Auditor sighted weather station during site audit 1-2 December 2020.</p> <p>2. AQGGMP version 5.</p> | Compliant | |
| SURFACE AND GROUNDWATER | | | | | | | |
| DISCHARGE LIMITS | | | | | | | |
| | 3 | 25 | <p>The Applicant must only discharge mine water from the site in accordance with the provisions of an EPL or the <i>Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002</i>.</p> | <p>1. Auditor sighted water licences</p> <p>2. Auditor sighted Annual Review 2017-2019.</p> <p>3. Groundwater Management and Monitoring Plan</p> <p>4. Surface Water Management and</p> | <p>Water excess is transferred across the sites in accordance to the required water usage. The Annual Reviews 2017-2019 have been reviewed by the auditor and confirms no published non-compliance with exceeding licences.</p> <p>No discharge has occurred within the audit period.</p> | Compliant | |

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| | | | | Monitoring Plan | Secretary satisfaction from DPIE letter dated 02/10/2020 for the Surface Water Management and Monitoring Program. Groundwater Management Plan provided an assessment of compliance with the conditions of groundwater licences (refer Section 1.3.1.3); a summary of impact on monitoring bores, new bores or pits constructed during the year (Section 1.3.1.3). | | |
| BETTYS CREEK AND SWAMP CREEK DIVERSIONS | | | | | | | |
| | 3 | 26 | The Applicant must design, construct, maintain, and rehabilitate the proposed diversion of Bettys Creek and Swamp Creek, to the satisfaction of the Secretary . | | Compliant in 2017 Audit. | Compliant | |
| | 3 | 27 | Within one month of completing the construction of the Bettys Creek and Swamp Creek diversions, the Applicant must submit an as-executed report, certified by a practising registered engineer, to the Secretary and DPIE Water . | | Compliant in 2017 Audit. | Compliant | |
| | 3 | 28 | Prior to destroying the original creek lines, the Applicant must demonstrate that the Bettys Creek and Swamp Creek diversions are operating successfully, in consultation with DPIE Water , and to the satisfaction of the Secretary . | | Outside the audit period | Not Triggered | |
| SITE WATER MANAGEMENT PLAN | | | | | | | |
| | 3 | 29 | The Applicant must prepare a Site Water Management Plan for the development to the satisfaction of the Secretary . This plan must: (a) be prepared in consultation with EPA and DPIE Water by suitably qualified expert/s whose appointment/s have been approved by the Secretary ; (b) be submitted to the Secretary for approval by the end of April 2008; and (c) include: • a Bettys Creek and Swamp Creek Diversion Plan/s; • a Site Water Balance; • an Erosion and Sediment Control Plan; • a Surface Water Management and Monitoring Plan; • a Ground Water Monitoring Program; and • a Surface and Ground Water Response Plan. | 1. IEA 2017 2. WMP 3. ESCP 3. SWMMP 4. CDMP 5. GWMP 6. TARP | a) Verified from previous audit. Viewed letter from DPIWater appended to approved WMP (no date) and from EPA dated 18/01/17. Viewed approval letter from DP&E dated 17/10/17. WMP Section 1.5.2. c) Provided in Table 1-2 of the WMP and referenced sections throughout the Plan. ci) Section 3.4 The Erosion and Sediment Control Plan version 4.0 and 5.0 have been sighted by the auditor. It is consistent with <i>Requirements of Managing Urban Stormwater: Soils and Construction - Volume 1 and Volume 2E Mines and</i> <i>Quarries</i> outlined in Section 3.1.1 of the Erosion and Sediment Control Plan (ESCP). Activities are identified in Section 2.2 of the ESCP. | Compliant | |

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| | | | <p>The Applicant must implement the approved plan as approved from time to time by the Secretary.</p> <p><i>Note: The Department accepts that the initial Site Water Management Plan may not include the detailed plans for</i></p> <p><i>the proposed diversions of Bettys Creek and Swamp Creek. However, if this occurs, the Applicant will be required</i></p> <p><i>to seek approval from the Secretary for an alternative timetable for completion and approval of the diversion</i></p> <p><i>plan/s.</i></p> | | <p>Minimisation of soil erosion and transfer of sediment measures is provided in Section 3.1.1 and 3.2 of the ESCP.</p> <p>Control structures detailed in Section 3.1.2.1 and 3.2 of the ESCP.</p> <p>Auditor sighted the SWMMP version 4.0 and the WMP and confirmed the plan contains measures used to measure and manage transfer of water and/or tailings under the GRAWTS.</p> <p>Channel Stability baseline data contained in the Creek Diversion Management Plan (CDMP) in Section 2.2 and Section 2.3.</p> <p>Water Management System details in the WMP Section 3.4.</p> <p>Flood management detailed in Section 2.3.1, 2.3.3 and 2.3.4 of the SWMMP.</p> <p>Reviewed GWMMP and confirmed contained all requirements.</p> <p>Baseline data in Section 2.3 and 4.1. Description of Groundwater Management System in Section 3.1 of the GMMP and Section 3.2 Surface Water and Groundwater Response Plan.</p> <p>Groundwater performance criteria in Section 4.2 of the Groundwater Management and Monitoring Plan.</p> <p>GDE's in Surface and Groundwater Response Plan Section 3.2.</p> <p>Monitoring program in Section 4.4 and 5.1.1. Response plan in Section 5.1 and 4.2.</p> <p>Trigger Action Response Plan provided in the Surface Water and Groundwater Response Plan in Section 2, Section 3 and Appendix C.</p> <p>WMP exceedances provided in Surface Water and Groundwater Response Plan in Section 2, Section 3 and Appendix C.</p> | | |
| BETTYS CREEK AND SWAMP CREEK DIVERSION PLAN/S | | | | | | | |

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| | 3 | 30 | <p>The Bettys Creek and Swamp Creek Diversion Plan/s must include:</p> <p>(a) a vision statement for the creek relocation;</p> <p>(b) an assessment of the water quality, ecological, hydrological and geomorphic baseline conditions in the creek;</p> <p>(c) the detailed design specifications for the creek relocation;</p> <p>(d) a construction program for the creek relocation, describing how the work would be staged, and integrated with mining operations;</p> <p>(e) a revegetation program for the relocated creek using a range of suitable native species;</p> <p>(f) water quality, ecological, hydrological and geomorphic performance and completion criteria for the creek relocation based on the assessment of baseline conditions; and</p> <p>(g) a program to monitor and maintain the water quality, ecological, hydrological and geomorphic integrity of the creek relocation.</p> | 1. Review of Creek Diversion Management Plan 4/5/2020 | <p>a) Section 2.1</p> <p>b) Surface Water Management and Monitoring Plan, and Sections 2.2.2, 2.2.3 and 2.2.4.</p> <p>c) Section 2.3</p> <p>d) Section 3.1</p> <p>e) Section 3.2</p> <p>f) Surface Water Management and Monitoring Plan, and Section 4.1.2</p> <p>g) Surface Water Management and Monitoring Plan, and Section 4.2.2</p> | Compliant | |
| SITE WATER BALANCE | | | | | | | |
| | 3 | 31 | <p>The Site Water Balance must:</p> <p>(a) include details of:</p> <ul style="list-style-type: none"> • sources and security of water supply; • water use on site; • water management on site; • off-site water transfers; and <p>(b) investigate and describe measures to minimise water use by the development</p> | 1. SWMP | Auditor sighted and verified the site water balance and is compliant with this condition. | Compliant | |
| | 3 | 32 | <p>The Erosion and Sediment Control Plan must:</p> <p>(a) be consistent with the requirements of Managing Urban Stormwater: Soils and Construction - Volume 1 and Volume 2E Mines and Quarries, or its latest version;</p> <p>(b) identify activities that could cause soil erosion and generate sediment, including activities on waterfront land (within 40 metres of a watercourse);</p> <p>(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;</p> <p>(d) describe the location, function, and capacity of erosion and sediment control structures; and</p> <p>(e) describe what measures would be implemented to maintain these structures over time.</p> | 1. ESCP | <p>Auditor sighted the Erosion and Sediment Control Plan version 4.0 and 5.0 have been sighted by the auditor. It is consistent with</p> <p>Requirements of <i>Managing Urban Stormwater: Soils and Construction - Volume 1 and Volume 2E Mines and</i></p> <p><i>Quarries</i> outlined in Section 3.1.1 of the Erosion and Sediment Control Plan (ESCP). Activities are identified in Section 2.2 of the ESCP.</p> <p>Minimisation of soil erosion and transfer of sediment measures is provided in Section 3.1.1 and 3.2 of the ESCP.</p> | Compliant | |

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| | | | | | Control structures detailed in Section 3.1.2.1 and 3.2 of the ESCP. | | |
| SURFACE WATER MONITORING | | | | | | | |
| | 3 | 33 | <p>The Surface Water Management and Monitoring Plan must include:</p> <p>(a) detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the development;</p> <p>(b) surface water and stream health impact assessment criteria;</p> <p>(c) a program to monitor surface water flows, quality and impacts on water users (upstream and downstream of the development in Bettys Creek, Swamp Creek and Bowmans Creek);</p> <p>(d) a program to assess stream health conditions in Bettys Creek, Swamp Creek and Bowmans Creek;</p> <p>(e) a program to monitor channel stability in Bettys Creek, Swamp Creek and Bowmans Creek;</p> <p>and</p> <p>(f) reporting procedures for the results of the monitoring program.</p> | <p>1. Annual Reviews 2017-2019.</p> <p>2. Trigger action response in Surface Water and Groundwater Response Plan version 4.0.</p> | <p>Auditor sighted the SWMMP version 4.0 and the WMP and confirmed the plan contains measures used to measure and manage transfer of water and/or tailings under the GRAWTS.</p> <p>Channel Stability baseline data contained in the Creek Diversion Management Plan (CDMP) in Section 2.2 and Section 2.3.</p> <p>Water Management System details in the WMP Section 3.4.</p> <p>Flood management detailed in Section 2.3.1, 2.3.3 and 2.3.4 of the SWMMP.</p> | Compliant | |
| GROUNDWATER MONITORING | | | | | | | |
| | 3 | 34 | <p>The Groundwater Monitoring Program must include:</p> <p>(a) detailed baseline data, based on sound statistical analysis, to benchmark the pre-mining natural variation in groundwater levels, yield and quality (including privately-owned groundwater bores within the predicted drawdown impact zone);</p> <p>(b) groundwater impact assessment criteria (including for monitoring bores);</p> <p>(c) a program for accurately delineating the boundary of the Bettys Creek and Swamp Creek alluvial aquifers in any areas intersected by mining;</p> <p>(d) a program to monitor:</p> <ul style="list-style-type: none"> impacts on the groundwater supply of potentially affected landowners; impacts on the Bettys Creek and Swamp Creek alluvial aquifers; connectivity and groundwater leakage to/from Bettys Creek and Swamp Creek following diversion; impacts on groundwater dependent ecosystems and riparian vegetation; | <p>1. Annual Reviews 2017-2019.</p> <p>2. Trigger action response in Surface Water and Groundwater Response Plan version 4.0.</p> <p>3. GWMP</p> | <p>Reviewed GWMMP and confirmed contained all requirements. Baseline data in Section 2.3 and 4.1. Description of Groundwater Management</p> <p>System in Section 3.1 of the GMMP and Section 3.2 Surface Water and Groundwater Response Plan.</p> <p>Groundwater performance criteria in Section 4.2 of the Groundwater Management and Monitoring Plan.</p> | Compliant | |

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| | | | <ul style="list-style-type: none"> • the volume of ground water seeping into the open cut mine workings; • regional ground water levels and quality in the alluvial, coal seam, and overburden/interburden aquifers; and • the groundwater pressure response in the surrounding coal measures; <p>(e) procedures for the verification of the groundwater model; and</p> <p>(f) reporting procedures for the results of the monitoring program and model verification.</p> | | | | |
| SURFACE AND GROUNDWATER RESPONSE PLAN | | | | | | | |
| | 3 | 35 | <p>The Surface and Ground Water Response Plan must include:</p> <p>(a) a protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria;</p> <p>(b) measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Bettys Creek, Swamp Creek and Bowmans Creek downstream of the development;</p> <p>(c) measures to minimise, prevent or offset groundwater leakage from the Bettys Creek and Swamp Creek alluvial aquifers;</p> <p>(d) measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Bettys Creek and Swamp Creek alluvium if the potential for adverse impacts is detected; and</p> <p>(e) the procedures that would be followed if any unforeseen impacts are detected during the development.</p> | <p>1. Annual Reviews 2017-2019.</p> <p>2. Trigger action response in Surface Water and Groundwater Response Plan version 4.0.</p> | <p>GDE's in Surface and Groundwater Response Plan Section 3.2.</p> <p>Monitoring program in Section 4.4 and 5.1.1. Response plan in Section 5.1 and 4.2.</p> | Compliant | |
| REHABILITATION AND LANDSCAPE | | | | | | | |
| OFFSET STRATEGY | | | | | | | |
| | 3 | 36 | <p>The Applicant must:</p> <p>(a) implement the Offset Strategy described in the EA (Mod 2), EA (Mod 3) and summarised in Table 11 (shown conceptually in Appendix 5); and</p> | 1. IEA 2017 | Compliant in 2017 IEA. | Compliant | |

| | | | <p>(b) make suitable arrangements to provide appropriate long term security for the offset area by April 2011, to the satisfaction of the Secretary.</p> <p><i>Table 11: Offset Strategy</i></p> <table><tr><th>Offset Area</th><th>Minimum Size</th></tr><tr><td>Bettys Creek Habitat Management Area</td><td>174 ha</td></tr></table> <p>The Offset Strategy must contain specific measures to adequately offset the development's net impact on significant plant communities, including:</p> <ul style="list-style-type: none">• Bulloak Forest;• Swamp Oak Forest; and• Box-Ironbark Woodland. | Offset Area | Minimum Size | Bettys Creek Habitat Management Area | 174 ha | | | | | | | | |
|--|------------------|-----|--|---|---|--------------------------------------|--------|---|----|--|----|---|---|---------------|--|
| Offset Area | Minimum Size | | | | | | | | | | | | | | |
| Bettys Creek Habitat Management Area | 174 ha | | | | | | | | | | | | | | |
| BIODIVERSITY CREDITS REQUIRED | | | | | | | | | | | | | | | |
| | 3 | 36A | <p>Within 6 months of the approval of Modification 4, or other timeframe agreed by the Secretary, the Applicant must retire the biodiversity credits specified in Table 12 below.</p> <p><i>Table 12: Biodiversity credit requirements</i></p> <table><tr><th>Credit Type</th><th>Credits Required</th></tr><tr><td>Ecosystem Credits</td><td></td></tr><tr><td>PCT1692 Bull Oak grassy woodland of the central Hunter Valley - <i>Regeneration</i></td><td>21</td></tr><tr><td>PCT1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter-<i>Derived Native Grassland</i></td><td>88</td></tr></table> <p>The retirement of the biodiversity credits specified in Table 12 must be carried out in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.</p> | Credit Type | Credits Required | Ecosystem Credits | | PCT1692 Bull Oak grassy woodland of the central Hunter Valley - <i>Regeneration</i> | 21 | PCT1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter- <i>Derived Native Grassland</i> | 88 | <ol style="list-style-type: none">1. MOP2. MOD 4 approved March 20203. Lttr dated 21-08-2020 from DPIE, extension granted until 4-03-2021 | Sighted an extension of time from DPIE to allow additional time to retire credits | Not Triggered | |
| Credit Type | Credits Required | | | | | | | | | | | | | | |
| Ecosystem Credits | | | | | | | | | | | | | | | |
| PCT1692 Bull Oak grassy woodland of the central Hunter Valley - <i>Regeneration</i> | 21 | | | | | | | | | | | | | | |
| PCT1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter- <i>Derived Native Grassland</i> | 88 | | | | | | | | | | | | | | |
| REHABILITATION | | | | | | | | | | | | | | | |
| | 3 | 37 | <p>The Applicant must rehabilitate the site in a manner that is generally consistent with the final landform set out in the EA (Mod 2), as modified by SEE (Mod 4) (shown conceptually in Appendix 6) to the satisfaction of Resources Regulator and the Secretary.</p> <p>The final landform must provide for at least 250 hectares of treed vegetation, in a manner generally consistent with that shown conceptually in Appendix 6.</p> | <ol style="list-style-type: none">1. Auditor sighted onsite2. Vegetation surveys 2017-2019 | <p>The on-ground rehabilitation works were observed to be consistent with this condition.</p> <p>General Findings:</p> <p>The site is fulfilling MOP rehabilitation areas with a decrease in TSF rehabilitation and to offset this, an increase in dump rehabilitation areas.</p> <p>Erosion: The WOOP dump erosion gully will be re-disturbed and rehabilitated with ongoing operations. There are some minor erosion rills on rehabilitation areas however these are considered general maintenance issues which are addressed regularly on site.</p> <p>It was observed that new areas for rehabilitation are being prepared to sow, indicating regular rehabilitation activities.</p> | Compliant | | | | | | | | | |

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| | | | | | <p>It is understood that there is a topsoil shortage of approximately 50 ha + 80 ha and therefore various substitutes/ameliorants are being considered and trialled.</p> <p>The integration of tailings management with adjacent sites provides various options for tailings management and future rehabilitation options, more so than operating within a one closed site system. This appears to be win win for the sites and should be encouraged.</p> <p>CMO is used on site for compliance actions including rehabilitation. This provides a system based actions program without reliance on specific personnel, which reduces the impact of staff turnover on fulfilling rehabilitation actions.</p> <p>Onsite evidence and flora surveys indicated much of the rehabilitation was tracking towards completion criteria and furthermore for those areas not tracking towards completion criteria adequately, management actions such as thinning, weed control and supplemental planting was being undertaken. An example seen on site was the Northern area of the WOOP Dump which included re ripping and re-sowing.</p> <p>Topsoil stockpiles: it was noted one stockpile was covered in thistle however it is understood this was recently sprayed.</p> <p>Rehabilitation tracks and stockpiles were well signposted. Tracks through the rehabilitation require some maintenance in places before the erosion rills become gullies and the repair efforts multiply. Some tracks also require mitre drains and roll overs to be installed to facilitate longer term stability.</p> <p>As mentioned above the weeds are actively managed and there has been a significant (x3) increase in allocated budget for this in recent years.</p> <p>It was noted that a seed nursery has been established on site. Nest boxes have been installed, the landform includes a variety of slopes and drainage patterns in line with the MOP. (MineSoils):</p> | | |
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| | 3 | 37A | <p>The Applicant must rehabilitate the site progressively as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation cannot be permanently rehabilitated.</p> <p>Note: This condition does not prevent further disturbance at some later stage of the development of areas that have been rehabilitated.</p> <p>Note: This condition does not prevent further disturbance at some later stage of the development of areas that have been rehabilitated.</p> | <p>1. Auditor sighted onsite</p> <p>2. Vegetation surveys 2017-2019</p> | <p>The site inspection confirmed areas that were not considered active mining were either rehabilitated or being prepared for rehabilitation (reshaping, topsoiling, ripping, ameliorating or sowing). There was no evidence of significant areas likely to cause dust that were not active mining areas or in the process of being rehabilitated. Minor erosion repair is required on the northern face of the out of pit emplacement where contour drains spill into drainage lines.</p> | Compliant | |
| PRE-CLEARANCE SURVEY | | | | | | | |
| | 3 | 37B | <p>Prior to commencing any surface disturbance related to construction or maintenance of the realigned transmission line, including for service roads, the Applicant must ensure that a pre-clearance threatened species survey is undertaken by a suitably qualified expert.</p> <p>If any additional threatened species, which may be adversely affected by the realigned transmission line, are identified during the pre-clearance survey, the Applicant must not undertake any associated surface disturbance until suitable offsets have been provided in accordance with OEH's NSW.</p> <p>Biodiversity Offsets Policy for Major Projects (2016), to the satisfaction of the Secretary.</p> | <p>1. MOC Biodiversity Offset Management Plan Section 3.1.2.1 Preclearance surveys and due diligence inspections undertaken.</p> <p>2. Letter of approval from DPIE dated 6/12/2018 regarding the Biodiversity and Offset Management Plan in response to email from MOC dated 6 December 2018.</p> | <p>The Biodiversity Offset Management Plan in Section 2.1.2.1 describes the preclearance surveys were undertaken as well as due diligence. The works related to the relocation of the transmission line had targeted due diligence assessments undertaken for the recording of all mature river oak trees which were either removed or severely damaged from the result of the works. The compensatory planting program was implemented (outlined in BOMP Section 3.2.2).</p> <p>The BOMP was approved by the DPIE Secretary on date 6/12/2018.</p> <p>Biodiversity Offsets Policy for Major Projects (2016), to the satisfaction of the Secretary was completed outside the audit scope.</p> | Compliant | |
| REVEGETATION & COMPENSATORY PLANTING | | | | | | | |
| | 3 | 37C | <p>The Applicant must:</p> <p>(a) plant and maintain, until established, 10 River Oak trees for every established River Oak tree that is removed or severely damaged during construction and maintenance of the realigned transmission line;</p> <p>(b) erect 2 nesting boxes for every identified tree hollow that is removed or severely damaged during the construction and maintenance of the realigned transmission line; and</p> <p>(c) replant or naturally regenerate, with a suitable mix of canopy, mid-storey and groundcover species, any temporarily cleared vegetation for the realigned transmission line that is classified as either Swamp Oak Forest or River Oak Forest, to the satisfaction of the Secretary.</p> | <p>1. Auditor sighted onsite</p> <p>2. Vegetation surveys 2017-2019</p> | <p>Rehabilitation in progress and in accordance with condition</p> <p>a) Annual Review 2019 indicated only 10% survival rate from first planting (2016/2017). An additional 2,000 trees were planted in April 2019 and fenced. The survival rate will be reported on in the 2020 Annual Review. This is compliant as during the audit period efforts were undertaken to plant and maintain. Despite low survival from initial plantings, this area is being replanted and managed. And Section 3.2.3 of BOMP.</p> | Compliant | |

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| | | | <p><i>Notes:</i></p> <ul style="list-style-type: none"> • For the purposes of this condition an 'established River Oak tree' is two metres or greater in height. • For the purposes of this condition a 'severely damaged tree' is one that is lopped to the extent that half or more of the crown biomass is lost. | | <p>b) Section 3.2.1.2 in BOMP - TBC to satisfaction of Secretary? Or not triggered as not yet complete?</p> <p>c) Section 3.5 of BOMP - TBC to satisfaction of Secretary? Or not triggered as not yet complete?</p> | | |
| NEW ENGLAND HIGHWAY TREE SCREENS | | | | | | | |
| | 3 | 38 | <p>By the end of October 2008, the Applicant must plant additional trees along the New England Highway corridor to provide a tree screen for the development. These trees must be planted in consultation with Council and the relevant landowners, and then subsequently maintained to the satisfaction of the Secretary.</p> <p>Note: (Deleted)</p> | <p>1. Auditor sighted onsite</p> <p>2. Vegetation surveys 2017-2019</p> | <p>Tree screen was visible to the auditor.</p> <p>Reported on in rehabilitation section in ARs</p> | Compliant | |
| LANDSCAPE MANAGEMENT PLAN | | | | | | | |
| | 3 | 39 | <p>The Applicant must prepare a detailed Landscape Management Plan for all land disturbed by the development to the satisfaction of the Resources Regulator and Secretary. This plan must:</p> <p>(a) be prepared in consultation with EPA, DPIE Water, DRG, BCD and Council by suitably qualified expert/s whose appointment/s have been approved by the Secretary;</p> <p>(b) be submitted to the Secretary for approval by the end of April 2008; and</p> <p>(c) include a:</p> <ul style="list-style-type: none"> • Rehabilitation and Offset Management Plan; • Final Void Management Plan; and • Mine Closure Plan. <p>The Applicant must implement the approved plan as approved from time to time by the Secretary.</p> <p><i>Note: The Department accepts that the initial Landscape Management Plan may not include the detailed Final Void Management Plan and Mine Closure Plan. However, if this occurs, the Applicant will be required to seek approval from the Secretary for an alternative timetable for the completion and approval of the Final Void Management Plan and Mine Closure Plan.</i></p> | <p>1. Review of Biodiversity and Offset Management Plan 17/10/17</p> <p>2. Current MOP</p> <p>3. BOMP approval letter from DPIE dated 6/12/2018.</p> | <p>a) BOMP approved by DPIE, BOMP Section 1.6.2 and MOP approved</p> <p>b) Confirmed in previous Audit.</p> <p>c) Void management in MOP Section 4.4.5 and Mine Closure Plan is referenced in MOP Section 4.5</p> | Compliant | |
| REHABILITATION AND OFFSET MANAGEMENT PLAN | | | | | | | |

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| | 3 | 40 | <p>The Rehabilitation and Offset Management Plan must include:</p> <p>(a) the objectives for rehabilitation of the site and offset area;</p> <p>(b) a detailed description of how the rehabilitation of the site and implementation of the Offset Strategy would be integrated with the rehabilitation and offset strategies of the Mt Owen, Ravensworth East and Ashton mines to ensure there is a comprehensive strategic framework for the restoration and enhancement of the landscape over time;</p> <p>(c) a description of the short, medium, and long term measures that would be implemented to:</p> <ul style="list-style-type: none"> • rehabilitate the site; • implement the Offset Strategy; • manage the remnant vegetation and habitat on the site and in the offset areas; • maximise effective linkages to the offset areas at Mt Owen, Ravensworth East and Ashton mines; and • implement the New England Highway tree screens; <p>(d) detailed performance and completion criteria for the rehabilitation of the site and implementation of the Offset Strategy and New England Highway tree screens;</p> <p>(e) a detailed description of how the performance of the rehabilitation of the mine, the offset areas and the New England Highway tree screens would be monitored over time to achieve the stated objectives;</p> <p>(f) a detailed description of what measures would be implemented over the next 3 years to rehabilitate the site, and implement both the Offset Strategy and tree screens along the New England Highway including the procedures to be implemented for:</p> <ul style="list-style-type: none"> • progressively rehabilitating areas disturbed by mining; • implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata; • reducing the visual impacts of the development; • protecting areas outside the disturbance areas; • rehabilitating creeks and drainage lines on the site, to ensure no net loss of stream length and aquatic habitat; • undertaking pre-clearance surveys; • managing impacts on fauna; • landscaping the site to minimise visual impacts; | <p>1. BOMP</p> <p>2. BOMP approval letter from DPIE dated 6/12/2018.</p> | <p>a) BOMP Section 1.3, b) BOMP Section 2.1.3.3 Habitat connectivity. c) BOMP Section 3 and 4. d) BOMP Section 6 e) BOMP Section 5 f) BOMP Section 3 and 4. g) BOMP Section 7. h) BOMP Section 10. i) BOMP Section 8.5. The Environmental Management Framework (EMF) manages the responsibilities s. j) BOMP Section 5.1.3 and Section 3.5.</p> | Compliant | |
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| | | | <ul style="list-style-type: none">• conserving and reusing topsoil;• collecting and propagating seed for rehabilitation works;• salvaging and reusing material from the site for habitat enhancement;• controlling weeds and feral pests;• controlling access;• bushfire management; and• managing any potential conflicts between the offset strategy and Aboriginal cultural heritage; <p>(g) a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks;</p> <p>(h) details of who is responsible for monitoring, reviewing, and implementing the plan;</p> <p>(i) a description of riparian revegetation and maintenance works associated with EA (Mod 3), that has been prepared generally in accordance with DPI Water’s Guidelines for Controlled Activities on Waterfront Land; and</p> <p>(j) a description of revegetation and rehabilitation measures that would be implemented during the construction and maintenance of the realigned transmission line.</p> | | | | |
| FINAL VOID MANANGEMENT | | | | | | | |
| | 3 | 41 | <p>The Final Void Management Plan must:</p> <p>(a) justify the final location and future use of the final void;</p> <p>(b) incorporate design criteria and specifications for the final void based on verified groundwater modelling predictions and a re-assessment of post-mining groundwater equilibration;</p> <p>(c) assess the potential interactions between creeks on the site and the final void; and</p> <p>(d) describe what actions and measures would be implemented to:</p> <ul style="list-style-type: none">• minimise any potential adverse impacts associated with the final void; and• manage and monitor the potential impacts of the final void. | | Not Triggered | Not Triggered | |
| MINE CLOSURE PLAN | | | | | | | |
| | 3 | 42 | <p>The Mine Closure Plan must:</p> <p>(a) define the objectives and criteria for mine closure;</p> | | Not Triggered | Not triggered | |

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| | | | <p>(b) investigate options for the future use of the site, including the final void;</p> <p>(c) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local employment levels;</p> <p>(d) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development; and</p> <p>(e) describe how the performance of these measures would be monitored over time.</p> | | | | |
| CONSERVATION AND BIODIVERSITY BOND | | | | | | | |
| | 3 | 43 | <p>Within 3 months of the approval of the Landscape Management Plan, the Applicant must lodge a conservation and biodiversity bond with the Department to ensure that the Offset Strategy is</p> <p>implemented in accordance with the performance and completion criteria of the Landscape Management Plan. The sum of the bond must be determined by:</p> <p>(a) calculating the full cost of implementing the Offset Strategy (Bettys Creek Habitat Management Area); and</p> <p>(b) employing a suitably qualified rehabilitation expert or quantity surveyor to verify the calculated costs, to the satisfaction of the Secretary.</p> <p>The calculation of the conservation and biodiversity bond must be submitted to the Department for approval at least 1 month prior to the lodgement of the bond.</p> <p>The conservation and biodiversity bond must be reviewed and, if required, an updated bond must be lodged with the Department within 3 months of any of the following:</p> <p>(a) an approved revision of the Landscape Management Plan;</p> <p>(b) the completion of an Independent Environmental Audit in which recommendations relating to the implementation of the Landscape Management Plan have been made; or</p> <p>(c) in response to a request by the Secretary.</p> <p>Notes:</p> <ul style="list-style-type: none"> <i>If the Offset Strategy is completed generally in accordance with the performance and completion criteria of the Landscape Management Plan to the satisfaction of the Secretary, the Department will release the conservation and biodiversity bond.</i> <i>If the Offset Strategy is not completed generally in accordance with the performance and completion criteria of the Landscape Management Plan to the satisfaction of the Secretary, all or part of the conservation and biodiversity bond will be used to ensure the satisfactory completion of the relevant works.</i> | <p>The auditor viewed the DPIE letter dated 28.05.2019 confirming approval of the revised calculation.</p> | <p>1. Viewed DPIE letter from H.Reed dated 28.05.2019 RE_SSD and DA 80-952 Approved Conservation Bond revised calculation.</p> <p>2. Viewed OEH letter from K.Thumm dated 25.01.2017 Preliminary Review of the revised Mount Owen Complex Biodiversity and Offset Management Plan.</p> <p>3. Viewed DPIE Letter dated 17.01.2017 referring to Mt Owen Complex correspondence of 9 to 13 October 2017 of submitting 10 updated management plans to the department for approval. Secretary approved the revised 10 plans.</p> | Compliant | |
| ABORIGINAL CULTURAL HERITAGE | | | | | | | |

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| ABORIGINAL CULTURAL HERITAGE MANAGEMENT PLAN | | | | | | | |
| | 3 | 44 | <p>The Applicant must prepare an Aboriginal Cultural Heritage Management Plan to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with BCD and the Registered Aboriginal Parties;</p> <p>(b) be submitted to the Secretary for approval prior to the disturbance of any Aboriginal object or site; and</p> <p>(c) include a:</p> <ul style="list-style-type: none"> • management plan for all Aboriginal sites and potential archaeologically sensitive areas within the development disturbance area; • detailed description of the measures that would be implemented to protect Aboriginal sites and potential archaeologically sensitive areas outside the development disturbance area; • description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the development; and • protocol for the ongoing consultation and involvement of the Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site. <p>The Applicant must implement the approved plan as approved from time to time by the Secretary.</p> | | Compliant in 2017 IEA. | Compliant | |
| HERITAGE | | | | | | | |
| | 3 | 45 | <p>The Applicant must prepare an archival record of the heritage items listed in the table in Appendix 7, prior to any activity associated with the development that may disturb these sites, in consultation with, and in accordance with the requirements of, the Heritage Branch, and to the satisfaction of the Secretary.</p> | | Compliant in 2017 IEA. | Compliant | |
| HERITAGE | | | | | | | |
| | 3 | 46 | <p>The Applicant must prepare an archival record of the heritage items listed in the table in Appendix 7, prior to any activity associated with the development that may disturb these sites, in consultation with, and in accordance with the requirements of, the Heritage Branch, and to the satisfaction of the Secretary.</p> | | Compliant in 2017 IEA. | Compliant | |
| TRANSPORT | | | | | | | |
| MONITORING OF COAL TRANSPORT | | | | | | | |

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| | 3 | 46 | The Applicant must keep records of the amount of coal transported from the site each year and include these records in the Annual Review . | | Auditor sighted the coal loader weight dockets which include date and time of movement in monthly reporting and Annual Reviews. Auditor sighted both monthly reports and annual reviews publicly listed on the Glencore Mt Owen Complex website. | Compliant | |
| TRAFFIC MANAGEMENT | | | | | | | |
| | 3 | 47 | The Applicant must construct the Hebden Road/Site Access Road intersection to the satisfaction of Council, by the end of September 2008. | 1. IEA 2017 | Compliant in 2017 IEA. | Not Triggered | |
| | 3 | 48 | The Applicant must prepare (and subsequently implement) a construction traffic management plan for the development, to the satisfaction of Council, prior to re-commencing construction activities that require access from Hebden Road to the site. | 1. IEA 2017 | Compliant in 2017 IEA. | Not Triggered | |
| | 3 | 49 | The Applicant must review, and if necessary, upgrade the New England Highway/Hebden Road intersection to provide: (a) street lighting in accordance with the relevant Australian Standards; and (b) road shoulders that comply with the RMS's Road Design Guide, to the satisfaction of the RMS , by the end of December 2008. | 1. IEA 2017 | Compliant in 2017 IEA. | Not Triggered | |
| VISUAL | | | | | | | |
| | 3 | 50 | The Applicant must : (a) ensure that all external lighting associated with the development complies with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version ; (b) take all practicable measures to mitigate off-site lighting impacts from the development; and (c) minimise the visual impacts of the development, to the satisfaction of the Secretary . | 1. Complaints and incidents register 2. Auditor sighted onsite 1-2 December 2020 all tree screens within the Mt Owen Complex. | No visual complaints regarding lighting or viewing of mining operations. Auditor sighted onsite 1-2 December 2020 all tree screens within the Mt Owen Complex and evidence of gaps being filled in progressively. | Compliant | |
| | 3 | 51 | (Deleted) | | Not Triggered | Not triggered | |
| WASTE | | | | | | | |
| | 3 | 52 | The Applicant must : (a) monitor the amount of waste generated by the development; (b) investigate ways to minimise waste generated by the development; (c) implement reasonable and feasible measures to minimise waste generated by the development; | 1. The auditor sighted no Coal Mining Operations (C.M.O) at the STPs. 2. The auditor has sighted onsite documentation confirming all Sewerage Treatment Plants (STP) have been approved by Council. | The auditor has sighted onsite documentation confirming all Sewerage Treatment Plants (STP) have been approved by Council. Auditor sighted no C.M.O | Compliant | |

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| | | | (d) ensure irrigation of treated wastewater is undertaken in accordance with EPA's Environmental Guideline for the Utilisation of Treated Effluent; and (e) report on waste management and minimisation in the Annual Review , to the satisfaction of the Secretary . | | | | |
| SCHEDULE 4 ADDITIONAL PROCEDURES | | | | | | | |
| NOTIFICATION OF LANDOWNERS | | | | | | | |
| | 4 | 1 | By the end of April 2008, the Applicant must notify the landowners of the land listed in Table 1 in writing that they have the right to require the Applicant to acquire their land at any stage during the development. | | Confirmed in 2017 IEA. | Compliant | |
| | 4 | 2 | If the results of monitoring required in schedule 3 identify that impacts generated by the development are greater than the impact assessment criteria in schedule 3, except where this is predicted in the EA (Mod 2) , and except where a negotiated agreement has been entered into in relation to that impact, then the Applicant must notify the Secretary and the affected landowners and/or existing or future tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the criteria in schedule 3. | 1. Exceedance notification letters 2. Annual Reviews – atmospheric scientist due diligence | There were some exceedances which DPIE was notified by MOC. The exceedance areas were not located nearby residences nor impact any residences. This was confirmed by the monitoring equipment , atmospheric scientist and the Annual Reviews. | Compliant | |
| | 4 | 3 | The Applicant must develop a brochure to advise landowners and/or existing or future tenants (including tenants of mine owned properties) of the possible health and amenity impacts associated with exposure to particulate matter, to the satisfaction of the Secretary . The brochure must be prepared in consultation with NSW Health, and be submitted to the Secretary within 6 months of the date of this consent. The Applicant must review relevant human health studies and update this brochure every 3 years, to the satisfaction of the Secretary . The Applicant must provide this brochure (and associated updates) to all landowners and/or existing or future tenants (including tenants of mine owned properties) of properties where: (a) the predictions in the EA (Mod 2) identify that the dust emissions generated by the development are likely to be greater than the air quality land acquisition criteria in condition 20 of schedule 3; and (b) monitoring results identify that the mine is exceeding the air quality land acquisition criteria in condition 20 of schedule 3. | 1. Auditor sighted email for the "Mine Dust and You" from Property Lawyers confirming Dust Fact sheet was sent out to tenants. 2. Auditor sighted letter sent to DPIE Secretary requesting if the 2017 'Mine Dust and You' can be continued to be used and not updated. . 3. Letter to DPIE dated 30 June 2020 regarding Mount Owen / Glendell Operations seeks the approval of the Secretary to continue providing the NSW Health Factsheet 'Mine Dust and You' (2017) to relevant landowners and tenants in order to advise them of potential health and amenity impacts from particulate matter exposure. 4. Email from DPIE Secretary dated 28/08/2020 confirming receipt of the Glendell Health & Amenity Brochure for the Glendell Coal and DPIE has no comments on the document. 5. Major Project website extract of the approval of the Glendell Health & Amenity Brochure for the Glendell Coal. | Auditor sighted email for the "Mine Dust and You" from Property Lawyers confirming Dust Fact sheet was sent out. Auditor has sighted DPIE approval of the Glendell Health & amenity Brochure and also sighted DPIE confirming no comments on the existing brochure to use after 3 years. b) Clause 34 Tenancy Agreement applies, and auditor sighted letter sent to DPIE Secretary, no acknowledgement to date from Secretary. | Compliant | |

| INDEPENDENT REVIEW | | | | | | | |
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| | 4 | 4 | <p>If a landowner considers the development to be exceeding the impact assessment criteria in schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.</p> <p>If the Secretary is satisfied that an independent review is warranted, the Applicant must within 2 months of the Secretary's decision:</p> <p>(a) consult with the landowner to determine his/her concerns;</p> <p>(b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to conduct monitoring on the land, to:</p> <ul style="list-style-type: none"> • determine whether the development is complying with the relevant impact assessment criteria in schedule 3; and • identify the source(s) and scale of any impact on the land, and the development's contribution to this impact; and <p>(c) give the Secretary and landowner a copy of the independent review.</p> | | Not Triggered | Not Triggered | |
| | 4 | 5 | <p>If the independent review determines that the development is complying with the relevant impact assessment criteria in schedule 3, then the Applicant may discontinue the independent review with the approval of the Secretary.</p> | | Noted | Noted | |
| | 4 | 6 | <p>If the independent review determines that the development is not complying with the relevant impact assessment criteria in schedule 3, and that the development is primarily responsible for this noncompliance, then the Applicant must:</p> <p>(a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the development complies with the relevant criteria; and</p> <p>(b) conduct further monitoring to determine whether these measures ensure compliance.</p> <p>If the additional monitoring referred to above subsequently determines that the development is complying with the relevant criteria in schedule 3, or the Applicant and landowner enter into a negotiated agreement to allow these exceedances, then the Applicant may discontinue the independent review with the approval of the Secretary.</p> | | Noted | Noted | |
| | 4 | 7 | <p>If the independent review determines that the relevant criteria in schedule 3 are being exceeded, but that more than one mine is responsible for this non-compliance, then the Applicant must, together with the relevant mine/s:</p> <p>(a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and</p> <p>(b) conduct further monitoring to determine whether these measures ensure compliance; or</p> | | Noted | Noted | |

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| | | | <p>(c) secure a written agreement with the landowner and other relevant mines to allow exceedances of the criteria in schedule 3, to the satisfaction of the Secretary.</p> <p>If the additional monitoring referred to above subsequently determines that the developments are complying with the relevant criteria in schedule 3, then the Applicant may discontinue the independent review with the approval of the Secretary.</p> | | | | |
| | 4 | 8 | <p>f the landowner disputes the results of the independent review, either the Applicant or the landowner may refer the matter to the Secretary for resolution.</p> | | Noted | Noted | |
| LAND ACQUISITION | | | | | | | |
| | 4 | 9 | <p>Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:</p> <p>(a) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the development the subject of the development application, having regard to the:</p> <ul style="list-style-type: none">• existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and• presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the 'additional noise mitigation measures' in condition 6 of schedule 3; <p>(b) the reasonable costs associated with:</p> <ul style="list-style-type: none">• relocating within the Singleton local government area, or to any other local government area determined by the Secretary;• obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and <p>(c) reasonable compensation for any disturbance caused by the land acquisition process.</p> <p>However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land, and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.</p> <p>Upon receiving such a request, the Secretary shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired.</p> | | Not Triggered | Not Triggered | |

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| | | | <p>Within 14 days of receiving the independent valuer's determination, the Applicant must make a written offer to purchase the land at a price not less than the independent valuer's determination.</p> <p>If the landowner refuses to accept this offer within 6 months of the date of the Applicant's offer, the Applicant's obligations to acquire the land shall cease, unless otherwise agreed by the Secretary.</p> | | | | |
| | 4 | 10 | The Applicant must bear the reasonable costs of any valuation or survey assessment requested by the independent valuer, or the Secretary , and the costs of determination referred above. | | Not Triggered | Not Triggered | |
| | 4 | 11 | If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant must pay all reasonable costs associated with obtaining Council consent for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General. | | Not Triggered | Not Triggered | |
| SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING | | | | | | | |
| ENVIRONMENTAL MANAGEMENT | | | | | | | |
| ADAPTIVE MANAGEMENT | | | | | | | |
| | 5 | 1 | <p>The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.</p> <p>Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:</p> <p>(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;</p> <p>(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and</p> <p>(c) implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.</p> | <p>1. Annual Review 2017-2019</p> <p>2. Letter of approval / Satisfaction from Secretary</p> <p>3. Letters from Secretary regarding review of Annual Reviews in regard to updating the reports to achieve a satisfactory approval from the Secretary.</p> | <p>The auditor sighted the Annual Reviews 2017-2019 and deems the MGO is generally compliant with the conditions.</p> <p>In the Annual Reviews include a list of non-compliances with associated action either undertaken or in process of undertaking. (a-c)</p> <p>The Annual Reviews are submitted to the Secretary for review and to receive satisfaction of the Secretary. (b-c). The auditor has viewed Secretary responses to the Annual Reviews and the report has been updated after this consultation and achieved Secretary satisfaction.</p> | Compliant | |
| ENVIRONMENTAL MANAGEMENT STRATEGY | | | | | | | |

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| | 5 | 2 | <p>If the Secretary requires, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:</p> <p>(a) be submitted to the Secretary for approval prior to the commencement of development under this consent, unless the Secretary agrees otherwise;</p> <p>(b) provide the strategic framework for the environmental management of the development;</p> <p>(c) identify the statutory approvals that apply to the development;</p> <p>(d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;</p> <p>(e) describe the procedures that would be implemented to:</p> <ul style="list-style-type: none"> • keep the local community and relevant agencies informed about the operation and environmental performance of the development; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the development; • respond to any non-compliance and any incident; • respond to emergencies; and <p>(f) include:</p> <ul style="list-style-type: none"> • references to any strategies, plans and programs approved under the conditions of this consent; and • a clear plan depicting all the monitoring required to be carried out under the conditions of this consent. <p>The Applicant must implement the approved strategy as approved from time to time by the Secretary</p> | <p>1. IEA 2017</p> <p>2. Revised Environmental Management Framework</p> <p>3. EMF submitted to the DP&E on 8 February 2017</p> <p>4. EMF resubmitted to the DP&E on 12 October 2017.</p> | <p>The condition was compliant in the previous audit in 2017.</p> <p>Changes to the EMS (now named the Environmental Management Framework (EMF) has occurred during the audit period.</p> <p>EMF submitted to the DP&E on 8 February 2017 for review and comment.</p> <p>The Secretary has not yet requested a Framework be prepared; however the DP&E reviewed the draft Framework and comments were provided on 4 April 2017.</p> <p>Framework has since been revised to incorporate these comments and was re-submitted to the DP&E on 12 October 2017.</p> | Compliant | |
| MANAGEMENT PLAN REQUIREMENTS | | | | | | | |
| | 5 | 3 | <p>The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) a summary of relevant background or baseline data;</p> <p>(b) a description of:</p> | <p>1. Annual Reviews 2017 – 2019</p> <p>2. Approved Management Plans on Glencore website.</p> | <p>Auditor sighted the Annual Reviews 2017-2019 which provided the required information to assist in fulfilling condition a-h. The Annual Reviews list actions in relation to any non-compliances and recommendations within the year and summarises them in Sections 9.3, 9.4, Section 10, 11, and Section 12.</p> | Compliant | |

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| | | | <ul style="list-style-type: none"> the relevant statutory requirements (including any relevant approval, licence or lease conditions); any relevant limits or performance measures/criteria; the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; <p>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> impacts and environmental performance of the development; effectiveness of any management measures (see c above); <p>(e) a contingency plan to manage any unpredicted impacts and their consequences;</p> <p>(f) a program to investigate and implement ways to improve the environmental performance of the development over time;</p> <p>(g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> incidents; complaints; non-compliances with statutory requirements; and exceedances of the impact assessment criteria and/or performance criteria; and <p>(h) a protocol for periodic review of the plan.</p> <p>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</p> | | See main report for the specific management plans review. | | |
| | 5 | 4 | (Deleted) | | Not Triggered | Not Triggered | |
| ANNUAL REVIEW | | | | | | | |
| | 5 | 5 | <p>By the end of March each year, or as otherwise agreed with the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:</p> <p>(a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;</p> | <p>1. Annual Reviews 2017-2019</p> <p>2. Letters from DPIE Secretary approval of the following</p> <p>Annual Reviews:</p> <p>2017 – 14/08/2018</p> <p>2018 – 08/7/2019</p> <p>2019 – 02/06/2020</p> | <p>2017 IEA Recommendation response:</p> <p>Letter from DP&E: changes in future annual reviews dated 22/05/17. Changes included showing regional features in plans and assessing environmental performance with predictions in the environmental assessments. Some of these comparisons were made in the past Annual Reviews but not for all aspects e.g. waste.</p> | Compliant | |

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| | | | <p>(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:</p> <ul style="list-style-type: none"> • relevant statutory requirements, limits or performance measures/criteria; • monitoring results of previous years; and • relevant predictions in the documents listed in condition 2(a) of Schedule 2; <p>(c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;</p> <p>(d) identify any trends in the monitoring data over the life of the development;</p> <p>(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and</p> <p>(f) describe what measures will be implemented over the next year to improve the environmental performance of the development.</p> | | In this audit period waste is included and provided in Section 4. | | |
| REVISION OF STRATEGIES, PLANS AND PROGRAMS | | | | | | | |
| | 5 | 6 | <p>Within 3 months of:</p> <p>(a) the submission of an Annual Review under condition 5 above;</p> <p>(b) the submission of an incident report under condition 9 below;</p> <p>(c) the submission of an audit under condition 11 below; or</p> <p>(d) any modification to the conditions of this consent (unless the conditions require otherwise); the Applicant must review the strategies, plans and programs required under this consent, to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Secretary.</p> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.</i></p> | <p>1. IEA 2017</p> <p>2. Modifications</p> <p>3. CMO Change Management Forms sample.</p> | <p>Auditor sighted all annual reviews and confirm the incident reports were provided in Section 11 in Annual Reviews.</p> <p>Incident register is provided in Annual Reviews in corresponding years:</p> <p>2017 Annual Review provided in Appendix A, Table 1.</p> <p>2018 Annual Review provided in Appendix C, Table 2.</p> <p>2019 Annual Review provided in Appendix C, Table 2.</p> <p>Auditor sighted a sample of the CMO Change Management Form and confirms MOC review the plans, strategies and programs required under the consent including after modifications (2,3,4,and 5).</p> | Compliant | |
| | 5 | 7 | (Deleted) | Not Triggered | | Not Triggered | |

| COMMUNITY CONSULTATIVE COMMUNITY | | | | | | | |
|----------------------------------|---|----|--|--|--|-----------|--|
| | 5 | 8 | <p>The Applicant must operate a CCC for the development to the satisfaction of the Secretary. This CCC must be operated in general accordance with the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects</i> (Department of Planning, 2007 or its latest version or replacement).</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> • The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent. • In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community. • The CCC may be combined with similar committees established for the adjoining Mt Owen, Ravensworth East and Integra Underground mines. | 1. CCC meeting minutes on the publicly available Glencore Mt Owen Complex website. | <p>Auditor sighted CCC meeting minutes on the publicly available Glencore Mt Owen Complex website for the audit period.</p> <p>The CCC is operating in general accordance with the condition.</p> <p>Recommendation from DPIE was to ensure all members do not have a connection to the mine, therefore a member of council was suggested to leave the CCC which was actioned.</p> | Compliant | |
| | 5 | 9 | <p>The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing and identify the development (including the development application number and name) and set out the location and nature of the incident.</p> | 1. Annual Reviews 2. Incident register 3. EPL | <p>The Annual Reviews 2017-2019 were reviewed by the Auditor and all reportable incidents were notified.</p> <p>Annual returns for the EPL were reviewed.</p> <p>No evidence of other incidents were known within the audit period.</p> | Compliant | |
| NON-COMPLIANCE | | | | | | | |
| | 5 | 10 | <p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p> <p><i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.</i></p> | 1. Annual Reviews 2. Incident and non-compliance register | <p>The Annual Reviews 2017-2019 were reviewed by the Auditor and all non-compliances were notified to DPIE within seven days of MGO becoming aware of the non-compliance.</p> | Compliant | |
| INDEPENDENT ENVIRONMENTAL AUDIT | | | | | | | |
| | 5 | 11 | <p>By the end of December 2010, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development.</p> <p>This audit must:</p> | 1. IEA 2020 2. Approval letter from DPIE for audit. 3. IEA 2017 | <p>EIA have been conducted in accordance with the condition.</p> | Compliant | |

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| | | | <p>(a) be led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Secretary; (b) be conducted by a suitably qualified, experienced, and independent team of experts (including any expert in field/s specified by the Secretary) whose appointment has been endorsed by the Secretary;</p> <p>(c) include consultation with the relevant agencies and the CCC; (d) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease or necessary water licences (including any assessment, plan or program required under these approvals);</p> <p>(e) review the adequacy of strategies, plans or programs required under the abovementioned approvals (including whether the development has met or is trended towards the progressive performance and completion criteria detailed in these strategies, plans or programs);</p> <p>(f) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under these approvals; and (g) be conducted and reported to the satisfaction of the Secretary.</p> | | | | |
| | 5 | 12 | <p>Within 12 weeks of commissioning of this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary and any other NSW Government</p> <p>agency that request it, together with its response to any recommendations contained in the audit report and a timetable for the implementation of these recommendations, as required. The Applicant must implement the audit report recommendations, to the satisfaction of the Secretary.</p> | <p>1. IEA 2020</p> <p>2. Approval letter from DPIE for audit.</p> <p>3. IEA 2017</p> | EIA have been conducted in accordance with the condition. | Compliant | |
| ACCESS TO INFORMATION | | | | | | | |
| | 5 | 13 | <p>The Applicant must:</p> <p>(a) make copies of the following publicly available on its website:</p> <ul style="list-style-type: none"> • the documents listed in condition 2(a) of Schedule 2; • current statutory approvals for the development; • approved strategies, plans or programs required under the conditions of this consent; • a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications of any conditions of this consent, or any approved plans or programs; • a complaint register, which is to be updated monthly; • minutes of CCC meetings; • the Annual Reviews of the development (for the last five years); | 1. MOC website. | Information included in this condition was sighted as provided on website during the audit period. | Compliant | |

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| | | | <ul style="list-style-type: none">• any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit; and• any other matter required by the Secretary; and <p>(b) keep this information up to date, to the satisfaction of the Secretary.</p> | | | | |
|--|--|--|--|--|--|--|--|

Appendix C. Consultation

Bourke, Samantha

From: Jennifer Sage <jennifer.sage@dpie.nsw.gov.au>
Sent: Friday, 23 October 2020 12:40 PM
To: Bourke, Samantha
Cc: Heidi Watters; Horn, Peter
Subject: [EXTERNAL] FW: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

Dear Samantha

Thank you for your email on 20 October 2020 regarding the Independent Environmental Audit for Mt Owen Complex.

The Department requests that the Independent Environmental Audit include an assessment of the following aspects of the development –

- Noise management - implementation of the noise management plan, including the response to an exceedance of criteria, i.e. notification of affected receivers, notification of exceedances or non-compliances to the Department, and follow-up monitoring.
- Air quality management and performance against criteria and previous years' performance.
- Operation of the Community Consultation Committee in accordance with the consent and relevant CCC Guidelines (2019 version).
- Notification and reporting of incidents and non-compliances.
- Maintenance and rehabilitation of creek diversions constructed at the Mt Owen Complex, including the implementation of any diversion plans and diversion remediation plans.

If you have any questions, please don't hesitate to contact me on the details below.

Regards
Jen

Jennifer Sage
Compliance Officer

Planning and Assessment | Department of Planning, Industry and Environment
T 02 6575 3420 **M** 0400 245 170 | **E** jennifer.sage@dpie.nsw.gov.au
PO Box 3145, Singleton NSW 2330
www.dpie.nsw.gov.au



Our Vision: Together, we create thriving environments, communities and economies.

The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Bourke, Samantha <Samantha.Bourke@jacobs.com>
Sent: Tuesday, 20 October 2020 3:30 PM
To: Heidi Watters <Heidi.Watters@Planning.nsw.gov.au>
Cc: Horn, Peter <Peter.Horn@jacobs.com>
Subject: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

Dear Heidi - Team Leader Compliance for the Department of Planning, Industry and Environment,

Jacobs are conducting an Independent Environmental Audit (IEA) of the Mt Owen Complex (includes the operation of the Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine) at Singleton in NSW. Peter Horn (cc'd in this email) will be the Lead Auditor for this audit.

The IEA is required to satisfy Schedule 5, Conditions 11 and 12 of SSD-5850 and Schedule 5, Conditions 11 and 12 of DA 80/952 that require an Independent Environmental Audit every 3 years (audit period beginning from 1 November 2017).

Your agency/organisation is listed to be consulted in the DPE Independent Audit Requirements 2015 (NSW Department of Planning, Industry and Environment).

Could you please provide some comments on issues your agency /organisation has identified with the Mt Owen Complex, it's operation, stakeholder interaction or community consultation.

If you have any specific areas of interest that you would like explored in the audit, please note those too.

To ensure all comments are received and responded to in the audit, please respond within 2 weeks of this email.

If you would prefer to have your input kept confidential, please call on the number below and the queries will be assessed in the audit but not attributed to you or your organisation.

Please note that an email response is considered adequate.

Kind Regards

Samantha (assisting auditor) on behalf of Peter Horn.

Peter Horn BAppSci, MAppSci
Jacobs

Technical Director APAC – Environmental Management & Auditing
Environmental Solutions - People & Places Solutions – Asia Pacific

Ph : +61 2 4979 2600

Direct : +61 2 4979 2658

Mob : +61 428 282 751

E-mail : Peter.Horn@jacobs.com

Level 4, 12 Stewart Avenue
Newcastle West NSW 2302
Australia

www.jacobs.com

Samantha Bourke | [Jacobs](http://www.jacobs.com) | Environmental Planner / Scientist
O:+61. (02) 4979 26 05 | 0432 102 233 | samantha.bourke@jacobs.com
Level 4, 12 Stewart Avenue | Newcastle West, NSW / 2302 | Australia

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DOC20/867886-1, EF13/4405 and EF13/4478

Jacobs
By email: Peter.horn@jacobs.com

22 October 2020

Attention: Mr Peter Horn

Dear Mr Horn

Mt Owen Complex and Glendell Mine – Independent Environmental Audit

I refer to your email dated 20 October 2020 regarding input to the Independent Environmental Audit of Mt Owen Complex and Glendell Mine.

The Environment Protection Authority (EPA) encourages independent audit towards proponents improving their environmental performance. We do not provide input as our role is to set environmental objectives for environmental/conservation management and manage outcomes.

I refer you to the EPA's public register <http://www.epa.nsw.gov.au/prpoeo/index.htm> where you can search for regulatory activity undertaken by the EPA for Environment Protection Licences 4460 and 12840 for Mt Owen Pty Limited.

If you require any further information regarding this matter please me on (02) 4908 6833.

Yours sincerely

NATASHA RYAN
Regulatory Operations Officer

MAAG0008877

Mr Peter Horn
Jacobs
Level 4, 12 Stewart Avenue
Newcastle West NSW 2302
By email: Peter.Horn@jacobs.com

Dear Mr Horn

Subject: Mount Owen Complex – Independent Environmental Audit

Thank you for your email dated 20 October 2020 requesting consultation on the independent audit to be undertaken of the Mount Owen Complex.

The Mount Owen complex is covered by the mining titles listed below.

- CCL715 (1973)
- CL358 (1973)
- CL383 (1973)
- ML1355 (1992)
- ML1410 (1992)
- ML1415 (1992)
- ML1419 (1992)
- ML1453 (1992)
- ML1475 (1992)
- ML1476 (1992)
- ML1561 (1992)
- ML1608 (1992)
- ML1629 (1992)
- ML1673 (1992)
- ML1694 (1992)
- MPL343 (1973)

The Resources Regulator requires that the following issues be addressed in independent environmental audits undertaken in accordance with a planning consent condition.

- Review relevant mining leases and exploration licences as agreed with Resources Regulator;
- Undertake an assessment of compliance against the conditions of title related to environmental management;
- Verify that there is a current Mining Operations Plan (MOP) in place and it has been approved by the Regulator – review compliance against any conditions of approval of the MOP;

- Undertake a critical review of the MOP, including an assessment of its compatibility with the description of operations contained in the planning approval. In particular:
 - Review the rehabilitation strategy as outlined in the MOP to determine if it is consistent with the Project Approval in terms of progressive rehabilitation schedule; and proposed final land use(s);
 - Review the rehabilitation objectives and completion criteria as outlined in the MOP to determine if they have been developed in accordance with the proposed final land use(s) as outlined in the Project Approval;
- Review the development and implementation of any rehabilitation monitoring programs to assess performance against the nominated objectives and completion criteria – verified by reviewing monitoring reports and rehabilitation inspection records;
- Determine if a rehabilitation care and maintenance program has been developed and implemented based on the outcomes of monitoring program – verified by reviewing Annual Rehabilitation Programs or similar documentation;
- Confirm that mining operations are being conducted in accordance with the approved MOP (production, mining sequence etc.), including within the designated MOP approval boundary – to be verified by site plans and site inspection;
- Confirm that rehabilitation progress is consistent with the approved MOP as verified by site plans and a site inspection. This should include an evaluation against rehabilitation targets and whether the final landform is being developed in accordance with conceptual final landform in the Project Approval; and
- Based on a visual inspection, determine if there are any rehabilitation areas that appear to have failed or that have incurred an issue that may result in a delay in achieving the successful rehabilitation outcomes.

In addition to the above, the audit should note observations where rehabilitation procedures, practices and outcomes represent best industry practice.

It would be appreciated if a copy of the final audit report could be sent to the Regulator at nswresourcesregulator@service-now.com upon completion of the audit.

Yours sincerely

Jenny Ehmsen
Principal Compliance Auditor

20 October 2020

Bourke, Samantha

From: Jason.Desmond@glencore.com.au
Sent: Friday, 30 October 2020 9:11 AM
To: Horn, Peter; Bourke, Samantha
Cc: Trescinda.Brown@glencore.com.au; Dominic.Brown@glencore.com.au
Subject: [EXTERNAL] FW: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

Please disregard the previous email – Lisa has beat me to it as per below.

Kind regards,

Jason Desmond
Environment and Community Manager
Mt Owen / Glendell Operations, GLENCORE

From: lisaandrews.ic@gmail.com <lisaandrews.ic@gmail.com>
Sent: Friday, 30 October 2020 9:02 AM
To: Brendon Yelverton <balerollers@gmail.com>; Cameron Williams <cwilliams@williamspropertyco.com.au>; Piggford, Chloe (Integra - AU) <Chloe.Piggford@glencore.com.au>; David Moran <Toad131@bigpond.com>; Deidre Olofsson <deidreolofsson@live.com.au>; Desmond, Jason (Mount Owen - AU) <Jason.Desmond@glencore.com.au>; Laurie Perry <laurie.perry2020@outlook.com>; Dillon, Melanie J (Mount Owen - AU) <Melanie.Dillon@glencore.com.au>; Patricia Bestic <michael@thebestics.com.au>; Sue George <sgeorge@singleton.nsw.gov.au>; Sue Gilroy <info@singletonchamber.org.au>
Subject: Fwd: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

External sender

Further to yesterday's meeting of the Mount Owen Complex CCC; please see below the email from Jacobs, who have been approved by DPIE to undertake the Independent Environmental Audit 2020 of the Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine.

As mentioned, I would appreciate it if you could provide any comments/requests for the auditor's consideration and inclusion.

Thank you and regards
Lisa

Lisa Andrews
Independent Chairperson &
Director
Articulate Solutions Pty Ltd
t: 0401 609 693
e: lisaandrews.ic@gmail.com

----- Forwarded message -----

From: Bourke, Samantha <Samantha.Bourke@jacobs.com>
Date: Tue, Oct 20, 2020 at 3:08 PM
Subject: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020
To: Lisaandrews.ic@gmail.com <Lisaandrews.ic@gmail.com>
Cc: Horn, Peter <Peter.Horn@jacobs.com>

Dear Lisa - Independent Chairperson & Director of the Community Consultative Committee,

Jacobs are conducting an Independent Environmental Audit (IEA) of the Mt Owen Complex (includes the operation of the Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine) at Singleton in NSW. Peter Horn (cc'd in this email) will be the Lead Auditor for this audit.

The IEA is required to satisfy Schedule 5, Conditions 11 and 12 of SSD-5850 and Schedule 5, Conditions 11 and 12 of DA 80/952 that require an Independent Environmental Audit every 3 years (audit period beginning from 1 November 2017).

Your agency/organisation is listed to be consulted in the DPE Independent Audit Requirements 2015 (NSW Department of Planning, Industry and Environment).

Could you please provide some comments on issues your agency /organisation has identified with the Mt Owen Complex, it's operation, stakeholder interaction or community consultation.

If you have any specific areas of interest that you would like explored in the audit, please note those too.

To ensure all comments are received and responded to in the audit, please respond within 2 weeks of this email.

If you would prefer to have your input kept confidential, please call on the number below and the queries will be assessed in the audit but not attributed to you or your organisation.

Please note that an email response is considered adequate.

Kind Regards

Samantha (assisting auditor) on behalf of Peter Horn.

Peter Horn BAppSci, MAppSci

Jacobs

Technical Director APAC – Environmental Management & Auditing

Environmental Solutions - People & Places Solutions – Asia Pacific

Ph : +61 2 4979 2600

Direct : +61 2 4979 2658

Mob : +61 428 282 751

E-mail : Peter.Horn@jacobs.com

Level 4, 12 Stewart Avenue
Newcastle West NSW 2302

Samantha Bourke | Jacobs | Environmental Planner / Scientist

O:+61. (02) 4979 26 05 | 0432 102 233 | samantha.bourke@jacobs.com
Level 4, 12 Stewart Avenue | Newcastle West, NSW / 2302 | Australia

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23 October 2020

Our Ref: M24-4

Peter Horn

Technical Director APAC – Environmental Management and Auditing
Jacobs
Level 4, 12 Stewart Avenue
Newcastle West NSW 2302

Dear Peter

RE: Mount Owen Complex (incorporating the Mount Owen Mine, Glendell Open Cut Mine and Ravensworth East Open Cut Mine) (SSD 5850 and DA 80/952) – Independent Environmental Audit 2020

I refer to your email request dated 20 October 2020 requesting comment from Council on the Mount Owen Complex Independent Environmental Audit. This letter forms Council's feedback in relation to that request.

The conditions of approval for SSD 5850, require consultation with council on a number of matters, including, but not limited to:

- Planning Agreement
- Historic Heritage Management Plan
- Hebden Road
- Waste (Onsite Sewerage Management System)
- Rehabilitation Strategy
- Rehabilitation Management Plan
- Mine Closure Plan
- Community Consultative Committee

Additionally, the conditions of approval require the Applicant to establish a community consultative committee with representation from Council and provide a copy of the Audit Report to Council.

The conditions of approval under D80/592, require consultation with council on a number of matters, including, but not limited to:

- Development contributions
- Road closures as a result of blasting
- New England Highway tree screening
- Landscape Management Plan, including a Rehabilitation and Offsets Management Plan, Final Void Management Plan and Mine Closure Plan
- Traffic Management Plan

Additionally, the conditions of approval require the Applicant to establish a community consultative committee with representation from Council.

Council would expect that the audit will include evidence to support the compliance status of these conditions of approval, and of interest to council, evidence to support the following:

- The extent to which development contributions made under either a Planning Agreement or Contributions Plan have been made;
- The extent of consultation with council on the Hebden Road realignment works, particularly in relation to transfer of ownership, the impacts to the Ravensworth Public School and subdivision to support completion of the works;
- Mine closure planning for the Glendell Mine, given development consent for the current operation will expire in 2022;
- The extent to which the applicant has complied with the requirements of Table 10 in SSD-5850, notably how the applicant intends to *minimise adverse socio-economic impacts associated with mine closure*;
- Compliance with requirements of any OSSM approval; and
- Whether the various rehabilitation management and closure planning objectives/ plans/ strategies required under the various consents align to local, regional and State strategic land use planning documents, including whether these documents incorporate final land use outcomes consistent with these strategic land use planning documents.

Council notes that the applicant is currently seeking a modification to SSD 5850 to address the inability to secure the Travelling Stock Route as an offset site for the Mount Owen Mine. Council has provided a response to the SoEE for this proposed modification. Council would expect that this audit will identify:

- Evidence as to why the applicant continued to propose the TSR as a viable offset site under the EIS for SSD 5850 and subsequent modifications, despite not securing it in accordance with condition 42 of DA 1-14-2004 and condition 27 of SSD 5850;
- What, if any, actions have been taken to secure the TSR since 2014, and if none, what actions were taken to prevent biodiversity impacts as a result of mining until such time as a suitable offset could be secured; and
- Evidence of the offset management actions that were to be applied at the TSR offset site to compensate for the impacts assessed under DA 1-14-2004 and SSD 5850, and whether these actions were undertaken.

I would like to thank you for the opportunity to provide comment on scope for the Mount Owen Complex Independent Environmental Audit. Should you have any questions or comments, please contact Mary-Anne Crawford, Manager Development and Environmental Services on 02 6578 7290.

Yours faithfully



Mary-Anne Crawford
Manager Development and Environmental Services

From: [Bourke, Samantha](#)
To: [Steven Cox](#)
Cc: [Horn, Peter](#)
Subject: RE: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020
Date: Tuesday, 8 December 2020 6:53:08 AM

Hi Steven,

Thank you for your reply for the Mount Owen Complex IEA 2020.

Kind Regards,
Samantha

Samantha Bourke | [Jacobs](#) | Environmental Planner / Scientist
O:+61. (02) 4979 26 05 | 0432 102 233 | samantha.bourke@jacobs.com
Level 4, 12 Stewart Avenue | Newcastle West, NSW / 2302 | Australia

From: Steven Cox <Steven.Cox@environment.nsw.gov.au>
Sent: Thursday, 22 October 2020 4:54 PM
To: Bourke, Samantha <Samantha.Bourke@jacobs.com>
Cc: Robert Gibson <Robert.Gibson@environment.nsw.gov.au>
Subject: [EXTERNAL] RE: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

Hi Samantha,

Thank you for the opportunity to provide input into the audit process, however in this case we don't have any specific concerns to raise for the audit.

Good luck with the audit.

Regards

Steven

Steven Cox

Senior Team Leader Planning, Hunter Central Coast Branch

Biodiversity and Conservation Division | Department of Planning, Industry and Environment
T 02 4927 3140 | **M** 0472 800 088 | **E** steven.cox@environment.nsw.gov.au
Level 4/26, Honeysuckle Drive Newcastle NSW 2309
Locked Bag 1002, Dangar NSW 2309
www.dpie.nsw.gov.au

Currently working from home during Covid-19 restrictions and can be contacted on both above phone numbers.



Our Vision: Together, we create thriving environments, communities and economies.

We work flexibly. I'm sending this message now because it's a good time for me. I don't expect

that you will read, respond to, or action this message outside of your own regular hours.

The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Robert Gibson <Robert.Gibson@environment.nsw.gov.au>

Sent: Tuesday, 20 October 2020 2:56 PM

To: Bourke, Samantha <Samantha.Bourke@jacobs.com>

Cc: Horn, Peter <Peter.Horn@jacobs.com>; OEH ROD Hunter Central Coast Mailbox <rog.hcc@environment.nsw.gov.au>

Subject: RE: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

Dear Samantha,

Thank you for your e-mail, which I am sending to the BCD Hunter Central Coast Planning Mailbox (rog.hcc@environment.nsw.gov.au).

Please send any future requests for the BCD Hunter Central Coast Planning Team to the [rog.hcc](mailto:rog.hcc@environment.nsw.gov.au) email address and mark them attention to 'Senior Team Leader Planning'. That will facilitate quick lodgement in our system and assignment to a staff member.

Kind regards,

Robert

Robert Gibson

Regional Biodiversity Conservation Officer, Hunter Central Coast Branch

Biodiversity and Conservation Division | Department of Planning, Industry and Environment

T 02 4927 3154 | E robert.gibson@environment.nsw.gov.au

Level 4, 26 Honeysuckle Drive, Newcastle, NSW 2300

www.dpie.nsw.gov.au



The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Bourke, Samantha <Samantha.Bourke@jacobs.com>

Sent: Tuesday, 20 October 2020 2:40 PM

To: Robert Gibson <Robert.Gibson@environment.nsw.gov.au>

Cc: Horn, Peter <Peter.Horn@jacobs.com>

Subject: Mt Owen Complex - Independent Environmental Audit Nov 2017 - 2020

Dear Robert - Regional Biodiversity Conservation Officer, Hunter Central Coast Branch for the DPIE Environment, Energy and Science Group,

Jacobs are conducting an Independent Environmental Audit (IEA) of the Mt Owen Complex (includes the operation of the Mt Owen Open Cut Mine, Glendell Open Cut Mine and the Ravensworth East Open Cut Mine) at Singleton in NSW. Peter Horn (cc'd in this email) will be the Lead Auditor for this audit.

The IEA is required to satisfy Schedule 5, Conditions 11 and 12 of SSD-5850 and Schedule 5, Conditions 11 and 12 of DA 80/952 that require an Independent Environmental Audit every 3 years (audit period beginning from 1 November 2017).

Your agency/organisation is listed to be consulted in the DPE Independent Audit Requirements 2015 (NSW Department of Planning, Industry and Environment).

Could you please provide some comments on issues your agency /organisation has identified with the Mt Owen Complex, it's operation, stakeholder interaction or community consultation. If you have any specific areas of interest that you would like explored in the audit, please note those too.

To ensure all comments are received and responded to in the audit, please respond within 2 weeks of this email.

If you would prefer to have your input kept confidential, please call on the number below and the queries will be assessed in the audit but not attributed to you or your organisation.

Please note that an email response is considered adequate.

Kind Regards

Samantha (assisting auditor) on behalf of Peter Horn.

Peter Horn BAppSci, MAppSci
Jacobs

Technical Director APAC – Environmental Management & Auditing
Environmental Solutions - People & Places Solutions – Asia Pacific

Ph : +61 2 4979 2600

Direct : +61 2 4979 2658

Mob : +61 428 282 751

E-mail : Peter.Horn@jacobs.com

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Jacobs Challenging today.
Reinventing tomorrow.

Samantha Bourke | [Jacobs](http://jacobs.com) | Environmental Planner / Scientist
O:+61. (02) 4979 26 05 | 0432 102 233 | samantha.bourke@jacobs.com
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Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment and Heritage.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

Appendix D. Independent Audit Declaration Form

Independent Audit Report Declaration Form


| | |
|-------------------------------|---|
| Project Name | Mt Owen/Glendell Operations consists of the Mt Owen, Ravensworth East and Glendell open cut coal mines. All mines are owned and managed by Mt Owen Pty Limited (Mt Owen) (Mt Owen Complex) |
| Consent Number | SSD-5850 and DA 80/952. |
| Description of Project | Mount Owen, Ravensworth East and Glendell (Mount Owen/Glendell Operations) are open cut coal mines operating as a mine complex under a single overarching management structure and individual operations teams. An audit of compliance with environmental conditions at the Mt Owen/Glendell Operations by a third-party environmental auditor is required every three years. MGO has commissioned Jacobs Group (Australia) Pty Ltd (Jacobs) to complete an independent environmental audit for the 2017 – 2020 auditing period. |
| Project Address | Hebden Rd, Ravensworth NSW 2330 Ravensworth |
| Proponent | Glencore |
| Title of Audit | Independent Environmental Audit (IEA) of the Mt Owen Complex |
| Date | 18/02/2020 |

I declare that I have undertaken the Independent Audit and prepared the contents of the attached Independent Audit Report and to the best of my knowledge:

- I. the audit has been undertaken in accordance with relevant condition(s) of consent and the Independent Audit *Compliance Requirements* (Department 2019);
- II. the findings of the audit are reported truthfully, accurately and completely;
- III. I have exercised due diligence and professional judgement in conducting the audit;
- IV. I have acted professionally, objectively and in an unbiased manner;
- V. I am not related to any proponent, owner or operator of the project neither as an employer, business partner, employee, or by sharing a common employer, having a contractual arrangement outside the audit, or by relationship as spouse, partner, sibling, parent, or child;
- VI. I do not have any pecuniary interest in the audited project, including where there is a reasonable likelihood or expectation of financial gain or loss to me or spouse, partner, sibling, parent, or child;
- VII. neither I nor my employer have provided consultancy services for the audited project that were subject to this audit except as otherwise declared to the Department prior to the audit; and
- VIII. I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from payment for auditing services) from any proponent, owner or operator of the project, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.

Notes:

- a) Under section 10.6 of the Environmental Planning and Assessment Act 1979 a person must not include false or misleading information (or provide information for inclusion in) in a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and
- b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years imprisonment or 200 penalty units, or both).

| | |
|------------------------|---|
| Name of Auditor | Peter Horn |
| Signature |  |
| Qualification | Certified Lead auditor – Exemplar Global |
| Company | Jacobs Group (Australia) Pty Limited |
| Company Address | Level 4, 12 Stewart Avenue, Newcastle West NSW 2302 Australia |