

MANGOOLA OPEN CUT

GLENCORE

5 October 2022

Heidi Watters
Senior Compliance Officer
Planning & Assessment | Department of Planning, Industry and Environment
Via Major Projects Planning Portal

Dear Ms Watters,

Re: 2022 Independent Environmental Audit

As per Schedule 5, Condition 7 of Project Approval 06_0014, and Part D, Condition 13 of SSD 8642, please find enclosed the 2022 1 and 3 yearly Independent Environmental Audit (IEA) Report completed by the approved auditor and experts.

Mangoola Coal has considered the recommendations from the IEA Report and developed a response included in this submission letter as Attachment 1. A review of the strategies, management plans and programs has been undertaken as part of this response as required under Schedule 5, Condition 9 of PA 06_0014 and Part D, Condition 13 of SSD 8642. Where relevant, revisions are noted in the response to recommendations.

As per Part D, Condition 14 of SSD 8642 this submission has been furnished to the Department prior to the required 3 months from the commencement of the IEA, being the 8 October 2022.

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

Yours sincerely,



Sam Palmer
Environment and Community Manager
Mangoola Coal, Glencore
T: +61 (0) 265 495 503
M: +61 (0) 408 905 812
E: sam.palmer@glencore.com.au

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ATTACHMENT 1: MANGOOLA COAL RESPONSE TO 2022 INDEPENDENT ENVIRONMENTAL AUDIT FINDINGS

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
S2 C2A	The proponent must carry out the project in accordance with the conditions of this approval.	The following non-conformances were recorded during the audit period: • S3 C10 – Blast Criteria • S3 C15 – Operating Conditions • S3 C17 – Blast Management Plan • S3 C19 – Impact Assessment Criteria • S3 C27 – Water Pollution	No recommendation required.	Noted.
S3 C10	Blasting Criteria The proponent must ensure that blasting on site does not cause exceedances of the criteria in Table 4. However, these criteria do not apply if the Proponent has a written agreement with the relevant owner to exceed these criteria, and has advised the Department in writing of the terms of this agreement.	Blasting – Blasting Criteria On 4 March 2020 there was an exceedance of overpressure criteria. The blast was located in Main Pit West and recorded an overpressure result at BM07 (EPL monitoring point 21) of 120.9dB (exceedance of 120dB threshold). DPIE and EPA were notified. Notifications were made to both DPIE and the EPA following the blast with the follow up incident investigation reports required under Schedule 5, Condition 4 of PA 06_0014 and Condition R2.2 of EPL 12984 submitted to the relevant departments on 11 March 2020. A formal warning letter was received from DPIE on 24 March 2020, while to date no formal response from the EPA has been received. There was a recorded exceedance of the vibration limit on a suspension pylon footing. This was reported directly to the asset owner as per the agreement with the infrastructure owner and follow-up non-destructive testing was carried out, with no damage confirmed. Agreement has been updated to a level of 150mm/s effective from 17 September 2020.	Review of actions following incidents determined that mitigation measures developed are sufficient. No further recommendations required. Continue to ensure that Mangoola does not contribute to air quality impacts during extraordinary weather events.	Noted.

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		Correspondence for the approval of vibration limits is provided in Appendix A of the Blast management Plan. On 1 October 2021 blast monitor BM07 failed to record a result. An internal investigation was conducted and identified that although the blast monitor was online, data could not be downloaded due to memory card corruption.		
S3 C15	Operating Conditions The Proponent must: a. implement best practice to manage potential blasting impacts associated with the project to: - o protect the safety of people and livestock in the surrounding area; - o protect public or private infrastructure/property in the surrounding area from any damage; and - o minimise the dust and fume emissions of any blasting; ensure that blasting on the site does not damage Aboriginal rock shelter sites, Anvil Rock and "The Book" rock formations;	Section 3 of the Blast Management Plan (MANOC-1772150304-4601) provides blast management controls to ensure safety of people and livestock and prevent impacts to property and public infrastructure. On 4 March 2020 there was an exceedance of overpressure criteria. The blast was located in Main Pit West and recorded an overpressure result at BM07 (EPL monitoring point 21) of 120.9dB (exceedance of 120dB threshold). DPIE and EPA were notified. Overpressure exceedance attributed to blast design (sighted CMO report 20200304155.2). Noted that no further exceedances recorded at BM07. Exceedance of the vibration limit on a suspension pylon footing noted. This was reported directly to the asset owner as per the agreement with the infrastructure owner and follow-up non-destructive testing was carried out, with no damage confirmed. Agreement has been updated to a level of 150mm/s effective from 17 September 2020. Blasting – Operating Conditions On 10 January 2020, a category 4B fume occurred, however this did not leave the site boundary and dissipated on-site. This was reported to DPIE. Correspondence received from DPIE on 12 February 2020 indicate they were satisfied with the fume rankings and investigation outcomes.	Continue to implement the Blast Management Plan to minimise the dust and fume emissions of any blasting.	Noted.

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	operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Secretary.	Section 4.3 and Section 4.4.4 of the BMP detail the rock structure and rock shelter monitoring program and the blast impact evaluation procedure for rock formations and Aboriginal rock shelters. Structural condition monitoring is undertaken using a network of blast cameras, 6-monthly LiDAR surveys and measurements using digital tape extensometers (per comms). Mangoola operates a Community Response Line and Blasting Hotline (24 hours), with the number listed on their website and published in the Mangoola 'Community Newsletter'. Additionally, Mangoola has an established register for local landowners/occupiers to whom notification of scheduled blasts is provided (Section 5.2 of BMP). Operational blast controls considered to be appropriate given the general compliance with the blasting limits during the audit period.		
S3 C17	Blast Management Plan The Proponent must prepare a Blast Management Plan for the project to the satisfaction of the Secretary. This plan must: b. describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions of this approval; c. propose and justify any alternative ground vibration	Mangoola has a current Blast Management Plan (MANOC-1772150304-4601 version 18) effective as of 6/10/2020 (letter from DPIE provided in Appendix A of BMP). Section 3 of BMP describes measures to ensure compliance with the blast criteria and operating conditions of PA06_0014. Section 4.4.3 of BMP details agreement with TransGrid for alternative ground vibration limits (agreement provided in Appendix A of BMP). Section 4 of BMP provides blast monitoring methodology to confirm compliance with the approval, Section 4.4 of BMP provides blast impact evaluation, and Section 5.5 of BMP provides incident and exceedance reporting procedure.	Continue to implement regular maintenance and equipment inspections by trained and competent technicians. Review equipment lifespan estimates as part of regular inspections.	Action – Consult with Blast Monitor maintenance provider to ensure equipment lifespan estimates are included as a part of regular inspections.

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	limits for public infrastructure on the vicinity of the site (if relevant); and d. include a monitoring program for evaluating and reporting on compliance with the blasting criteria and operating conditions of this approval. The Proponent must implement the approved management plan as approved from time to time by the Secretary.	On 1 October 2021 blast monitor BM07 failed to record a result. An internal investigation was conducted and identified that although the blast monitor was online, data could not be downloaded due to memory card corruption.		
S3 C18	Odour The Proponent must ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.	A blast odour complaint was received on 12 June 2020 at 12:42PM. Complaint received via Hotline. Complainant stated they smelt the blast. Two blasts were fired in Main Pit West (MPW) in quick succession. The Mangoola E&C Officer reviewed the meteorological conditions at the time of the blast, as well as the daily dust summary. The video footage was reviewed at the time of the blast by the Environment and Community Manager (ECM) and both blasts dissipated within the pit, not leaving the site boundary. The ECM called the complainant back at 18:45 to discuss the complaint, the complainant stated that sometime after the	Consider including a link to the NSW Health - Mine blast fume and you factsheet https://www.health.nsw.gov.au/environment/factsheets/Pages/mine-blast-fumes.aspx in the Community Newsletter to better educate the community on	Action - Mangoola to include a link to the NSW Health - Mine blast fume and you factsheet https://www.health.nsw.gov.au/environment/factsheets/Pages/mine-blast-fumes.aspx in the Community Newsletter to be

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		blast they were able to smell something similar to a diesel truck. The ECM explained that a blast usually smells like gun powder and the complainant also mentioned that no dust was visible from the blast. The pre-blast permit identified the blast as being low risk for fume generation and all pre-blast assessments indicated that the conditions were suitable for blasting. Review of the incident suggests that the odour was not blast fume.	what constitutes blast fume.	distributed in Spring/ Summer 2022.
S3 C19	Impact Assessment Criteria The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not cause exceedances of the criteria listed in Tables 5, 6 and 7 at any residence on privately-owned land (excluding the dust affected properties listing in Table 1).	Multiple exceedances of the Air Quality - PM10 24-hour average during the audit period. The 24-hour average PM10 exceeded the consent criterion of 50 µg/m³ on multiple days at the monitors surrounding the mine. As per PA06_0014, the Department were notified of the exceedances and internal investigations commenced. Most of the events were classified as extraordinary events by DPE. Those that were not classified as extraordinary events were also notified to DPE, and letters were sent to neighbouring private landowners and tenants as per PA06_0014. The Department notified Mangoola that they were satisfied that reasonable and feasible measures were undertaken on the days of exceedance.	Review of the incidents and DPE correspondence indicates that no further recommendations are required.	Noted.
S3 C27	Water Pollution Unless an EPL or the EPA authorises otherwise, the Proponent must comply with Section 120 of the POEO Act and the <i>Protection of the Environment</i>	Sandy Creek Farm Dams - Saline Water Discharges - 17/02/2020, 26/11/2021, and 8/12/2021. PIRMP was enacted in accordance with Section 147 of the POEO Act. DPIE and EPA were notified in accordance with applicable statutory requirements. An investigation was completed where the analysis had indicated that the predominant source of water	Continue to implement the WMP, ensuring mitigation measures are implemented and	Mangoola is currently investigating possible improvements to the management

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	<i>Operations (Hunter River Salinity Trading Scheme) Regulation 2002.</i>	discharged was runoff from the 25.7 ha clean water catchment caused by excessive rainfall.	maintained. Where possible review dewater procedure for areas considered to be high risk prior to predicted excessive rainfall events.	of the Sandy Creek Farm Dams to reduce the risk of saline water discharge events.
S3 C27A	Water Pollution The Proponent must implement all reasonable and feasible measure on the site to minimise the need to discharge saline water to the Hunter River under the Hunter River Salinity Trading Scheme.	Mangoola implements measures to manage surplus saline water by reusing it for coal washing and dust suppression. Discharges to the Hunter River are not required under average climate conditions, only under period of prolonged wet weather. HRSTS discharges were required following prolonged wet weather events during the audit period: • 1 – 6 April 2022 • 4 – 23 July 2022 WMP (2021) states runoff within saline water management system used for dust suppression. Pit Water Dam used for storage of saline water (process water). Pit Water Dam supplemented by Raw Water Dam (which receives Hunter River Water (pumped under licence)). Raw Water Dam has a saline seepage interception system. As well, Raw Water Dam maintained with freeboard to act as secondary storage during periods of high rainfall.	It would be good to present in the AEMR the dam levels over time, as a line trace, together with the Residual Mass (Rainfall) or Cumulative Departure from Mean Rainfall (CRD) curve.	Noted. Action - Mangoola will review the presentation of dam level data and make appropriate changes for the 2022 Annual Review.
S3 C28	Site Water Management Plan	Document Number: MANOC-1772150304-6221 Version: 13	Ongoing South Pit Rehabilitation	Action - Mangoola will

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	The Proponent must prepare and a Site Water Management Plan for the project to the satisfaction of the Secretary. This plan must: e. be prepared in consultation with EPA and DPI Water by suitably qualified expert/s whose appointment/s have been approved by the Secretary; and f. include: - o a Site Water Balance; - o an Erosion and Sediment Control Plan; - o a Surface Water Monitoring Plan; - o a Ground Water Monitoring Program; and - o a Surface and Ground Water Response Plan. The Proponent must implement the approved management plan as approved from time to time by the Secretary.	Effective: 03/12/2021 Approved by Stephen O'Donoghue as nominee of the Secretary on 3 December 2021. Evidence was provided that the WMP was prepared in consultation with EPA and DPI Water by a suitably qualified expert Stephen Downes whose appointment was approved by the Secretary on 2/09/2021. The WMP contains the following: • Site Water Balance – Section 5 • Erosion and Sediment Control Plan – Appendix C • Surface Water Monitoring Plan – Appendix D • Ground Water Monitoring Program – Appendix E • Surface and Ground Water Response Plan – Appendix F	water quality monitoring entering the dams is strongly encouraged. Early indications are that the water quality entering these dams from the Rehabilitation is of a quality that can be released from site. The condition of the dams is then leading to a degradation of the water quality with significant erosion of the dam batters. To minimise the need to capture and pump runoff from older and established rehabilitation areas back into the mine water	further investigate the suitability of water from rehabilitated areas for off-site release. This process will include identifying required dam improvement works and regulator consultation.

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			system (which is adding strain to the system during wet periods like the present), upgrade the receiving sediment dams to be stable such that runoff entering the dams remains at a quality that can be released from site. This will involve ongoing monitoring of water quality from the established rehabilitation areas and liaison with the departments to confirm such a release is allowed.	
S3 C30	Erosion and Sediment Control The Erosion and Sediment Control Plan must: a. be consistent with the requirements of the	Erosion and Sediment Control Plan Number: MANOC-1772150304-6266 Version: 8 Effective: 10/03/2021	Bunded fuel fill up point had a build-up of sediment and material present within the	Action - Mangoola will review and update the sites "Post 20mm

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	Department of Housing's Managing Urban Stormwater: Soils and Construction manual; b. identify activities that could cause soil erosion and generate sediment; c. describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters; d. describe the location, function, and capacity of erosion and sediment control structures; and describe what measures would be implemented to maintain the structures over time.	Approved by Matthew Sprott as nominee to the Secretary on 10 March 2021. Standard erosion and sediment control techniques are utilised in accordance with the requirements of Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volumes 2A, 2C, 2D and 2E (DECC 2008) (the Blue Book). Activities that could cause soil erosion and generate sediment are identified in Section 2.2 of the ESCP. Measures to minimise soil erosion and the potential for the transport of sediment to downstream waters are described in Section 3.3 of the ESCP. The location, function, and capacity of erosion and sediment control structures is outlined in Section 3.4 of the ESCP. Inspection and maintenance measures that are implemented to maintain the erosion and sediment control structures over time are outlined in Section 4 of the ESCP.	bund that may impact operation of the bund during a spill event (5/7/22). Potential to increase workshop inspection frequencies are increased during wet weather events.	rainfall Inspection Form" to include an inspection of the bunded fuel fill up point.
S3 C31	Surface Water Monitoring The Surface Water Management and Monitoring Plan must include: a. detailed baseline data on surface water flows and quality in creeks and other waterbodies that could	Surface Water Monitoring Plan Number: MANOC-1772150304-6264 Version: 9 Effective: 10/03/2021 Approved by Matthew Sprott as nominee to the Secretary on 10 March 2021. Section 2 outlines the detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the	Administration update required - In the next update of the SWMP, refer to the correct section of the WMP for Reporting and Monitoring.	Action - In the next update of the SWMP, refer to the correct section of the WMP for Reporting and Monitoring. The

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	potentially be affected by the project; b. surface water and stream health impact assessment criteria; c. a program to monitor surface water flows, quality and impacts on water users (upstream and downstream of the project in Anvil Creek, Sandy Creek, Big Flat Creek and Wybong Creek); d. a program to assess stream health conditions in Anvil Creek, Sandy Creek, Big Flat Creek and Wybong Creek; e. a program to monitor channel stability in Anvil Creek, Sandy Creek and Big Flat Creek; f. reporting procedures for the results of the monitoring program; g. a program to monitor, and a strategy to minimise, any saline water discharges to the Hunter River under the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002; h. a Saline Dispersion Study for discharges to the Hunter River	project. Impact assessment criteria contained in Section 2.2 for surface water and Section 3.5 for stream health. A program to monitor surface water flows, quality and impacts on water users is outlined in Section 3.3. Section 3.4 provides a program to monitor channel stability in Sandy Creek, and Big Flat Creek. It is noted that Anvil Creek has been mined through as per MCO's project approval and therefor monitoring programs along this creek no longer exist. Reporting procedures for the results of the monitoring programs are described in Section 5. The reporting includes publishing the surface water quality monitoring on the MCO website and within the Annual Reviews. A program to monitor, and a strategy to minimise, any saline water discharges to the Hunter River under the Protection of the Environment Operations is contained in Section 9 of the WMP. A saline dispersion investigation report was carried out by CBased Environmental during the release of water from the HRSTS point on the 5th March 2022. This was provided to the EPA in a letter dated 29 March 2022. The records and map reflecting the notifications provided to the downstream landowners within 2km of the discharge point was cited during the audit.	The SWMP Section 5 currently incorrectly refers to Section 9 of the WMP rather than the required Section 10. As outlined under Condition B50 of the SSD8642 approval, the water management plan should be updated to include the management requirements now that MCO is allowed to release water to the Hunter River under EPL12894 and HRSTS.	SWMP Section 5 currently incorrectly refers to Section 9 of the WMP rather than the required Section 10. At the time of the audit the SWMP had been submitted to DPE for approval. The SWMP submitted included the management requirements now that MCO is allowed to release water to the Hunter River under EPL12894 and HRSTS. This version of the SWMP is now approved. No further action required

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	prepared and implemented to the satisfaction of the EPA; and i. a program to notify all downstream landowners within 2 kilometres of the discharge point prior to discharging saline water to the Hunter River.			
S3 C32	Groundwater Monitoring The Groundwater Monitoring Program must include: 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 identified in the EA); b. groundwater impact assessment criteria (including for monitoring bores and privately owned bores);	Groundwater Monitoring Program Version: 5 Effective: 22/12/2014 The GWMP was updated in 2017 and submitted for comment to the EPA, Natural Resources Access Regulator (NRAR) and DPIE. Consultation is ongoing. This later version of the GWMP has not yet been approved. Detailed baseline data contained in Section 2. Groundwater impact assessment criteria contained in Section 5. A program for accurately delineating the boundary of the Big Flat Creek alluvial aquifer in any areas intersected by mining, including plans for isolation of the mining pit from the alluvium at least 6 months before mining within 150 metres of the alluvium is described in Section 2.1 and Section 6. A monitoring program is described in Section 3. Section 5 provides a procedure for the verification of the groundwater model. Section 5 of the WMP outlines the reporting procedures for the results of the monitoring program and model verification.	Recommend that a comparison to predictions / intended drawdown is included in the Annual Reviews, without making the report 'voluminous'. Also, if possible, Interpreted contours.	Noted. Action - Mangoola will review the presentation of prediction / intended drawdown and interpreted contour data for the 2022 Annual Review.

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	c. a program for accurately delineating the boundary of the Big Flat Creek alluvial aquifer in any areas intersected by mining, including plans for isolation of the mining pit from the alluvium at least 6 months before mining within 150 metres of the alluvium; d. a program to monitor: - o impacts on the groundwater supply of potentially affected landowners; - o impacts on the Big Flat Creek and Wybong Creek alluvial aquifers; - o impacts on groundwater dependent ecosystems and riparian vegetation; - o the volume of ground water seeping into the open cut mine workings;			

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	- 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; procedures for the verification of the groundwater model, and reporting procedures for the results of the monitoring program and model verification.			
S3 C33	Surface and Ground Water Response Plan The Surface and Ground Water Response Plan must include: a. a protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria; b. measures to mitigate and/or compensate potentially affected landowners with privately owned groundwater bores within the	Surface Water and Groundwater Response Plan Number: MANOC-1772150304-6223 Version: 8 Effective: 29/01/2021 Approved by Matthew Sprott as nominee to the Secretary on 29 January 2021. The SWGWRP was found to generally include adequate protocols that outline the responses required in the event that operations result in potential adverse impacts to the surrounding surface water and/or groundwater environment in accordance with the condition. The investigation, notification and mitigation measures for surface water and stream health are outlined in Figure 2.1 and Figure 2.2 respectively. The SWGRP does not contain measures to mitigate and/or compensate potentially affected landowners for the loss of surface water plans in Sandy Creek,	Investigate a method to determine if the mining operations have potentially affected landowners for the loss of surface water in Sandy Creek, Big Flat Creek or Wybong Creek downstream of the project. Then outline	Action - Investigate a method to determine if the mining operations have potentially affected landowners for the loss of surface water in Sandy Creek, Big Flat Creek or Wybong Creek downstream of

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	predicted drawdown impact zone identified in the EA, including provision of alternative supply of water to the affected landowner that is equivalent to the loss attributed to the project; c. measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Sandy Creek, Big Flat Creek and Wybong Creek downstream of the project; d. measures to minimise, prevent or offset groundwater leakage from the Big Flat Creek alluvial aquifer; e. measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Big Flat Creek alluvium if the potential for adverse impacts is detected; f. a contingency plan for isolating the Big Flat Creek alluvium from Anvil Creek alluvium and mining areas in the event that it is required; and g. the procedures that would be followed if any unforeseen	Big Flat Creek or Wybong Creek downstream of the project. It is noted that the 2021 Annual Review Section 7.6.2.1 stated that exceedances are only reported to DPIE when three consecutive elevated results are recorded. It was acknowledged by MCO staff that this was incorrect terminology used and that the site complies with the SWGWRP.	measures to mitigate and/or compensate those landowners affected and include in the Plan.	the project. If an appropriate method is identified, include in the SWGWRP.

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	impacts are detected during the project.								
S3 C34	Biodiversity Offset Strategy The Proponent must implement the Biodiversity Offset Strategy as outlined in Table 11, and as generally described in the EA (and shown conceptually in Appendix 5). <i>Table 11: Biodiversity Offset Strategy</i> <table><tr><th>Area</th></tr><tr><td>Existing vegetated (treed) areas</td></tr><tr><td>Treed areas to be established</td></tr><tr><td>Grassland areas</td></tr><tr><td>Total</td></tr></table> Notes: a. The offset areas are in addition to, and outside, the rehabilitated areas of the project disturbance area. b. The quantum of existing and revegetated treed areas may be varied within reason, subject to meeting the total minimum offset area.	Area	Existing vegetated (treed) areas	Treed areas to be established	Grassland areas	Total	Biodiversity Offset Management Plan and Strategy Document Number: MANOC-1772150304-3505 Version: 12 Effective: 05/11/2018 Approved by Jessie Evans as nominee for the Secretary on 5 November 2018. Review of available monitoring reports and annual reviews for the audit period indicates that MCO are implementing the Biodiversity Offset Strategy as outlined in Table 11 through the BOMP following the provisions of Section 4.0. The conceptual target areas were generally achieved for each vegetation community and management strategies that need to be implemented to establish an additional 1,104 hectares of treed (vegetated) areas for Years 9-11 during the audit period. Areas viewed during the site inspection were generally trending to compliance and were confirmed through review of available documentation.	Continued weed and pest control recommended. Recommendation to modify seeding/planting ratios as recommended by 2021 Ecological monitoring report (Umwelt 2022). Nest boxes may be more successful if located higher up in trees (3m is usually sufficient). This may be easier now that the trees have grown taller. Some translocated Cymbidium orchids were installed closer to the ground than originally due to logistics of salvage. Simple fencing	Weed and Pest Management will continue to be implemented at Mangoola, informed by annual inspections and prioritised based on significance. Action - Mangoola will review the site Rehabilitation Management Plan to include further detail on the installation of nest boxes (above 3m) and orchid translocation (fencing/ height) where possible.
Area									
Existing vegetated (treed) areas									
Treed areas to be established									
Grassland areas									
Total									

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			may protect these from herbivore browsing. Fireweed (Senecio madagascariensis) is a Weed of National Significance that was observed in the offset areas. It is difficult to control, but targeted efforts during autumn and winter before the peak flowering and seeding occurs in spring could reduce numbers significantly.	
S3 C54	Visual Amenity The Proponent must: c. implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the project; and	A lighting audit was conducted in September 2013 to the satisfactory of the Director General. Review of the complaints register, OCE inspections, and inspection of visual bunds indicated that MCO are generally implementing controls to minimise the visual impacts of the operation.	A lighting register should be managed to ensure that new lighting utilised at the site is adequately positioned and	New lighting at Mangoola is processed through the "Introduction to Site" procedure and change management

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	d. ensure that all external lighting associated with the project complies with <i>Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version</i>, to the satisfaction of the Secretary.	MCO were noted to be taking all reasonable steps to minimise the visual and off-site lighting impacts of the development during the audit period. Noted that new fixed LED lighting was installed at the CHPP during the audit period and was linked to a compliant on 24/08/2020. MCO implements the Lighting Plant Procedure to 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. No new buildings have been constructed during the audit period.	conforms with AS4282. Undertake an updated external lighting audit to ensure compliance with AS4282 (INT) 2019 - Control of Obtrusive Effects of Outdoor Lighting.	process to ensure compliance to AS4282. Mangoola has completed an external lighting audit to ensure compliance with AS4282 (INT) 2019 - Control of Obtrusive Effects of Outdoor Lighting in September 2022.
S3 C57	The Proponent must: a. monitor the amount of waste generated by the project; b. implement reasonable and feasible measures to minimise waste generated by the project; c. ensure irrigation of treated wastewater is undertaken in accordance with EPA's Environmental Guideline for	Evidence of waste generation monitoring is contained in the Annual Reviews for the audit period. Waste production has generally declined in the audit period between 2019 and 2021. Waste contractor spreadsheets were also viewed during the site inspection which records mixed waste, recycling, effluent, oil, scrap metal, oil filters. Treated wastewater is only used for reused on site for CHPP operation and dust suppression and is not used for irrigation on site. MSC issued an approval to operate an on-site sewage management system on 13/09/2021 valid until 29/07/2026. Review of monitoring reports indicates that Mangoola managing on-site sewage treatment and disposal in accordance with the requirements of Council.	Water was noted within the minor volume contaminated soil waste bin – suggest an improved sealed storage bin system is implemented and lids are closed at all times.	Action - Mangoola will consult with waste management provider to ensure waste receptacles are fit for purpose and in good working condition.

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	the Utilisation of Treated Effluent; d. manage on-site sewage treatment and disposal in accordance with the requirements of Council; and e. report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.			
S5 C3	Management Plan Requirements The Proponent must ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include: a. detailed baseline data (where available); a description of: the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Review of the applicable management plans under the EMS and approval indicated that they have been prepared in general accordance with the applicable relevant guidelines and included the information outlined in this condition. It is noted that following the approval of SSD8642 and commencement of development/constructions the management plan conditions of SSD8642 prevail to the extent of any inconsistency, ambiguity, or conflict between those of PA06_0014.	Ensure all management plans are updated in accordance with the approved MCCO Project Management Plan Approach.	Management Plans have been updated and submitted to DPE for approval.

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	○ 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 project or any management measures; a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria; a program to monitor and report on the: ○ impacts and environmental performance of the project; ○ effectiveness of any management measures (see c above); a program to investigate and implement ways to improve the			

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	environmental performance of the project over time; a protocol for managing and reporting any: - incidents; - complaints' - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria; and a protocol for periodic review of the plan.			
A2	The development may only be carried out: in compliance with the conditions of this consent; in accordance with all written directions of the Planning Secretary; generally in accordance with the EIS; and	The following non-compliances against the conditions of this consent were identified during the audit period: B46 Sandy Creek Farm Dams - Saline Water Discharge. MCCO - Dirty Water Discharge	No recommendation required.	Noted.

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	generally in accordance with the Development Layout in Appendix 2.			
A31	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.	All employees, contractors (and their sub-contractors) are required, at a minimum, to complete the Mangoola Site Familiarisation Induction that outlines the environmental requirements for undertaking work at Mangoola.	Update Mangoola Site Familiarisation Induction to include reference to SSD8642.	Action - Update Mangoola Site Familiarisation Induction to include reference to SSD8642.
B46	Water Discharges The Applicant must ensure that all surface discharges from the site comply with: a. discharge limits (both volume and quality) set for the development in any EPL; or relevant provisions of the POEO Act and <i>Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002</i> .	Sandy Creek Farm Dams - Saline Water Discharges - 8/12/2021. PIRMP was enacted in accordance with Section 147 of the POEO Act. DPIE and EPA were notified in accordance with applicable statutory requirements. An investigation was completed where the analysis had indicated that the predominant source of water discharged was runoff from the 25.7 ha clean water catchment caused by excessive rainfall. MCCO - Dirty Water Discharge Following a period of high rainfall, a site inspection of the MCCO Project Area was conducted. During this inspection sediment laden water was observed leaving the MCCO Project Area from 1) the Wybong Road Bypass Sediment Dam via the spillway 2) a low-lying area approximately 200m east of Gate H and 3) Sediment Dam 2 via the spillway. The EPA was notified under EPL12894 - Discharge of sediment laden	Continue to implement the WMP, ensuring mitigation measures are implemented and maintained. Where possible review dewater procedure for areas considered to be high risk prior to predicted excessive rainfall events.	This recommendation is addressed in the action entered for S3 C27.

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
		water and notification in accordance with the Mangoola Pollution Incident Response Management Plan.		
B47	Water Discharges The Applicant must implement all reasonable and feasible measures on the site to minimise the need to discharge saline water to the Hunter River under the Hunter River Salinity Trading Scheme.	Mangoola implements measures to manage surplus saline water by reusing it for coal washing and dust suppression. Discharges to the Hunter River are not required under average climate conditions, only under period of prolonged wet weather. HRSTS discharges were required following prolonged wet weather events during the audit period: • 1 – 6 April 2022 • 4 – 23 July 2022 The saline water management system is outlined in the WMP (2021) and summarised in Section 3.2. A number of water storages and if required, active pits, are currently used to store saline water on site and prevent the need to discharge under the HRSTS under normal climatic conditions. WMP (2021) states runoff within saline water management system is re-used for dust suppression. Pit Water Dam used for storage of saline water (process water). Pit Water Dam supplemented by Raw Water Dam (which receives Hunter River Water (pumped under licence)). Raw Water Dam has a saline seepage interception system. As well, Raw Water Dam maintained with	In order to minimise the amount of saline water make onsite during wet climatic periods, the water quality of surface runoff from well-established and stable areas of rehabilitation should be regularly monitored and incorporated as part of the mines surface water quality monitoring program. If trends in water quality over time indicate that the runoff is of suitable quality for	Action created for S3 C28 will address this recommendation .

GLENCORE

Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
		freeboard to act as secondary storage during periods of high rainfall. The 2021 Operation Water Management Plan (internal document) cited, included a 5-year modelling/forecast to address water inventory and associated risk and to help guide management decisions. Evidence was cited of an internal TARP that guides when discharges to the Hunter Water would be required based on site storage levels. It is noted that all runoff from rehabilitated catchments onsite are currently captured or transferred back into the saline management system. Whilst this currently assists with mine water security during dry and normal climatic periods, during the wet climatic period which we are currently in, it has contributed to the requirement for emergency release of mine water from site through the HRSTS. This has a negative impact on the watercourses immediately downstream of the rehabilitation area and leads to increased operational costs. A review of recent water quality samples taken from runoff from the South Pit Rehabilitation area are encouraging for off-site release. It was noted that the receiving dams inspected in the South Pit Area had bare and eroded internal batters and would need modification and stabilisation to assist in maintained good water quality within the structures from the rehabilitation areas.	off-site discharge without polluting, MCO is encouraged to liaise with the relevant departments to allow this water to flow offsite. This will prevent the need for this clean water to be pumped back into the saline water system and released through the HRSTS. This will not only be a major benefit to downstream watercourse ecosystem/s but limit operational costs. As the rehabilitated catchments are becoming larger	

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
			as the mine life evolves, both environmental and financial benefits will become increasing larger during wet climatic periods.	
B48	The Applicant must ensure that the development complies with the performance measures in Table 6. Table 6: <i>Water management performance measures</i>	Water Management - General: Water Management schematic provided in 2021 Annual Water and Salt Balance Review by Engeny Water Management (February 2022). Excerpt (Figure 2 and Table 1) of 2021 Annual Water and Site Balance model indicates focus on water accounting. Approach to dirty water (sediment-laden) management outlined in Erosion and Sediment Control Plan. Current revision is Version 8 (January 2020). Sighted the Tailings and water management Erosion and sediment control civil works construction report indicating implementation of the ESCP in addition during the site inspection. Alluvial Aquifers: Latest groundwater model predictions presented in AGE (2019), implying original predictions (MER, 2006) were overly conservative. 2021 Annual Water and Salt Balance Review undertaken by Engeny Water Management indicates that the magnitude of groundwater inflow is understood.	Raw Water Dam: Recommend a 'trace line' figure of water level in Raw Water Dam be included in AEMR. Chemical and Hydrocarbons: Recommend photographic record of condition of bunds be included in the AEMR. Tailings Storages: Recommend photographic record of periodic inspection of Tailings Dams be	Action - Mangoola will review the requirement to include RWD trace lines, and photographic records of hydrocarbon and tailings inspections for the 2022 Annual Review. The potential for acid forming materials has been assessed in the EIS for the Mangoola Coal Mine and

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
		Groundwater monitoring undertaken in accordance with Groundwater Monitoring Plan (current revision is Version 5, July 2014). Groundwater level and quality monitoring reported in monthly reports. AEMR 2021 indicates that trends in groundwater level are consistent with current predictions (AGE, 2019). Mine Water Storages: Evidence of continuous improvement and review of water management infrastructure. Excerpt is catchment analysis associated with Saline Seepage Interception System Discharge Investigation (May 2020). Chemical and Hydrocarbon Storage: AEMR (2021) indicates all bulk storage are bunded in accordance with relevant standard this was confirmed during the site inspection. Tailings Storages: Tailings Storages location presented in AEMR 2021. AEMR 2021 indicates that Tailings Dam No. 4 has sufficient capacity for life-of-mine and that no capping of Tailings Dam No. 1 and 2 occurred during 2021. Overburden Emplacements: AMER 2021 provides evidence of active tracking of handling of bulk materials. Aquatic and Riparian Environments: AEMR 2021 presents analysis of data obtained from floristic and faunal monitoring locations and indicates that negligible environmental impacts have occurred beyond those predicted.	included in the AEMR. Overburden Emplacement: Suggests consideration of mechanism to demonstrate management of potentially acid forming materials during placement. This could take the form of periodic testing. Surface Water Prioritise revegetation of the disturbance areas adjacent Wybong Road associated with the MCCO Project (i.e. visual bund and recently constructed road diversion). Ongoing South Pit Rehabilitation	Mangoola Coal Continued Operations. The ongoing risk of acid forming strata is assessed through the sites annual risk assessment process and action plans developed where appropriate. Mangoola has an approved Visual Impact Mangement Plan which outlines the visual bund rehabilitation commitments. All disturbed areas are rehabilitation as soon as practicable.

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
			water quality monitoring entering the dams is strongly encouraged. Early indications are that the water quality entering these dams from the Rehabilitation is of a quality that can be released from site. The condition of the dams is then leading to a degradation of the water quality with significant erosion of the dam batters. To minimise the need to capture and pump runoff from older and established rehabilitation areas back into the mine water	Rehabilitation Water Manggement – this recommendation has been addressed in the action generated for S3 C28

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
			system (which is adding strain to the system during wet periods like the present), upgrade the receiving sediment dams to be stable such that runoff entering the dams remains at a quality that can be released from site. This will involve ongoing monitoring of water quality from the established rehabilitation areas and liaison with the departments to confirm such a release is allowed.	
B50	The Applicant must prepare a Water Management Plan for the development	Document Number: MANOC-1772150304-6221 Version: 13 Effective: 03/12/2021	Update the water management plan to	At the time of the audit the sites WMP had been submitted to DPE for approval with

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	to the satisfaction of the Planning Secretary. This plan must: a. be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary; b. be prepared in consultation with OPIE Water; c. describe the measures to be implemented to ensure that the Applicant complies with the water management performance measures (see Table 6); d. utilise existing data from the Mangoola Coal Project, existing monitoring programs and, where practicable, other nearby mines; e. include a: i. Site Water Balance that includes details of: • predicted annual inflows to and outflows from the site;	Approved by Stephen O'Donoghue as nominee of the Secretary on 3 December 2021. Evidence was provided that the WMP was prepared in consultation with EPA and DPI Water by a suitably qualified expert Stephen Downes whose appointment was approved by the Secretary on 2/09/2021. The WMP contains the following: • Site Water Balance – Section 5 • Erosion and Sediment Control Plan – Appendix C • Surface Water Monitoring Plan – Appendix D • Ground Water Monitoring Program – Appendix E • Surface and Ground Water Response Plan – Appendix F • As part of the MCCO project management plan approach assessment it was determined that a partial plan update was required to facilitate construction with a new WMP prepared prior to the commencement of mining north of Wybong Road under SSD8642. MCO are currently working under the revised WMP that includes minor administrative updates to facilitate commencement of construction linked to SSD8642 and has been implemented during construction. In summary, this WMP has been subjected to minor administrative updates to include approved activities and inclusive of any commitments (Umwelt, 2019a and Umwelt,	include the management requirements now that MCO is allowed to release water to the Hunter River under EPL12894 and HRSTS. A further update to the WMP to meet the conditions of this consent will be required prior to the commencement of extraction activities to the north of Wybong Road.	changes made to include Mangoola's ability to discharge under the HRSTS. The WMP has since been approved. No further action required.

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	• sources and security of water supply for the life of the development (including authorised entitlements and licences); • water storage capacity; • water use and management on the site, including any water transfers or sharing with neighbouring mines; • licensed discharge points and limits; and • reporting procedures, including the annual preparation of an updated site water balance; ii. Salt Balance that includes details of: • sources of saline material on the site; • saline material and saline water management on the site; • measures to minimise discharge of saline water from the site;	2019b) required to implemented prior to the commencement of development and construction activities associated with SSD 8642. Now that the release of water into the Hunter River is permissible under EPL12894 and the HRSTS, the WMP is to be updated to reflect the management actions required A further update to the WMP will be required prior to the commencement of extraction activities north of Wybong Road.		

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	• a program to notify all downstream landowners within 2 kilometres of the discharge point prior to discharging saline water to the Hunter River; and • reporting procedures, including the annual preparation of an updated salt balance; iii. Erosion and Sediment Control Plan that: • is consistent with the requirements of Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) and Volume 2E: Mines and Quarries (DECC, 2008); • identifies activities that could cause soil erosion, generate sediment or affect flooding; • includes a program to review the adequacy of existing flood			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	protection works, and ensure they comply with the relevant performance measures listed in Table 6; - 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 all erosion and sediment control structures and flood management structures; and - describes what measures would be implemented to maintain (and if necessary decommission) the structures over time; iv. Surface Water Management Plan that includes: - detailed baseline data on surface water flows and quality of			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	watercourses and/or water bodies potentially impacted by the development, including: – -stream and riparian vegetation health; – channel stability (geomorphology); and – water supply for other surface water users; • a detailed description of the surface water management system; • details of the water licensing requirements for all water storages (i.e. exempt, harvestable rights or licenced); • detailed plans, design objectives and performance criteria for water management infrastructure, including: – any approved creek diversions or restoration works			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	associated with the development; – water run-off diversions and catch drains; – water storages and sediment dams; – emplacement areas; – backfilled pits and any final voids for the development; and – reinstated drainage networks on rehabilitated areas of the site; • an erosion and scour monitoring and maintenance program for the Big Flat Creek riparian corridor; • surface water performance criteria, including trigger levels for identifying and investigating any potentially adverse impacts (or trends) associated with the development, for:			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	– water supply for other water users; – downstream surface water flows and quality; – downstream flooding impacts; – stream and riparian vegetation health; and – post-mining water pollution from rehabilitated areas of the site; • a program to monitor and evaluate: – compliance with the relevant performance measures listed in Table 6 and the performance criteria in this plan; – controlled and uncontrolled discharges and seepage/leachate from the site; – impacts on water supply for other water users; – surface water inflows, outflows and storage volumes, to			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	inform the Site Water Balance; and – the effectiveness of the surface water management system and the measures in the Erosion and Sediment Control Plan; • reporting procedures for the results of the monitoring program, including notifying other water users of any elevated results; and • a trigger action response plan to respond to any exceedances of the relevant performance measures or performance criteria, and repair, mitigate and/or offset any adverse surface water impacts of the development; v. Groundwater Management Plan that includes:			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	• detailed baseline data of groundwater levels, yield and quality for groundwater resources and groundwater dependent ecosystems potentially impacted by the development, including groundwater supply for other water users; • a detailed description of the groundwater management system; • groundwater performance criteria, including trigger levels for identifying and investigating any potentially adverse groundwater impacts (or trends) associated with the development, on: – regional and local aquifers (alluvial and hard rock); and – groundwater supply for other water users such as licensed			

GLENCORE

Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	privately-owned groundwater bores; • a program to monitor and evaluate: – compliance with the relevant performance measures listed in Table 6 and the performance criteria in this plan; – water loss/seepage from water storages into the groundwater system, including from any final voids; – groundwater inflows, outflows and storage volumes, to inform the Site Water Balance; – the hydrogeological setting of any nearby alluvial aquifers and the likelihood of any indirect impacts from the development; – impacts on groundwater dependent ecosystems; – impacts on groundwater supply for other water users; and			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	– the effectiveness of the groundwater management system; • a contingency plan for isolating the Big Flat Creek alluvium from Anvil Creek alluvium and mining areas in the event that it is required; • reporting procedures for the results of the monitoring program, including notifying other water users of any elevated results; • a trigger action response plan to respond to any exceedances of the relevant performance measures and groundwater performance criteria, and repair, mitigate and/or offset any adverse groundwater impacts of the development; and • a program to periodically validate the groundwater model for			

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	the development, including an independent review of the model every 3 years (unless otherwise agreed by the Planning Secretary), and comparison of monitoring results with modelled predictions; and a protocol to report on the measures, monitoring results and performance criteria identified above, in the Annual Review referred to in condition D11.			
B75	The Applicant must: a. take all reasonable steps to minimise the visual and off-site lighting impacts of the development; b. take all reasonable steps to shield views of mining operations and associated equipment from users of public roads and privately-owned residences;	Review of the complaints register, OCE inspections, and inspection of visual bunds indicated that MCO are generally implementing controls to minimise the visual impacts of the operation. MCO were noted to be taking all reasonable steps to minimise the visual and off-site lighting impacts of the development during the audit period. Noted that new fixed LED lighting was installed at the CHPP during the audit period and was linked to a compliant on 24/08/2020. MCO implements the Lighting Plant Procedure to 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.	The lighting register should be managed to ensure that new lighting utilised at the site is adequately positioned and conforms with AS4282. Undertake an updated external lighting audit to ensure	This recommendation has been addressed in the action generated for S3 C54.

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	c. ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure; d. 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); e. ensure that all external lighting associated with the development complies with relevant Australian Standards including the latest version of <i>Australian Standard AS4282 (INT) 2019 - Control of Obtrusive Effects of Outdoor Lighting</i>; f. implement a landscaping strategy to shield public views of the development that includes a road-side	No new buildings have been constructed during the audit period.	compliance with AS4282 (INT) 2019 - Control of Obtrusive Effects of Outdoor Lighting.	

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
	tree planting and/or maintenance schedule for all vegetation screens and bunds shown in Appendix 8; and ensure that the visual appearance of any new buildings, structures, facilities or works (including paint colours and specifications) is aimed at blending as far as possible with the surrounding landscape.			
D6	Management Plan Requirements The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site.	Review of the applicable management plans indicated that they are consistent with the conditions of this consent and EPL12894.	Ensure all management plans are updated in accordance with the approved MCCO Project Management Plan Approach.	Management Plans have been updated and submitted to DPE for approval.
L4.2	The airblast overpressure level from blasting operations in or on the premises must not exceed: 120 dB (Lin Peak) at any time; at either monitoring point 16, 21 or 32 in Condition P1.4.	Blast #1200 was fired at 12.21pm in Main Pit West and an overpressure reading of 120.9dB was recorded at Blast Monitor 07 (BM07/ EPL Monitoring point 21). This reading is above the 120bB impact assessment criteria outlined in Schedule 3, Condition 10 of PA 06_0014 and EPL 12894, Condition L4.2. Notifications were made to both DPE and the EPA following the blast with the follow up incident investigation reports required under Schedule 5, Condition 4 of PA 06_0014 and	Review of actions following incident determined that mitigation measures developed are sufficient. No further	Noted.

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
		Condition R2.2 of EPL 12984 submitted to the relevant departments on 11 March 2020. A formal warning letter was received from DPE on 24 March 2020.	recommendations required.	
L4.6	Offensive blast fume must not be emitted from the premises. <i>Definition:</i> <i>Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other circumstances:</i> <i>1. are harmful to (or likely to be harmful to) a person that is outside the premises from which it is emitted, or</i> <i>2. interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.</i>	A blast odour complaint was received on 12 June 2020 at 12:42PM. Complaint received via Hotline. Complainant stated they smelt the blast. Two blasts were fired in Main Pit West (MPW) in quick succession. The Mangoola E&C Officer reviewed the meteorological conditions at the time of the blast, as well as the daily dust summary. The video footage was reviewed at the time of the blast by the Environment and Community Manager (ECM) and both blasts dissipated within the pit, not leaving the site boundary. The ECM called the complainant back at 18:45 to discuss the complaint, the complainant stated that sometime after the blast they were able to smell something similar to a diesel truck. The ECM explained that a blast usually smells like gun powder and the complainant also mentioned that no dust was visible from the blast. The pre-blast permit identified the blast as being low risk for fume generation and all pre-blast assessments indicated that the conditions were suitable for blasting. Review of the incident suggests that the odour was not blast fume.	Consider including a link to the NSW Health - Mine blast fume and you factsheet https://www.health.nsw.gov.au/environment/factsheets/Pages/mine-blast-fumes.aspx in the Community Newsletter to better educate the community on what constitutes blast fume.	Action created to address this recommendation for S3 C18.
M2.2	Air Monitoring Requirements POINT 19,20	Between 20-23 February 2021, the monitoring unit malfunctioned at Monitoring Point 20 (D8-DC), as outlined in	Continue to implement regular	This recommendation

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required								
	<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>PM10</td><td>micrograms per cubic metre</td><td>Continuous</td><td>Special Method 1</td></tr></table> Note: Special Method 1 requires the Licensee to undertake the monitoring of PM10 concentration in strict accordance with the manufacturer's operating manual supplied with the continuous monitoring equipment and titled "E-Sampler-9800 Particulate Monitor Operation Manual Revision K", or any updated version as published by the manufacturer.	Pollutant	Units of measure	Frequency	Sampling Method	PM10	micrograms per cubic metre	Continuous	Special Method 1	Table 4.3 of the approved AQMP. This was a non-compliance in accordance with Sampling Method – Special Method 1. Field maintenance was undertaken on the E-Sampler at the earliest time to attempt to repair, however the unit could not be fixed in the field and was taken offsite for repairs. A replacement unit was installed, however the stabilising period resulted in a loss of three days data. This was reported in the EPL 12894 Annual Return in 2021.	maintenance and equipment inspections by trained and competent technicians. Review equipment lifespan estimates as part of regular inspections.	has been addressed in the action generated for S3 C17.
Pollutant	Units of measure	Frequency	Sampling Method									
PM10	micrograms per cubic metre	Continuous	Special Method 1									
M4.1	For each monitoring point specified in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns: Point 5; and Point 18	Failure to monitor continuously monitor weather at Monitoring Point 5 and Monitoring Point 18: Monitoring Point 5: ● Rainfall: 16 x 15 min averaging (av) periods; ● Temperature (2m): 2 x 15 min av periods; and ● Solar Radiation: 18 x 15-minute av periods. Monitoring Point 18: ● Rainfall: 345 x 15 min av periods; ● Wind speed: 299 x 15 min av periods; ● Wind direction: 299 x 15 min av periods; ● Temperature (2m): 343 x 15 min av periods; ● Temperature (10m) 299 x 15 min av periods;	Continue to implement regular maintenance and equipment inspections by trained and competent technicians. Review equipment lifespan estimates as part of regular inspections.	This recommendation has been addressed in the action generated for S3 C17.								

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required																																				
	<table><tr><th>Parameter</th><th>Units of Measure</th><th>Frequency</th><th>Av</th></tr><tr><td>Rainfall</td><td>mm</td><td>Continuous</td><td>1 h</td></tr><tr><td>Wind speed @ 10 metres</td><td>m/s</td><td>Continuous</td><td>15</td></tr><tr><td>Wind direction @ 10 metres</td><td>0</td><td>Continuous</td><td>15</td></tr><tr><td>Temperature @ 2 metres</td><td>0C</td><td>Continuous</td><td>15</td></tr><tr><td>Temperature @ 10 metres</td><td>0C</td><td>Continuous</td><td>15</td></tr><tr><td>Sigma theta @ 10 metres</td><td>0</td><td>Continuous</td><td>15</td></tr><tr><td>Solar radiation</td><td>W/m2</td><td>Continuous</td><td>15</td></tr><tr><td colspan="4">Additional requirements - siting - measurement</td></tr></table>	Parameter	Units of Measure	Frequency	Av	Rainfall	mm	Continuous	1 h	Wind speed @ 10 metres	m/s	Continuous	15	Wind direction @ 10 metres	0	Continuous	15	Temperature @ 2 metres	0C	Continuous	15	Temperature @ 10 metres	0C	Continuous	15	Sigma theta @ 10 metres	0	Continuous	15	Solar radiation	W/m2	Continuous	15	Additional requirements - siting - measurement				• Sigma theta: 299 x 15 min av periods; and • Solar radiation: 341 x 15 min av periods. Monthly data validation checks have been implemented, along with changes to contactor arrangements. The non-compliance was reporting the EPL Annual Return, dated 12 August 2021		
Parameter	Units of Measure	Frequency	Av																																					
Rainfall	mm	Continuous	1 h																																					
Wind speed @ 10 metres	m/s	Continuous	15																																					
Wind direction @ 10 metres	0	Continuous	15																																					
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Sigma theta @ 10 metres	0	Continuous	15																																					
Solar radiation	W/m2	Continuous	15																																					
Additional requirements - siting - measurement																																								
M7.1	To determine compliance with conditions L4.1, L4.2, L4.3 and L4.4: a) Airblast overpressure and ground vibration levels must be measured and electronically recorded for monitoring points 16, 21 and 32 for the parameters specified in Column 1 of the table below; and b) The licensee must use the units of measure, sampling method, and sample at the frequency specified opposite in the other columns. <table><tr><th>Parameter</th><th>Units of Measure</th><th>Frequency</th></tr><tr><td>Airblast Overpressure</td><td>Decibels (Linear Peak)</td><td>All Blasts</td></tr><tr><td>Ground Vibration Peak Particle Velocity</td><td>millimetres/second</td><td>All Blasts</td></tr></table>	Parameter	Units of Measure	Frequency	Airblast Overpressure	Decibels (Linear Peak)	All Blasts	Ground Vibration Peak Particle Velocity	millimetres/second	All Blasts	On 1 October 2021 Blast monitor at BM07 (Point 21) failed to record a result. An internal investigation was conducted and identified that although the blast monitor was online, data could not be downloaded due to memory card corruption.	Continue to implement regular maintenance and equipment inspections by trained and competent technicians. Review equipment lifespan estimates as part of regular inspections.	This recommendation has been addressed in the action generated for S3 C17.																											
Parameter	Units of Measure	Frequency																																						
Airblast Overpressure	Decibels (Linear Peak)	All Blasts																																						
Ground Vibration Peak Particle Velocity	millimetres/second	All Blasts																																						

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Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
G2.2	The licensee is to update the EPA through the eConnect EPA platform of the appointment of any subsequent contact persons, or changes to the person's contact details as soon as practicable and in any event within fourteen days of the appointment or change.	Notification to the eConnect EPA platform of the change in E&C Manager to Sam Palmer was undertaken on 18 January 2022.	Record notification of changes in the future or request receipt from the EPA when using eConnect.	Noted.
Stakeholder SC20	Sustainable Agriculture Offset Area There is a portion of land identified in Figure 14 of the 2021 Annual Review labelled as "Sustainable Agriculture Offset Area". Please provide a discussion on what makes it "sustainable". Is this site being compared to an analogue site, and if so, what are some of the methods being used to compare the sites.	SSD8642 Condition B85 states "The Applicant must rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the Mining Act 1992. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the documents listed in condition A2(c) and shown in Appendix 9 and must comply with the objectives in Table 9". Table 9 outlines provisions for "area proposed for agricultural land". As defined in the EIS the intention is to provide a final rehabilitated landform of native vegetation woodlands and grassland. A key objective of the progressive rehabilitation at Mangoola is to return much of the MCCO Project Area to a mixture of woodland habitat generally consistent with ecological communities that would have historically occurred in the area and grassland areas that will provide future opportunity for appropriately managed grazing. The potential future grazing opportunities would be based on future land use decisions and approvals, and hence grazing is	Change land label from "Sustainable Agriculture Offset Area" to a more suitable description of the intended land use to reduce confusion in future Annual Reviews.	Action - Change land label from "Sustainable Agriculture Offset Area" to a more suitable description of the intended land use to reduce confusion in future Annual Reviews.

GLENCORE

Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
		not a primary consideration for current rehabilitation, or a planned land use as described in the EIS.		
9	The lease holder must: a. ensure that at least 143 competent people are efficiently employed on the lease area on each weekday except Sunday or any weekday that is a public holiday, OR expend on operations carried out in the course of prospecting or mining the lease area, an amount of not less than \$2,502,500 per annum whilst the lease is in force. The Minister may at any time or times, by instrument in writing served on the lease holder, increase or decrease the expenditure required or the number of people to be employed.	Condition 9 of ML1626 was removed as approved by the regulator.	Provide updated record of change to Mining Lease on project website.	Action - Provide updated record of change to Mining Lease on project website.

GLENCORE

Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
15	<u>a. Ground Vibration</u> The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Environment and Climate Change. <u>Blast Overpressure</u> The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Environment and Climate Change.	On 4 March 2020 there was an exceedance of overpressure criteria. The blast was located in Main Pit West and recorded an overpressure result at BM07 (EPL monitoring point 21) of 120.9dB (exceedance of 120dB threshold). DPE and EPA were notified.	Continue to implement the Blast Management Plan to minimise the dust and fume emissions of any blasting.	Noted.

GLENCORE

Cond. Ref	Requirement	Independent Audit Finding	Recommendation	Mangoola Coal Response/ Action Required
18	Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.	Sandy Creek Farm Dams - Saline Water Discharges - 17/02/2020, 26/11/2021, and 8/12/2021. PIRMP was enacted in accordance with Section 147 of the POEO Act. DPIE and EPA were notified in accordance with applicable statutory requirements. An investigation was completed where the analysis had indicated that the predominant source of water discharged was runoff from the 25.7 ha clean water catchment caused by excessive rainfall. Discharge results show that there was no environmental harm caused based on the chemistry of the water discharged when compared to the receiving environment. The PIRMP was enacted	Continue to implement the WMP, ensuring mitigation measures are implemented and maintained. Where possible review dewater procedure for areas considered to be high risk prior to predicted excessive rainfall events.	This recommendation has been addressed in the action generated for S3 C27.