STRATFORD MINING COMPLEX

ANNUAL REVIEW

Reporting Period: 1st January 2019 to 31st December 2019

Table 1
Annual Review Title Block

Name of operation	*Stratford Mining Complex*
Name of operator	*Yancoal Australia Ltd*
Development consent/ project approval #	*SSD-4966 (Stratford Extension Project)*
Name of holder of Development consent/ project approval #	*Stratford Coal Pty Limited*
Mining lease #	*ML1360, ML1409, ML1447, ML1521, ML1528, ML1538, ML1577, ML1733, ML1787*
Name of holder of mining lease	*Gloucester Coal Ltd/CIM Stratford Pty Ltd/Stratford Coal Pty Ltd*
Water licence #	*WAL 41534, WAL 41535, WAL 41536, WAL 41537, WAL 41538,*
Name of holder of water licence	*Gloucester Coal Ltd/CIM Stratford Pty Ltd/Stratford Coal Pty Ltd*
MOP/ RMP start date	*1st March 2018*
MOP/ RMP end date	*1st March 2021*
Annual Review start date	*1st January 2019*
Annual Review end date	*31st December 2019*
I, (John Cullen), certify this audit report is true and accurate record of the compliance status of Stratford Mining Complex for the period of 1st January 2018 to 31st December 2018 and that I am authorised to make this statement on behalf of Yancoal. *Note.* *a) The Annual Review is an 'environmental audit' for the purpose of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of the corporation, $1 million and for an individual $250,000.* *b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement – maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents-maximum penalty 2 years imprisonment or $22, 000, or both).*	
Name of authorised reporting officer	*Mr John Cullen*
Title of authorised reporting officer	*Operation Manager – Stratford Coal*
Signature of authorised reporting officer	
	28 April 2020

Date	

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1. STATEMENT OF COMPLIANCE

This Annual Review has been prepared in accordance with Schedule 5, Condition 4 of the Development Consent (SSD-4966) for the Stratford Extension Project (SEP).

No further notices were received during the reporting period.

Table 2a provides a statement of compliance against SCPL's relevant approvals. A summary of the non-compliances with SSD-4966 during the reporting period are included in **Table 2b**.

Table 2a
Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
SSD-4966	NO
ML1360, ML1409, ML1447, ML1521, ML1528, ML1538, ML1577, ML 1733, ML 1787	YES

Table 2b
Summary of Non-Compliances against SSD-4966

Condition #	**Condition Description/Non-Compliance**	**Compliance Status/Risk**	**Comment**	**Section addressed**
SSD-4966 – Stratford Extension Project				
Schedule 3, Condition 16	Condition: Obligation to implement the approved Blast Management Plan (BLMP) Non-compliance: Blast was not recorded on video as required in the BMP.	Low	10/12/2019 – Blast in Roseville Pit was not recorded on video as required in the BLMP. The drone and video camera were deployed, however video was not operational at the time.	Section 11

Risk Level	**Colour Code**	**Description**
High	Non-Compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-Compliant	Non-compliance with potential for serious environmental consequences, but is unlikely to occur; or potential for moderate environmental consequences, but is likely to occur
Low	Non-Compliant	Non-compliance with potential for moderate environmental consequences, but is unlikely to occur; or potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-Compliant	Non-compliance which does not result in any risk of environmental harm

2. INTRODUCTION

The Stratford Mining Complex (SMC) is located in the Gloucester Basin approximately 100 kilometres (km) to the north of Newcastle in New South Wales (NSW). Refer **Figure 1** (**Appendix 1**).

SCPL, a wholly owned subsidiary of Yancoal Australia Limited (YAL), is the owner and operator of the SMC.

The SMC encompasses an area of approximately 1,500 hectares (ha) of cleared former grazing land (owned by SCPL) located to the east of The Bucketts Way, between the villages of Stratford and Craven. Refer **Figure 1** (**Appendix 1**). Development Consent was originally approved for the Stratford Coal Mine by the then NSW Minister for Planning on 19 December 1994. Mining Lease (ML) 1360 was subsequently granted by the then NSW Minister for Mineral Resources on 21 December 1994 with production commencing in June 1995.

SMC consists of an open-cut mine which utilises truck and excavator mining methods to produce run of mine (ROM) coal. ROM coal is processed at the Coal Handling and Processing Plant (CHPP) and transported via train on the North Coast Railway to the Port of Newcastle for distribution to the export market.

Mining activities approved under the former Stratford Coal Mine (DA 23-98/99) and Bowens Road North (DA 39-02-01) Development Consents were suspended in mid-2014. However, ROM coal from the Duralie Coal Mine (DCM) (also owned by YAL) was continued to be processed at the SMC CHPP and transported to the Port of Newcastle for distribution to the export market.

Development Consent SSD-4966 was granted by the then NSW Planning Assessment Commission (PAC), as delegate for the Minister for Planning, for the SEP on 29 May 2015. The SEP provides for the continuation and extension of operations at the SMC, including the mining of three new open cut areas.

Mining activities approved under the SEP Development Consent (SSD-4966) were commenced on 4 April 2018.

During the reporting period, SCPL submitted an application to modify SSD-4966 on the 19 December 2019. The modification sought approval to allow for water stored within the SMC water management system to be available to the MidCoast Council (as a public authority) for the benefit of local services and other potential public purpose water needs (Modification 2). Modification 2 was approved by the Director, Resource Assessments as delegate of the Minister for Planning and Public Spaces on 13 January 2020.

This Annual Review (AR) has been prepared in accordance with Schedule 5, Condition 4 of SSD-4966. This report is also prepared in accordance with the annual reporting requirements for Mining Leases held by SCPL and in accordance with DPIE's Annual Review Guidelines (October 2015).

The AR describes the environmental protection, pollution control and rehabilitation activities at the SMC for the period 1 January 2019 to 31 December 2019. As required by SSD-4966, comparisons of environmental monitoring results have been made against the relevant statutory requirements, monitoring results of previous years and relevant predictions of Environmental Assessments. Environmental management activities planned for the next 12 months are also discussed.

2.1 MINE CONTACTS

The SMC is an owner operated mine site by SCPL. Site personnel responsible for mining, CHPP, rehabilitation and environmental issues at the end of the reporting period are provided in **Table 3**.

Table 3
SMC Management Contact Details

Position	Name	Contact
Operations Manager, Stratford & Duralie Operations	Mr John Cullen	02 6538 4210
Environment & Community Superintendent	Mr Michael Plain	02 6538 4203
CHPP Manager	Mr Justin Goodreid	02 6538 4235

3. APPROVALS

3.1.1 Status of Leases, Licences and Approvals

The SMC operates in accordance with the approvals provided in **Table 4**.

Table 4
Stratford Mining Complex – Licences, Leases and Approvals

Description	Date of Grant	Duration of Approval	Comments
NSW Planning Approvals			
Stratford Extension Project Development Consent SSD-4966	29 May 2015	31 December 2025 (mining operations)	Action commenced on 4 April 2018
Mining Leases and Exploration Licences			
ML 1787	5 June 2019	5 June 2040	
ML 1360	21 December 1994 (renewed 21 December 2015)	21 December 2036	Variation of Conditions dated 22 June 2018
ML 1409	7 January 1997	7 January 2039	Renewed 07 March 2018
ML 1447	1 April 1999	1 April 2020	
ML 1521	24 September 2002	24 September 2023	Variation of Conditions dated 8 October 2018
ML 1528	20 January 2003	20 January 2024	
ML 1538	25 June 2003	25 June 2024	
ML 1577	1 March 2006	1 March 2027	Variation of Conditions dated 8 October 2018
ML 1733	8 April 2016	8 April 2037	Variation of Conditions dated 19 February 2018
A311	17 September 1982	28 November 2017	Renewal lodged – pending
A315	27 December 1982	28 November 2017	Renewal lodged – pending

EL 6904	9 October 2007	9 October 2017	Renewal lodged – pending
Environment Protection Licences			
EPL 5161	1 July 2000	Until revoked or surrendered.	As modified by subsequent variations
Commonwealth Approvals			
EPBC 2011/6176	29 January 2016	30 November 2030	Action commenced on 4 April 2018
Water Licences			
Water Access Licences (WAL 41534, WAL 41535, WAL 41536, WAL 41537, WAL 41538)	Various	Perpetuity	Groundwater extraction – open cut dewatering.
Groundwater bore licences – various	Various	Perpetuity	Groundwater monitoring
Water Access Licences (WAL 19536, WAL 19514, WAL 19540)	Various	Perpetuity	Avon River Water Source

Environmental Management Plans

Environmental Management Plans (EMPs) are also approved for the SMC. The current versions approved by DPIE are available on the Stratford Coal website.

- Environmental Management Strategy (revised). Approved 2 July 2019.
- Air Quality Management Plan (revised). Approved 17 June 2019.
- Biodiversity Management Plan (revised). Approved 19 October 2018.
- Blast Management Plan (revised). Approved 17 June 2019.
- Heritage Management Plan. Approved 17 October 2018.
- Life of Mine Rejects Disposal Plan (revised), October 2018.
- Noise Management Plan (revised). Approved 17 June 2019.
- Water Management Plan (revised). Approved 2 July 2019.
- Mining Operations Plan and Rehabilitation Management Plan (MOP) (revised). Conditional Approval 16 July 2019.
- Pollution Incident Response Management Plan (revised), November 2018.
- Squirrel Glider Management Plan (revised). Approved 19 October 2018.
- Transport Monitoring Program. Approved 8 March 2018.

3.1.2 Amendments to Approvals/Licences over the Reporting Period

The following amendments to approvals/licences were granted during the reporting period.

NSW Development Consent

- On 13 January 2020, the Director of Resource Assessments, as delegate of the Minister for Planning and Public Spaces approved a modification to SSD-4966 to facilitate access to water stored at the SMC to the MidCoast Council (as a public authority) for the benefit of local services and other potential public purpose water needs.

Commonwealth Project Approval

- No amendments were made during the reporting period.

Mining Leases

- Mining Lease (ML 1787) was granted on 5 June 2019 relating to the Stratford East area.

Environment Protection Licence

- No variations of EPL 5161 were sought or issued during the reporting period.

Environmental Management Plans

- Environmental Management Plans (EMPs) required in accordance with the conditions of SSD-4966 were prepared in advance of operations commencing for the SEP in 2018. The following EMPs were revised and updated within the reporting period:
  - Environmental Management Plan (July 2019);
  - Air Quality Management Plan (June 2019);
  - Blast Management Plan (June 2019);
  - Noise Management Plan (June 2019); and
  - Water Management Plan (July 2019).
- A Mining Operations Plan and Rehabilitation Management Plan (MOP) was prepared for the SEP and approved by the Secretary for Division of Resources and Geosciences (DRG) on 9 March 2018 in advance of operations commencing. An amendment to the MOP was prepared and approved by DRG on 11 January 2019. A second amendment to the MOP was prepared and approved by DRG on 16 July 2019.

4. OPERATIONS SUMMARY

A summary of operations (production), during the preceding and current reporting period as well as a forward forecast for the next reporting period is provided below in **Table 5**.

Table 5
Production Summary

Material	Approved limit (specify source)	Previous reporting period (tonnes)	This reporting period (tonnes)	Next reporting period (tonnes)
Waste Rock/ Overburden (BCM)	N/A	2,205,017	6,641,245	7,794,913
ROM Coal	2.6 million tonnes per annum	289,549	1,259,995	1,290,000
Co-disposal Reject	N/A	250,720	509,867	533,000
Saleable product	N/A (Process limit of 5.6 million tonnes per annum)	455,617	750,128	756,000

Total saleable product for the 12-month reporting period was 750,128 tonnes. A total of 6,641,245 tonnes of waste rock/overburden was mined from the BRN, Avon North and Roseville West pits during the reporting period.

Saleable coal production by month for the reporting period is shown in **Table 6.**

Table 6
Product Coal Produced by Month (Tonnes)

MONTH	Coking Coal	Thermal Coal	Total Product Coal
January 2019	11,602	10,384	21,986
February 2019	5,889	3,133	9,022
March 2019	13,669	12,448	26,117
April 2019	14,269	15,063	29,332
May 2019	24,491	25,270	49,761
June 2019	16,972	22,584	39,556
July 2019	32,364	47,980	81,589
August 2019	31,038	52,028	113,230
September 2019	16,287	52,867	100,280
October 2019	11,471	33,468	103,686
November 2019	21,053	35,235	109,478
December 2019	16,380	31,681	66,091
Total Annual	**215,485**	**342,141**	**750,128**

4.1 EXPLORATION

Exploration activities occur within, and external to, the open cut footprints and is used to investigate aspects such as geological features, seam structure and coal/overburden characteristics as input to detailed mine planning and feasibility studies.

During the reporting period, the following exploration activities were carried out within the Stratford ML 1360, BRN ML1528, Avon North ML1733 and Stratford East ML1787:

- Finalisation of drill hole data from 2018 exploration drilling at Avon North, Avon West and Stratford East and update of geological models for Avon North and Stratford East;
- Interpretation of geochemical data and development of potentially acid forming strata model;
- Environmental studies including ground water design and piezometer design; and
- Mining studies including assessments of the potential for acid mine drainage and the identification

and handling of potentially acid forming strata.

- Geotechnical investigations were also undertaken for the BRN and Avon North pits.

Rehabilitation documentation and updates to mining studies in target areas in Stratford North and Stratford South pits within Authorisation 311 were undertaken during the reporting period.

During the next reporting period, surface exploration activities includes installation of piezometers and ground water monitoring points and geochemical testing. Mining studies are ongoing, including geochemical modelling and bulk mining studies.

Exploration activities are undertaken in accordance with the MOP. Exploration outside the ML area requires an Exploration Activity Approval (and depending on scope, a Review of Environmental Factors) prior to activities commencing.

4.2 ESTIMATED MINE LIFE

Mining activities approved under the SSD-4966 for SEP were commenced on 4 April 2018.

SSD-4966 provides approvals for activities described in the SEP Environmental Impact Statement (EIS 2012) and includes:

- 11 years of mining;
- Up to 2.6 Million tonnes per annum (Mtpa) of ROM coal;
- 3 new open cut mining areas; and
- Use of existing CHPP and infrastructure.

Schedule 2, Condition 5 of SSD-4066 allows the carrying out of mining operations on the site until 31 December 2025.

4.3 OPEN CUT MINING

SMC consists of an open-cut mine which utilises truck and excavator mining methods to produce ROM coal. ROM coal is processed at the CHPP and transported via train on the North Coast Railway to the Port of Newcastle for distribution to the export market.

Mining activities approved under the former Stratford Coal Mine and Bowens Road North Development Consents were suspended in mid-2014. However, ROM coal from the Duralie Coal Mine (DCM) was continued to be processed at the SMC CHPP and transported to the Port of Newcastle for distribution to the export market.

Mining activities approved under SSD-4966 were commenced on 4 April 2018. The following milestones were achieved during the reporting period:

- Mining continued in the BRN Open Cut;
- Mining in the Avon North Open Cut continued with the pit progressing towards the south;
- Mining recommenced in the Roseville West Open Cut in November 2019;
- Construction works for the Stratford Eat Open Cut commenced in August 2019; and
- Construction of the Stratford Main Pit flood bund commenced in May 2019 and was completed in August 2019.

Reprocessing of coal from the Co-disposal area for coal processing, handling and railing continued during the reporting period.

No coal was processed from DCM during the 2019 reporting period.

Mining operations are permitted 7 days per week. Operational time restrictions apply as prescribed in SSD-4966.

Mining in the approved Roseville West Extension Pit are proposed in future reporting periods. The mining activities proposed for the next reporting period are described in the MOP (Version 3) which was conditionally approved on 16 July 2019 following the grant of ML 1787.

4.3.1 Mining Equipment and Method

The mining equipment currently in use at SMC is listed in **Table 7** provided below.

Table 7
Current Mining Equipment

Item	Description	Number
Stratford Coal Pty Ltd		
Excavator	Hitachi 2600	2
Excavator	Caterpillar 349	1
Haul Trucks	Cat 785C	9
Track Dozer	Caterpillar D10T	6
Drill	Atlas Copco	2
Grader	Caterpillar 18M	2
Water Cart	Caterpillar 777F	2
Front End Loader	Caterpillar 988H	1
Front End Loader	Komatsu WA 900	1
Ancillary Mobile Plant	Various	-
Ditchfield Contracting		
Excavator	Caterpillar 6015B	1
Excavator	Komatsu PC1250	2
Excavator	Cat 374, 349, 336	3
Haul Trucks	Cat 775	8
Haul Trucks	Volvo A40	5
Track Dozer	Cat D8T, D10T, D11T, D11R	5
Drill	Drill Atlas Copco D65	1
Grader	Caterpillar 14M	2
Water Cart	Caterpillar 773	1

The mining sequence is summarised below and is conducted in accordance with the approved MOP and supporting approvals including relevant EMPs (refer Section 3). The mining sequence generally occurs in the following manner:

- A vegetation clearance and ground disturbance plan is prepared. This includes fauna/flora assessments and cultural heritage surveys.
- An erosion and sedimentation control plan is prepared for the area to be disturbed.
- Delineation of the proposed disturbance area is undertaken.
- Water infrastructure and sedimentation controls are implemented.
- Tree clearing is limited to the minimum area required for ongoing operations and undertaken ahead of the advancing workings.
- Topsoil is removed in accordance with a topsoil stripping plan.
- Overburden removal is undertaken by a hydraulic excavator. Generally, the first one to five metres of subsoil/overburden is ripped and/or free-dig. Deeper overburden requires blasting prior to excavation.
- Overburden waste material is deposited either in out-of-pit waste emplacements or backfilled into

mining voids

- Following waste emplacement, shaping to the approved final landform in undertaken in preparation for rehabilitation works.

4.4 COAL HANDLING AND BENEFICIATION

4.4.1 CHPP Throughput

Coal is processed in a 600 tonnes per hour (tph) CHPP with coarse coal (i.e. 50 millimetre (mm) down to 1mm) treated using dense medium cyclones (50mm to 1.5mm), "teeter bed" separator/spirals (1.5mm to 0.4mm) and fine coal using floatation (0.4mm to <0.1mm). The CHPP operates on a two shift, 5 days per week basis. Feed to the CHPP is by front end loader based on blending of coal plies from the ROM stockpile. The essential elements of the CHPP and their design capacities are as follows:

ROM coal processing	5.6 Mtpa maximum
CHPP feed rate	600 tph
Product coal	3.3 Mtpa
Train load out rate	3,000 tph

Previously emplaced CHPP reject material was also reclaimed and used as feed for the CHPP, as an addition to SMC ROM coals during the reporting period.

4.4.2 Coal Stockpile Capacity (ROM & Product)

ROM coal stockpile capacity	150,000 t
Product coal stockpile capacity	400,000 t

4.4.3 Product Transport

All saleable (or product) coal is transported from site by rail. A total of 113 export trains were loaded during the reporting period. Schedule 2, Condition 8 of SSD-4966 permits a maximum of 6 laden trains per day and no more than 2 laden trains during night-time hours to be dispatched. SCPL were compliant during the reporting period with regard to export trains.

A summary of product coal transported during the reporting period is provided in **Table 8**. It is noted that the total coal transported from site is marginally lower than that produced at the SMC (see **Table 6**). Records of the export train movements are provided in **Appendix 8** and are also available on the Stratford Coal website.

Table 8
Export Train Coal Transported by Month

MONTH	Product Coal Transported (Tonnes)
January 2019	11,972
February 2019	0
March 2019	40,588
April 2019	17,958
May 2019	17,958
June 2019	5,986
July 2019	89,790
August 2019	98,112
September 2019	101,762
October 2019	169,360
November 2019	77,818
December 2019	83,804
Total Annual	**715,108**

4.4.4 CHPP Reject Management

Reject material produced at the SMC CHPP is disposed of in accordance with the SMC Life of Mine Rejects Disposal Plan (RDP 2018). Reference should be made to the RDP for a detailed description of reject management at the SMC. Details of management measures undertaken at SMC are found in Section 7.3 of the SMC Surface Water Management Plan (SWMP).

In general, the coarse and fine reject materials are pumped via pipeline from the CHPP to the Stratford Main Pit where they are deposited in locations below the simulated final void ground water levels. Monitoring results for the CHPP rejects are included in **Section 6.12**.

4.5 WASTE MANAGEMENT AND RECYCLING

A fully accredited waste contractor was engaged during the reporting period to manage all waste streams from the SMC operations. This contract includes general waste and recycling, scrap metal, and hydrocarbons including waste grease and oil and hazardous waste.

The waste management contractor provides monthly reporting on all waste streams disposed from the SMC. The monthly reports also provide details of recycling achieved and hazardous substances. The waste management contractor undertakes routine inspections of waste disposal facilities to identify any management actions required.

4.5.1 Sewerage Treatment and Disposal

Sewage treatment at the mine site consists of:

- A “Bio-Treat” tank system located at the main site office. The system works on the combined principles of primary settlement and aerobic treatment. Treated effluent is discharged via a spray system into a grassed area near the office;
- A similar primary treatment and aeration system located at the CHPP. Treated effluent is pumped onto a vegetated area south of the CHPP incorporating the CHPP noise bund;
- A septic tank system is used for treatment of sewage from the Training Building. Treated effluent is discharged via a spray system into a grassed area near the main site office;
- An active aeration system for treatment of sewage from the bath-house complex. Secondary stage treated effluent is discharged via the spray irrigation system servicing the main office building; and
- A one (1) man septic tank system and transpiration trench is located at the Rail Load-out Bin.

These sewage treatment facilities are registered with MidCoast Council and are serviced on a quarterly basis by a qualified contractor.

EPL 5161 specifies various operational and monitoring requirements. These requirements have been complied with during the reporting period.

4.5.2 Fuel, Oil and Grease Management and Disposal

Fuel (diesel) at the mine site is stored within a fuel farm facility (adjacent to the workshop). An “Acknowledgement of Notification of Hazardous Chemicals on Premises” (Acknowledgement Number NDG 030521 was held for this facility during the reporting period.

One non-reportable incident occurred during the reporting period in regards to a hydrocarbon spill at DAD14 Pump. The contaminated material was removed from site and remediation of the affected area occurred. The affected pump pad was upgraded to ensure the pump pad installation was level.

An investigation occurred identifying the incorrect set up of the filler pipes and breather hoses creating airlocks on the fuel tank resulting in an inability for the tank to release pressure. The tank set up was rectified with no further spills occurring.

The fuel bay contains two (2) 110,000 litre above ground diesel Transtanks. A concrete bund surrounds the tanks. Rainfall and any spilt fuel within the bunded area is directed to a collection sump from where it is pumped to a reclaimer system located in the lube bay and passed through an oil water separator.

The CHPP area has two above ground tanks containing chemical reagents, a 10,000 litre tank contains diesel and a 20,000 litre tank contains a frother, “Metfroth”.

Bulk oil is stored within a bunded area at the workshop. Used engine oils (lubricating oils) and hydraulic oils are recovered during plant and vehicle servicing in the workshop and in the field.

Within the workshop area, a separate bunded area holds an 18,000 litre waste oil tank and oil/grease drums. The lube bay is fitted with a silt trap and oil separator. A wash pad facility also contains a silt trap. Waste oil is removed from site by a contractor for subsequent recycling off-site on a regular basis.

Oil for gearboxes and lubrication at the CHPP is stored in drums in a concrete bunded area. Used oil filters and hydraulic hoses are stored within bins and removed from site by a suitably licensed contractor.

4.5.3 Rubbish Disposal

All domestic rubbish (e.g. food scraps, paper etc.) is deposited in industrial rubbish bins that are periodically emptied by a waste contractor for subsequent disposal.

Scrap metal at the CHPP and workshop is collected and placed in bins that have been provided by a scrap metal merchant. The merchant collects the scrap metal following inspection by the waste contractor.

Paper and cardboard is collected for recycling from the workshop, CHPP and main office building. Mixed recycling bins are located at the main office. All contractors are responsible for the collection and removal of their own rubbish.

4.6 HAZARDOUS AND EXPLOSIVE MATERIALS MANAGEMENT

Hazardous materials are stored and used in accordance with relevant safety data sheets (SDS). SDS’s are kept in a file inside the First Aid Room and are available from an online database on the company intranet.

Bulk explosives are approved for storage within an explosives compound at site.

All hazardous waste is appropriately disposed of by a fully accredited waste contractor and waste tracking certificates are supplied to SCPL.

4.6.1 Status of Hazardous Chemicals Notification

An “Acknowledgement of Notification of Hazardous Chemicals on Premises” (Acknowledgement Number NDG 030521) issued by SafeWork NSW is held by Stratford Coal Pty Ltd. This Acknowledgement addresses:

- Above-ground tanks (diesel);
- External magazine (detonators and boosters);
- Above-ground tank (oxidising liquid); and
- Roofless bulk storage (ammonium nitrate).

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

DPIE provided notification on 2 July 2019 that the amended SMC Annual Review 2018 was generally in accordance with the development consent requirements and no further amendments or actions were required.

The Resource Regulator provided notification on 16 July 2019 that the SMC Annual Review 2018 was to the satisfaction of the Minister and no amendments were required.

6. ENVIRONMENTAL PERFORMANCE

6.1 REVIEW OF ENVIRONMENTAL PERFORMANCE

A brief review of environmental performance in relation to Environment Protection License (EPL) 5161, together with SMC relevant Development Consent conditions, is provided below. This performance is further discussed in the sections on environmental management activities and environmental monitoring.

6.1.1 Development Consent Conditions

SSD-4966 for the SEP was granted on 29 May 2015. SCPL commenced the approved activities in accordance with the conditions of SSD-4966 on 4 April 2018. A modification was lodged during the reporting period and approved by the Director, Resource Assessments as delegate of the Minister for Planning and Public Spaces on the 13 January 2020. This modification facilitates the access of water stored at SMC by the MidCoast Council for the benefit of local services and other potential public purpose water needs.

Prior to the commencement of SSD-4966, SCPL operated in accordance with DA 23-98/99 for the Stratford Coal Mine and DA 39-02-01 for the BRN Open Cut. These consents have now been surrendered.

Development Consent conditions which were met during this reporting period are described in the following sections. These include administrative and reporting conditions, environmental management and monitoring conditions, community engagement and rehabilitation. Environmental monitoring data was regularly reported as required by the development consent and associated environmental management plans (EMPs).

EMPs required in accordance with the conditions of SSD-4966 were prepared and approved during the reporting period. A Mining Operations Plan and Rehabilitation Management Plan (MOP) was prepared for the SEP and approved by the Secretary for DRG on 9 March 2018 in advance of operations commencing. Since this time, two revisions of the MOP approved by DRG on the 11 January 2019 and 16 July 2019.

An Independent Environmental Audit of the SMC was not required during the reporting period. In correspondence from DPIE dated 30 November 2018, DPIE advised the initial Independent Environmental Audit required by SSD-4966 must be commissioned prior to 31 December 2020.

6.1.2 Environment Protection Licence 5161

- All monitoring has generally been carried out in accordance with licence conditions.
- Records of environmental monitoring activities have been kept.
- A record of environmental and pollution complaints has been maintained.
- Sewage irrigation areas are being managed in accordance with specified requirements.
- Dust suppression measures are in place. Dust monitoring to date (dust deposition gauges, high volume (PM10) air samplers and real-time TEOM monitoring) shows that current dust suppression systems are effective and dust levels are generally below the conditions of consent limits. Monitoring results during the reporting period have demonstrated compliance of the SMC with the air quality management criteria.
- Monthly noise compliance monitoring during the audit period continued to demonstrate compliance with noise criteria.

- No sediment dam spills occurred during the reporting period.
- A Pollution Incident Response Management Plan (PIRMP) has been prepared and is available on the Stratford Coal website.
- One environmental incident with a failure to capture video footage of a blast occurred at the SMC during the reporting period (further information is included in Table 2b and Section 11).
- An Annual Return was prepared for EPL 5161.

6.2 METEOROLOGICAL MONITORING

A meteorological station (i.e. weather station) is operated at the mine site as required by SSD-4966. The location of the meteorological station and the two inversion monitoring towers is shown on **Figure 2** (**Appendix 1**).

6.2.1 Rainfall

Table 9 below summarises the rainfall record obtained from the site Weather Station (tipping bucket) rain gauge during the reporting period. The graphical representation of monthly recorded rainfall during the reporting period is provided in **Appendix 2**.

Table 9
Stratford Mine - Monthly Rainfall Records

MONTH	YEAR				Stratford District
	2019		2018		Average
	Monthly Total (mm)	No. of Rain Days/Month[1,2]	Monthly Total (mm)	No. of Rain Days/Month[1,2]	1908-2007
January	79.2	9	43.6	7	113.7
February	101.8	14	83.2	9	114.8
March	102.8	15	227.4	9	129.3
April	54.2	20	23.8	13	78.2
May	25	14	11.6	6	71.6
June	40	21	97.2	17	69.4
July	16.6	14	10.8	5	52.7
August	5.2	11	12.4	4	47.1
September	30	10	36.4	9	50.5
October	48	7	130.8	21	65.5
November	21.6	9	76	10	82.7
December	22.8	2	94.2	12	102.2
Total	**547.2**	**146**	**847.4**	**122**	**977.7**

Notes: 1. No. of Rain Days/Month - the number of days in the month on which rain fell.
2. When tipping bucket rain gauge data used, a "rain day" by definition requires a minimum recording of >0.20mm comprising dew, heavy fog or light rain (or a combination thereof).

The 2019 calendar year rainfall total was lower than the long-term district average. None of the twelve months in this period exceeded their respective long term average. This is the eighth consecutive year of below average rainfall.

6.2.2 Wind Speed and Direction

Table 10 below indicates the monthly average and maximum wind speeds and the dominant wind directions by month for the period January 2019 to December 2019, inclusive. The graphical representations of the monthly minimum, average and maximum wind speeds recorded for each month during this period are provided in **Appendix 2**.

Table 10
Monthly Average and Maximum Wind Speeds and Dominant Wind Directions

MONTH	AVERAGE WIND SPEED (km/hr)	MAXIMUM WIND SPEED RECORDED (km/hr)	DOMINANT WIND DIRECTIONS
January 2019	9.5	69.6	NNE
February 2019	9.8	45.2	NNE
March 2019	8.8	44.7	NNE
April 2019	6.4	38.1	S
May 2019	7.0	53.5	NNE
June 2019	6.6	42.2	S
July 2019	6.6	50.9	NNE, SSW
August 2019	9.1	57.2	S, SSW
September 2019	10.7	61.8	SSW
October 2019	10.1	53.5	NE, NNE
November 2019	12.1	56.4	SSW
December 2019	11.7	59.9	SSW

6.2.3 Temperature

Table 11 summarises monthly air temperatures for the reporting period.

Table 11
Monthly Minimum, Average and Maximum Air Temperatures

MONTH	MINIMUM AIR TEMP RECORDED (degC)	AVERAGE AIR TEMP (degC)	MAXIMUM AIR TEMP RECORDED (degC)
January 2019	16	26.6	42.5
February 2019	11.9	22.9	39.9
March 2019	8.4	21.8	36.9
April 2019	5.5	17.7	33.5
May 2019	0.9	14	27
June 2019	-0.2	11.4	26
July 2019	-3.1	10.6	25.6
August 2019	-2	11.9	26.3
September 2019	1.9	15.7	33.6
October 2019	5	18.7	35.9
November 2019	5.5	21.6	40.5
December 2019	10.4	23.9	43.7

The graphical representation of the daily minimum, average and maximum atmospheric temperatures recorded for each month during this period is provided in **Appendix 2**.

6.3 AIR QUALITY

6.3.1 Dust Control Procedures

SMC has an approved Air Quality Management Plan (AQMP) that establishes a dust management strategy which:

- Identifies air quality criteria;
- Outlines proactive and responsive dust management and control measures;
- Establishes dust management protocols;
- Formulates an air quality monitoring programme;
- Establishes data assessment protocols; and
- Details reporting and review requirements.

The following dust control procedures are used during mining operations to control dust emissions from wind erosion on exposed areas and dust generated from mining, handling and processing activities:

- Minimising topsoil stripping operations ahead of the pre-strip to minimise the area of exposed ground;
- Progressive rehabilitation including prompt reshaping, topsoiling and revegetation;
- Watering of haul roads and other trafficked areas;
- Watering dig faces prior to and during digging;
- Fitting drills with dust suppression equipment including aprons and sprays;
- Regular maintenance of hauls roads and minor roads;
- Modifying operations during adverse weather conditions;
- Watering of disturbed areas at the end of shift to help mitigate any potential dust generation when the mine is not operating (as necessary);
- Real-time monitoring with alarm triggers set to enable implementation of reactive dust control management measures;
- A predictive meteorological forecasting system to enable implementation of proactive dust control management measures; and
- Vehicle speed restriction to 60 kilometres per hour.

At the CHPP, potential dust emission sources are controlled by water sprays at a number of locations:

- Run of Mine (ROM) Coal Bin;
- Crusher Station;
- Stamler Feeder/Breaker;
- Product Coal Stockpile (overhead sprays on the conveyor); and
- Train load out.

Sprays are automated in most instances by a solenoid connected to the weight of material on the conveyor belt. Sprays at the ROM Bin, Crusher Station and Stamler operate when 50t/hr of material is on the belts.

The product coal stockpile sprays are located on the overhead conveyor system. A wind speed/direction device provides information to a computer located in the CHPP control room that can electrically activate solenoids valves. The valves open and close in a programmed cycle that alternatively activates sprinkler heads above the stockpile. The dust suppression system operates when the wind speed exceeds 5m/s for >30 seconds.

6.3.2 Dust Monitoring and Criteria

SCPL monitors air quality (dust) surrounding the mine site by means of a network of seven (7) static dust fallout gauges, four (4) high volume PM_{10} air samplers, two real-time dust monitors (TEOM) and a meteorological monitoring station (i.e. weather station). The locations of these monitoring sites are shown on **Figure 2** (**Appendix 1**).

Monthly dust deposition levels are measured so that dust deposition rates in g/m^2/month can be determined at or near seven (7) residences that surround the mine site. The annual average condition

of consent limit for dust deposition is 4.0 g/m^2/month.

The high-volume air samplers (HVAS) (PM_{10}), are located near Stratford Village, Craven Village, ex-Clarke residence, ex-Ellis residence, Glen Road. The HVAS results are also used for total suspended particulate (TSP) estimation.

HVAS sampling is undertaken over a 24 hour 6 day week cycle in accordance with AS 2724.3. The consent criteria for PM_{10} air quality is an annual average limit of 30μg/m^3/day and a National Environmental Protection Measure (NEPM) 24-hour average limit of 50μg/m^3/day.

Two Tapered Element Oscillating Microbalance (TEOM) analysers measuring PM_{10} and $PM_{2.5}$ are used to continuously measure particulate matter. The TEOMs are located in close proximity to Stratford village and Craven village. Real-time air quality monitoring data is used to identify when ambient PM_{10} levels in the surrounding environment are elevated and require contingency action. Real-time response triggers have been established and are designed to provide a system to warn operation personnel (via SMS) when dust levels are approaching a relevant criterion and require management/control actions to mitigate potential impacts.

6.3.3 Review of Dust Monitoring Results

6.3.3.1 Dust Deposition Gauges

Table 12 shows the monthly dust deposition results for seven (7) dust deposition gauges. **Table 13** shows the annual average dust deposition results at the end of the reporting period (December 2019).

Table 12
Dust Deposition Gauge Results

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19
D5	2.0	0.4	1.5	0.6	0.6	0.3	0.7	0.7	1.2	0.9	1.7	2.5
D6	2.2	1.8	1.3	0.8	0.1	0.6	0.9	0.9	1.4	0.8	1.5	1.8
D7	1.5	0.9	1.0	1.1	0.4	0.3	0.4	0.4	0.6	1.0	1.2	1.7
D8	2.4	1.1	3.5	0.8	0.8	0.5	0.4	0.9	0.6	1.3	1.2	1.6
D9	2.8	1.9	1.8	0.3	0.4	0.3	0.6	0.5	0.8	0.7	5.7^{IBV}	6.3^{IBV}
D10	2.6	1.7	1.2	0.8	0.4	0.4	0.9	0.7	0.9	1.1	1.3	1.8
D11	2.7	2.2	1.3	1.1	0.5	0.7	1.6	1.6	1.5	2.4	2.1	2.9

Notes/excluded results, Visual Description Guide:
I=Insects: Whole insects e.g. spiders, ants, moths or outer parts of insects including wings, legs and exoskeletons.
V=Vegetation: Plant debris and algae including trichomes, decomposed organic matter and charred particulates showing characteristic cellular plant structures.
B=Bird droppings: The most common contamination.

Dust levels recorded had an average value of less than 2.0 g/m^2/month (contaminated results not counted). Elevated values were at times affected by various degrees of contamination from insects, bird droppings, vegetation (seeds/grasses) and algae. Gauges deemed contaminated during the reporting period were D9 in November 2019 and December 2019.

Table 13
Annual Average Dust Deposition Gauge Results

D5	D6	D7	D8	D9	D10	D11	EPA Limit
1.1	1.2	0.9	1.3	1.0	1.2	1.7	**4.0**

Non-contaminated dust levels were all less than 4.0g/m^2/month. The annual average dust levels did not exceed the conditions of consent annual average limit of 4g/m^2/month for any deposition gauge. Graphical representation of the dust deposition results and annual averages for the seven (7) dust deposition gauges (D5-D11) are provided within **Appendix 3**.

The dust deposition monitoring results are similar to results presented in previous reports and align with predictions made in the SEP Project EIS (2012) that dust deposition levels would not exceed relevant air quality criteria at any private residence.

6.3.3.2 High Volume (PM_{10}) Air Samplers

Table 14 shows the HVAS PM_{10} monitoring results in µg/m^3/day (24 hour average) for the monitoring sites at Stratford, Craven, Clarke and Ellis for the reporting period. A new HVAS unit was installed at Glen Road in December 2019. The Glen Road HVAS unit commenced monitoring 16 December 2019.

Results show that all monitoring locations (in terms of monitored days) did not exceed the consent criteria of 50 µg/m^3/day during the reporting period, with the exception of six separate sampling days. The HVAS 24 hour criteria is to be assessed on an incremental impact (i.e. increase in concentrations due to the development alone, excluding background concentrations from other sources).

There were four days where all HVAS units recorded PM_{10} levels greater than the relevant criteria: 29 October 2019, 16 November 2019, 28 November 2019 and 10 December 2019. The Craven, Ellis and Clarke HVAS units also recorded PM_{10} levels greater than the relevant criteria on the 22 November 2019. The Ellis HVAS unit also recorded PM_{10} levels greater than the relevant criteria on the 16 December 2019.

On all exceedance events both TEOM monitors also recorded multiple alarms. It is noted that over this period, widespread bushfires were occurring throughout the Northern & Mid Coasts of NSW which were causing very poor regional air quality.

Table 14
High Volume Air Sampler (PM_{10}) Results

Date	Stratford	Craven	Ellis[1]	Clarke[1]	Glen Road[2]
2-Jan-19	13	16	16	12	
8-Jan-19	8	10	12	10	
14-Jan-19	7	7	10	7	
20-Jan-19	10	9	15	11	
26-Jan-19	22	18	28	15	
1-Feb-19	7	7	10	8	
7-Feb-19	7	5	12	4	
13-Feb-19	39	35	45	29	
19-Feb-19	26	23	33	19	
25-Feb-19	15	14	17	14	
3-Mar-19	8	8	22	7	
9-Mar-19	13	14	15	13	
15-Mar-19	12	13	22	11	
21-Mar-19	7	6	11	10	
27-Mar-19	12	16	14	13	
2-Apr-19	4	4	5	6	
8-Apr-19	12	10	13	11	
14-Apr-19	10	9	6	10	
20-Apr-19	7	6	7	7	
26-Apr-19	13	11	15	13	
2-May-19	10	10	14	8	
8-May-19	10	9	12	9	
14-May-19	6.0	6	7	4	
20-May-19	7	7	15	4	
26-May-19	6	9	14	3	
1-Jun-19	7	7	11	5	

Date	Stratford	Craven	Ellis[1]	Clarke[1]	Glen Road[2]
7-Jun-19	6	6	8	5	
13-Jun-19	7	7	10	9	
19-Jun-19	1	1	7	1	
25-Jun-19	3	3	5	2	
1-Jul-19	8	9	10	10	
7-Jul-19	2	1	1	1	
13-Jul-19	4	4	4	6	
19-Jul-19	3	2	5	1	
25-Jul-19	8	10	11	6	
31-Jul-19	4	3	13	6	
6-Aug-19	9	8	21	5	
12-Aug-19	3	3	16	6	
18-Aug-19	10	8	16	9	
24-Aug-19	12	10	15	12	
30-Aug-19	1	1	4	1	
5-Sep-19	10	14	22	10	
11-Sep-19	6	4	10	4	
17-Sep-19	3	3	9	4	
23-Sep-19	9	8	20	11	
29-Sep-19	9	9	26	8	
5-Oct-19	11	12	17	11	
11-Oct-19	5	3	13	4	
17-Oct-19	21	20	29	26	
23-Oct-19	11	11	38	11	
29-Oct-19	81	75	103	77	
4-Nov-19	5	5	10	5	
10-Nov-19	8	9	20	7	
16-Nov-19	74	68	91	58	
22-Nov-19	43	102	128	119	
28-Nov-19	77	62	90	66	
4-Dec-19	20	18	27	16	
10-Dec-19	104	90	157	115	
16-Dec-19	38	32	85	39	42
22-Dec-19	47	25	27	29	26
28-Dec-19	20	20	32	20	24

Notes: 1. Owned by Stratford Coal Pty Ltd
2. Glen Road HVAS added to sampling program in December 2019.

Annual averages for all sampling locations were below the 30 µg/m^3/day consent criteria. The exception is for the Glen Road HVAS unit which was added to the sampling program in December 2019 and the result is based on only three 24 hour average results. The HVAS rolling averages remained generally steady throughout the reporting period. Graphical representation of the annual rolling average for the five HVAS including PM_{10} and TSP during the reporting period is provided in **Appendix 3**. **Figure 3-3** (**Appendix 3**) shows the HVAS monitoring results in µg/m^3/day (24 hour average) for the monitoring sites during the reporting period. **Figure 3-4** (**Appendix 3**) shows the annual rolling average for the four HVAS units which operated for the entirety of the reporting period.

Results of HVAS monitoring are in concurrence with the EIS (2012), which predicts the annual average PM_{10} criteria of 30 µg/m^3 will not be exceeded at any private receiver and that SEP would not result in 24 hour PM_{10} concentrations greater than the 50 µg/m^3 assessment criteria at any privately owned receiver. The six days where exceedance were recorded at the HVAS units have been deemed to be attributable to extraordinary events (i.e. widespread bushfires) and therefore largely unrelated to mining activities within the SMC.

6.3.3.3 High Volume (TSP) Dust Calculation

A site-specific correlation between TSP and PM_{10} concentrations was developed by SCPL, based on co-located HVASs measuring PM_{10} and TSP as per the AQMP. From the monitoring, approximately 45% of TSP was PM_{10}, which compares well with the relationship developed by the NSW Minerals Council for the Hunter Valley (NSW Minerals Council, 2000), which found that approximately 40% of TSP is PM_{10}.

Figure 3-5 (**Appendix 3**) shows the calculated TSP levels recorded across the five HVAS during the reporting period (with the Glen Road added to sampling program in December 2019). The Consent Criterion of 90 µg/m^3 was not exceeded during the reporting period, with the exception for a single result on the 16 December 2019 at Glen Road monitor (93.2 µg/m^3). As described in **Section 6.3.3.2**, the 16 December 2019 was extraordinary event due to regional bushfires.

The HVAS monitoring results are generally similar to those reported in previous ARs and align with predictions made in the EIS (2012) that particulate levels (PM_{10} and TSP) would not exceed relevant air quality criteria at any residence.

6.3.3.4 TEOM (PM_{10}) Monitoring

Two TEOM dust analysers measuring PM_{10} and $PM_{2.5}$ are used to continuously measure particulate matter and provide a management tool for operations to guide the implementation of proactive and reactive mitigation measures to the SMC operations. The TEOMs are located in close proximity to Stratford village and Craven village. Real-time air quality monitoring data is used to identify when ambient PM_{10} levels in the surrounding environment are elevated and require contingency action. Real-time response triggers have been established and are designed to provide a system to warn operation personnel (via SMS) when dust levels are approaching a relevant criterion and require management/control actions to mitigate potential impacts.

The Stratford Village TEOM was installed in June 2013 and the Craven Village TEOM was installed and began operation in August 2018. The annual average PM_{10} for the Stratford TEOM from 1 January 2019 to 31 December 2019 is 19.1 µg/m^3. The annual average PM_{10} for the Craven TEOM from 1 January 2019 to 31 December 2019 is 18.3 µg/m^3. The 24 hour average results for the reporting period and graphical representation of the rolling annual average of PM_{10} results are provided in **Appendix 3**.

The TEOM results are generally consistent with those measured by the HVAS units. The TEOM results continue to be utilised as a management tool for operations to determine proactive and reactive dust controls.

A register of any trigger alarms from the TEOM system is maintained to record the responses implemented by SCPL. All alarms during the reporting period resulted from either external events such as bushfires from October to November 2019 or system faults such as overheating or water infiltration. The real-time dust monitoring response register for the reporting period is provided in **Appendix 3**.

6.3.4 Complaints

No air quality related complaints were received during the reporting period.

6.4 BIOREMEDIATION

Operations at the SMC are conducted with the aim of minimising the potential for land contamination. The management of hydrocarbon contaminated soils is detailed in the SMC PIRMP. SMC has previously operated an onsite bioremediation area for hydrocarbon contaminated soil where biological degradation of hydrocarbons is used to reduce the hydrocarbon concentration in the soil to an acceptable level.

Since recommencing mining operations at the SMC, the bioremediation facility has not been reconstructed. Any hydrocarbon contaminated material is recovered and stored for disposal offsite by the licenced waste contractor engaged at SMC.

6.5 BIODIVERSITY

In accordance with Schedule 3 Condition 33 of SSD-4966, SCPL is required to implement the Biodiversity Offset Strategy and achieve the broad completion criteria to the satisfaction of the Secretary of the DPIE.

The *Stratford Mining Complex Annual Biodiversity Report 2019* provides a review of the effectiveness of measures in the Biodiversity Management Plan (BMP) for the annual year ending 31 December 2019 as required by Section 8.2.1 of the BMP. The scope of the report includes the biodiversity management activities across the Mining Lease areas, the Biodiversity Offset Areas and the Biodiversity Enhancement Area.

In accordance with the BMP, the *Stratford Mining Complex Annual Biodiversity Report 2019* is included in **Appendix 9**. A summary of main biodiversity activities and conclusions are provided in the subsections below.

6.5.1 Vegetation Clearance Protocol

Vegetation clearance is undertaken in accordance with the BMP Section 4.1 Vegetation Clearance Protocol. Prior to any clearance operations being undertaken a Clearing Plan is prepared, and pre-clearance surveys are undertaken.

During the 2019 reporting period, vegetation clearance was undertaken in advance of mining operations in the following areas:

- Stratford East Open Cut Stage 1;
- Stratford East Haul Road; and
- Avon North Open Cut Stage 3.

The area of disturbance at the end of 2019 is shown in the **Figure 3** (**Appendix 1**).

Information obtained during the preparation of the Clearing Plans and the vegetation clearance activities (i.e. habitat features, hollows cleared and fauna observed) is used to determine the requirements for nest box replacement in the Biodiversity Offset and Enhancement Areas.

During the 2019 reporting period, a total of forty-two (42) habitat features and fourteen (14) tree hollows were removed. This resulted in the inclusion of twenty-four (24) nest boxes being included within the Biodiversity Offset and Enhancement Areas (**Appendix 9**).

6.5.2 Managing Access, Fencing, Gates and Signage

Managing access, fencing, gates and signage is undertaken in accordance with the BMP Sections 5.1 and 5.2.

The implementation of the BMP management measures continued in 2019. The BMP requires works to be undertaken to exclude livestock and control access to the Biodiversity Offset areas and Biodiversity Enhancement Areas (Biodiversity Areas).

During the reporting period, contractors were engaged to continue the removal of redundant fencing and install new fencing where required. Contractors were also engaged to maintain access tracks required for the ongoing management of the Biodiversity Areas. Fencing and access track work will continue during the next reporting period.

Livestock was excluded from the Biodiversity Areas during the reporting period. Livestock will only be permitted in the Biodiversity Areas for 'crash grazing' programs in preparation for revegetation activities in accordance with the BMP.

The installation of signage at all key points of access to the Biodiversity Areas was competed during the reporting period.

6.5.3 Revegetation Management

Seed Collection & Propagation

Seed collection and propagation is undertaken in accordance with the BMP Sections 4.1.5 and 5.3.

Revegetation in the BMP Revegetation Areas (BMP Management Zone A) will continue via seed and tube-stock. Local endemic (adapted) species are preferentially used where a seed supply is available. However, consideration is also given to the use of a high-quality seed sourced further from the site, as required.

During 2019, SCPL prepared a scope and schedule for the revegetation works to be implemented. The total volume of seed required was calculated based on the floral listings for the target communities in the BMP appendices. During 2019, seed collection was conducted on felled Forest Oak (*Allocasuarina torulosa*). The seed collected will be used in seeding and tube-stock propagation during the next reporting period.

A number of consultants have been engaged to assist SCPL in the propagation of native plant species with tube-stock grown under controlled nursery conditions. The tube-stock are delivered to site as required for revegetation works and will continue during the next reporting period.

Revegetation & Regeneration

Revegetation management is undertaken in accordance with the BMP Section 5.3 Revegetation Programme.

The aim of revegetation is to establish a range of habitat niches including native canopy, and understorey. The Revegetation Area (Management Zone A) in the Biodiversity Areas will be revegetated to substantially increase the area of native vegetation in the locality and maximise habitat diversity and a range of successional stages.

During 2019, SCPL prepared a scope and schedule for the revegetation works to be implemented. Kleinfelder has been engaged to assist with both the site planning and implementation of the revegetation works. The site planning included:

- Mapping of the priority revegetation areas to be completed in the following 2 years (Year 2 and

Year 3); and

- Calculation of seed and tube-stock requirements based on the indicative lists of flora species in the BMP appendices.

Tube-stock for the Autumn 2019 revegetation work was divided into two separate projects:

1. Squirrel Glider Corridor; and
2. Glen Road Offset Area.

A total of 4,000 canopy species and 3,840 shrub species have been planted into the Squirrel Glider Corridor in April 2019. Further to this a total of 20,558 canopy species and 8,642 shrub species were planted into the Glen Road Offset Area during May 2019. Both areas were planted with species that reflected the Spotted Gum – Ironbark (Spotted Gum variant) woodland and Rough-Barked Apple – Red Gum Grassy Woodland (Cabbage Gum woodland variant) vegetation communities.

Vegetation Monitoring was undertaken during the reporting period to assess the effectiveness of revegetation in the Revegetation Area (Management Zone A) and to assess the natural regeneration in the Existing Remnant Vegetation Area (Management Zone B). The data gathered in 2019 will serve as a baseline to assess the success of the revegetation efforts for future reporting periods.

6.5.4 Weed Control and Monitoring

Weed control is undertaken in accordance with the BMP Sections 4.4 and 5.6.

The weed control program aims to manage weeds to minimise their impact on native flora and fauna.

A contractor is engaged at the SMC to undertake weed management activities on an ongoing basis. Weed spraying during the reporting period commenced in September 2019 and continued through spring and summer. The weed control activities during the reporting period continued to target areas of known weed infestation. The key species targeted included blackberry, lantana, privet, wild tobacco and Giant Parramatta grass.

Weeds mapping is proposed to be undertaken during the next reporting period to assist in setting future management priorities and developing on-ground actions for weed control.

6.5.5 Feral Animal Control and Monitoring

The objective of the feral animal control program is to manage feral animals to minimise their impact on native flora and fauna in the Biodiversity Offset and Biodiversity Enhancement Areas as well as on neighbouring agricultural activities.

MDP Vertebrate Pest Management has been engaged by SCPL since 2016 to implement wild dog and fox control programs across property owned by SCPL including both the Stratford & Duralie Mining Leases and the Stratford & Duralie Biodiversity Offset Areas. During the reporting period, two wild dog control programs were undertaken between April to May 2019 and October and November 2019. The programs were productive and involved a combination of trapping and shooting.

6.5.6 Bushfire Management

Bushfire management is undertaken in accordance with the BMP Sections 4.7 and 5.9.

The objective of bushfire management in the Biodiversity Areas is to prevent impacts from unplanned bushfire and to use fire to promote biodiversity.

SSD-4966 Schedule 3 Condition 51 requires SMC to be suitably equipped to respond to any fires on site and to assist the Rural Fire Service (RFS) and emergency services as much as possible if there is

a fire in the surrounding area.

The following bushfire management related activities/works are undertaken:

- Attendance at Gloucester Bush Fire Management Committee (GBFMC) meetings as required;
- Access arrangements for RFS officers to traverse onto and through the mine site to fight bushfires and to maintain tracks;
- SCPL have given an undertaking to GBFMC that the water cart(s) will be made available for bushfire fighting purposes where suitable access for this machinery is available. SCPL also provides access to mine water dams for bushfire fighting purposes;
- SCM periodically (as required) undertakes hazard reduction burns, in consultation with the local Bushfire Brigade.
- Fuel loads on cleared pasture areas on the mine site and surrounding company owned land are managed by cattle agistment and/or periodic slashing (subject to flora and fauna considerations).

During the 2019/20 fire season, the local RFS accessed hydrants at the SMC site using water from the mine storage system to contain and fight fires across the region.

As discussed in **Section 6.5.2**, contractors were engaged to upgrade and maintain access tracks required for the ongoing management of the Biodiversity Areas. Continued mapping of access tracks and firebreaks will be completed during the next reporting period.

Monitoring of fuel loads to evaluate bushfire risk and guide bushfire hazard reduction activities is undertaken in conjunction with the annual vegetation monitoring which was completed in February 2019.

6.5.7 Nest Box Program

Nest box management is undertaken in accordance with the BMP Section 5.10.

Nest boxes will be installed to provide habitat opportunities in the short to medium-term for a number of arboreal fauna species including the Squirrel Glider.

The nest box programme consists of two main components to replace any tree hollows cleared prior to mining activities:

- Suitable nest boxes for the Squirrel Glider will be installed at a ratio of least 3:1 for each tree hollow cleared suitable for the Squirrel Glider; and
- For tree hollows that provide habitat to arboreal fauna species (other than the Squirrel Glider), nest boxes will be installed at a minimum ratio of 1:1 (i.e. one nest box of appropriate size to replace one hollow of similar size and properties).

Nest boxes are installed within the Biodiversity Offset and Biodiversity Enhancement Areas, in Existing Remnant Vegetation (Management Zone B) as well as the Revegetation Area (Management Zone A).

During the 2019 reporting period a total of twenty-five (25) Squirrel Glider specific nest boxes were installed within the SMC Biodiversity Offset and Biodiversity Enhancement Areas. In addition to the above twenty-five (25) boxes another five (5) wooden nest boxes as part of the initial Squirrel Glider Monitoring Program were installed December 2018 These boxes were installed to facilitate the monitoring of the gliders in these areas and serve to attract gliders when trapping was undertaken for the radio tracking programs undertaken in 2019. Therefore, the nest box program currently consists of a total of thirty (30) squirrel Glider boxes.

In accordance with Section 5.10 of the BMP, nest boxes will be monitored by suitably qualified personnel with quarterly inspections during the first year followed by annual inspections in spring. Quarterly monitoring of the nest box program was undertaken in July and October 2019.

A summary of inspection findings is included in **Appendix 9**. Quarterly monitoring is scheduled for January and April 2020. Annual monitoring will be completed following the April survey.

During the 2019 reporting period, a total of forty-two (42) habitat features and nine (9) tree hollows suitable for habitat for arboreal fauna species and five (5) tree hollows suitable for the Squirrel Glider were removed. As such, sixty (60) Squirrel Glider and eighteen (18) other arboreal nest boxes for other arboreal fauna are planned to be installed in April 2020. Nest boxes will continue to be installed in accordance with the BMP.

A summary of the vegetation cleared including habitat features and tree hollows is included in **Appendix 9**.

6.5.8 Squirrel Glider Management Plan

The management of squirrel glider populations is undertaken in accordance with the Squirrel Glider Management Plan (SQMP).

Squirrel glider programs include the definition of the squirrel glider colonies (SQMP Section 4.1) and identification of the squirrel glider home ranges (SQMP 4.2). Programs which commenced during the reporting period include the identification of the squirrel glider home ranges (SQMP 4.2), the tree hollow census and nest box program (SQMP Section 7). Programs proposed to commence in the next reporting period will include squirrel glider food resources (SQMP Section 6) and vegetation pathways (SQMP Section 8.1).

Squirrel Glider Home Range

Kleinfelder was engaged to undertake a radio tracking program to determine the squirrel glider home ranges. Two radio tracking programs were conducted between January and April 2019 and between July and September 2019. The 2019 tracking programs consisted of trapping of the squirrel glider, fitting radio tracking collars and two (2) radio tracking program conducted over 80 nights total. A total of thirty-six (36) squirrel gliders were captured during the program, nineteen (19) squirrel gliders were fitted with radio collars and sufficient data points were obtained to allow home range estimates for 13 gliders.

This information will be used to define the study area for a future management of squirrel gliders in accordance with the SQMP within the Biodiversity Offset Areas and Biodiversity Enhancement Areas.

Tree Hollow Census

Condition 38(b), Schedule 3 of SSD-4966 requires a census of suitable tree hollows in home ranges and offset areas suitable for squirrel gliders. A tree hollow census was undertaken within the home ranges identified by the radio tracking program described above to identify hollow bearing trees suitable for use as den sites by the squirrel glider.

The hollow-bearing tree census identified and mapped 480 hollow-bearing trees which contained a combined total of 648 hollows. Attributes of available hollows and known den hollows were compared to investigate the hollow preferences of squirrel gliders.

6.5.9 Biodiversity Offset Monitoring and Reporting

The Biodiversity Offset monitoring program is prescribed in the BMP Section 7.

The program aims to monitor and report on the effectiveness of the BMP management measures and progress against the detailed performance and completion criteria.

The *Stratford Mining Complex Annual Biodiversity Report 2019* provides a review of the effectiveness of measures in the Biodiversity Management Plan (BMP) for the annual year ending 31 December 2019 in accordance with Section 8.2.1 of the BMP and is included in **Appendix 9**. The annual report includes the results of the monitoring for:

- Habitat and Vegetation monitoring, including visual and photo monitoring;
- Fauna monitoring program
- Effectiveness of weed control;
- Effectiveness of feral animal control;
- Nest box monitoring program.

Habitat and vegetation condition monitoring is undertaken to quantitatively measure the change in habitat and vegetation condition over time. The visual monitoring and photo monitoring programs are undertaken concurrently with the vegetation monitoring to provide additional information on the change of the Biodiversity Areas over time and inform maintenance requirements.

To monitor the effectiveness of revegetation in the Biodiversity Areas, Kleinfelder was commissioned to undertake the baseline habitat and vegetation monitoring. The monitoring was competed in February 2019 and was the first survey in accordance with the BMP following the approval of the Stratford Extension Project to provide baseline data for subsequent surveys of revegetation works commencing in the Biodiversity Offset Areas.

The monitoring results showed that the native vegetation in the Offsets areas is very sparse, especially canopy and midstorey strata, even in those areas where natural recruitment is occurring. The Biodiversity Enhancement Areas generally recorded higher densities of native species in these strata. With findings concluding that both revegetation areas will have increased densities of native species as a result of the revegetation program.

Monitoring of fauna usage within the Biodiversity Areas is conducted every three years to document the fauna species response to improvement in vegetation and habitat in the Biodiversity Areas and assess the performance in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance.

The first round of fauna monitoring was completed by AMBS Ecology and Heritage within the SMC Biodiversity Offset areas and Biodiversity Enhancement Area during September and October 2019. A total of 167 species of vertebrate were recorded including twenty-two (22) species listed as either threatened or migratory on the schedules of the *Biodiversity Conservation Act 2016* (BC Act) and/or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The fauna surveys suggest the SMC Offset and Biodiversity Enhancement Areas provide habitat for a range of native vertebrate fauna, including birds, mammals, reptiles and frogs. Two of the threatened species recorded, the Black-chinned Honeyeater and Red-legged Pademelon, have not previously been recorded at SMC. Further detail of monitoring results can be found in **Appendix 9**.

6.5.10 Long-term Security and Conservation Bond

Long-term Security

In accordance with Condition 36, Schedule 3 of Development Consent SSD-4966, SCPL is required to make suitable arrangements for the long-term security of the Stratford Extension Project Biodiversity Offset Area. SCPL is pursuing the mechanisms available under Section 88E(3) of the *NSW Conveyancing Act 1919*, including:

- Registration of a Positive Covenant; and
- Registration of a Restriction on the Use of Land by a Prescribed Authority.

SCPL received comments on the draft instruments from DPIE on 22 February 2019 and approved by DPIE on 15 April 2019. Further chronology is included in **Appendix 9** regarding the measures completed to finalise securing the offset areas.

Copies of the executed Positive Covenants and registration of the instruments are provided in **Appendix 9**.

Conservation Bond

In accordance with Condition 40, Schedule 3 of Development Consent SSD-4966, SCPL is required to lodge a Conservation Bond with DPIE which covers the cost of implementing the Biodiversity Offset Strategy detailed in the BMP.

The conservation bond calculation was prepared by Kleinfelder and a verification of the costs was undertaken by Rider Levett Bucknall. The conservation bond calculation was submitted in January 2019 and subsequently approved by DPIE on 15 January 2019.

The Conservation Bond in the form of a bank guarantee was executed and lodged with DPIE on 8 February 2019.

6.5.11 Bowens Road North Biodiversity Offset Strategy

SSD-4966 Schedule 3 Condition 41 requires the implementation of the Bowens Road North Offset Strategy.

The BRN Offset Area is adjacent to the Duralie Coal Mine Biodiversity Offset and is managed under the approved Duralie Coal Mine Biodiversity Management Plan (Duralie BMP).

The Duralie Coal Mine Annual Biodiversity Report contains a review of the environmental performance and progress against the requirements of the Duralie BMP covering the biodiversity offset area including the BRN component. Refer to the Duralie Coal Mine Annual Review for further information.

6.6 BLASTING

6.6.1 Blast Criteria and Control Procedures

Blasting at SMC is conducted in accordance with Schedule 3, Conditions 9-15 of SSD-4966 and respective EPL conditions. SMC has an approved Blast Management Plan (BLMP) that establishes a blast management strategy which:

- Identifies blasting criteria;
- Outlines blast management and control measures;
- Establishes blast management protocols;
- Formulates a blast monitoring programme; and
- Details reporting and review requirements.

EPL 5161 conditions L3 and Schedule 3, Condition 9 of SSD-4966 states that overpressure caused by blasting at monitored locations may exceed 115 dB(L) for no more than 5% of blasts during the 12 month reporting period and must not exceed 120 dB(L) at any time. Similarly, ground vibration at monitored locations caused by blasting may exceed a peak particle velocity of 5 mm/s for no more than 5% of blasts during the 12 month reporting period and not exceed 10 mm/s.

A total of 83 blasts were undertaken on site during the 2019 reporting period. SCPL were compliant with the permitted blast hours and frequencies specified under SSD-4966 during the reporting period. The results of blast monitoring undertaken are provided in **Appendix 5**.

Notification of blasting is provided to emergency authorities and neighbouring landowners approximately twenty four (24) hours prior to each blast. A blasting hotline (02 6538 4253) is maintained to provide current scheduled blasting times for the SMC

Blasting activities are designed and managed in accordance with the BLMP.

6.6.2 Review of Blast Monitoring Results

Blasting activities during the reporting period where undertaken within the Bowens Road North Open Cut, Avon North Open Cut and Roseville West Open Cut.

The locations of blast monitoring units are shown on **Figure 2 (Appendix 1)**. Blast monitors are located at the following residences:

- Isaac Property (south-west of blasting);
- Ex-Judge Property (mine owned) (west);
- Atkins Property (mine owned) (north-west);
- Woodford Property (mine owned) (north); and
- Clarke Property (mine owned) (east).

Monitoring is undertaken at the Clarke property due to restrictions with monitoring at the next closest residence on privately-owned land being the Bagnall Property. Clarke results are extrapolated to calculate Bagnall location. Monitoring at the Woodford Property ceased in March 2019 following a revision and update to the BLMP. Enviro Strata Consulting (ESC) has been engaged during the reporting period where required to undertake an independent assessment of blasting results to extrapolate the overpressure and ground vibration levels at private residences where monitoring is not possible.

Airblast overpressure and ground vibration results for all blasts undertaken during the reporting period are provided in **Appendix 5** and summarised below.

Airblast Overpressure Results

During the reporting period, all blasts were compliant with the overpressure criteria.

There were no exceedances of the overpressure criteria of 120 dBL during the reporting period.

There were two occasions where blasts exceeded 115 dBL overpressure criteria. On 8 February 2019, a blast resulted in the Bagnall monitoring location (i.e. which is calculated using the Clarke monitoring result) was 118.5 dBL. The second occasion occurred on 10 December 2019 where a blast resulted in overpressure levels greater than the 115 dBL criteria at both Ex-Judge (mine owned) (116.1 dBL) and Atkins (mine owned) (117.8 dBL) blast monitoring units. SSD-4966 allows 5% of the total number of blasts over a period of 12 months to exceed 115 dBL. Two out of 83 blasts falls within the 5% exceedance allowance for the reporting period.

Vibration Results

During the reporting period, there were no blasts which resulted in ground vibration levels greater than 5 mm/s.

The EIS (2012) provides predictions on blast emissions for various residential receivers. The blasting predictions indicate that blasting emissions would generally comply with airblast criteria of 115 dBL and

ground vibration of 5 mm/s at nearby private receivers. During the reporting period, predicted blast emissions were generally consistent with measured values.

Fume Results

The level of blast fume generation is monitored for each blast by the shotfirer as described in the BLMP. During the reporting period, there were four (4) occasions of blast fume being recorded. On the 22 March (2B Fume Rating), 29 March 2019 (2A Fume Rating), 17 April (1A Fume Rating), 23 August (2A Fume Rating) and 13 December 2019 (1A Fume Rating). As per the approved BLMP (Section 7.1.1), SCPL do not require to notify the relevant regulatory authorities including EPA or DPIE as below reportable blast fume rating.

6.6.3 Property Inspections & Investigations

In accordance with the Development Consent Schedule 3 Conditions 12 landowners within 2 kilometres of blasting may request a property inspection to establish the baseline condition of a building. Additionally, in accordance with Condition 13 if a landowner claims damage has been caused to a building as a result of blasting they may request a property investigation.

Prior to recommencing blasting activities at the SMC, SCPL notified all relevant landowners of their rights in accordance with the Development Consent.

During the reporting period SCPL undertook four building inspections. SCPL commissioned Bill Jordon as a suitably qualified, experienced and independent person to undertake the building condition inspections. The inspections were completed in December 2019.

Building condition inspections will continue to be undertaken on request.

No requests have been received by SCPL for a property investigation due to claims of damage resulting from blasting activities.

6.6.4 Complaints

Four (4) blast related complaints were received during the reporting period in regards to blast overpressure. A full list of complaints including the responses provide by SCPL is provided in **Appendix 7**.

6.7 NOISE

6.7.1 Noise Criteria and Control Procedures

SMC has an approved Noise Management Plan (NMP) that establishes a noise management strategy which:

- Identifies noise criteria;
- Outlines proactive and responsive noise management and control measures;
- Formulates a noise monitoring program;
- Establishes data assessment protocols; and
- Details reporting and review requirements.

A revised NMP was prepared during the reporting period to include consideration of operations within the Roseville West Pit.

Noise emissions from the SMC are managed in accordance with the criteria and procedures described in the approved NMP. SCPL implements measures to ensure noise from the SMC is managed to approved levels, through a combination of the following:

- ensuring best management practices are implemented and reviewed;
- implementing noise controls to reduce noise from the source and attenuate noise transmission; and
- if necessary, implementing measures to control noise at sensitive receivers following a review of monitoring data.

The SMC noise monitoring program comprises attended noise surveys, real-time noise monitoring, rail noise monitoring, meteorological monitoring and sound power testing. The results of compliance attended monitoring are used to assess compliance with relevant noise impact assessment criteria in the NMP. Real-time noise monitoring results are used for ongoing performance assessment and will assist in the implementation of pre-emptive management actions to avoid potential non-compliances.

SCPL undertakes monthly attended noise monitoring surveys in accordance with the NMP in order to determine the status of compliance with noise limits provided in SSD-4966 and the EPL.

The Sentinex real-time noise (RTN) monitors are used as a management tool for operations to measure mine contribution noise emissions and to implement management controls as outlined under the approved NMP. The Sentinex RTN monitors are located near Stratford Village and Craven Village.

6.7.2 Review of Attended Noise Monitoring Results

The locations of noise monitoring sites are shown on **Figure 2 (Appendix 1)**.

SCPL undertakes monthly attended noise monitoring surveys. During noise surveys, $LA_{eq\ (15\ minute)}$ noise levels are measured and recorded then compared to the permitted day, evening and night noise limits. A summary of the monitoring results and reports are available on the Stratford Coal website.

Monitoring may be undertaken on mine owned land (i.e. Clarke property) due to restrictions with monitoring at the next closest residence on privately owned land. SLR has been engaged to undertake noise monitoring at the SMC and where required the attended noise monitoring results are used to extrapolate the noise levels at private residences where monitoring is not possible based on the noise model developed for the SEP.

Noise monitoring during the reporting period was undertaken on a monthly basis. A summary of Noise Survey results are provided in **Table 15** to **Table 26**. Copies of the noise monitoring reports are available on the Stratford Coal website (www.stratfordcoal.com.au).

January 2019 Noise Survey

Table 15
Stratford Mine Noise Performance Assessment – January 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	29	27	26	35	35	35	Yes	Yes	Yes
Clarke[2,3]	40	32	32	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	33	25	25	37	37	37	Yes	Yes	Yes
Hall	<25	26	<25	35	35	35	Yes	Yes	Yes
Lowrey	<25	<25	27	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	32	28	43	43	43	Yes	Yes	Yes
Van der Drift[2]	<30	<25	29	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations between 30 January and 31 January 2019 in order to determine the noise performance of the SMC operations against the relevant conditions of SSD-4966. This monitoring resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

February 2019 Noise Survey

Table 16
Stratford Mine Noise Performance Assessment – February 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	27	31	28	35	35	35	Yes	Yes	Yes
Clarke[2,3]	40	42	44	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	33	35	37	37	37	37	Yes	Yes	Yes
Hall	<25	27	25	35	35	35	Yes	Yes	Yes
Lowrey	<30	29	28	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	30	25	43	43	43	Yes	Yes	Yes
Van der Drift[2]	28	33	30	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations between 27 February and 28 February 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

March 2019 Noise Survey

Table 17
Stratford Mine Noise Performance Assessment – March 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	36	34	23	35	35	35	No	Yes	Yes
Clarke[2,3]	30	37	41	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	<25	30	34	37	37	37	Yes	Yes	Yes
Hall	I/A[1]	<25	24	35	35	35	Yes	Yes	Yes
Lowrey	I/A[1]	30	29	35	35	35	Yes	Yes	Yes
Pryce Jones	<25	<30	28	43	43	43	Yes	Yes	Yes
Van der Drift[2]	29	33	33	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations on the 29 March 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods, with the exception of Átkins' during the day period where a minor 1dBA exceedance was measured. This property is owned by SCPL; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

April 2018 Noise Survey

Table 18

Stratford Mine Noise Performance Assessment – April 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	26	27	38	35	35	35	Yes	Yes	N/A[5,6]
Clarke[2,3]	44	49	40	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	37	42	33	37	37	37	Yes	N/A	Yes
Hall	37	42	33	35	35	35	Yes	Yes	Yes
Lowrey	<25	31	26	35	35	35	Yes	Yes	Yes
Pryce Jones	25	25	27	43	43	43	Yes	Yes	Yes
Van der Drift[2]	<25	<25	37	37	36	35	Yes	Yes	N/A

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only
Note 6: Criteria not applicable due to weather conditions outside meteorological conditions detailed in SSD-4966

Operator-attended noise monitoring was conducted at seven locations between 17 April and 18 April 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

May 2019 Noise Survey

Table 19

Stratford Mine Noise Performance Assessment – May 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	29	<20	30	35	35	35	Yes	Yes	Yes
Clarke[2,3]	46	48	47	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	32	39	38	37	37	37	Yes	N/A[6]	N/A[6]
Hall	I/A[1]	<20	<20	35	35	35	Yes	Yes	Yes
Lowrey	I/A[1]	I/A[1]	I/A[1]	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	23	<20	43	43	43	Yes	Yes	Yes
Van der Drift[2]	I/A[1]	24	23	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only
Note 6: Criteria not applicable due to weather conditions outside meteorological conditions detailed in SSD-4966

Operator-attended noise monitoring was conducted at seven locations between 30 May and 31 May 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

June 2019 Noise Survey

Table 20
Stratford Mine Noise Performance Assessment – June 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	31	27	34	35	35	35	Yes	Yes	Yes
Clarke[2,3]	43	40	44	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	36	33	37	37	37	37	Yes	Yes	Yes
Hall	I/A[1]	30	27	35	35	35	Yes	Yes	Yes
Lowrey	32	33	31	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	36	32	43	43	43	Yes	Yes	Yes
Van der Drift[2]	I/A[1]	36	28	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations between 27 June and 28 June 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

July 2019 Noise Survey

Table 21

Stratford Mine Noise Performance Assessment – July 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	29	26	35	35	35	35	Yes	Yes	Yes
Clarke[2,3]	41	45	43	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	29	33	31	37	37	37	Yes	Yes	Yes
Hall	N/M[6]	29	27	35	35	35	Yes	Yes	Yes
Lowrey	30	34	32	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A	31	<20	43	43	43	Yes	Yes	Yes
Van der Drift[2]	28	36	34	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only
Note 6: N/M = Not Measurable

Operator-attended noise monitoring was conducted at seven locations between 29 July and 30 July 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

August 2019 Noise Survey

Table 22

Stratford Mine Noise Performance Assessment – August 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	34	30	29	35	35	35	Yes	Yes	Yes
Clarke[2,3]	34	39	42	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	27	32	35	37	37	37	Yes	Yes	Yes
Hall	I/A[1]	I/A[1]	23	35	35	35	Yes	Yes	Yes
Lowrey	32	29	26	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	32	39	43	43	43	Yes	Yes	Yes
Van der Drift[2]	36	32	32	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations between 28 August and 29 August 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

September 2019 Noise Survey

Table 23
Stratford Mine Noise Performance Assessment – September 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	34	29	25	35	35	35	Yes	Yes	Yes
Clarke[2,3]	N/M[6]	23	44	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	N/M[6]	<20	37	37	37	37	Yes	Yes	Yes
Hall	N/M[6]	28	I/A[1]	35	35	35	Yes	Yes	Yes
Lowrey	I/A[1]	22	I/A[1]	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	I/A[1]	31	43	43	43	Yes	Yes	Yes
Van der Drift[2]	33	29	22	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only
Note 6: N/M = Not Measurable

Operator-attended noise monitoring was conducted at seven locations between 26 September and 30 September 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods.
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

October 2019 Noise Survey

Table 24

Stratford Mine Noise Performance Assessment – October 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	I/A[1]	24	31	35	35	35	Yes	Yes	Yes
Clarke[2,3]	I/A[1]	33	45	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	I/A[1]	26	N/A[7]	37	37	37	Yes	Yes	Yes
Hall	I/A[1]	28	29	35	35	35	Yes	Yes	Yes
Lowrey	N/M[6]	N/M[6]	30	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	31	32	43	43	43	Yes	Yes	Yes
Van der Drift[2]	N/M[6]	29	34	37	36	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only
Note 6: N/M = Not Measurable
Note 7: Not assessed die to non-compliant weather conditions during the Clarke operator attended measurement

Operator-attended noise monitoring was conducted at seven locations between 22 October and 23 October 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all locations during the night-time noise monitoring period.

November 2019 Noise Survey

Table 25

Stratford Mine Noise Performance Assessment – November 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	I/A[1]	I/A[1]	I/A[1]	35	35	35	Yes	Yes	Yes
Clarke[2,3]	I/A[1]	32	35	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	I/A[1]	25	I/A[1]	37	37	37	Yes	Yes	Yes
Hall	I/A[1]	28	I/A[1]	35	35	35	Yes	Yes	Yes
Lowrey	I/A[1]	I/A[1]	26	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	I/A[1]	32	43	43	43	Yes	Yes	Yes
Van der Drift[2]	I/A[1]	30	30	37	36	35	Yes	Yes	Yes
Greenwood	I/A[1]	I/A[1]	25	35	35	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations between 28 November and 29 November 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

December 2019 Noise Survey

Table 26
Stratford Mine Noise Performance Assessment – December 2019 Survey

Location	Estimated SMC LAeq(15minute) Contribution dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
Atkins[2]	I/A[1]	25	I/A[1]	35	35	35	Yes	Yes	Yes
Clarke[2,3]	45	44	44	37	37	37	N/A[5]	N/A[5]	N/A[5]
Bagnall[4]	32	34	31	37	37	37	Yes	Yes	Yes
Hall	I/A[1]	I/A[1]	I/A[1]	35	35	35	Yes	Yes	Yes
Lowrey	I/A[1]	I/A[1]	I/A[1]	35	35	35	Yes	Yes	Yes
Pryce Jones	I/A[1]	I/A[1]	32	43	43	43	Yes	Yes	Yes
Van der Drift[2]	I/A[1]	30	23	37	36	35	Yes	Yes	Yes
Greenwood	I/A[1]	I/A[1]	I/A[1]	35	35	35	Yes	Yes	Yes

Note 1: I/A = Inaudible
Note 2: Owned by Stratford Coal Pty Ltd
Note 3: Criteria adopted from Bagnall
Note 4: Calculated result from monitoring location Clarke
Note 5: Criteria adopted as a guide only

Operator-attended noise monitoring was conducted at seven locations between 5 December and 6 December 2019 in order to determine the noise performance of the SMC operations against the Development Consent conditions which resulted in:

- Compliance with the relevant noise criteria was achieved at all noise monitoring locations during the day, evening and night periods; and
- Based on the measured SMC noise contribution, compliance with the relevant sleep disturbance noise criteria was achieved at all noise monitoring locations during the night-time noise monitoring period.

6.7.3 Real Time Noise System

A RTN monitoring system is described in the NMP. Real-time monitoring is used as a management tool to assist SCPL to take proactive management actions and implement additional noise mitigation measures to avoid potential non-compliances. A Sentinex RTN monitor is located near Craven Village and a second Sentinex unit located near Stratford Village.

Noise investigation triggers have been established which send alarms when noise emissions are approaching levels which may exceed the noise criteria at privately-owned receivers. Details of any RTN alarms and the operational responses implemented by SCPL are recorded in the RTN Response Register (**Appendix 6**).

In general, alarms during the reporting period related to abnormal meteorological conditions, environmental and traffic noise. The noise from the mine was often inaudible. The RTN response register details the response actions taken by SCPL.

To address any noise alarms regardless of abnormal meteorological conditions such as inversions, SCPL continue to implement the management measures described in the NMP. Additionally, SCPL implement operational management measures in accordance with the real-time noise monitoring response protocol described in Section 7.3.4 of the NMP.

6.7.4 Rail Noise Monitoring

The Stratford export train is required to be approved to operate on the NSW rail network in accordance with the noise limits specified in ARTC's EPL 3142, as per Schedule 3, Condition 5(d) of SSD-4966. The NMP requires rail noise monitoring to be undertaken along the North Coast railway on a quarterly basis at existing Wards River and Craven villages.

Rail noise monitoring is reported against rail noise criteria described in Section 4 of the NMP. Rail operations aim to progressively reduce noise levels to the goals of 65dB(A)Leq, (day-time from 7am – 10pm), 60dB(A)Leq (night-time from 10pm –7am) and 85dB(A) (24hr) max pass-by noise, at one metre from the façade of affected residential properties. This is consistent with the criteria in the ARTC EPL noise limits.

Rail noise monitoring was conducted during the April 2019, May 2019, September 2019 and December 2019 monthly attended noise surveys, when export trains were operating. Rail noise survey results are included in the Noise Survey reports which are available at the Stratford Coal website. Attended noise measurements were conducted at two locations; TN1 (Craven) and TN2 (Wards River Village).

During the reporting period for all rail noise monitoring undertaken, the maximum SMC rail pass-by noise levels complied with the noise goal of 85 dBA at all monitoring locations, excluding the sounding of horns on approach to level crossings.

6.7.5 Mobile Plant Noise Assessments

The indicative mine fleet at the SMC is provided in the Stratford Extension Project Noise Impact Assessment (EIS 2012 Appendix C). The NIA provides the overall A-weighted and Linear Sound Power Levels (SWLs) for each item of plant and equipment proposed to be used at the SMC.

The current mining fleet is shown in **Section 4.3.1** of this report. The SMC fleet of mobile plant are assessed annually against the target SWLs.

Sound power testing of existing equipment at the SMC was undertaking during the reporting period including:

- Hitachi 2600 Excavator, Unit 06;
- Caterpillar D10T2 Dozer, Unit 215; and
- Caterpillar 18M3 Grader, Unit 305.

The measured SWLs of all plant tested complied with both the Linear and A-weighted SWL targets from the EIS 2012.

Sound power testing of the entire SMC fleet was completed in January 2020 with results to be reported within next year's Annual Review.

6.7.6 Complaints

One (1) noise related complaint was received during the reporting period in relation to truck, dozer and excavator noise. A full list of complaints received, including the responses provide by SCPL is provided in **Appendix 7**.

6.8 LANDSCAPING AND VISUAL SCREENING

A visual assessment of the SMC was undertaken for the EIS 2012. The overall visual impacts of the development are generally considered to be low to moderate during operations and very low to low following final rehabilitation. Views of the SMC from the surrounding area are generally screened by topography and vegetation, except for some areas to the north and west (EIS 2012). However, some local impacts will occur and undertakings such as the following have been, and will continue to be, adopted to lessen these impacts:

- Minimising (where possible) disturbance to native vegetation, especially where such vegetation is providing visual screening;
- Progressive rehabilitation will be undertaken in order to reduce the contrast between the SMC landforms and the surrounding environment;
- Ensuring out of pit emplacement design produces a landform which integrates with the adjoining natural landform;
- The biodiversity offset strategy for the SMC includes measures such as revegetation of cleared areas; and
- Tree plantings/revegetation will progressively limit potential views of the SMC from some viewpoint locations (e.g. Glen Road, Wenham Cox Road).

Consistent with the Development Consent visual screening has been undertaken as necessary for the maintenance of satisfactory visual amenity. The rehabilitation principles and objectives at the SMC are included in the Development Consent and described in the SMC MOP. This includes requirements for landscaping and visual screening to ensure the final landforms are visually consistent with the surrounding environment and Gloucester Valley landform. The rehabilitation will be generally consistent with the proposed rehabilitation strategy described in the EIS 2012.

No visual amenity related complaints were received during the reporting period.

6.9 LIGHTING EMISSIONS

Schedule 3, Condition 50 of SSD-4966 requires SCPL to implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development. Additionally, SCPL is required to 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.

An independent lighting assessment of the SMC was undertaken during the reporting period. The independent lighting assessment found that the external lighting was not complainant with the Australian Standard unless setup correctly. The 2019 Lighting Compliance Report recommended SCPL produce an operational guideline on portable lighting systems set ups to ensure the lighting is used in the correct manner to meet the requirements of the Australian Standard.

The independent lighting assessment also recommended that training of the procedure be rolled out for SMC staff to detail how to set up portable lighting systems to be in compliance with the Australian Standard, whilst also meeting operational requirements. It was also recommended for legacy lighting issues on fixed structures that a replacement with LED lighting takes place. SCPL will progress with developing the lighting systems procedure and training during the next reporting period.

No complaints regarding lighting emissions were received during the reporting period.

6.10 CULTURAL AND NATURAL HERITAGE CONSERVATION

Cultural and natural heritage at the SMC are managed in accordance with the approved Heritage Management Plan (HMP). The purpose of the HMP is to ensure that the development does not cause any direct or indirect impact on identified Aboriginal or Non-Aboriginal heritage sites located outside the approved disturbance area of the development on the site. The HMP has also been prepared to manage potential impacts on items of heritage significance at the SMC in the vicinity of the surface development.

The HMP establishes measures for the management of known and previously unrecorded heritage sites including:

- Protocols for the involvement of the local Aboriginal community;
- Recording and surface collection of heritage sites;
- Removal of scarred trees;
- Fencing and signage of heritage sites outside the disturbance area;
- Protocol for managing previously unrecorded heritage sites;
- Curation of aboriginal artefacts; and
- Monitoring of heritage sites.

Archaeological surveys have been conducted over the life of the SMC and for the EIS 2012. A detailed description of each site, is included in Kayandel Archaeological Services (Kayandel) (2012).

As a result of previous assessments and archaeological survey works, 17 sites have been identified within the SMC (Kayandel, 2012) (**Table 27**). **Table 27** includes a description of the proposed impact on known Aboriginal heritage sites at the SMC and the status of the heritage sites at the end of the reporting period.

Table 27
Aboriginal Heritage Sites at the SMC

Site Code	Site Type	Proposed Impact	Status of Management
OS-1	Open Artefact Scatter	No (outside disturbance area)	Not disturbed
OS-2	Open Artefact Scatter	No (outside disturbance area)	Archaeological survey of the approximate 20m^2 area could not locate this artefact. It was determined after 20 minutes that the area was considered as having been sufficiently salvaged.
OS-3	Open Artefact Scatter	Yes	Salvaged by FLALC. Archaeological survey of the approximate 20m^2 area could not locate this artefact. It was determined after 20 minutes that the area was considered as having been sufficiently salvaged.
OS-4	Open Artefact Scatter	Yes	Salvaged by FLALC. Archaeological survey of the approximate 20m^2 area could not locate this artefact. It was determined after 20 minutes that the area was considered as having

Site Code	Site Type	Proposed Impact	Status of Management
			been sufficiently salvaged.
OS-5	Open Artefact Scatter	Yes	Salvaged by FLALC. Archaeological survey of the approximate 20m^2 area could not locate this artefact. It was determined after 20 minutes that the area was considered as having been sufficiently salvaged.
ST-1	Scarred Tree	No (outside disturbance area)	Not disturbed
ST-2	Scarred Tree	Yes	Site was inspected and assessed by an archaeologist and FLALC. It was determined that, due to the extent of the decay of the tree, it was unlikely that it could be salvaged, relocated, and conserved off-site using the procedures outlined in the HMP's Scarred Tree Removal Protocol without destruction. In discussion and agreement with all parties, it was determined a more appropriate management procedure would be to relocate the tree locally and allow it to safely remain as near to its original location as possible. The new location selected for the tree is within the identified biodiversity conservation area east of the tree's originally recorded location at 403377E, 6443470N (GDA94/MGA, Zone 56).
ST-3	Scarred Tree	No (outside disturbance area)	This scarred tree has been fenced and signed as per the HMP.
ST-4	Scarred Tree	Yes	Site inspected by FLALC. Archaeological survey of the approximate area identified this scarred tree. It was determined that fencing and signage should be established around the tree to ensure that it is not impacted by the proposed works.
IF-1	Isolated Find	Yes	Salvaged by FLALC. Archaeological survey of the approximate 20m^2 area could not locate this artefact. It was determined after 20 minutes that the area was considered as having been sufficiently salvaged.
IF-2	Isolated Find	Yes	Salvaged by FLALC. Archaeological survey of the approximate 20m^2 area could not locate this artefact. It was determined after 20 minutes that the area was considered as having been sufficiently salvaged.
IF-3	Isolated Find	Yes	Not disturbed
IF-4	Isolated Find	Yes	Not disturbed
IF-5	Isolated Find	No (outside disturbance area)	Not disturbed
PAD-1	PAD	No (outside disturbance area)	Not disturbed
PAD-2	PAD	No (outside disturbance area)	Not disturbed
CTS-1	Cultural/Traditional Site	No (outside disturbance area)	Establishment and operation of the blast monitoring site between CTS-1 and Stratford East Pit prior to mining.

During the reporting period, Forster Local Aboriginal Land Council (FLALC) and AMBS Ecology & Heritage were engaged to undertake the salvage of known Aboriginal artefacts as described in the HMP.

6.11 SPONTANEOUS COMBUSTION

Any incidences of spontaneous combustion at the SMC are managed in accordance with a Spontaneous Combustion Management Procedure. Management and mitigation practices generally involve reducing the interaction of potentially reactive materials with water and oxygen by appropriate dumping practices, profiling and capping any materials likely to heat and reducing the time coal faces are exposed prior to mining.

There have been very few occurrences of spontaneous combustion on the Stratford site during the 20 years of operation. However, SMC had two spontaneous combustion events on site in the reporting period. The first was recorded on the 15 August on the product stockpile. The area was small (less than 5 m x 5 m) and was doused with water until all flame and smoke was eliminated. The area was monitored closely and dosed with water on subsequent shifts with no other heating was observed. The second event occurred on the 20 September on the product stockpile but in a different area. The area was small (less than 5 m x 5 m) and was doused with water until all flame and smoke was eliminated. The area was again monitored closely and dosed with water on subsequent shifts with no other heating observed.

Following the spontaneous combustions events, investigation determined length of time product coal remained on the stockpile was a contributing factor. The following measures were actioned:

- The Product coal offtake has been increased to keep stocks low.
- Old product coal has been recovered back to rock base and re-processed.
- Some piles have been rotated to keep stocks down.

No further spontaneous combustion events have occurred on site since.

6.12 CHPP REJECT MANAGEMENT

Reject material produced at the Stratford CHPP is disposed of in accordance with the SMC Life of Mine Rejects Disposal Plan (RDP 2018).

The NSW Development Consent Table 8 prescribes the performance criteria for CHPP rejects. Reference should be made to the RDP for a detailed description of reject management at the SMC. In general the rejects, both coarse and fine fractions, are pumped via pipeline from the CHPP to the Stratford Main pit where they are deposited below final void ground water levels.

Rejects at the SMC have been previously characterised as being PAF and the EIS 2012 geochemical assessment report concluded that implementation of appropriate management measures would be required to manage potential ARD impacts associated with the existing and proposed co-disposed CHPP rejects. Rejects management measures include placement into the Stratford Main Pit where they are progressively inundated with water to prevent significant pyrite oxidation and acid generation in the long term, with monitoring of water quality undertaken during operations and provision for lime (calcium hydroxide - Ca[OH]2) dosing and limestone (calcium carbonate - CaCO3) treatment as required.

Reject placement in the Stratford Main Pit for the reporting period involved sub-aqueous deposition only eliminating the production of reject beaches.

Liming of the remaining exposed reject beach was undertaken during the reporting period at the rates described in the RDP and records are maintained at the SMC.

Monitoring of the reject beach material was undertaken on a monthly basis until the beach was completely inundated. Monitoring was conducted in January and February to assess the performance of reject disposal and lime application rates. During the reporting period the reject beach average pH results were 4.9 and 6.2 respectively. Additionally, water monitoring in the Main Pit is undertaken monthly, refer to the results in **Section 7** Water Management. The management measures implemented have successfully controlled the formation of acid conditions in the Stratford Main Pit, with recorded pH circum neutral.

6.13 AGRICULTURAL REPORT

An Agricultural Assessment for the SMC was undertaken for the Stratford EIS (2012). Contemporary land use in the vicinity of the SMC is dominated by mining operations, agricultural production (primarily grazing for beef production) and remnant vegetation generally located along ridgelines, along watercourses and in isolated patches within the cleared landscape which includes nature reserves and national park. Settlements are located at Stratford Village and Craven Village.

The Agricultural Land Use Rehabilitation Objective for the SMC is to establish a minimum of 300 ha of land with Class 4 Agricultural Suitability. Class 4 Agricultural Suitability is land suitable for grazing, but not for cultivation. Rehabilitation progress is discussed further in **Section 8**.

Rural Land Capability

The Rural Land Capability classification system is used to determine the various classes of rural land on the basis of the capability of the land to remain stable under particular uses. Land is allocated to one of eight classes, with emphasis on the erosion hazards in the use of the land. The pre-mining Rural Land Capability near the SMC ranged from Class IV to Class VIII, with the major factors in determining the classes being slope and soil stability in water.

The rehabilitated flat areas on the Stratford Waste Emplacement were allocated Class IV. Other rehabilitated areas (e.g. batters) on the Stratford Waste Emplacement and the Northern Waste Emplacement were allocated to Class V due to slope angle. The flat areas on the Stratford Waste Emplacement were observed to have similar, and in some cases better, soil conditions than that observed in the “natural” soil profiles under pasture on the SMC site.

Agricultural Suitability

The Agricultural Suitability system is used to classify land in terms of its suitability for general agricultural use. Agricultural land is classified by evaluating biophysical, social and economic factors that may constrain the use of land for agriculture. The pre-mining SMC site ranged from Class 4 to Class 5. Soil limitations included various combinations of the following factors: erosion hazards associated with steep slopes, shallowness, dispersion, acidity, nutrient deficiencies and compaction (EIS 2012).

The rehabilitated areas on the existing SMC waste rock emplacements were allocated by McKenzie Soil Management (2012) to Class 4.

Class 4 Agricultural Suitability is defined as (NSW Agriculture, 2002):

“Land suitable for grazing but not for cultivation. Agriculture is based on native pastures and improved pastures established using minimum tillage techniques. Production may be seasonally high but the overall production level is low as a result of major environmental constraints.”

Agricultural lands on and surrounding the SMC including SCPL owned land and agricultural rehabilitation continues to be managed for agricultural production. SCPL implements a property management strategy which includes grazing & pasture management and weed and pest control measures. The majority of agricultural lands are grazed under agistment/lease contracts.

There have been no changes to the agricultural land suitability during the reporting period.

7. WATER MANAGEMENT

Water management is undertaken in accordance with the approved Water Management Plan (WMP) and the sub-components of the plan including; surface water, ground water and site water balance.

The main objectives of the water management system on-site are:

- protect the integrity of local and regional water resources;
- operate such that there is no uncontrolled overflow of contained water storages;
- maintain separation between runoff from areas undisturbed by mining and water generated within active mining areas; and
- provide a reliable source of water to meet the requirements of the SMC.

The key principles of the water management system on-site are:

- maintain separation of undisturbed area runoff from water generated within active mining areas;
- minimise the generation of dirty water and divert clean water around disturbed areas;
- minimise storage requirements by maximising re-use of mine water for dust suppression (haul roads, mine waste emplacement surfaces), CHPP supply and irrigation;
- remove potential impacts on downstream water resources by provision of secure containment on site;
- capture and on-site containment of mine water, consisting of any groundwater inflows and/or surface water collection in the open cuts; and
- implement a fail-safe system, whereby under extreme events in excess of design capacity, dirty waters would spill to the mine pit and not to the clean water catchments; and
- not allow sediment laden water having an elevated suspended solids concentration to be discharged off site.

SCPL has investigated options for the beneficial reuse of mine water however continue to maintain zero discharge of mine water from site. The mine water balance at SMC is managed predominantly through the irrigation of excess water on rehabilitated pasture and storage on site within containment facilities. Where possible all clean water is diverted offsite.

7.1.1 Water Supply and Demand

The SMC water management system operates under a surplus water balance, with a trend for increasing water storage on-site over time. The majority of water used on-site is in the CHPP with recovery of water for re-use in the CHPP (i.e. recycling of CHPP process waters) the largest component of the overall supply system.

The principal water losses in the water system are:

- Water applied to land by means of irrigation;
- Water used for dust suppression;
- Evaporation from the Mine Water storages; and
- Water consumed in the CHPP.

The principal water losses in the CHPP water circuit are:

- Loss of water to co-disposal material (water locked up in rejects, pumped to main pit); and
- Water retained in product coal and railed off site.

Contained water storages at the SMC include:

- Stratford Main Pit which acts as both the CHPP rejects co-disposal area and contained water storage at the SMC, with an estimated remaining capacity of 16,725 ML at December 2019;
- Stratford East Dam which is located on the eastern boundary of the ML and has a capacity of up to approximately 2,872 ML;
- Return Water Dam which has a capacity of approximately 551 ML and is kept supplied by pumping from other contained water storages. The Return Water Dam also receives local runoff from the adjacent western co-disposal area; and
- Parkers Pit void is located south-west of the Return Water Dam and west of Avondale Creek. It has an estimated capacity of 106 ML.

The existing open cut void at Roseville West also provides significant additional on-site containment capacity if required for water storage.

The main water supply storage on-site for the CHPP is the Return Water Dam (RWD), located to the north of the Industrial Area. The RWD is one of main permanent mine water storages on-site. Water used by the CHPP is drawn from the RWD and comprises water pumped from the co-disposal facility, pit produced water and water from specific sediment dams. Water is also pumped directly from the Stratford Main Pit to the RWD to balance the CHPP water demand.

Mine water may be transferred between the open cut pits and the mine water storages as required for operations. Site water balance modelling has concluded that water storage capacity on site, would be sufficient to accommodate the water storage demands and disposal of CHPP reject material within the Main Pit until at least 2025. The annual water balance review with contemporary observations of the mine water management storages throughout the reporting period have confirmed that the EIS water balance modelling remains valid and consistent with observations on site. The annual water balance review is further described in **Section 7.1.2**.

7.1.2 Site Water Balance Review

The site water balance model for the SMC was developed by Gilbert & Associates in 2012 as part of the Stratford Extension Project EIS Surface Water Assessment (Gilbert & Associates, 2012). The site water balance model of the SCM water management system has been developed to simulate the behaviour of the water management system to the end of the approved mine life, i.e. 2025. Since this time, the SMC water balance model has been updated annually.

A review of the site water balance is undertaken annually and captures all inflows and outflows from the water management system. The water which accumulates in the open pits through rainfall or groundwater seepage is measured at the point of dewatering. An independent Annual Water Balance Review (Hydro Engineering & Consulting, 2019) for the SCM was conducted for the 2019 calendar year and a summary is provided below.

Quantitative Site Water Balance Review

The water management system at the SMC has operated under a surplus water balance, which means that over time there has been a trend for more water to report to site storages from the mine workings and associated project site catchments than is required to support processing and mining activities. The

major water inflows to the site are rainfall-runoff generated from operational areas and (lesser) groundwater inflows to the current and former mine workings. The existing SMC water management system does not release water from disturbed areas off site other than from sediment dams and rehabilitated landforms.

A mine pit water balance analysis was undertaken for the Bowens Road North Open Cut (BRNOC), Roseville West Open Cut (RWOC) and Avon North Open Cut (ANOC) using data recorded during 2019 to assess the relative contributions of surface water and groundwater sources to mine inflows (i.e. the relative contribution of rainfall runoff versus groundwater seepage into the pit).

Bowens Road North Open Cut

BRNOC was completely dewatered during 2018. No estimates of stored water volume in the BRNOC were available after February 2019. Hence the water balance analysis was unable to be verified against monitored data.

It is assumed that water is stored in the partially backfilled mine waste rock emplacement pore space of the main BRNOC which is located to the south of 2019 mining activity. The water balance analysis was carried out to gain an understanding of the likely volume of water stored in the partially backfilled mine waste rock emplacement. This involved estimating surface water inflows (runoff) to the mine from the various sub-catchment types that contribute water to the pit using recorded daily rainfall and a rainfall-runoff model (Boughton, 2004).

Groundwater inflow rates were assumed equal to the SEP EIS prediction of 163 ML, given limited records available of stored water volumes within this mining area during the reporting period.

Roseville West Open Cut

Active mining of the RWOC ceased in 2014 and the dewatering pump was removed. Water has been allowed to accumulate within this completed mining area until 2019 when dewatering recommenced.

Groundwater inflow rates were applied to obtain a close match between stored water volume and recorded stored water volume. The volume of groundwater assumed reporting to the open cut in 2019 was 105.1 ML as per SEP EIS prediction (Heritage Computing, 2012).

Avon North Open Cut

Active mining of the ANOC continued during the reporting period with dewatering of the pit commencing in March 2019 based on pumping records provided by SCPL. The SEP EIS prediction of groundwater inflow to ANOC during the reporting period was 115 ML (Heritage Computing, 2012). The volume of groundwater inflow reporting to the open cut in 2019 was not calculated for comparison to this predicted value due to lack of stored water volume information. However, during 2019 the water accumulating in ANOC was minimal based on site observations. As mining advances into the deeper strata, seepage is expected to increase.

Groundwater Licencing

SCPL holds existing groundwater licences for dewatering issued by the then NSW Water (now NRAR) that allow for the dewatering requirements from the open cut pits. The estimated groundwater inflows at the SMC during 2019 were below the annual extraction limits as shown in **Table 28**.

Table 28
Water Take

Water Licence	Operation	Entitlement*	Estimated 2019 Take (ML)Total
WAL 41534	Stratford Main Pit	500 ML extraction.	51

(20BL169400)			
WAL 41535 (20BL169101)	Stratford (Roseville) Pit	20 ML extraction.	0
WAL 41536 (20BL169102)	Roseville Extended and West Pit	315 ML extraction.	105.1 ML
WAL 41538 (20BL169103)	Bowens Road North Pit	410 ML extraction.	163.2 ML
WAL 41537 (20BL169104)	Parkers Pit	186 ML extraction.	0

Contained Water Storages

A water balance analysis was undertaken for the Stratford Main Pit, Stratford East Dam and RWD using data recorded during 2019 to assess the relative contributions of the various sources to storage inflows (i.e. the relative contribution of rainfall runoff and groundwater versus pumped inflow).

Table 29 provides a summary of water stored at the beginning and end of 2019, as well as inflows to and outflows from the three monitored contained water storages as a whole (Stratford Main Pit, Stratford East Dam and Return Water Dam).

Table 29
Water Balance

Component	ML
Start* of Year Total Storage Volume	13,222
End** of Year Total Storage Volume	13,022
Change in Total Storage Volume	-200
Inflows	
Rainfall Runoff	487
Pumped from Open Cut Pits	650
Pumped from Other Storages	37
Groundwater	51
Rejects Water	2,110
Seepage†	28
TOTAL	3,363
Outflows	
Evaporation	937
CHPP Supply	2,091
Haul Road Dust Suppression (Truckfill)	361
Irrigation	0
Entrained in Rejects	165
Seepage†	19
Loss from Evaporator Sprays	0
TOTAL	3,573
Inflow minus Outflows	-210

A decrease in stored water volume for Stratford Main Pit, Stratford East Dam and RWD was observed during 2019.

At the commencement of the reporting period, the Main Pit, Stratford East Dam and Return Water Dam contained 11,400 ML, 1,415 ML and 310 ML (stored water only), respectively.

At the completion of the reporting period the Main Pit, Stratford East Dam and Return Water Dam contained 12,050 ML, 1,255 ML and 305 ML (stored water only) respectively.

No mine water was disposed of to watercourses during the reporting period.

7.2 SURFACE WATER

7.2.1 Surface Water Management

Surface water at the SMC is managed in accordance with the approved WMP. Appendix 2 of the WMP outlines the procedures and strategies for surface water management at the SMC to ensure compliance

with SSD-4966. The SWMP includes the management of clean water and dirty water as outlined below. Dirty water comprises both mine water and sediment laden/turbid water.

7.2.1.1 Erosion and Sediment Control

The primary objectives of the erosion and sediment control strategy at the SMC are to:

- minimise and control soil erosion and sediment generation in areas disturbed by ongoing mining and construction activities; and
- minimise the potential for mine related activities to lower the water quality (particularly in terms of total suspended solids content) of downstream local watercourses.

Control strategies for soil erosion and sediment migration for the SMC include:

- Maximum separation of runoff from disturbed and undisturbed areas;
- Construction of sediment dams downstream of disturbed areas to contain runoff up to specified design criteria (refer Design Criteria below);
- Subsequent priority use of these waters in SMC related activities and/or natural controlled release to substantial buffer zones in a manner that minimises the potential for change to downstream turbidity;
- Selective use of benign flocculants such as gypsum to assist in the settlement of suspended solids if required;
- Construction of surface drains to facilitate the efficient transport of surface runoff;
- Construction of silt fences downslope of disturbed sites; and
- Rapid and progressive stabilisation of disturbed surfaces.

SMC operate a network of sediment control structures to control sediment laden runoff from disturbed areas and active mining areas. All sediment control structures were reviewed during 2018 following the approval of the SEP with maintenance or upgrades undertaken in accordance with the SWMP as required in 2018. In 2019, where required in areas approved for mining activities, new sediment control structures have been constructed.

The design criteria for sediment control structures is prescribed in the SWMP Erosion and Sediment Control Strategy. Sediment control structures (i.e. sediment dams and disturbed area dams) are designed to spill if a rainfall event exceeds the specific design criteria for the structure. Where the discharge occurs solely as a result of rainfall in excess of the design criteria, this is not considered a non-compliance. It should be noted that at all times, pumpingof sediment dams in order to prevent or limit the amount of spilling water was undertaken. Prioritisation of pumping operations also took into account the likely quality of spilling water when a dam was considered vulnerable to spilling. The quality of water collecting within sediment dams is managed (where practicable) to minimise suspended sediment load.

All sediment dams are inspected/monitored on a minimum quarterly basis or following receipt of sufficient rain whereby such dams have the potential to spill. Maintenance activities are undertaken on sediment dams as required. Sediment dams are cleaned out when the storage volume is reduced by sediment deposition (i.e. when 30% of storage volume is lost to sediment build up) and inspected after major rainfall events. Silt fences are cleaned out and/or repaired to maintain their effectiveness.

During the reporting period, there were no spills from any sediment dams or disturbed area dams at the SMC.

In addition to dedicated sediment dams, clean water is directed around disturbed areas (where practicable) using diversion drains/bunds to minimise sediment laden water. Areas under rehabilitation are stabilised by structural controls such as bench drains and contour banks (as required), to break up effective slope length exposed to erosion. Final slopes will generally not exceed 14 degrees to limit the potential for erosion and sediment generation.

Inspection of diversion structures and sediment control showed SMC contained all mine water on site within its water management system and control structures remained effective.

7.2.1.2 Clean Water Management

The key principle of clean water management is to maintain separation between runoff from areas undisturbed by mining and water generated within active mining areas. The segregation of clean water from the disturbed area thereby minimises the quantity of water generated from disturbed areas.

Surface water controls aim to prevent clean runoff water from entering the open cut mining, overburden dumping areas, rejects disposal areas and infrastructure areas where practicable. The main clean water management structures are:

- Diversion drains/bunds on the eastern and western side of Stratford site, designed to divert clean water runoff around disturbed areas;
- Diversion drain around the eastern side of the Avon North Open Cut;
- Flood control embankments around the open cut voids which are designed to reduce the likelihood of floodwaters within Avondale Creek and tributaries entering either pit;
    - A 1:100yr ARI flood control bund around the north of the Strafford Main Pit
    - A 1:100yr ARI flood control bund around the northern end of the former Roseville Extension Pit and Roseville West Pit;
    - A 1:100yr ARI flood control bund around the south-western end of the BRN Pit
    - A 1:100yr ARI flood control bund around the southern end of the Avon North Pit;
- A culvert under the BRN haul road to allow for clean water runoff into Avondale Creek;
- Culverts under the haul road crossing of Avondale Creek and tributaries including Main Haul Road, BRN Haul Rd and Roseville Link Haul Road which allows Avondale Creek to flow through the site;
- Various runoff control drains/bunds about disturbed areas and overburden dumps designed to divert clean water runoff around active mine areas.

During 2018, the Avondale Creek flood model was revised to incorporate the water control structures for Avon North. During the 2019 reporting period, the Main Pit flood bund was constructed and Avon North Pit flood bund commenced construction and is scheduled for completion during the next reporting period.

Water management control structures for the Stratford East Open Cut commenced in 2019 with the next stage planned to be constructed during the next reporting period.

Inspections of diversion structures were undertaken during and after rainfall events of >50/day or a minimum of every 6 months. Remedial and maintenance works were completed as required within the diversion drains and dams during the reporting period.

7.2.1.3 Mine Related Water Management

Mine related water management refers to the control, collection and re-use of water which may have become contaminated by mining operations and associated activities. Mine related water comprises mine water and sediment laden/turbid water. Mine water is water that has come into contact with mining activities. Sediment laden/turbid water has come into contact with disturbed areas but predominantly not core mining areas.

Mine waters are typically characterised by higher salinity and on occasion lower pH. Sediment laden waters are characterised by elevated suspended solids and elevated turbidity.

During the reporting period, all mine water was contained on site and no spills occurred from mine water storage dams.

The main objectives of the mine related water control facilities are:

- Segregation of clean water from mine related water, to minimise the quantities of mine related water to be managed;
- Onsite storage and reuse of mine related water (washing coal); and
- Preventing the release of mine water from site.

The principal sources of mine related water are:

- Rainfall runoff in mining pits and incident rainfall;
- Groundwater seepage into mining pits;
- Rainfall induced runoff and seepage from active sections of the overburden emplacement;
- Rainfall induced runoff from the CHPP and infrastructure area;
- Rainfall runoff from haul roads;
- Runoff and seepage from co-disposal areas;
- Rainfall induced runoff from areas stripped of topsoil (typically exposing clays); and
- Rainfall induced runoff from areas yet to adequately vegetate within sediment dam catchments.

Mine related water uses and losses are:

- Co-disposal material (water locked up in rejects, lost as seepage or evaporation);
- Evaporation and seepage losses from water storages;
- Haul road dust suppression;
- Water retained in product coal and railed off site; and
- Stored water applied to land via irrigation.

The main permanent mine related water storages on site are the Stratford Main Pit, RWD, SED and Parkers Pit. The locations of mine and sediment laden water storage areas are shown in **Figure 3** (**Appendix 1**).

Due to water being in excess to site needs, management in past years has focused on maximising water use/loss. The future need to discharge waters from the SMC is expected to be limited due to the availability of the Pit voids for water storage and the installation of irrigation upon approved areas of the SCM waste emplacement.

7.2.2 Surface Water Monitoring

SCPL monitors surface water quality on and surrounding the mine site by sampling from a series of selected locations. These locations comprise streams. A meteorological monitoring station (i.e. weather station) provides site rainfall data. Surface water monitoring is conducted in accordance with the approved SWMP and the EPL5161.

The locations of surface water monitoring sites are shown on **Figure 2 (Appendix 1**). These sites are generally the same as those used during the baseline studies for the Stratford EIS 2012 (with the exception of W11 which was added to the program during 2018) and is consistent with the SEP EIS. The sites and their locations are described in **Table 30**.

Surface water is sampled and analysed on a monthly, event basis or following a sediment dam spill. Water sampling is not undertaken in no-flow conditions. Collected waters are analysed for a suite of physical and chemical parameters. Results are compared with the performance indicators and measures described in Section 9 of the SWMP (WMP Appendix B).

Table 30
Routine Surface Water Monitoring Sites

SITE	AREA	PROPERTY	HYDROLOGICAL LOCATION
W1	Wenham Cox Road	GLENAVON	Avon River upstream of the mine (i.e. upstream of junction with Dog Trap Creek)
W2	Marengo	BIGNALL	Avon River downstream of the mine (i.e. downstream of junction with Dog Trap Creek)
W3	Dog Trap Creek	SCM	Upstream Dog Trap Creek (above junction with Avondale Creek)
W3A	Dog Trap Creek	SCM	Upstream Dog Trap Creek (above junction with Avondale Creek) and Upstream of BRN Operations.
W4	Dog Trap Creek	Ex-AGL/SCM	Dog Trap Creek downstream of junction with Avondale Creek and upstream of Avon River.
W5	Wenham Cox Road	SMC	Avondale Creek downstream of mine and upstream of junction with Dog Trap Creek
W6	Parkers Road	SMC	Upstream of Mine on Avondale Creek
W8	Bowens Road	SMC	Avondale Creek in the centre of operations
W9	The Glen Road	SMC	Upper Avondale Creek
W10	Lemon Tree Creek - Bowens Road	SMC	“Lemon Tree” Creek upstream of Avondale Creek junction.
W11	Dog Trap Creek	Ex-ELLIS	Dog Trap Creek upstream of Avon North operations.

7.2.2.1 Review of Local Stream Monitoring Results

With ongoing dry weather, and the eighth consecutive year of below average rainfall, all surface water monitoring sites (W1 – W11) during the reporting period were either dry or no-flow. As water sampling is not undertaken in no-flow conditions, no viable results were achieved.

Reference should be made to accompanying surface water monitoring data tables provided in **Appendix 4**.

Assessment of Performance Indicators

The surface water monitoring results are used to assess the SMC against the performance indicators and performance measures as detailed in Section 9 Table 12 of the SWMP. If data analysis indicates a performance indicator has been exceeded or is likely to be exceeded, an assessment will be made against the performance measure. If a performance measure is considered to have been exceeded, the Contingency Plan will be implemented (SWMP Section 10). If data analysis indicates that the performance measure has not been exceeded, SCPL will continue to monitor.

Table 31 provides a summary of surface water analysis at SMC to date for the surface water performance indicators and measures outlined in Table 12 of the SWMP.

Table 31
Summary of Surface Water Monitoring Results – 2019 Reporting Period

		Long Term Mean	Standard Deviation	12 Month Mean 2019
W4	pH	7.0	0.5	N/A*
	EC	595	393	N/A*
	Sulphate	37	61	N/A*
	Iron	0.8	0.8	N/A*
W3	pH	7.0	0.4	N/A*
	EC	427	212	N/A*
	Sulphate	11	11	N/A*
	Iron	0.9	1.1	N/A*
W1	pH	7.1	0.4	N/A*
	EC	325	188	N/A*
	Sulphate	9	9	N/A*
	Iron	1.8	2.9	N/A*
W3A	pH	7.1	0.4	N/A*
	EC	408	176	N/A*
	Sulphate	10.3	13.6	N/A*
	Iron	2.2	2.5	N/A*
W6	pH	6.7	0.6	N/A*
	EC	714	739	N/A*
	Sulphate	22	96	N/A*
	Iron	1.4	1.6	N/A*
W9	pH	6.7	0.7	N/A*
	EC	201	248	N/A*
	Sulphate	4.6	4.5	N/A*
	Iron	2.1	1.3	N/A*

*No samples taken due to no-flow or dry conditions

Due to no flow conditions for the 2019 reporting period, no data is available to assess against the performance indicators and provide performance outcomes.

7.2.2.2 Review of Mine Water Monitoring Results

Mine Water Storages

The management of mine related water is described in **Section 7.2.1.3** of this report. The monitoring program for the water management system is described in the SWMP Section 8.2.

The performance measure and performance indicator for the mine water storages (SWMP Table 12) states "*No discharge of mine affected water to downstream surface waters*" indicated by "*Modelled forward risk of spill from Stratford Main Pit is negligible*".

The risk of a contained water storage overflow (i.e. spill) from the SMC was evaluated as part of the site water balance review. No spills were simulated during the water balance review, which is consistent with the EIS site water balance (Gilbert and Associates, 2012). Subject to adherence with the operational protocols (including storage of water in active mine pits if required) and other assumptions inherent in the water balance modelling, the implied spill risk from the Stratford Main Pit (i.e. to Avondale Creek) is less than 1%.

No overflows or discharges of mine water occurred during the reporting period.

Table 32 provides a summary of SMC's main pit surface water analysis. The full results are included in **Appendix 4**.

Table 32
Summary of Mine Water Storage Water Monitoring Results – 2019

	pH		EC (µS/cm)		TSS (mg/L)	
Site	**Range**	**Average**	**Range**	**Average**	**Range**	**Average**
Stratford Main Pit	7.7 – 8.3	8.1	3,480 – 3,980	3,802	<5 - 30	12
Stratford East Dam	8.3 – 9.0	8.7	813 – 1,080	966	<5 - 12	9
Return Water Dam	7.8 – 8.4	8.1	3,090 – 4,690	3,924	N/A	N/A
Parkers Pit	7.2 – 8.0	7.7	2,110 – 3,240	2,721	<5 - 26	13
Roseville West Pit	7.6 - 8.2	8.0	3,960 – 6,560	5,276	7 - 44	18

The mining operations began backfilling the BRN pit during the reporting period (in February 2019). Monitoring of this location was not possible due to access being terminated.

The simulated water quality for the SMC water management system was prepared for the EIS 2012 including a salinity balance. Mine water pH has remained generally near neutral or slightly alkaline for the life of the project. The Mine Pit EC trend has been generally consistent with the simulated EC.

Sediment Dams

The management of sediment dams is described in **Section 7.2.1.1** of this report. The monitoring program for the water management system is described in the SWMP Section 8.2. Monitoring of sediment dams was undertaken on a monthly or event basis as required in the SWMP.

During the reporting period there were no spills from any sediment dams or disturbed area dams.

Table 33
Summary of Sediment Dam/Disturbed Area Dam Monitoring Results – 2019

	pH		EC (µS/cm)		TSS (mg/L)	
Site	**Range**	**Average**	**Range**	**Average**	**Range**	**Average**
SD12	7.6 – 8.2	7.8	578 – 1,160	769	8 - 31	17
SD13	7.9 – 8.8	8.3	1,330 – 3,010	1,907	<5 - 136	23
SD14	7.6 – 8.4	8.1	1,580 – 4,270	2,511	6 - 107	25
SD15	8.0 – 8.6	8.3	4,580 – 6,740	5,260	6 - 60	17
SD16	7.0 – 8.3	7.7	109 - 519	250	15 - 517	129
SD17	8.0 – 8.3	8.1	2,070 – 3,670	2,548	6 - 276	57
DAD19	5.1 – 7.0	6.2	272 - 754	450	15 - 1860	321
DAD20*	7.1	7.1	1470	1,470	<5	<5

*One sample

Site DAD20 was established in December 2019 which only allowed for one sample during the reporting period.

7.2.3 Biological Monitoring

As part of SMC's environmental monitoring program, Invertebrate Identification Australasia was commissioned to conduct biological (aquatic ecology – macroinvertebrates) monitoring of the streams near the SMC. Biological monitoring has been conducted each year since the start of mining operations.

Macro-invertebrate surveys were undertaken during the reporting period. The survey occurred in October 2019 (Invertebrate Identification Australasia 2019). The results and conclusions of the surveys are summarised below.

Six sites were surveyed on the 9 October 2019 for aquatic macroinvertebrates and water quality using rapid assessment techniques. The two Avon River sites (Sites W1 & W2) were the only locations during this round of surveys that contained water although there was no flow and the water levels were the lowest observed since the study began in 2001. All the other sites including Avondale Creek and Dog Trap Creek were completely dry.

The survey included two sites located on the Avon River, one above (Site W1) and one below (Site W2) the confluence of the Avon River and Avondale Creek. Two sites are located on Avondale Creek. SiteW8 is located on what was Bowens Road downstream of the SMC CHPP within the mining area, and Site W5 is immediately upstream of where Avondale Creek crosses Wenhams Cox Road. One site (Site S3) is monitored for background data and is located along an unnamed creek which receives waters from the clean water diversions and runoff from the rehabilitated waste dump and then feeds into Avondale Creek. Site W3 is located on Dog Trap Creek and is the control site.

During the survey, a total of 19 families were recorded. Four biological indices are used to determine the condition of the streams in and adjacent to the project area.

Since the last survey in September 2018, there has been a continued decline in rainfall events and volumes resulting in an exacerbation of declining river levels and the drying of the smaller arterial streams compared with the levels recorded in the previous twelve months. The rainfall pattern over the previous twelve months comprised of a lower number of light to moderate sporadic events. The majority of the rainfall occurred over the late summer and late autumn months. The last major event (> 20 mm) prior to this survey occurred on 3 April 2019 with 20.4 mm. Over the last six months, there have been only three major events greater than 20 mm compared with the seven that occurred in the previous six months and seven for the same period last year. The largest event of 38 mm was recorded on the 21 February 2019. The remaining rainfall events have consisted of only small sporadic events leading up to this survey. This rainfall pattern is quite similar to that experienced in 2013-2014 with the higher rainfall events occurring during the late summer periods. This has resulted in the Avon River sites experiencing an extended period of no flows and very low water levels within the pools at the time of the survey.

The results of the current survey indicate that the overall aquatic biodiversity across the river sites (Sites W1 and W2) showed a significant decrease in condition compared with the last survey and while these figures are still some of the lowest recorded of this monitoring program they have returned to similar values recorded over the last 3-4 years and comparable with the early 2018 values. The changes over the last twelve months in ecosystem condition/health appear to be the direct result of the lower rainfall occurring during the summer/autumn period and the lengthening of the no rain period. The lack of sufficient rainfall over winter and into spring have further reduced the available habitats and impacted the water quality and the associated aquatic fauna significantly.

The results indicate that there has not been significant changes or differences between Sites W1 and W2 either in the physicochemical or biological parameters tested as the ongoing no flow conditions have occurred across all sites. Therefore, the data indicates there is no evidence of an adverse effect from the mining operations on the ecology of the Avon River or the upper Avondale Creek sites. This is

particularly the case as there has been no overland and subsequent stream flow from the mining operation with which to transport any potential contaminants that may be present.

The SWMP performance measures states there would be no significant impact on aquatic ecosystems and biota as a result of the SMC as indicated by no significant change in biotic indices at the monitoring locations. The biological surveys indicate there have been no significant changes.

7.2.4 Irrigation Management

Irrigation of water from the Stratford East Dam over waste emplacement areas did not occur during the reporting period.

Irrigation is governed by soil moisture, with irrigation suspended during wet weather or in periods following rain until soil moisture levels fall to levels low enough such that irrigation would not lead to direct runoff. Runoff from irrigation areas is directed to the Stratford East Dam. Water monitoring results for the Stratford East Dam is found in **Table 32**.

7.3 GROUNDWATER

7.3.1 Groundwater Management

A Groundwater Management Plan (GWMP) (WMP Appendix 3) has been prepared to manage potential impacts on local and regional groundwater resources and includes and a monitoring program to validate and review the groundwater model predictions.

The groundwater systems within which the SMC lies, specifically relate to:

- Gloucester Basin Water Source (i.e. porous rock aquifer) under the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016; and
- Avon River Water Source (i.e. alluvial aquifers) under the Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources 2009.

Groundwater characteristics of the mine have been studied prior to and over the life of the SMC and for the SEP EIS. A hydrogeological characterisation of the Gloucester Basin is included in the GWMP.

The main aquifers in the Gloucester Basin are associated with the coal seams which are intersected by faults that compartmentalise groundwater flow. Groundwater is located predominantly within coal seams in the SMC area, with recharge occurring from overlying alluvium and regolith. The direction of groundwater flow is from the south-east to the north-west, and the main groundwater discharge zones are Avondale and Dog Trap Creeks, Avondale Swamp and Avon River. Further detail is included in the GWMP.

The water table approaches ground surface in the swampy northwest corner of the basin. The colluvium functions as the principal recharge to the basin. Groundwater is generally saline, highly mineralised water with slight to high acidic pH and is generally unsuitable for domestic consumption or irrigation. Baseline groundwater quality data is also included in the GWMP.

Groundwater resources within the project area were utilised in the early stages of the Stratford Project, as required, to provide make-up water for the CHPP. Since the mine start-up period, water has not been in deficit and no groundwater harvesting has occurred.

Locally, there is little reliance on groundwater bores as a source of water, as agricultural enterprises predominantly rely on surface water sources which are more abundant and generally better quality. There are no high priority groundwater dependent ecosystems (GDEs) identified within the WSP as occurring in the vicinity of the SMC.

Groundwater seepage to the SMC mining areas (open cut pits and voids) is actively dewatered to the mine water storage area as required to facilitate mining activities. Groundwater may also be stored in the inactive open cut pits.

7.3.2 Groundwater Monitoring Results

The SMC groundwater monitoring program includes:

- groundwater inflows to the open cut mining areas (where measurable from pumping records);
- alluvial and porous rock groundwater levels and quality; and
- representative private groundwater bores (e.g. Stratford Village bores).

Further detail on the groundwater monitoring program is included in the GWMP Section 7. The network of monitoring bores will be used to monitor the potential impacts on aquifers, groundwater levels and quality in the vicinity of the SMC. The general location of these bores is shown on **Figure 2** (**Appendix 1**).

The groundwater monitoring network includes:

- Stratford Village Bores;
- Stratford Project Bores (GW Series);
- Roseville Series Bores (RB Series);
- BRN Series Bores (MW Series); and
- Stratford Extension Project Bores (F Series).

Stratford Village Bores

Monitoring of the Stratford Village bores during the reporting period was undertaken in April 2019 and October 2019. With SCPL bore, Germon and Bagnell bores being sampled monthly in accordance with the approved WMP. Full results are included in **Appendix 4**.

Sampling to date shows no significant changes in groundwater level or quality and no evidence of impacts from mining operations. The groundwater quality is highly variable, with better quality generally in the shallower bores such as Smith. It is understood that these bores are relatively shallow, and given the lower elevations of the sites are tapping into the shallower alluvial aquifers, as opposed to the deeper groundwater.

Results show that there has been no significant difference in depth to standing water level for the bores gauged to date.

Stratford Project Bores (GW Series)

Monitoring of the GW bores was undertaken on a 6-monthly basis, in line with the currently approved GWMP. Monitoring is undertaken for both groundwater depth and water quality. The locations of these bores are shown on **Figure 2** (**Appendix 1**). Full analytical results are also shown in **Appendix 4**.

A summary of monitoring results for the Stratford Project bores is provided in **Table 34**.

Table 34
Bores Monitored in Relation to the Stratford Project – 2019 Reporting Period

Site	Average Depth to Water (m)	Average pH	Average EC (µS/cm)	Average Na (mg/l)	Average Cl (mg/l)	Average Fe (mg/l)	Average SO4 (mg/l)
GW1	*	*	*	*	*	*	*
GW2	10.7	7.0	5,100	819	1,360	26.1	30.5
GW3	4.0	3.9	3,565	658	1,003	17.8	76.5
GW4	1.7	6.8	15,300	2,370	5,190	1.4	105.5
GW5	4.3	7.0	10,900	1,755	3,550	29.7	389.5
GW7	3.1	6.3	3,525	536	973	13.1	128.5
GW8	12.7	*	*	*	*	*	*
BRWN1	1.4	5.7	6,245	1,185	1,530	2.8	420.5

Notes: * Unable to retrieve sample due to dry bore

Monitoring for the GW series bores during the reporting period has indicated (when compared to historic data):

- water table levels across all bores were comparable to the previous reporting periods;
- average pH units recorded were similar to historical results across the data set with generally neutral pH at majority of bores except GW3 which has an acidic pH as well as BRWN1 also showing a slightly acidic pH;
- electrical conductivities were generally similar to the historical results;
- water quality parameters had similar average levels to the previous period results and baseline data;
- GW1 and GW8 were both dry at all sampling times during the reporting period.

Groundwater monitoring data from the Stratford Project Bores during the reporting period demonstrates no significant or measurable change in water table level or groundwater quality that could be attributed to the mining activities across the SMC. These results concur with predictions made in the EIS 2012 and the Groundwater Assessment 2012 that negligible impact on groundwater levels or quality, from mining in the long term is likely.

Roseville Pit Bores (RB Series)

The RB series monitoring is undertaken on a quarterly basis for depth to water quality. The locations of these bores are shown on **Figure 2** (**Appendix 1**).

Monitoring results for the Roseville groundwater bores are provided in **Table 35** below with full analytical results within **Appendix 4**.

Table 35
Bores Monitored in Relation to Roseville Pit – 2019 Reporting Period

Bore	Average DTW	Average pH	Average EC	Average SO4	Average Na	Average Cl
Units	metres		µS/cm	mg/l	mg/l	mg/l
RB1	4.74	7.0	10,725	44.3	1,622.5	3,802.5
RB2	3.01	6.9	9,840	153	1,610	3,527.5
RB3	12.80	*	*	*	*	*

Notes: * Water level too low to sample

Monitoring data recorded during the reporting period indicated:

- prevailing high water table near Avondale Creek – particularly for RB1 and RB2;
- neutral pH at RB1 and RB2; this is consistent with historic monitoring results;

- electrical conductivity is consistent with historical data. Average electrical conductivity readings for RB1 and RB2 bores were similar to those of previous reporting periods;
- water quality parameters had similar average levels to the previous period results and baseline data; and
- RB3 was either dry or too low to obtain a sample during each monitoring event in the reporting period.

Groundwater monitoring data from the Roseville Pit Bores during the reporting period demonstrates no significant or measurable change in water table level or groundwater quality that could be attributed to the mining activities across the SMC. These results concur with predictions made in the EIS 2012 and the Groundwater Assessment 2012 that negligible impact on groundwater levels or quality, from mining in the long term is likely.

Bowens Road North Pit Bores (MW Series)

Monitoring results for the BRN groundwater bores are provided in **Table 36** below with full analytical results within **Appendix 4**.

Table 36
Bores Monitored in Relation to Bowens Road North Pit – 2019 Reporting Period

Bore ID	Average Depth to Water (metres)	Average pH	Average EC (µS/cm)	Average SO4 (mg/l)
MW3	*	*	*	*
MW4	15.3	*	*	*
MW6	8.87	6.05	490	63.7
MW7	10.12	**	**	**
MW8***	6.34	6.35	1,911	18
MW11	9.89	7.13	1,082	22.5
MW12	3.99	6.54	1,524	1.3
Griffin	4.64	7.2	1,700	23

Notes: *Unable to retrieve sample due to dry bore
** Water level too low to sample
***One sample only in average calculation

Monitoring data recorded during the reporting period indicated:

- depth to water measurement generally indicated a similar water table relative to results from the previous reporting periods, with the exception of Griffin Bore dropping from 2.04 metres in 2018 to 4.64 metres during 2019;
- pH results were neutral across all sampled bores. Results were consistent with historical data;
- electrical conductivity was generally consistent with historical data and comparable with those in the previous reporting period, and
- water quality parameters had similar average levels to the previous period results and baseline data;

MW3 and MW4 were dry and unable to be sampled during the reporting period. The Griffin Bore, MW3 and MW4 water levels are likely a result of the significant drought experienced during 2019.

Groundwater monitoring data from the BRN Pit Bores during the reporting period demonstrates no significant or measurable change in water table level or groundwater quality that could be attributed to the mining activities across the SMC. These results concur with predictions made in the EIS 2012 and the Groundwater Assessment 2012 that negligible impact on groundwater levels or quality, from mining in the long term is likely.

Assessment of Performance Indicators

Groundwater monitoring results are assessed against Performance Indicators and Measures as described Section 8 and Table 10 of the GWMP (2018). Monitoring data for the reporting period was in accordance with the performance measures and indicators as shown in **Table 37** below.

7.3.2.1 Review of Groundwater Inflows to Mining Operations

Groundwater seepage inflows to mining voids is directed and collected within in-pit sumps along with rainfall and surface water runoff and seepage through backfilled pit areas. Water levels and water quality analysis of the in-pit sumps are undertaken monthly. The volumes of water extracted from the in-pit sumps are recorded where practicable.

The water quality monitoring results for the open cut pits during the reporting period is included in **Section 7.2.2.2** of this report.

A site water balance review is undertaken on an annual basis to monitor the status of inflows (including groundwater inflows to open pits), storage and consumption. A summary of the 2019 site water balance review is included in **Section 7.1.2** of this report.

Table 37
Groundwater Monitoring Performance Outcomes – 2019 Reporting Period

Performance Measure	Specific Performance Indicators	Data Analysis to Assess against Performance Indicators	Monitoring			Cascading Trigger Levels	Assessment of Performance Indicator and Performance Measure	Relevant Management and Contingency Measures
			Sites	Parameters	Frequency			
No more than a negligible impact on water levels in groundwater bores on privately-owned land as a result of the SMC.	No groundwater related notification received	If a notification is received, an investigation will be conducted to determine if the SMC has resulted in a greater than negligible change in water levels in the Stratford Village bores.	NA	Notification	When received	Notification Received. Investigation (monitoring) confirms that the SMC has resulted in a greater than negligible change in water levels in the Stratford Village bores (refer below). **Low Risk (Negligible) Outcome**: No more than two successive monthly readings at MW12 or SCPL bore are below the P20 groundwater level (116.8 mAHD and 114.8m AHD, respectively). **Moderate Risk Trigger:** More than two successive monthly readings at MW12 or SCPL bore are below the P20 groundwater level (116.8 mAHD and 114.8m AHD, respectively) and the equivalent P20 historical groundwater levels have not been exceeded at other shallow control sites (e.g. dry conditions or other anthropogenic changes are not prevalent). **High Risk Trigger:** More than two successive monthly readings at MW12 and SCPL bore are below the P5 groundwater level (116.3 mAHD and 114.4m AHD, respectively) and the equivalent P5 historical groundwater levels have not been exceeded at control sites (e.g. dry conditions or other anthropogenic changes are not prevalent).	No notifications received. Analysis of the monitoring data indicates no statistically significant change in water levels at MW12 and SCPL bores. A similar trend was observed in the reference sites. No further requirement for assessment of Performance Measure.	Continue monitoring.
	No significant decline in groundwater level at MW12 (Mine Site) or SCPL Bore (Stratford Village).	An investigation will be conducted to determine if the SMC has resulted in a greater than negligible change in water levels in the Stratford Village bores.	MW12 (Control Site: MW11) SCPL Bore (Control Sites: Germon & Bagnall)	Groundwater level	Monthly (MW12, MW11 & SCPL Bore) Monthly (Germon & Bagnall)			

Performance Measure	Specific Performance Indicators	Data Analysis to Assess against Performance Indicators	Monitoring			Cascading Trigger Levels	Assessment of Performance Indicator and Performance Measure	Relevant Management and Contingency Measures
			Sites	Parameters	Frequency			
No impact on regional groundwater quality that reduces the beneficial use as a result of the SMC.	No lowering of the beneficial use category (based on groundwater quality) at a groundwater production bore as a result of the SMC.	Each bore to be assigned a beneficial use category based on EC (refer Table 8 of GWMP). If data analysis indicates the performance indicator has been exceeded, the performance measure will be assessed to determine if there has been a reduction in regional groundwater quality that has lowered the beneficial use.	SCPL Bore (Control Sites: Germon & Bagnall)	EC (field)	Monthly	**Low Risk (Negligible) Outcome**: No more than two successive monthly readings at the SCPL bore are outside the applicable beneficial use category range based on EC. **Moderate Risk Trigger:** More than two successive monthly readings at the SCPL bore are outside the applicable beneficial use category range (based on EC) and the equivalent beneficial use categories at the control sites have not been lowered. **High Risk Trigger:** More than two successive monthly readings at the SCPL bore are outside the applicable beneficial use category range (based on EC) and the equivalent beneficial use categories at the control sites have also been lowered.	Beneficial use categories: • SCPL bore - 3 Irrigation • Germon - 3 Irrigation • Bagnall - 2 Marginal Potable Analysis of the monitoring data indicates No more than two successive monthly readings at the SCPL bore are outside the applicable beneficial use category range based on EC. A similar trend was observed in the control sites. No further requirement for assessment of Performance Measure.	Continue monitoring.

8. REHABILITATION

Rehabilitation at the SMC is undertaken in accordance with the approved MOP (MOP 2019). A new MOP was prepared for the commencement of the SEP during 2018. The MOP was approved by the Secretary for DRG on 9 March 2018 in advance of operations commencing. An amendment to the MOP was prepared and approved by DRG on 11 January 2019 to include Stratford East Open Cut and a second amendment to the MOP was prepared and approved by DRG on 16 July 2019 to include the re-commencement of mining in the Roseville West Pit. The MOP term covers mining operations and rehabilitation activities up to March 2021. The MOP is available on the Stratford Coal website.

Schedule 3, Condition 53 of SSD-4966 specifies the SMC post mining land use and rehabilitation objectives which are reproduced in **Table 38** below.

Table 38
SMC Rehabilitation Objectives

Feature	Objective
Mine site (as a whole)	Safe, stable and non-polluting Constructed landforms drain to the natural environment Minimise visual impact of final landforms as far as is reasonable and feasible and be sympathetic to the original Gloucester valley landform
Final voids	Minimise the size and depth of final voids so far as is reasonable and feasible Minimise the drainage catchment of final voids so far as is reasonable and feasible Minimise high wall instability risk so far as is reasonable and feasible The size and depth of final voids must be designed having regard to their function as long-term groundwater sinks, to maximise groundwater flows across back-filled pits to the void and to not be a source of saline groundwater for aquifers and streams Designed and constructed to ensure adequate freeboard to ensure no spillage under any foreseeable conditions Minimise risk of flood interaction for all flood events up to and including the Probable Maximum Flood
Surface infrastructure	To be decommissioned and removed, unless the Deputy Secretary Resources & Energy agrees otherwise
Agricultural land	Establish a minimum of 300 hectares of land with Class 4 agricultural suitability
Other land	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprising: • a wildlife corridor (shown as Biodiversity Enhancement Area); • local native plant species; and • a landform consistent with the surrounding environment.
Stratford and Glen heritage railway corridors	Road and transmission alignments to avoid heritage railway corridors Rehabilitation activities to avoid or minimise impacts
Community	Ensure public safety, with an emphasis on final voids Minimise the adverse socio-economic effects associated with mine closure

A summary of the rehabilitation objectives, performance indicators and completion criteria relevant to the SMC rehabilitation domain is provided in the MOP. Plan 4 in the MOP shows the conceptual final landform relevant primary and secondary rehabilitation domains.

8.1 BUILDINGS & INFRASTRUCTURE

The infrastructure areas are currently active.

The existing infrastructure and services at the SMC will continue to be utilised throughout the life of mining operations.

In preparation for the commencement of mining operations in the Stratford East Open Cut, a new field crib hut was constructed. No buildings or infrastructure were demolished during the reporting period. No decommissioning of infrastructure is scheduled during the next reporting period. This will be further addressed during the mine closure planning process.

8.2 REHABILITATION OF DISTURBED LAND

Rehabilitation of disturbed areas is undertaken progressively and concurrently with ongoing mining operations. Rehabilitation planning, management and implementation is described in the MOP. The overburden dump is rehabilitated in progressive increments to the final landform so the area of disturbed land is minimised and disturbed water catchment areas are reduced. Stage plans for the SMC rehabilitation are provided in the MOP Plans 3A, 3B and 3C.

Mining and rehabilitation activities follow the general progression below:

- Vegetation is cleared ahead of mine progression. Details are included in the Annual Biodiversity Report included in **Appendix 9**;
- Topsoil is removed ahead of the advancing pit or overburden dump and recovered for rehabilitation;
- Overburden and coal extraction is undertaken:
- Bulk shaping of waste emplacements, drainage works, ground preparation and topsoil placement; and
- Planting of rehabilitation areas following all preparation works (areas to be rehabilitated will comprise a combination of native forest/woodland and pasture with scattered trees as described in the MOP).

The SMC rehabilitation progress is generally in accordance with the planned activities described in the SMC MOP Plan 3A – Mining and Rehabilitation Year 1 (March 2019). The MOP makes provision for a total of 288 hectares of rehabilitated area by March 2019.

The new disturbance areas were associated with Avon North Open Cut and the Stratford East Open Cut with disturbance to the rehabilitated waste emplacement within the Eastern Emplacement.

During the reporting period, rehabilitation activities were undertaken for the BRNOC and the northern extent of the Avon North Open Cut.

The MOP makes provision for 4 hectares of rehabilitation during the next reporting period which is mostly proposed for the Stratford East Open Cut back filled pit and waste emplacement extension. Disturbance during the next reporting period will be undertaken for the Stratford East Open Cut.

Table 39 presents a summary of the rehabilitation undertaken at the SMC site up to the current reporting period. The current mining areas and rehabilitation as of 31 December 2019 are shown in **Figure 3**, provided in **Appendix 1**.

Table 39
SMC Rehabilitation Status

Mine area type	Previous RP (actual hectares)	Current RP (actual hectares)	Next RP (forecast hectares)
Total Mining Lease	1,192	1,580	1,192
Total mine footprint (Total Primary Domains)	643	683	684
Total active disturbance (Primary Domains less rehabilitation)	319	397	410
Land being prepared for rehabilitation (Landform Establishment)	45	42	0
Land under active rehabilitation (Growth Medium Development)	0	0	0
Completed rehabilitation (Ecosystem Establishment & Sustainability)	268	229	249

Note: The rehabilitation and disturbance boundaries have been realigned and the areas recalculated. This includes the disturbance of previously rehabilitated land.

Rehabilitation Resources

Topsoil resources are managed in accordance with the MOP Section 3.3.4. Vegetation clearance activities are described in **Section 6.5.1** of this report. A total area of 78 hectares was cleared in advance on mining activities during the reporting period. Following the clearance of vegetation all available topsoil is stripped and recovered. Topsoil resources are placed directly on rehabilitation areas if available or relocated to stockpiles for future use.

The site topsoil balance is updated annually to track the recovery and usage of topsoil and to ensure adequate resources are available for rehabilitation of disturbed areas at the SMC. The latest topsoil balance was updated in December 2019. At December 2019, an estimated 360,079 cubic metres of topsoil was held in various stockpiles at the SMC. This would provide for rehabilitation of approximately 360 hectares to the nominal topsoil depth of 100mm. The current area of disturbance which will require topsoil (i.e. not including final void areas or permanent water bodies) is 319 hectares.

The SMC topsoil balance will be updated again during the next reporting period.

Rehabilitation Maintenance

Recommendations for maintenance activities on rehabilitated land have been included in the rehabilitation monitoring reports, refer to **Section 8.3**.

During the reporting period maintenance activities focussed on the improvement of pasture rehabilitation across the Stratford waste emplacement and included slashing and the removal of woody acacia regrowth. Erosion control works were completed on several areas of gully erosion identified in the Stratford and BRN rehabilitation. Weed control has been undertaken across all rehabilitation areas targeting lantana, blackberry, wild tobacco and Giant Parramatta grass.

Recommendations to undertake additional tubestock planting in targeted areas of the native rehabilitation to improve biodiversity and stem density as stated in **Section 8.3** will be considered during the next reporting period.

8.3 REHABILITATION MONITORING

Monitoring of the SMC rehabilitation areas is described in Section 8 of the MOP. Rehabilitation is monitored on a regular basis to ensure vegetation is establishing in the rehabilitation areas and to determine the need for any maintenance and/or contingency measures (e.g. supplementary plantings, weed or erosion control). The monitoring also aims to demonstrate the effectiveness of the rehabilitation techniques and track the progression towards achieving the performance and completion criteria.

Visual Monitoring

Rehabilitation monitoring includes a visual assessment:

- monitoring of soil erosion status and the effectiveness of erosion control methods;
- assessing germination success and vegetation establishment (diversity and abundance);
- usage of habitat enhancement features;
- the presence of weeds or feral animals; and
- mine landform runoff water quality.

The visual monitoring provides an early identification of areas requiring remedial planting or other maintenance works to maintain rehabilitation progress.

Ecosystem Function Analysis

The assessment of rehabilitation quality and ecosystem value is conducted via the use Ecosystem Function Analysis (EFA). EFA aims to measure the progression of rehabilitation towards self-sustaining ecosystems. EFA has been incorporated into the overall SMC rehabilitation monitoring program to provide an assessment of landscape functionality.

EFA Analogue Transects have been established in proximal areas to represent the varying landscapes (i.e. slopes and aspects) and target communities planned for each rehabilitation area.

In December 2013, a fixed transect-based Landscape Function Analysis (LFA) and Vegetation Structure monitoring program was established across the SMC Rehabilitation areas. These 30 transects were assessed again in May 2019 as part of the sixth annual round of monitoring in accordance with Section 8 of the MOP. A copy of the full report is available from the Stratford Coal Environmental Department.

The 2019 Survey Report concluded that the rehabilitation areas of the SMC are progressing satisfactorily considering the effects of the ongoing drought conditions. The established Native Flora Rehabilitation Areas have experienced a loss of species overall. Flora development is still dependent upon the initial seeding or planting regime and will require time for further development. The oldest native flora rehabilitation area is now 20 years old and is approaching the required vegetation structure, indicating the time scale required. The Pasture Rehabilitation areas have proven capable of supporting grazing. Future actions relate to pasture management rather than active rehabilitation or remediation.

The analysis of the survey results provides the basis for the following recommendations (**Table 40**) (Kleinfelder Australia, 2019):

Table 40
Summary of Rehabilitation Monitoring Recommendations 2019

Native Flora Rehabilitation	Recommendations
Bowens Road North 2014	• Reseeding exposed soil area with grass and/or cover crop species suitable for surface stabilisation e.g. *Chloris gayana* (Rhodes Grass), *Cenchrus clandestinum* (Kikuyu) and *Cynodon dactylon* (Couch); and • Implement a tubestock planting program with canopy and "missing" shrub species to rehabilitate the area to woodland community standard.
Bowens Road North 2011	• Implement a tubestock planting program with canopy and "missing" shrub species to rehabilitate the area to woodland community standard; and • Continued monitoring to determine if canopy plantings/seeding are required.
Roseville Waste Emplacement 2005	• Implement a tubestock planting program with canopy and "missing" shrub species to improve biodiversity and density.
Bowens Road North 2006- 08	• Implement a tubestock planting program with canopy and "missing" shrub species to improve biodiversity and density; • For monitoring purposes, treating the area represented by T25 separately from the southern BRN area (T30); and • Installation of nest boxes to facilitate native fauna colonization.
Stratford Woodland Rehabilitation 1996/97	• Continue with periodic and regular control of woody weeds that have potential to hinder revegetation effort – i.e. *Arajia sericifera, Lantana camara, Lonicera japonica and Solanum mauritianum*; and • Installation of nest boxes to facilitate native fauna colonization.
Pasture Rehabilitation	Recommendations
Stratford Waste Emplacement	• Continue monitoring as per consent conditions until such time as sign off and relinquishment process completed; and • Instigate normal pasture weed management practices – suppression of native colonisers (e.g. *Acacias*) and pasture weeds (e.g. *Cirsium vulgare*).

The outcomes and recommendations from the rehabilitation monitoring will guide the future rehabilitation efforts and maintenance works.

Fauna Monitoring

Fauna usage of the native woodland/forest rehabilitation areas is monitored and documented over time. Fauna surveys are conducted to assess the success of the rehabilitation and revegetation activities in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance. Fauna monitoring was undertaken as described in **Section 6.5.9**.

8.4 REHABILITATION TRIALS AND RESEARCH

SCPL has extensive experience in both native woodland/forest revegetation and agricultural pasture rehabilitation, with successful rehabilitation areas completed over the past 20 years at both the Stratford and Duralie mine sites. Learnings from the rehabilitation works undertaken onsite to date along with industry best practice guidelines are employed in the methodology for new rehabilitation areas.

Rehabilitation trials have been also undertaken in the Duralie Coal Mine Biodiversity Offset Areas. These trials have provided learnings and methods for the rehabilitation and biodiversity offset work at SMC.

8.5 DEVELOPMENT OF THE FINAL REHABILITATION PLAN

8.5.1 Mine Closure Planning

The current MOP (Section 10) includes a mine closure planning program, which includes a schedule of all technical and/or environmental assessments that will be required to undertake final rehabilitation and closure of the SMC. In future MOP revisions, appropriate completion dates will be inserted for each of the technical and environmental assessments and rehabilitation/closure works.

The mine closure planning program is designed to inform the preparation of a detailed Mine Closure Plan, which is required to be prepared and submitted to the DRG prior to the expiry of the MOP term. The Mine Closure Plan would include final rehabilitation measures for all areas including infrastructure areas, water management areas, waste emplacements, rejects facilities, final voids and biodiversity offsets.

The SMC MOP (2019) describes the proposed operational mining and rehabilitation activities for the currently approved SMC until 1 March 2021. Rehabilitation strategies are provided in the Environmental Assessments for the SMC. Rehabilitation will be generally consistent with the proposed rehabilitation strategy as depicted in SSD-4966.

The proposed final landforms for the SMC would include a combination of pasture and native woodland rehabilitation consistent with the surrounding environment. This would also include final voids and wildlife corridors.

8.5.2 Infrastructure Decommissioning

The mine closure planning program includes consideration for infrastructure decommissioning including:

- Identify and remove/demolish all non-active infrastructure which is not required for the remainder of processing activities; and
- Undertake consultation to confirm any alternative use for retained infrastructure (i.e. rail loop, haul roads, access tracks and dams) post-mining.

These activities would be undertaken towards the end of mine life.

8.5.3 Waste Emplacements & Final Landforms

The rehabilitation objectives for the final landforms requires final landform designs which sustain the intended land use for the post-mining domain(s). Final landforms are to be consistent with and complement the topography of the surrounding region to minimise the visual prominence of the final landforms in the postmining landscape. Final landforms are to incorporate design relief patterns and principles consistent with natural drainage.

SCPL have continued to develop the detailed final landform designs consistent with the conceptual rehabilitation strategy in the EIS 2012 and rehabilitation objectives in the Development Consent. The MOP also includes detail regarding the rehabilitation implementation requirements and the conceptual final rehabilitated landform for the SMC.

SCPL will continue to progress the final landform designs during the next reporting period.

8.5.4 Stratford Main Pit & Reject Emplacement Rehabilitation

The Stratford Main Pit continues to be used for the disposal of reject material and is now envisaged that the Main Pit will effectively be filled with waste material and rejects over the life of the operation. Rehabilitation concepts for the Stratford Main Pit include profiling the backfilled pit to free-draining landforms, capping the reject material and topsoiling for revegetation with endemic woodland/open forest species.

The overall rehabilitation objective for the Stratford Main Pit is to create and landform which is safe, stable and non-polluting. The final landform would drain to the natural environment and minimise visual impact as far as is reasonable and feasible and be sympathetic to the original Gloucester valley landform.

To achieve the final landform in the Stratford Main Pit the void will be backfilled with co-disposed reject material and overburden spoil. The Main Pit will also be used for water storage during the life of the

operation. Xenith has been commissioned to investigate concepts of how to undertake these activities safely and document the intended approach.

The proposed Stratford Main Pit Rehabilitation methodology includes strategies and assessments for:

- Waste emplacement and scheduling;
- Rejects emplacement and scheduling;
- Geotechnical analysis of slope stability and factors of safety during backfilling;
- Assessing reject characterisation and settling densities;
- Pit dewatering and inert material capping;
- Site water balance review; and
- Development of stage plans to achieve final landform.

8.5.5 Final Void & Water Management

At the completion of mining, the SMC final landform will include partially backfilled final voids located at the Roseville West Extension Pit, Avon North Open Cut and Stratford East Open Cut. The rehabilitation objectives for these final voids are to:

- Minimise the catchment area of the final voids.
- Ensure the final voids are stable and non-polluting.
- Leave the void surrounds safe (for humans and stock).

The management of final voids for the SEP is described in the EIS 2012 rehabilitation strategy and has been included in the SEP MOP. The mine closure planning program includes several components relating to water management and final voids including:

- Review the site water balance to ensure the balance incorporates the final landform design, surface water inflows and outflows to/from final voids.
- Review the site groundwater model to ensure the model is consistent with the final landform design.
- Review the post-mining drainage design to ensure comparable drainage density to local natural landforms.
- Review the medium to long term water quality predictions of the final voids against available monitoring data to determine the need for additional/alternate management.

8.6 REHABILITATION TARGETS

The SMC MOP Plan 3B - Mining and Rehabilitation Year 2 (March 2020) rehabilitation target is a cumulative total of 320 hectares of rehabilitation.

Rehabilitation of approximately 20 hectares of waste emplacement (currently Landform Establishment Phase) is scheduled be undertaken in the next reporting period in accordance with the MOP.

9. COMMUNITY RELATIONS

9.1 COMMUNITY ENGAGEMENT ACTIVITIES

YAL is committed to making a positive contribution in the areas in which it operates. To help facilitate this commitment, SCPL has established the Community Support Program to provide assistance to local initiatives within the local area in which they operate. The aim of the Community Support Program is to help benefit a diverse range of community needs such as education, environment, health, infrastructure projects, arts, leisure and cultural heritage.

The SCPL Community Support Program has granted over $635,000 since commencing in 2010 and during 2019 a total of $85,950 in grants was distributed between 22 community organisations for a diverse range of community projects and initiatives.

The community groups to receive grants in 2019 are summarised in **Table 41**.

Table 41
Summary of Community Support Program Recipients -2019

Community Support Program 2019 Recipients	Project Description
Gloucester Police Department	Gloucester Police & Friends Charity Golf Day
Street Swags for Homeless	Massive Murray River Paddle – Street Swags for Homeless
Gloucester Little Athletics Centre Inc	High Jump Mats
Stroud Neighbourhood Children's Cooperative	Outdoor space roof lining
Gloucester Country Club	Stratford Coal Super Sevens Golf Competition 2019
Stroud Raiders Rugby League Club	Football goal post replacement.
Gloucester Pre-School	Kitchen Upgrade
Booral Rural Fire Brigade	Defibrillator for Driver Reviver
NSW Rural Fire Service - MidCoast District	Brigade Capability Enhancement - Hose Washing Devices and Cooler Boxes.
Stroud Rodeo Association	2019 Stroud Rodeo and Campdraft - Major Sponsor
Stroud & District Country Club	Stroud Country Club Family Fun Day
Stroud Show Association	2019 Stroud Show - Major Sponsor
Bucketts Way Neighbourhood Group Inc	Training Room Equipment Upgrade
Gloucester Agricultural, Horticultural & Pastoral Assoc.	Gloucester Show 2018
Gloucester Thunderbolts Swimming Club Inc.	Purchase of new laptop for club admin and presentations.
Gloucester Public School P & C Assoc	Oven upgrade in school canteen
Stratford Public School	Apple Swivl Camera
Stroud Road Community Hall & Progress Assoc	Stroud Road Spring "Bash 'n Bang" 2019
Gloucester High School	Laptops - Class sets for use in classrooms (30 x laptops)
Gloucester Mountain Man Triathlon Inc.	2019 Gloucester Mountain Man Tri Challenge
MidCoast Science & Engineering Challenge	MidCoast Science & Engineering Challenge and Discovery Days 2019
Gloucester Pony Club Inc	Gloucester Pony Club Show Jumping Equipment

SCPL have also continued their commitment to education and training in the Gloucester region through SCPL's Education Support Program, providing much needed funding for the next generation of young students. The Education Support Program is managed by an independent committee and the funds distributed by the MidCoast Council. In 2019, $29,000 has been allocated in funding to help support local students and businesses in university degrees, TAFE courses and apprenticeships.

Since the commencement of mining in 1995, SCPL has contributed more than $700,000 to locally based community and training initiatives via the Education Support Program. During that time, the funding has made a genuine difference to the lives of over 150 tertiary students, 100 apprentices and 50 businesses.

YAL and SCPL have continued their partnership with the Clontarf Foundation Chatham Academy. During 2019, SCPL engaged in several activities with the Chatham Academy students including a site visit to the Stratford Coal mine site. The site visit provided an example of an operational mine site and what goes into running a mine including the rehabilitation of mine land and took part in tree planting in the Stratford Biodiversity Offset Area.

Stratford Coal hosted an open day on 25 May 2019 for the family and friends of employees. The day involved mine site tours, preparation plant tours, mining equipment displays, other active displays and information. Support was provided by the following local community groups; Gloucester Rotary Club, MidCoast Rural Fire Service, Stroud Community Lodge, Gloucester High School, Gloucester RSL, Gloucester Masonic Lodge. Approximately 500 people attended over the course of the open day.

9.2 COMMUNITY CONSULTATIVE COMMITTEE

The Stratford Coal Community Consultative Committee (CCC) was established in 1995 and operates under the guidance of the NSW DPIE. Meetings were held quarterly during 2018 and provide a forum for open discussion between the community, Council, the Company and other stakeholders on issues relating to the mine's operations, environmental performance and community engagement.

The CCC for the SMC is currently comprised of:

- An independent Chairperson;
- Five (5) local community representatives;
- Two (2) local government representatives (MidCoast Council); and
- Two (2) SCPL representatives.

The CCC was formed in accordance with Schedule 5, Condition 6 of SSD-4966. The CCC operates in such a manner as to satisfy the *Community Consultative Committees Guidelines for State Significant Projects* (Department of Planning, 2016) and to the satisfaction of the Secretary of the DPIE.

During the reporting period, quarterly meetings were held in February, May, August and November 2019. Items raised and/or discussed during these CCC meetings include but are not limited to:

- Progress at the mine and general SEP update including proposed road closures;
- Environmental Management Plans;
- Environmental monitoring, including air quality, noise, surface water and groundwater;
- Environmental Reporting;
- Community Complaints;
- Community engagement and Council contributions;
- Biodiversity Offset Strategy and the Successful Nest Box Program;

- Rural property management of SCPL owned land;
- Weeds, pest and pasture management;
- Bushfire mitigation;
- Mine rehabilitation and mine closure planning; and
- Post-mining land use planning.

Committee site tours during 2019 included the Avon North Open Cut, the Stratford East Open Cut Conservation Area and the Wenham Cox Road Diversion. The CCC meeting agendas, presentations and minutes are available on the Stratford Coal website (www.stratfordcoal.com.au).

An 2019 Annual Report for the Stratford Coal CCC was prepared by the Chair and submitted to DPIE on 31 March 2020.

9.3 ENVIRONMENTAL COMPLAINTS

Complaints (by category) received by SMC over the last 4 reporting years are provided below in **Table 42**:

Table 42
Community Complaints Summary

Complaint Category	2015 interim (July – December 2015)	2016 (January – December 2016)	2017 (January – December 2017)	2018 (January – December 2018)	2019 (January-December 2019)
Noise	2	0	1	4	1
Blasting	0	0	0	0	4
Air Quality	0	0	1	0	0
Water	0	0	0	0	0
Lighting	0	0	0	0	0
Traffic/Transport	0	0	0	0	0
Visual	0	0	0	0	0
Other	0	0	0	0	0
Total Complaints	**2**	**0**	**2**	**4**	**5**

Five complaints were received during the 2019 reporting period. Four complaints relating to blast overpressure and one relating to mine noise.

Summary comments for complaints received during 2019:

- The total number of complaints received during the reporting period was five (5) with the total number of complainants being two (2);
- Complaints were related to noise and blasting; and
- The total number of complaints increased slightly during the reporting period.

A full complaints listing is provided in **Appendix 7** and includes details of SCPL's responses to complaints. A summary of complaints by category is also provided in the relevant sections of the report.

9.3.1 Liaison and Complaint Resolution

SCPL aims to inform the community of its activities and consult with the community in an open and honest fashion and address complaints/conflicts and consult to achieve mutually acceptable outcomes.

In accordance with the Conditions of SSD-4966, SCPL is required to establish and maintain a complaints handling and response procedure. SCPL operates a system to receive, handle, respond to and record complaints or information requests relating to operation of the SMC which is described in the Environmental Management Strategy.

SCPL operates a dedicated community information hotline (1300 658 239) 24 hours per day. The number is advertised within the Sensis *White Pages Directory (Newcastle)*, a local telephone directory (*Pink Pages*) and in the local newspapers *(Gloucester Advocate and Dungog Chronicle)* on a six monthly basis.

Designated SCPL staff, when notified of a complaint, determines an appropriate response on the basis of the nature of the complaint during business hours. This may involve a site visit/inspection, liaison with personnel on site by telephone or other appropriate action. After business hours, all complaints and operations are reviewed as soon as practicable by the open cut examiner and responded to by SCPL staff during business hours.

All complaints received and responses taken in relation to each complaint are recorded in a Complaints Register. The Complaints Register is tabled at each CCC meeting for the period covered since the last Committee meeting and is included in **Appendix 7**. The complaints register is also made available on the Stratford Coal website.

9.4 EMPLOYMENT STATUS AND DEMOGRAPHY

At the end of the reporting period (i.e. December 2019), the total number of FTE employees/contractors employed at the SMC was 139, including 97 SCPL employees and 42 Ditchfield contractors. During the reporting period 2 environmental representatives were employed and shared with the nearby Duralie Coal Mine.

In addition to direct permanent employment at the mine, on the basis of a conservative employment multiplier of one mine site job generating one job within the general community, up to 121 (full time equivalent) jobs are expected to have been provided in supporting services. On the basis of a review of employees' living location, 43% of mine employees currently resided within the greater local area (defined as being bounded by Stroud, Gloucester and Dungog).

9.5 EMPLOYEE ENVIRONMENTAL AWARENESS TRAINING

SCPL recognises the importance of establishing, developing and maintaining a risk-aware, trained, and competent workforce at its operations to ensure a high standard of environment and community management.

SCPL environment & community management objectives include:

- ensuring employees and contractors are informed about SCPL's policies and are made aware of their environmental and community responsibilities in relation to SCPL's activities;
- providing all employees/contractors with the knowledge, skills and equipment necessary to meet their environmental obligations; and
- promoting an awareness and concern for good environmental management amongst all employees/contractors.

New employees and contractors working at site are provided with information on environmental and community issues as part of Stratford Coal induction training which is updated periodically. This includes elements such as the Pollution Incident Response Management Plan and reporting obligations of personnel and the management of environmental incidents. Ongoing environmental

awareness training is also undertaken with staff and employees periodically at but not restricted to pre-start and monthly crew talk meetings.

During the reporting period employee and contractor training included presentations and communications on:

- General environmental management, approvals and awareness – Training was undertaken during 2019 with all employees and contractors at the Stratford operations. This included information on environmental management milestones including the 2018 audit outcomes to the Pollution Incident Response Management Plan and incident reporting.
- A general guidance for Setting up Lighting Plants training was provided to mining supervisors in the first quarter of the reporting period.
- 2019 Internal Environmental Assurance Audit - A presentation was provided to the site managers and supervisors on the findings presented as opportunities for improvement.
- Real-time Noise and Dust Management System– Presentation was undertaken in July 2019 with all employees and contractors regarding the environmental compliance requirements, implementing proactive and reactive mitigation through response protocols for the Real-time Noise and Dust Management Systems.

10. INDEPENDENT ENVIRONMENTAL AUDIT

An Independent Environmental Audit of the SMC was not required during the reporting period. In correspondence from DPIE dated 30 November 2018, DPIE advised the initial Independent Environmental Audit required by SSD-4966 must be commissioned prior to 31 December 2020.

11. INCIDENTS AND NON-COMPLIANCE

Activities at the SMC continue to be carried out in accordance with Development Consent SSD-4966 for the SEP.

A protocol for managing incidents and non-compliances is included in the SMC Environmental Management Strategy.

A statement of compliance is included in Section 1 of this report. During the reporting period there was one incident/non-compliance at the SMC. A summary of the non-compliance with Development Consent SSD-4966 during the reporting period are included in Table 2b and further detail is included below.

On the 10 December 2019, a blast in the Roseville Pit at the SMC was not recorded on video as required within the approved Blast MP Section 6.2. No complaints were received in relation to this blast and no environmental harm was perceived.

Following an investigation into this incident it was found the drone and video camera were deployed however the video camera was not operational at the time of the blast. SCPL have since updated the Pre-Blast Checklist to include this requirement to ensure blasts not be fired if the video camera is not working.

This incident will also be reported as a non-compliance with EPL 5161 in the EPL Annual Return.

12. ACTIVITIES PROPOSED IN THE NEXT REPORTING PERIOD

SCPL will continue mining operations in accordance with Development Consent SSD-4966 for the SEP during 2020.

A Development Consent (SSD-4966) Modification was lodged in December 2019 to permit water stored at its SCM to be made available to MidCoast Council (as a public authority) for the benefit of local services and other potential public purpose water needs. Approval was granted outside of the 2019 AR reporting period.

The following environmental targets have been set for the next 12 months:

- Mining and rehabilitation activities will be implemented in accordance with the timing in stage plans in the SMC MOP;
- Commission and completion of the required SMC Independent Environmental Audit; and
- Continue to meet the environmental management, monitoring and reporting requirements in accordance with the conditions of SSD-4966.

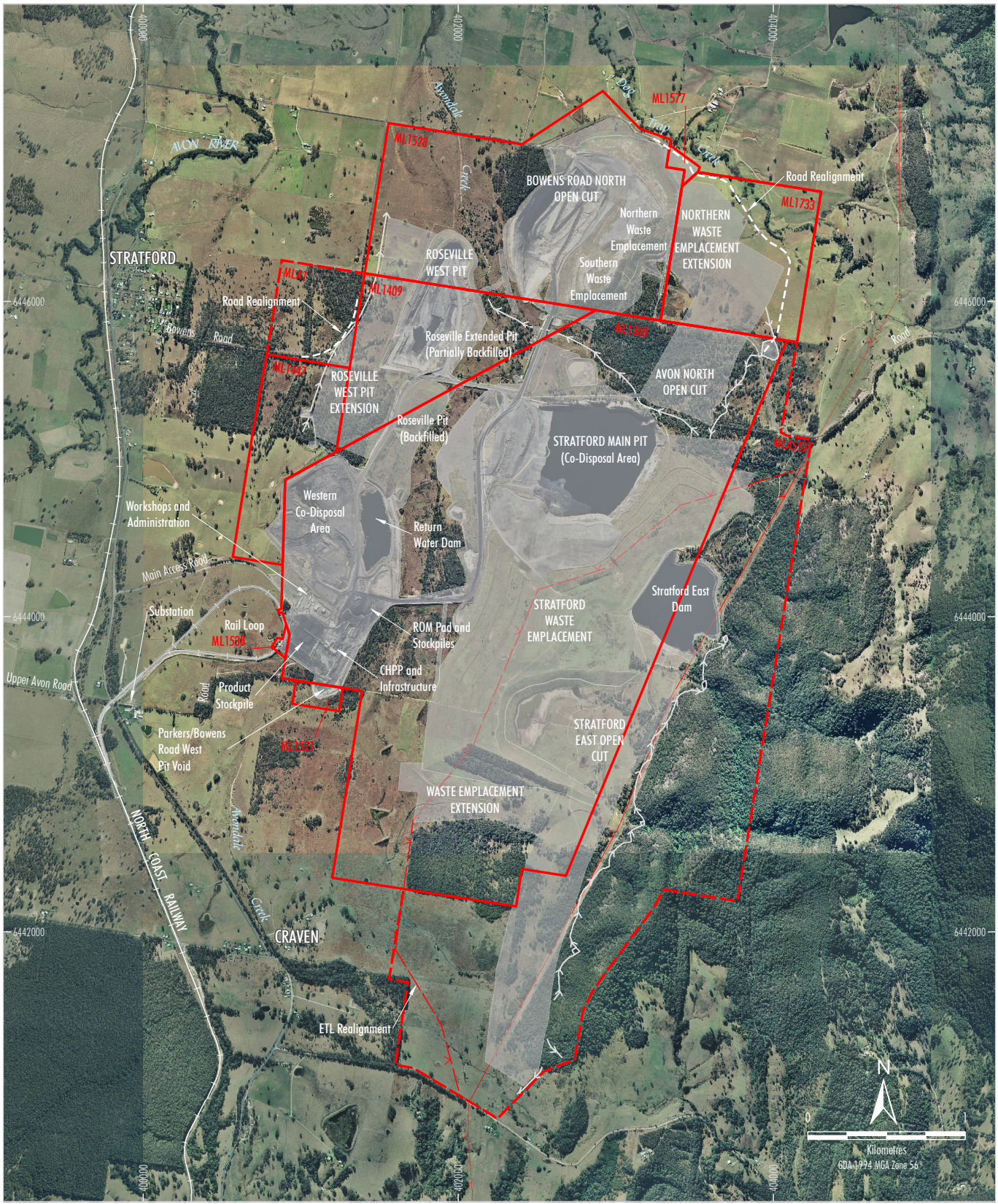
13. REFERENCES

- Boughton. W.C. (2004). *The Australian Water Balance Model, Environmental Modelling and Software*, Vol 19, pp. 943-956.
- Gilbert and Associates (2012). *Stratford Extension Project Surface Water Assessment for Stratford Coal Pty Ltd,* Gloucester.
- Duralie Coal Pty Ltd (2018). *Duralie Coal Biodiversity Management Plan.*
- Heritage Computing (2012). *A Hydrogeological Assessment in Support of the Stratford Coal Project Environmental Impact Statement*.
- Invertebrate Identification Australasia (2019). *Biological Monitoring of the Stratford Mining Complex for Stratford Coal Pty Ltd,* Gloucester.
- Kleinfelder Australia Pty Ltd (2018). *2019 Stratford Rehabilitation Monitoring Report*.
- Resource Strategies (2001a). *Bowens Road North Project Environmental Impact Statement*
- Stratford Coal Pty Ltd (2018). *Stratford Mining Complex (Stratford Extension Project) Biodiversity Management Plan*
- Stratford Coal Pty Ltd (2018a). *Stratford Mining Complex (Stratford Extension Project) Heritage Management Plan*
- Stratford Coal Pty Ltd (2018b). *Stratford Mining Complex (Stratford Extension Project) Life of Mine Rejects Disposal Plan*
- Stratford Coal Pty Ltd (2018c). *Stratford Mining Complex (Stratford Extension Project) Squirrel Glider Management Plan*
- Stratford Coal Pty Ltd (2019) *Stratford Coal Mine Pollution Incident Response Management Plan*
- Stratford Coal Pty Ltd (2019a). *Stratford Mining Complex (Stratford Extension Project) Air Quality Management Plan*
- Stratford Coal Pty Ltd (2019b). *Stratford Mining Complex (Stratford Extension Project) Blast Management Plan*
- Stratford Coal Pty Ltd (2019c) *Stratford Mining Complex Mining Operations Plan and Rehabilitation Management Plan*
- Stratford Coal Pty Ltd (2019d). *Stratford Mining Complex (Stratford Extension Project) Noise Management Plan*
- Stratford Coal Pty Ltd (2019e). *Stratford Mining Complex (Stratford Extension Project) Water Management Plan*
- Stratford Coal Pty Ltd (2019). *Stratford Mining Complex Annual Biodiversity Report 2019*
- Stratford Coal Pty Ltd (2010) *Stratford Coal Mine July 2010 Modification Environmental Assessment*
- Stratford Coal Pty Ltd (2012) *Stratford Extension Project Environmental Impact Statement*
- Julien Freed Consulting (2019). *Stratford Coal AS 4282:2019 Compliance Report*

- Kayandel Archaeological Services (2012). *Stratford Extension Project Aboriginal Cultural Heritage Assessment.*

Appendix 1:

- **Site Locality Plan**
- **Monitoring Locations**
- **Disturbed and Rehabilitated Land Plan**



YAN-17-10_MP2017 MPCF_202A

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Electricity Transmission Line
- Approximate Extent of Existing/Approved Surface Development
- Conceptual Up-Catchment Diversion

STRATFORDCOAL
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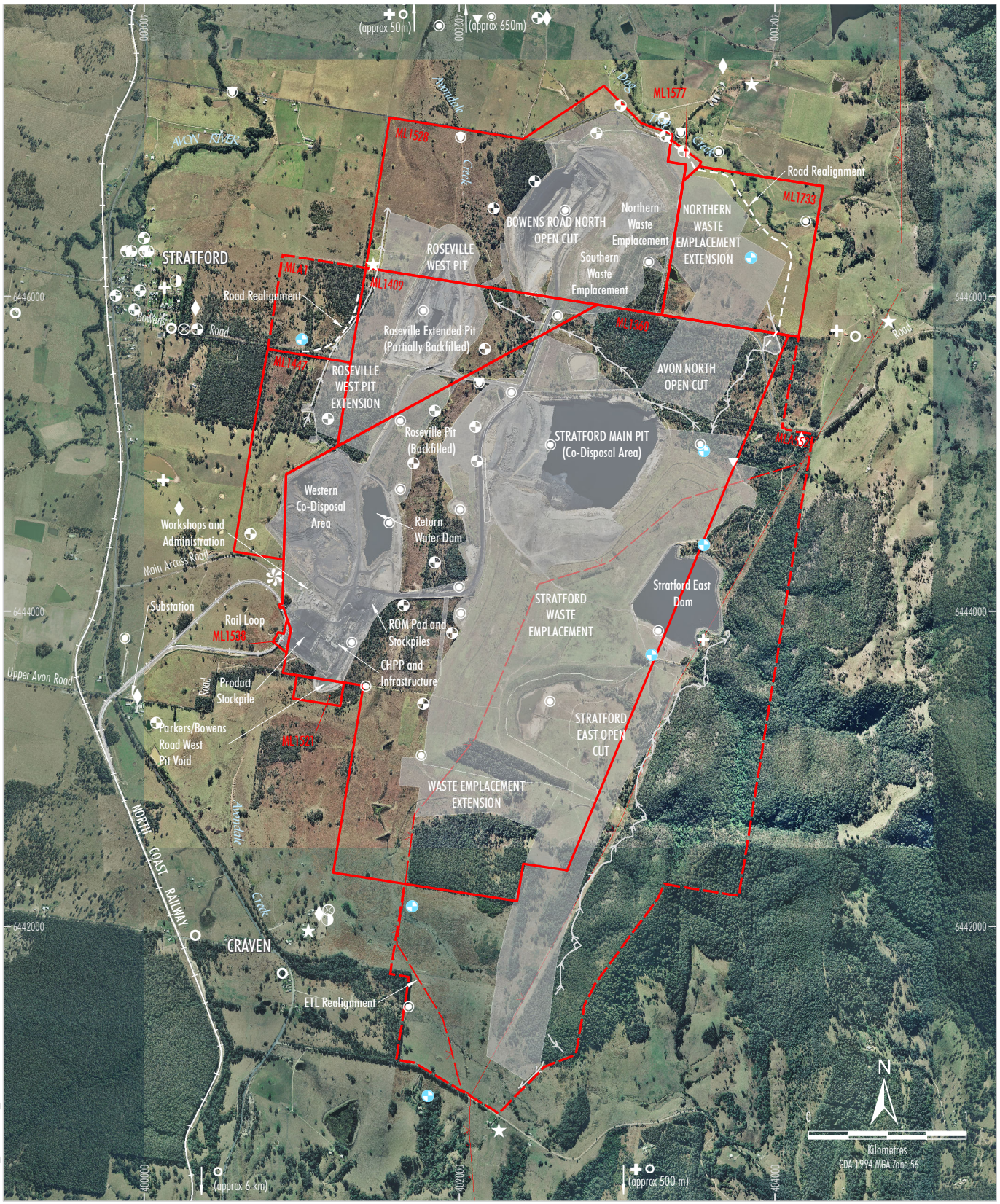
STRATFORD EXTENSION PROJECT

Approved General Arrangement

Source: Orthophoto - Yancoal (July 2014); LPI (2016); NSW Department of Planning & Environment (2017)

Figure 2



YAN-17-10_MP2018 MPCF_204A

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Electricity Transmission Line
- Approximate Extent of Existing/Approved Surface Development
- Conceptual Up-Catchment Diversion

Monitoring Sites

- Groundwater Monitoring Site
- Surface Water Quality Monitoring Site
- Meteorological Station
- Static Dust Gauge
- High Volume Air Sampler
- Noise Monitoring Site
- Real-time Noise Monitoring Site
- Blast Monitoring Site
- TEOM Monitoring Site
- Macroinvertebrate Monitoring Site
- Future Groundwater Monitoring Site

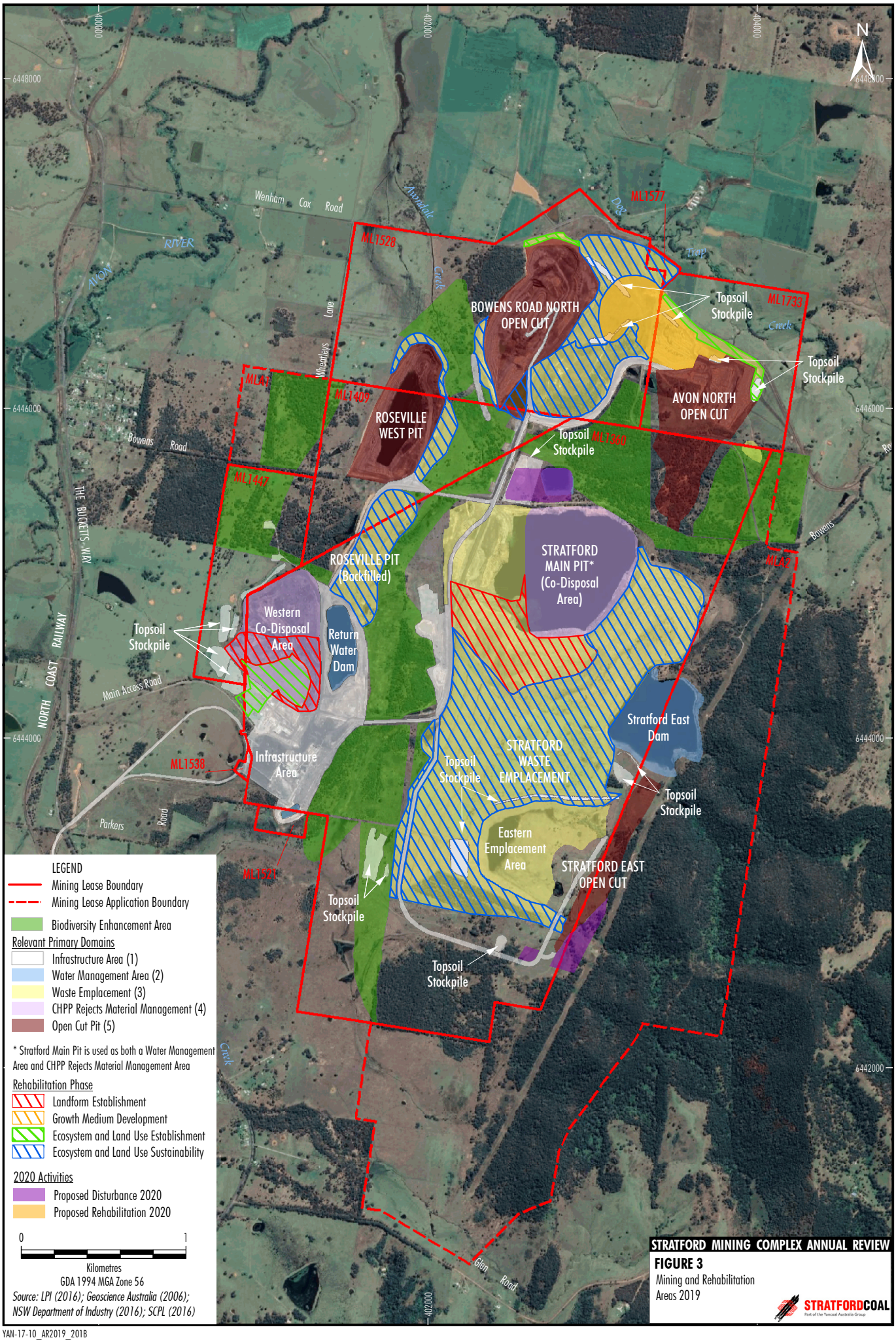
STRATFORDCOAL
Part of the Yancoal Australia Group

STRATFORD EXTENSION PROJECT

Environmental Monitoring Sites

Source: Orthophoto - Yancoal (July 2014); LPI (2016); NSW Department of Planning & Environment (2017)

Figure 3



YAN-17-10_AR2019_2018

Appendix 2:

Meteorological Monitoring

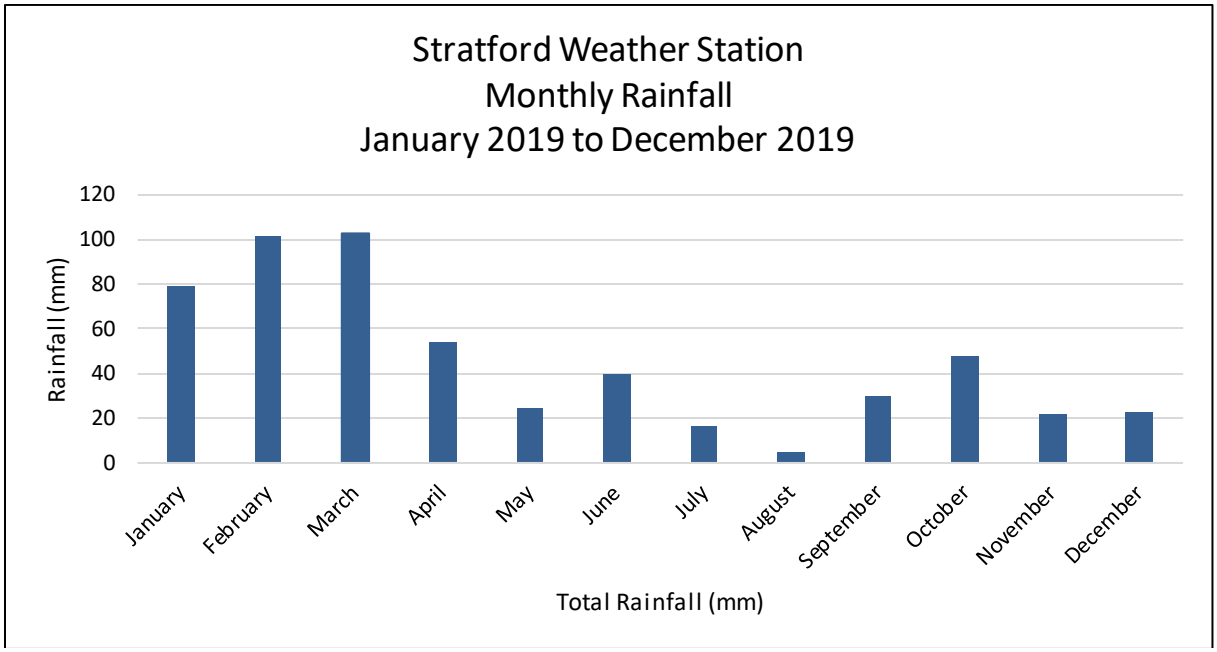


Figure 2.1: Monthly Recorded Rainfall during the Reporting Period

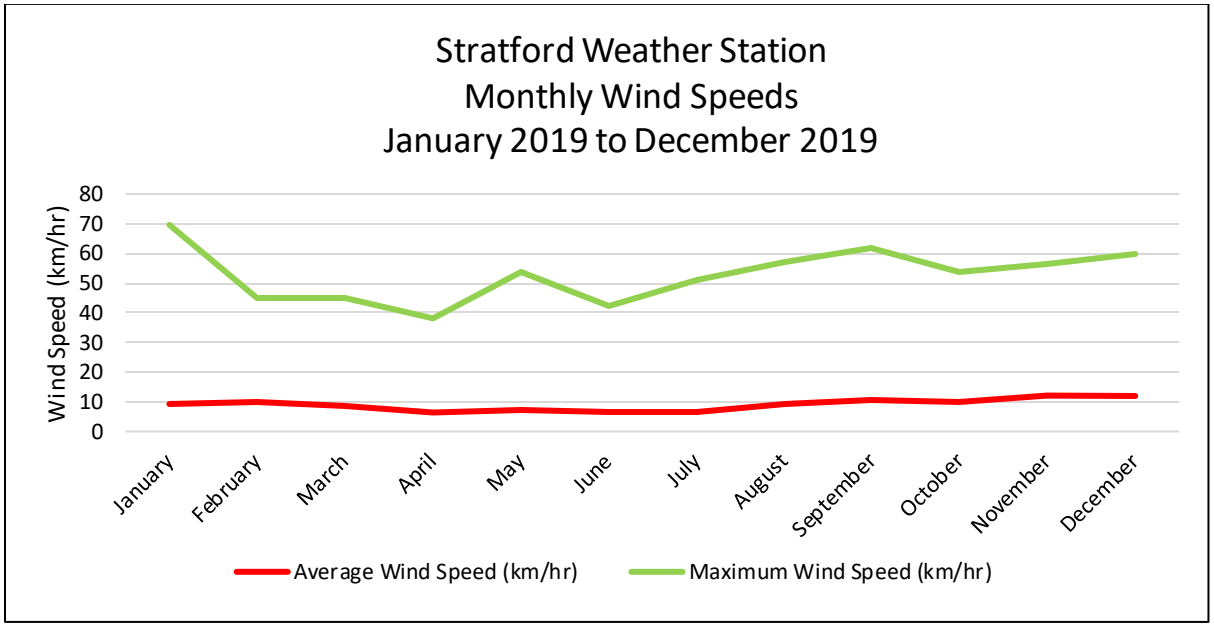


Figure 2.2: Minimum, Maximum and Average Wind Speeds during the Reporting Period

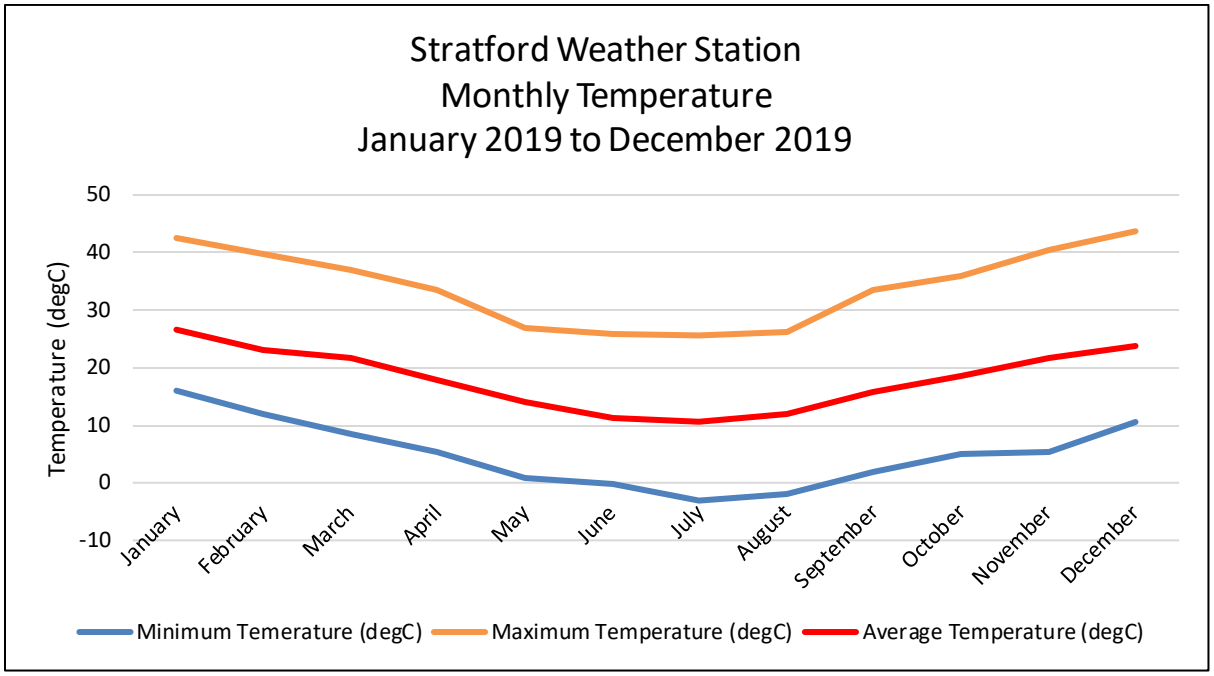
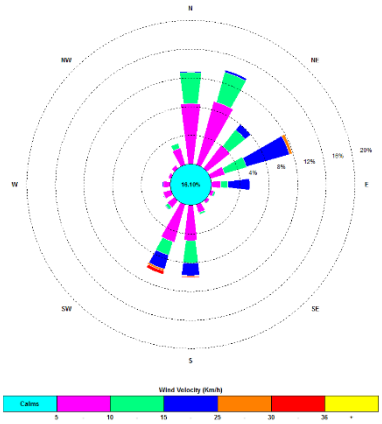
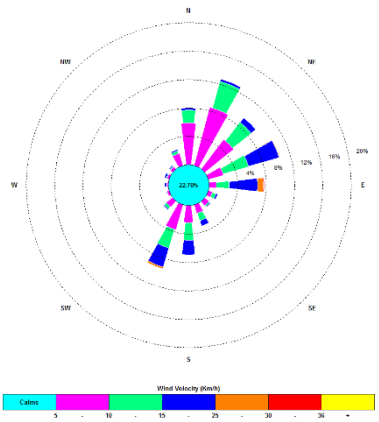


Figure 2.3: Minimum, Maximum and Average Temperature during the Reporting Period

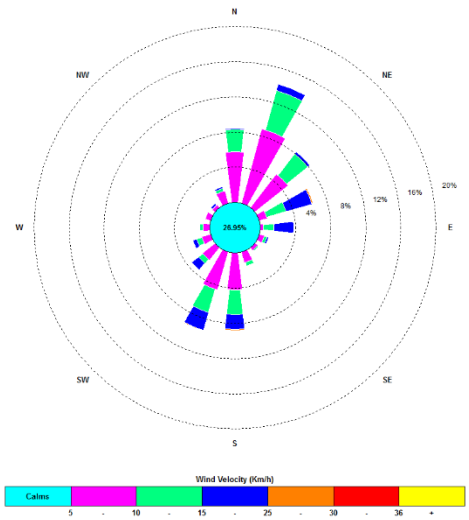
January 2019



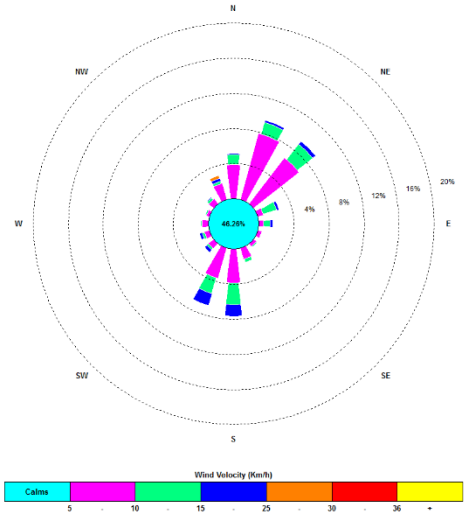
February 2019



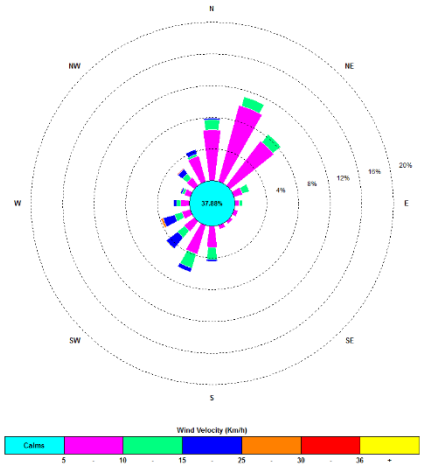
March 2019



April 2019



May 2019



June 2019

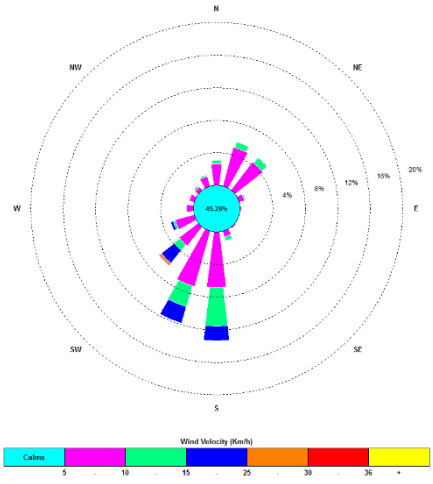


Figure 2.4: Monthly Windroses Displaying Wind Direction and Speed Frequencies during the Reporting Period

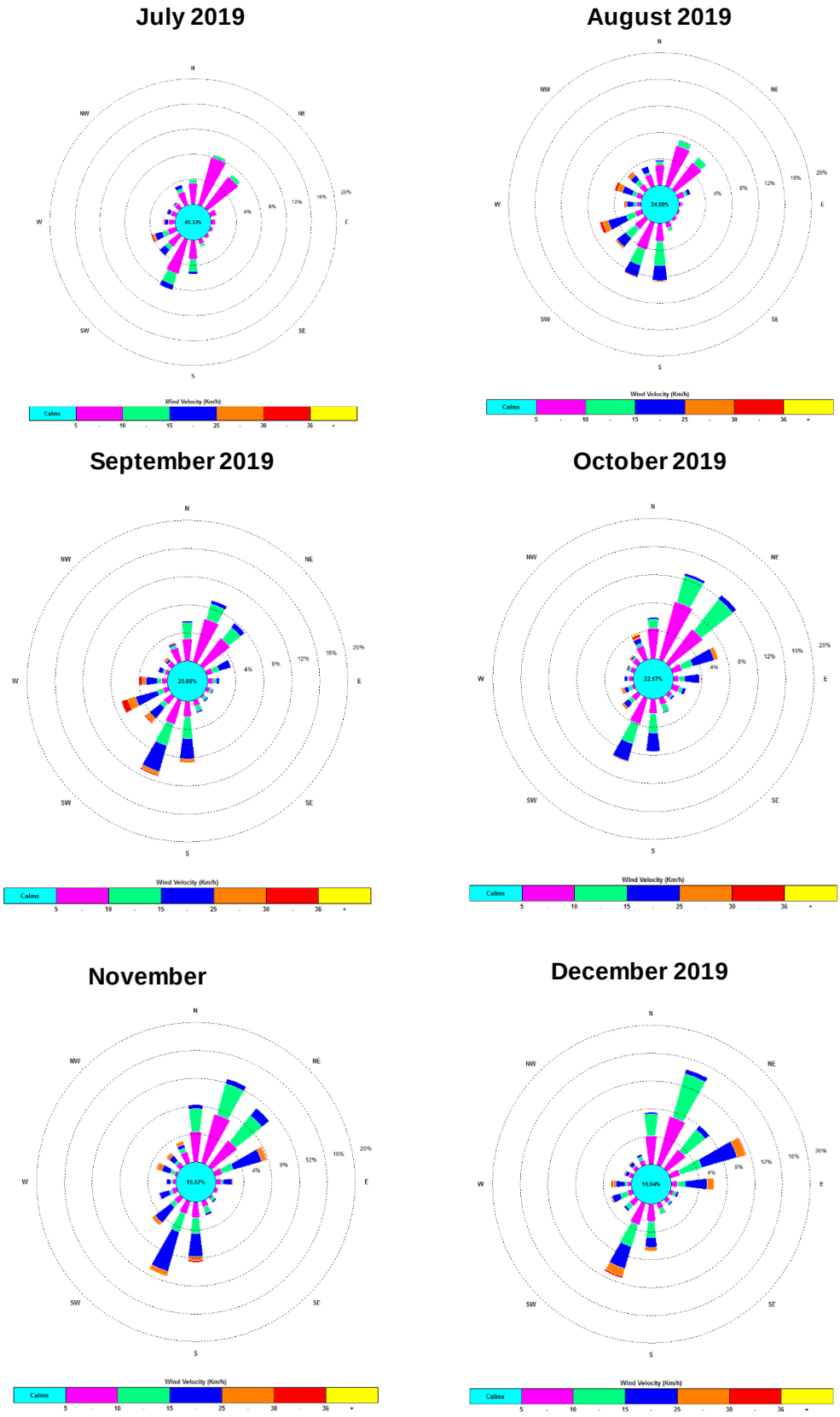


Figure 2.4: (Continued) Monthly Windroses Displaying Wind Direction and Speed Frequencies during the Reporting Period

Appendix 3:

Air Quality Monitoring

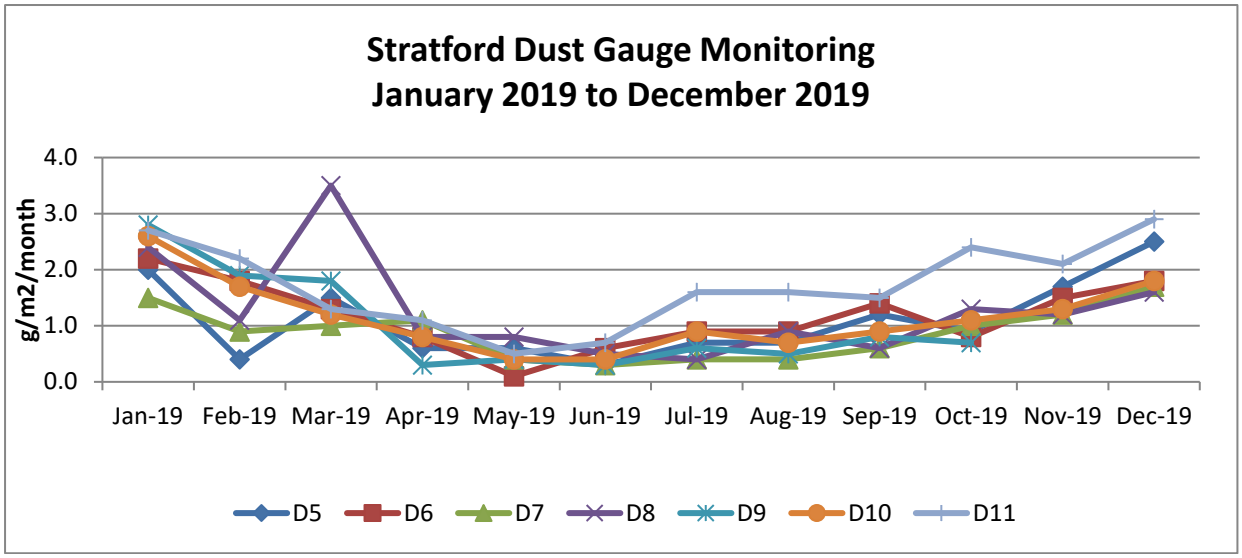


Figure 3.1: Depositional Dust Monitoring Results from January 2019 to December 2019

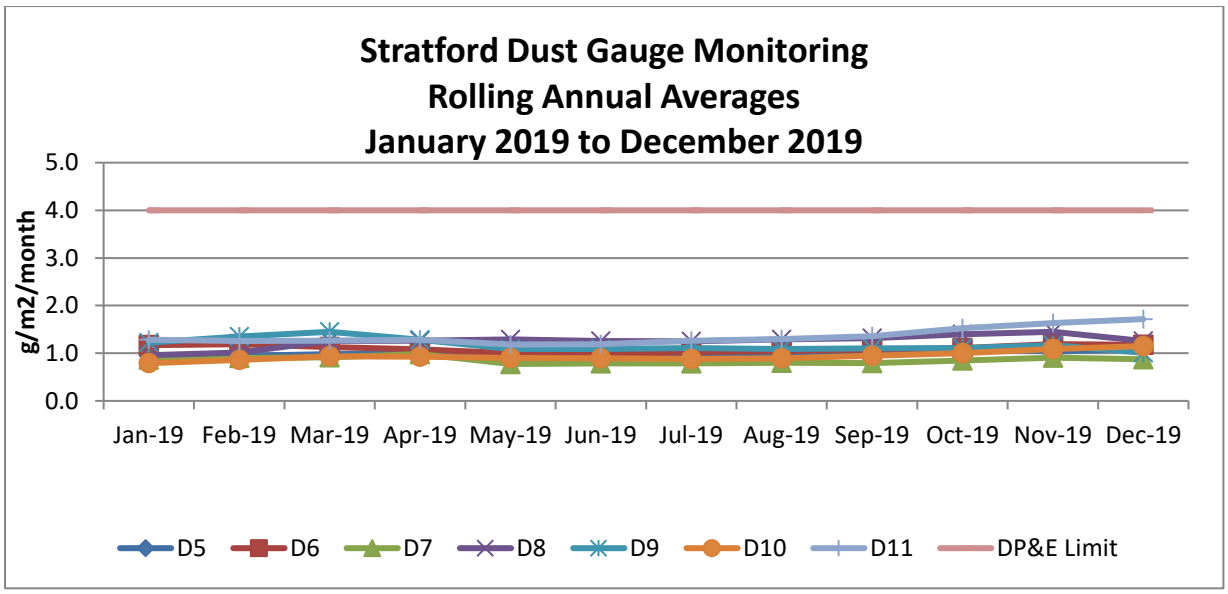


Figure 3.2: Depositional Dust Annual Averages from January 2019 to December 2019

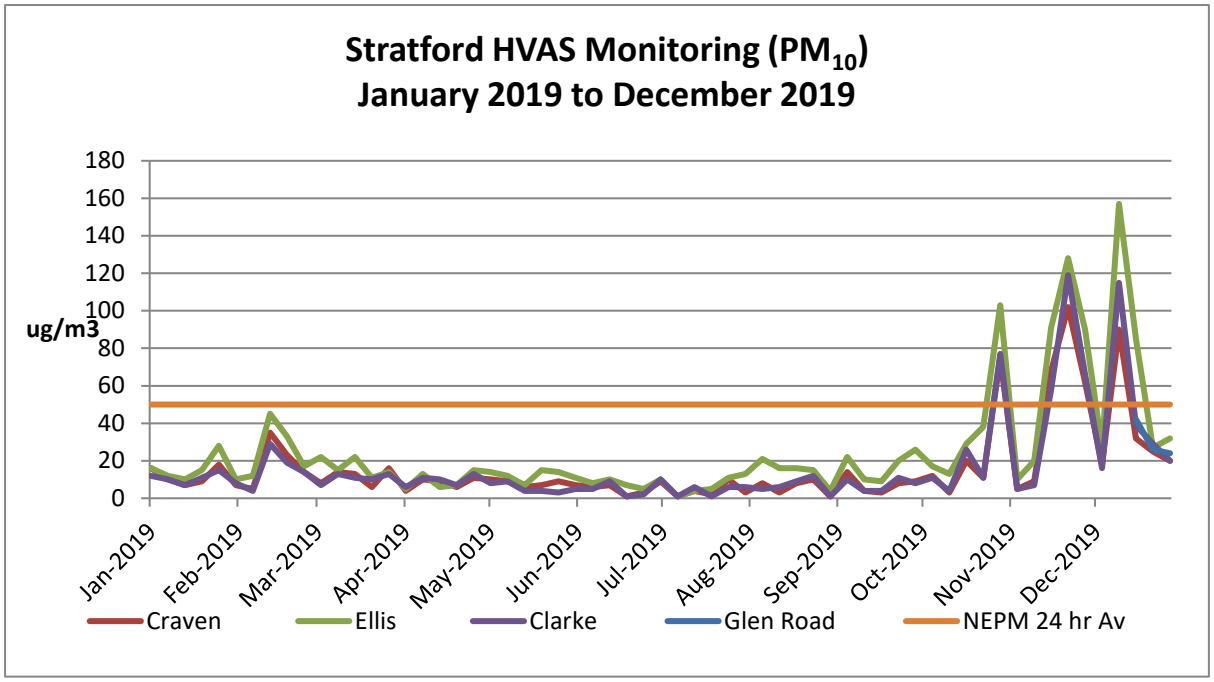


Figure 3.3: High Volume Air Sampler (HVAS) PM_{10} Results

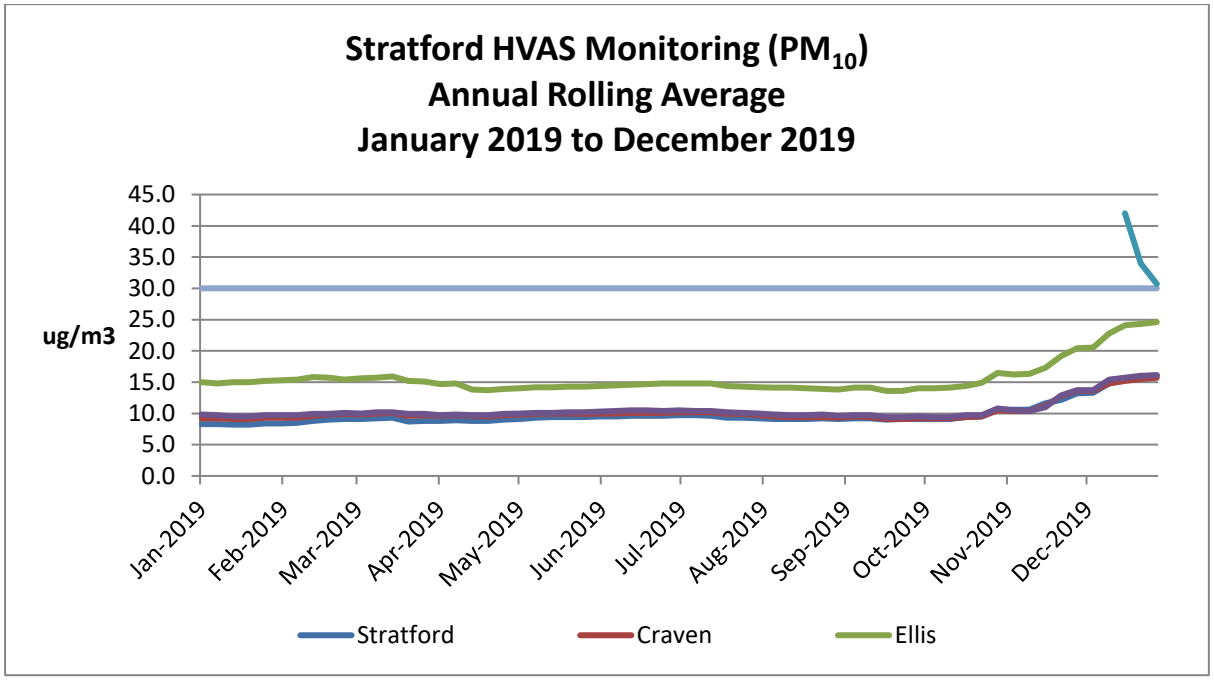


Figure 3.4: HVAS PM_{10} Rolling Annual Average Results

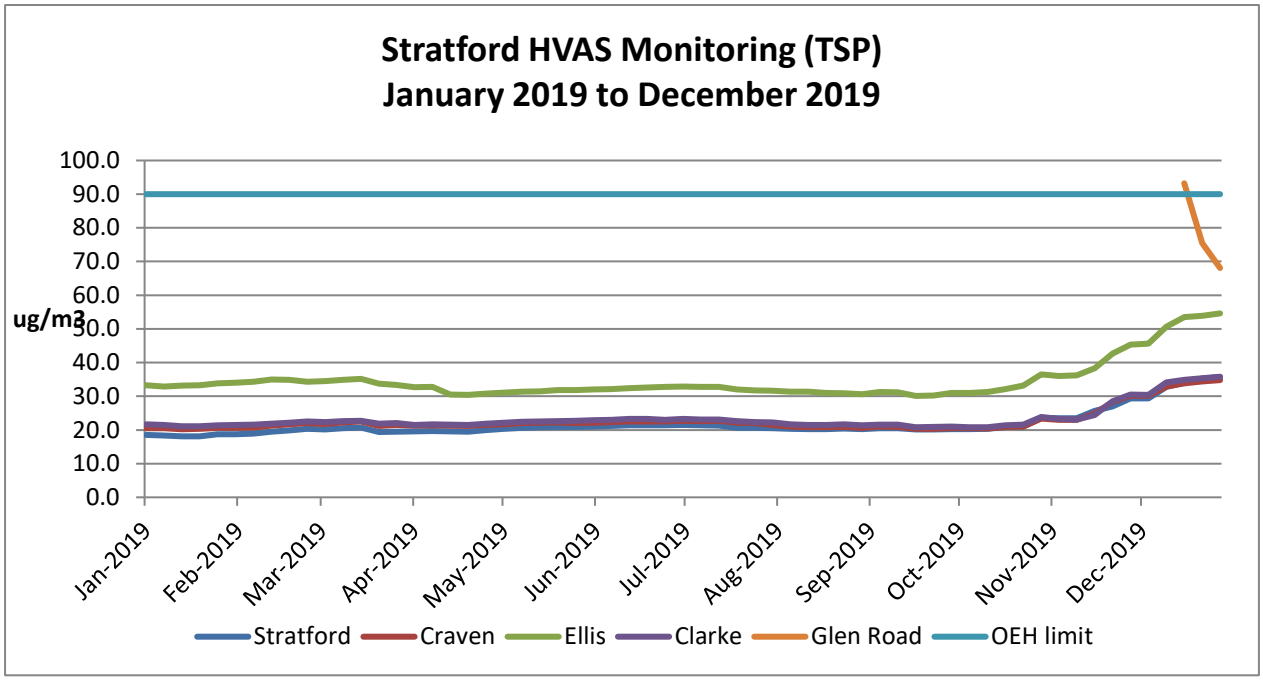


Figure 3.5: HVAS Total Suspended Particulates (TSP) Results

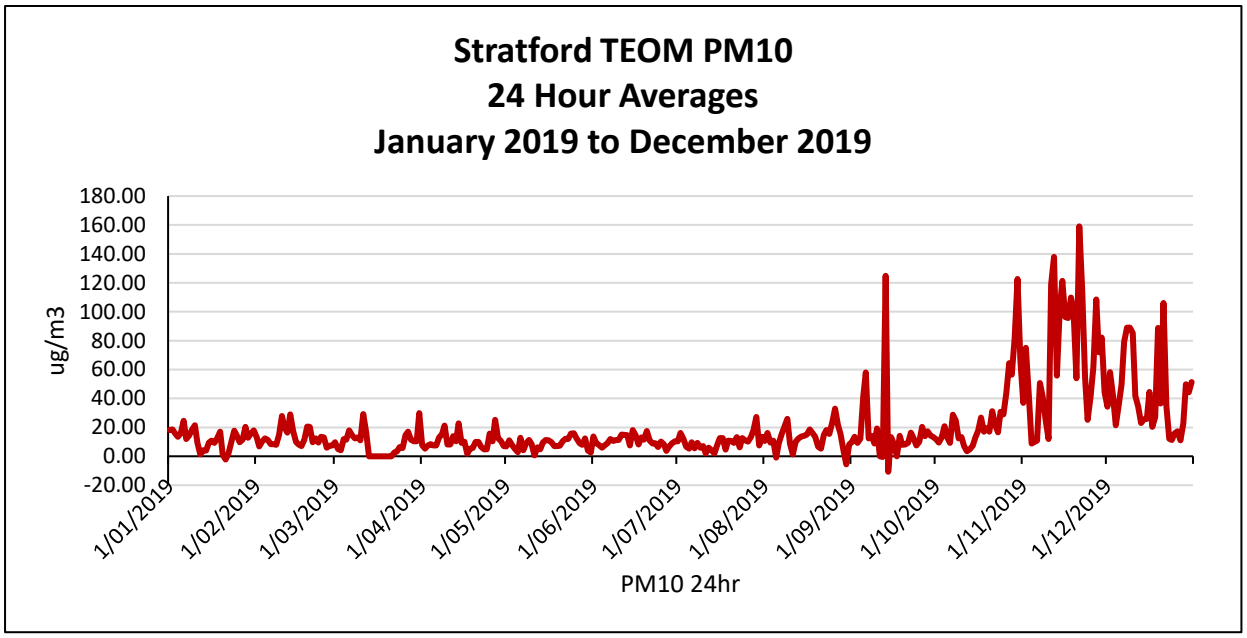


Figure 3.6: Stratford TEOM Real Time Dust Monitoring (PM_{10}) Results

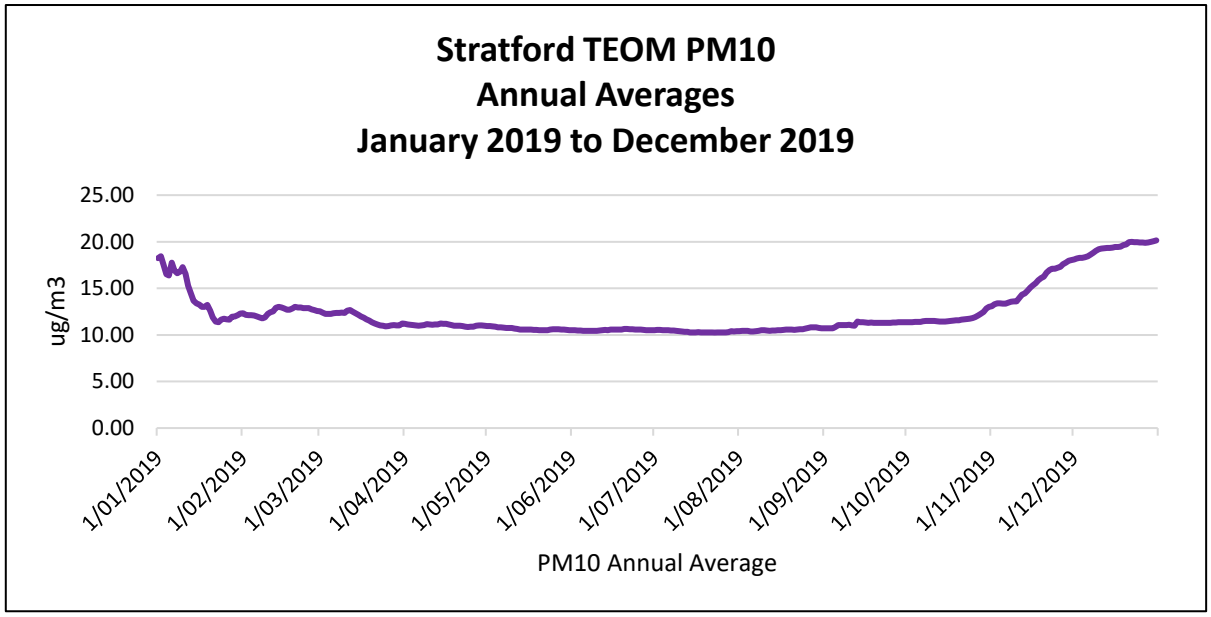


Figure 3.7: Rolling Annual Average Stratford TEOM (PM_{10}) Results

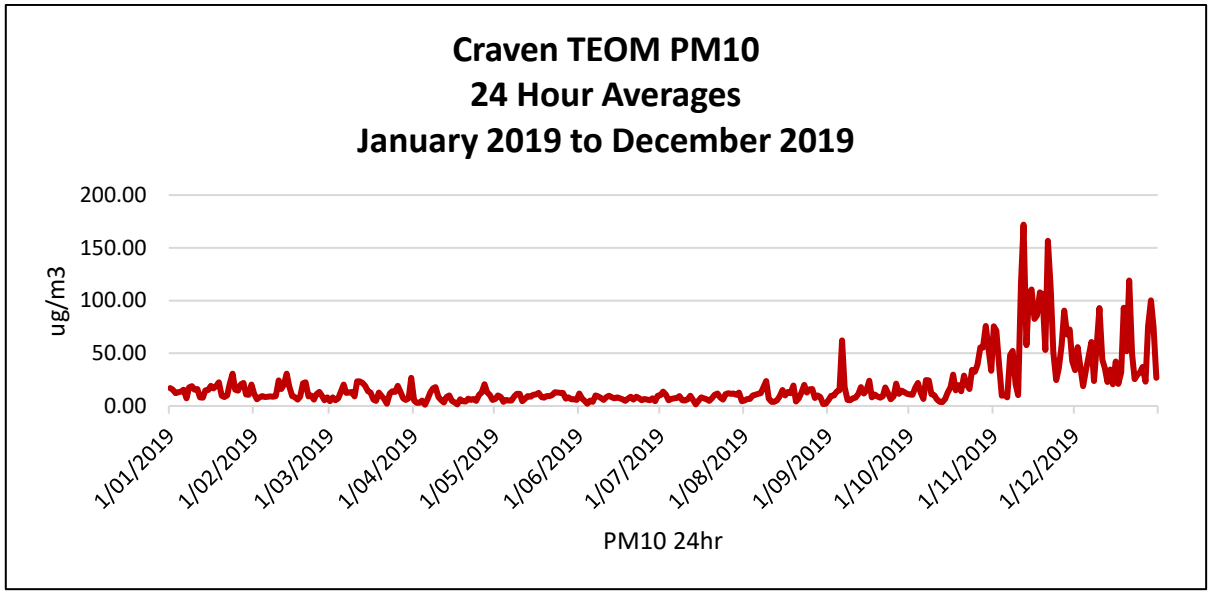


Figure 3.8: Craven TEOM Real Time Dust Monitoring (PM_{10}) Results

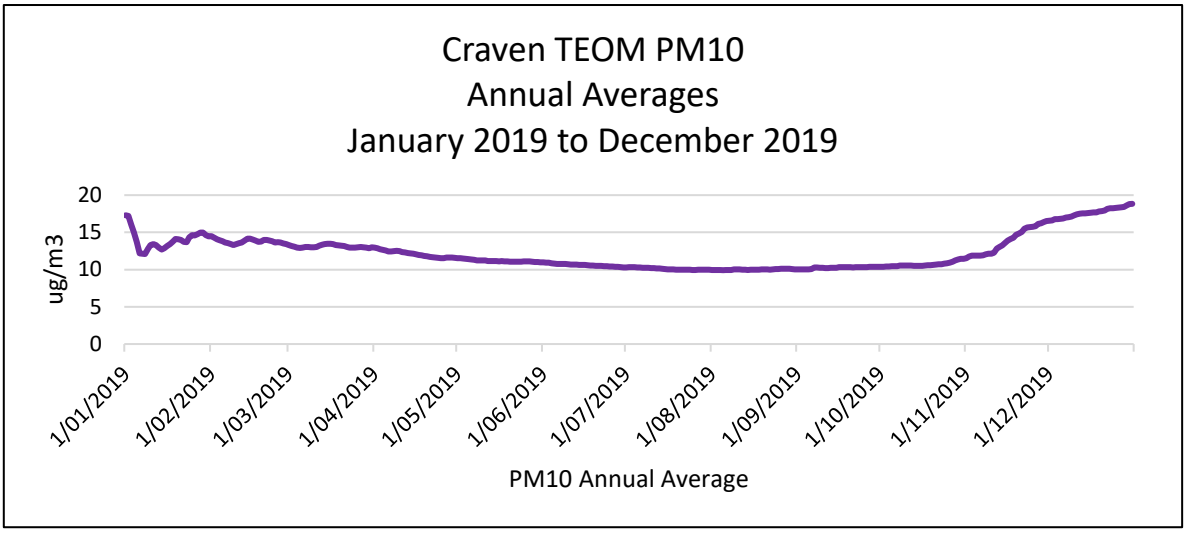


Figure 3.9: Rolling Annual Average Craven TEOM (PM_{10}) Results

Appendix 4:

Surface Water and Groundwater Monitoring

Surface Waters

W1 **Upstream Avon River**
(Wenhams Cox Road - Glenavon)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Nil flow																						
2-Feb-19	Event	Nil flow																						
27-Mar-19	Monthly	Nil flow																						
30-Mar-19	Event	Nil flow																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W2 **Downstream Avon River**
(Marengo - Bignall)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Nil flow																						
2-Feb-19	Event	Nil flow																						
27-Mar-19	Monthly	Nil flow																						
30-Mar-19	Event	Nil flow																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W3 **Upstream Dog Trap Creek**
(Dog Trap Creek - Ellis)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Nil flow																						
27-Mar-19	Monthly	Dry																						
30-Mar-19	Event	Dry																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

Environmental Monitoring Data - Surface Water

W3A **Upstream Dog Trap Creek**
(Dog Trap Creek - Ellis)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Nil flow																						
2-Feb-19	Event	Nil flow																						
27-Mar-19	Monthly	Nil flow																						
30-Mar-19	Event	Nil flow																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W4 **Avondale Creek - Downstream of Dog Trap Creek**
(Avondale Swamp - Atkins)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Nil flow																						
2-Feb-19	Event	Nil flow																						
27-Mar-19	Monthly	Nil flow																						
30-Mar-19	Event	Nil flow																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W5 **Downstream of Mine - Upstream of Avondale Swamp**
(Wenhams Cox Road - SCPL)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Nil flow																						
27-Mar-19	Monthly	Dry																						
30-Mar-19	Event	Dry																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W6 **Upstream of Mine on Avondale Creek**
(Parkers Road - SCPL)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Dry																						
27-Mar-19	Monthly	Dry																						
30-Mar-19	Event	Dry																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W8

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Dry																						
27-Mar-19	Monthly	Dry																						
30-Mar-19	Event	Dry																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W9 **Upper Avondale Creek**
(Off Glen Road - SCPL)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Dry																						
27-Mar-19	Monthly	Dry																						
30-Mar-19	Event	Dry																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W10 **Lemon Tree Creek**
(Off Bowens Road - SCPL)

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Dry																						
27-Mar-19	Monthly	Nil flow																						
30-Mar-19	Event	Nil flow																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	No access. Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	Nil flow																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

W11

DATE	EVENT	Flow	pH	Cond. (uS/cm)	Temp °C	Turbidity (NTU)	TDS (mg/L)	TSS (mg/L)	Alkalinity (mg/L)	Sulphate (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Mg (mg/L)	Copper (mg/L)	Mn (mg/L)	Iron (filt.) (mg/L)	Arsenic (mg/L)	Cd (mg/L)	Cr (mg/L)	Boron (mg/L)	Mercury (mg/L)	Lead (mg/L)	Tot. N (mg/L)	Tot. P (mg/L)
31-Jan-19	Monthly	Dry																						
2-Feb-19	Event	Dry																						
27-Mar-19	Monthly	Dry																						
30-Mar-19	Event	Dry																						
29-Apr-19	Monthly	Nil flow																						
29-May-19	Monthly	Nil flow																						
27-Jun-19	Monthly	Nil flow																						
31-Jul-19	Monthly	Nil flow																						
30-Aug-19	Monthly	No access - Client informed at time of sampling																						
27-Sep-19	Monthly	Nil flow																						
13-Oct-19	Event	Nil flow																						
29-Nov-19	Monthly	Nil flow																						
30-Dec-19	Monthly	Nil flow																						

Environmental Monitoring Data - Surface Water

Summary of Results - Mine Water Storage Monitoring Points

Site	Roseville West Pit			BRW (Parkers) Pit		
Parameter	**Min**	**Max**	**Average**	**Min**	**Max**	**Average**
pH	7.6	8.2	8.0	7.2	8.0	7.7
EC	3960.0	6560.0	5276.4	2110.0	3240.0	2721.4
ORP	60.0	212.0	111.3	126.0	250.0	177.6
Acidity	<1	22.0	9.8	<1	25.0	14.2
Aluminium	0.01	0.23	0.05	0.01	0.10	0.04
Suplhate	80.0	298.0	209.4	458.0	973.0	771.3
Sodium	445.0	736.0	595.1	156.0	271.0	218.6
Calcium	152.0	406.0	269.0	176.0	315.0	250.3
Chloride	891.0	1980.0	1399.6	200.0	337.0	252.3
Iron	0.08	0.8	0.3	0.05	0.7	0.2
Zinc	0.006	0.009	0.008	0.01	0.06	0.03
Magnesium	94.0	169.0	132.5	63.0	143.0	111.4
Maganese	0.01	0.40	0.15	0.04	2.8	0.9
Site	**RWD (Return Water Dam)**			**ESD (Stratford East Dam)**		
Parameter	**Min**	**Max**	**Average**	**Min**	**Max**	**Average**
pH	7.8	8.4	8.1	8.3	9.0	8.7
EC	3090.0	4690.0	3924.2	813.0	1080.0	965.9
ORP	12.0	166.0	77.3	7.0	241.0	114.0
Acidity	N/A	N/A	N/A	<1	<1	<1
Aluminium	N/A	N/A	N/A	0.02	0.09	0.05
Suplhate	N/A	N/A	N/A	44.0	102.0	80.6
Sodium	N/A	N/A	N/A	114.0	148.0	130.7
Calcium	N/A	N/A	N/A	24.0	34.0	28.5
Chloride	N/A	N/A	N/A	137.0	183.0	155.3
Iron	N/A	N/A	N/A	0.05	0.08	0.07
Zinc	N/A	N/A	N/A	0.005	0.02	0.01
Magnesium	N/A	N/A	N/A	21.0	29.0	25.8
Maganese	N/A	N/A	N/A	0.01	0.10	0.04

Groundwaters

GW Series Groundwater Monitoring Bores

Bore ID	DATE	Depth to Water from top of Collar	Well Depth	DtoW below ground	pH	EC	Na	Cl	Fe (filt)	SO4	TDS	Ca	Mg	TSS	ORP	Temp
		(m)	(m)	(m)		(uS/cm)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		C
GW1	8-Feb-19	DRY														
	23-Aug-19	DRY														
GW2	8-Feb-19	10.6	17.03	9.4	7.18	5,120	740	1,370	29.8	30	2,870	48	116		66	21.1
	23-Aug-19	10.84	17.03	9.64	6.89	5,080	898	1,350	22.4	31	2,850	57	129		-10	20.6
GW3	8-Feb-19	3.56	6.38	2.66	**4.13**	3,740	624	1,060	25.5	84	2,040	15	49		3	21.1
	23-Aug-19	4.46	6.38	3.56	**3.67**	3,390	692	946	10.1	69	1,780	12	44		325	17.7
GW4	8-Feb-19	1.28	5.97	0.58	7.01	15,600	2,330	5,440	0.8	102	9,530	309	370		245	20.3
	23-Aug-19	2.10	5.97	1.40	6.65	15,000	2,410	4,940	2.0	109	8,980	320	397		189	16.1
GW5	8-Feb-19	3.95	8.55	2.95	7.29	11,400	1,700	3,690	52.9	426	6,950	168	275		1	23.2
	23-Aug-19	4.7	8.55	3.7	6.76	10,400	1,810	3,410	6.6	353	6,150	180	291		97	20.4
GW7	8-Feb-19	2.83	8.28	2.08	6.37	3,230	414	886	13.3	192	1,870	55	69		57	22.0
	23-Aug-19	3.41	8.28	2.66	6.25	3,820	658	1,060	12.9	65	2,150	73	97		38	20.6
GW8	8-Feb-19	DRY														
	23-Aug-19	DRY (too low to sample)														

Bore ID	DATE	Depth	Bore	Volume	pH	Cond.	ORP	Sulfate	Sodium	Chloride	Iron	TDS (mg/L)	Calcium	Magnesium	TSS	Temp
		(m)	Volume	Purged		(uS/cm)	(mV)	(mg/L)	(mg/L)	(mg/L)	(mg/L)				mg/L	°C
BRWN1	8-Feb-19	1.17	5.6	9	6.2	6,490	194	373	1,060	1,560	3.1	3,760	46	66		23.2
	23-Aug-19	1.63	4.6	9	5.2	6,000	264	468	1,310	1,500	2.5	3,490	38	71		15.6

Bore Id	DATE	Depth to	Corrected	pH	Cond.	ORP	Iron	Sodium	Chloride	Sulphate	TDS	Mg
		Water Level (m)	DTWL (m)		(µS/cm)	(mv)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
RB1	8-Feb-19	5.17	4.57	7.35	11,100	145	12	1,480	3,760	49	6,830	230
	2-May-19	5.38	4.78	6.79	10,600	-22	34	1,710	3,810	44	6,600	271
	23-Aug-19	5.75	5.15	6.71	10,600	140	8	1,730	3,840	40	6,250	255
	25-Nov-19	5.04	4.44	7.01	10,600	108	7	1,570	3,800	44	5,790	246
RB2	8-Feb-19	3.57	2.47	7.13	10,500	353	1	1,500	3,160	120	5,640	193
	2-May-19	3.83	2.73	6.71	9,850	-17	0	1,700	4,340	181	5,530	210
	23-Aug-19	4.35	3.25	6.87	9,500	347	1	1,700	3,350	151	5,350	192
	25-Nov-19	4.67	3.57	6.91	9,510	33	0	1,540	3,260	160	5,520	185
RB3	8-Feb-19	DRY										
	2-May-19	DRY										
	23-Aug-19	DRY (too low to sample)										
	25-Nov-19	DRY										

Groundwaters

Bowans Road North Groundwater Monitoring Bores

Bore Id	DATE	Depth to Water Level (m)	Corrected DTWL (m)	Bore Vol. (L)	Purged Vol. (L)	pH	Cond. (µS/cm)	ORP (mv)	Calcium (mg/L)	Iron (mg/L)	Lead (mg/L)	Magnesium (mg/L)	Maganese (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Bicarbonate (as Ca CO3) (mg/L)	Chloride (mg/L)	Sulphate (mg/L)
MW3	8-Feb-19	Dry																	
	2-May-19	Dry																	
	9-Aug-19	Dry																	
	14-Nov-19	Dry																	
MW4	8-Feb-19			Dry															
	2-May-19	15.8	15.3	Too low to sample															
	9-Aug-19			Dry															
	14-Nov-19			Dry															
MW6	8-Feb-19	7.69	7.19	4.5	13	6.11	449.0	62	12	2	0	11	0	0	2	70	59	70	85
	2-May-19	9.2	8.7	1.568	5.2	6.12	346.0	37	9	6	0	9	0	0	2	68	58	64	41
	9-Aug-19	10.4	9.9																
	14-Nov-19	10.18	9.68			5.91	676.0	240	19	10	0	17	0	0	2	83	86	112	65
MW7	8-Feb-19	10.36	9.86			5.94	3680.0	157	61	24	0	112	3	0	7	492	58	985	277
	2-May-19	10.77	10.27																
	9-Aug-19	10.59	10.09																
	14-Nov-19	10.76	10.26																
MW8	8-Feb-19	6.84	6.34	0.392	0.8	6.35	839.0	-64	9	14	0	7	0	1	2	172	99	244	18
	2-May-19	7.41	6.91	Too low to sample															
	9-Aug-19	Dry																	
	14-Nov-19	7.24	6.74	Too low to sample															
MW11	11-Jan-19	9.49	8.99																
	8-Feb-19	9.59	9.09	32.16	97	7.5	964	37	58	0.22	<0.001	9	0.036	0.02	2	155	336	154.0	15
	21-Mar-19	9.89	9.39																
	10-Apr-19	10	9.5				1080												
	2-May-19	10.02	9.52	31.3	96	7.1	900	-13	72	0.47	<0.001	10	0.056	0.05	2	149	262	160.0	30
	12-Jun-19	10.21	9.71																
	11-Jul-19	10.38	9.88				1190												
	9-Aug-19	10.6	10.1	30.184	93	7.1	1010	-33	76	0.77	<0.001	11	0.074	0.05	2	137	265	152.0	24
	12-Sep-19	10.92	10.42			6.9	1193												
	10-Oct-19	11.09	10.59			7.1	1157												
	14-Nov-19	11.19	10.69	29.3	92	7.2	1210	11	79	0.76	<0.001	12	0.081	0.06	2	161	335	191.0	20
	12-Dec-19	11.27	10.77			7.1	1034												
MW12	11-Jan-19	3.7	3.2																
	8-Feb-19	4.1	3.6	9.604	32	6.8	1440	36	62	4.27	<0.001	46	7.11	0.07	5	170	213	420.0	1
	21-Mar-19	4.35	3.85																
	10-Apr-19	4.39	3.89				1196												
	2-May-19	4.43	3.93	9	29	6.5	1170	-3	56	3.71	<0.001	42	5.92	0.03	5	138	145	364.0	<1
	12-Jun-19	4.51	4.01																
	11-Jul-19	4.55	4.05				1674												
	9-Aug-19	4.59	4.09	8.64	28	6.6	1620	24	73	2.49	<0.001	49	5.46	0.05	5	176	203	414.0	1
	12-Sep-19	4.7	4.2			6.3	1658												
	10-Oct-19	4.79	4.2			6.4	1673												
	14-Nov-19	4.89	4.39	8.055	28	6.6	1740	71	74	2.56	0.002	54	4.05	0.06	5	186	274	424.0	2
	12-Dec-19	5.02	4.52			6.6	1548												
Griffin	8-Feb-19	2.39	1.99																
	2-May-19	2.61	2.21																
	9-Aug-19	8.82	8.42			8.0	2320	21	27	1.19	<0.001	10	0.014	0.13	2	523	532	481.0	<1
	14-Nov-19	6.35	5.95			6.4	1080	76	38	7.3	<0.001	22	0.273	0.24	2	140	126	262.0	23

Groundwaters

Stratford Groundwater Monitoring Bores

Bore Id	DATE	Depth to	pH	Cond.	ORP	Temp	Calcium	Iron	Magnesium	Maganese	Lead	Phosphorus	Potassium	Sodium	Chloride	Sulphate	Biocarbonate as Ca CO3	Zinc	TDS
		Water Level (m)		(µS/cm)	(mv)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Bagnell (Stratford Shop)	11-Jan-19	9.77																	
Bagnell (Stratford Shop)	21-Mar-19	7.15																	
Bagnell (Stratford Shop)	10-Apr-19	Tap		963															
Bagnell (Stratford Shop)	12-Jun-19	Tap no longer available																	
Bagnell (Stratford Shop)	11-Jul-19																		
Bagnell (Stratford Shop)	9-Aug-19																		
Bagnell (Stratford Shop)	12-Sep-19																		
Bagnell (Stratford Shop)	10-Oct-19																		
Bagnell (Stratford Shop)	18-Oct-19																		
Bagnell (Stratford Shop)	14-Nov-19																		
Ex-Bramley	18-Apr-19	6.34																	
Ex-Bramley	18-Oct-19	6.7	7.24	1,560	-25	15	90	2	23	0	0	4	14	181	402	1	215	0.1	1,050
Ex-Butler/McDonald	18-Apr-19	Not home																	
Ex-Butler/McDonald	18-Oct-19	Not home																	
Fardell (ex Horner)	18-Apr-19	No one home																	
Fardell (ex Horner)	18-Oct-19	8.73																	
Forbes	18-Apr-19	Not home																	
Forbes	18-Oct-19	Not home																	
Germon	11-Jan-19	10.4																	
Germon	21-Mar-19	10.55																	
Germon	10-Apr-19	10.36		4,350															
Germon	12-Jun-19	Not home																	
Germon	11-Jul-19	10.16		4,470															
Germon	9-Aug-19	Not home																	
Germon	12-Sep-19	10.5	7.01	4,130															
Germon	10-Oct-19	10.81	7.1	3,800															
Germon	18-Oct-19	10.56	7.1	3,750	115	16.8	66	6.1	52	0.2	0.03	0.06	5	710	849.0	119	648	0.4	2,040
Germon	14-Nov-19	10.93	7.4	3,680															
Hooker	18-Apr-19	Resident home - would not answer door																	
Hooker	18-Oct-19	5.2	7.4	500	61	16.5	75	2.64	8	0.3	0.005	0.5	11	16	16.0	11	211	0.03	326
Mitchell	18-Apr-19	Not home																	
Mitchell	18-Oct-19	Not home																	
Glew	18-Apr-19	Not home																	
Glew	18-Oct-19	Bore in shed - Resident does not have key at moment																	
Smith	18-Apr-19	Not home																	
Smith	18-Oct-19	Not home																	
SCPL Bore, Wood St	11-Jan-19	10.83																	
SCPL Bore, Wood St	21-Mar-19	10.84																	
SCPL Bore, Wood St	10-Apr-19	10.87		4,330															
SCPL Bore, Wood St	12-Jun-19	10.88		7,970															
SCPL Bore, Wood St	11-Jul-19	10.87		8,350															
SCPL Bore, Wood St	9-Aug-19	10.6	6.6	8,090															
SCPL Bore, Wood St	12-Sep-19	10.95	6.6	7,800															
SCPL Bore, Wood St	10-Oct-19	11	6.5	7,630															
SCPL Bore, Wood St	18-Oct-19	11.01	6.7	7,780	-23	16	251	3.03	193	0.546	0.007	0.06	9	1140	2390.0	195	582	0.007	4,560
SCPL Bore, Wood St	14-Nov-19	11.05	6.6	7,370															

Appendix 5:

Blast Monitoring Results

STRATFORDCOAL
Part of the Yancoal Australia Group

Stratford 2019 Blast Monitoring Results

Shot #	Location	Date	Time	Isaac (B1) 7432		Ex-Judge (B2) 7441		Atkins (B6) 7434		Woodford 7422		Clarke (B5) (Mine-owned) 7433 (previously 7377)		Bagnall (Extrapolated result)		Overpressure Site Exceedance [1]	Overpressure "Cumulative Exceedance" [1]	Ground Vibration Site Exceedance [1]	Ground Vibration "Cumulative Exceedance" [1]	Monitored Blasts[1]	Fume Rating	Observations
			24hr	mm/s	dBL	mm/s	dBL	mm/s	dBL	mm/s	dBL	mm/s	dBL	mm/s	dBL	%		%				
AN018	Avon North	Friday, 4 January 2019	12:19:00	0.25	82.10	<0.25	<115	0.33	97.60	0.32	84.00	2.16	110.50	1.40	105.60	0.0%	0	0.0%	0	1	Nil	
AN013	Avon North	Thursday, 10 January 2019	12:04:00	<0.25	<115	<0.25	<115	<0.25	<115	0.39	84.2	1.02	110.1	0.70	105.70	0.0%	0	0.0%	0	2	Nil	
AN019	Avon North	Thursday, 17 January 2019	12:13:00	<0.25	<115	0.25	80.8	0.31	100.0	0.35	90.3	1.48	111.1	0.90	106.40	0.0%	0	0.0%	0	3	Nil	
AN023	Avon North	Wednesday, 23 January 2019	12:05:00	<0.25	<115	<0.25	<115	0.25	95.9	0.39	92.2	0.86	107.7	0.60	103.50	0.0%	0	0.0%	0	4	Nil	
BRN261	BRN	Friday, 25 January 2019	13:08:05	<0.25	<115	<0.25	<115	0.33	82.8	<0.25	<115	0.28	95.1	0.23	92.81	0.0%	0	0.0%	0	5	Nil	
AN025	Avon North	Friday, 1 February 2019	12:19:00	0.25	85.7	0.24	80.8	0.28	104.4	0.3	90.3	1.18	111.2	0.79	106.95	0.0%	0	0.0%	0	6	Nil	
BRN262 Presplit	BRN	Tuesday, 5 February 2019	13:42:00	<0.24	<114	<0.24	<114	0.46	107.7	<0.24	<114	0.25	92.6	0.20	90.32	0.0%	0	0.0%	0	7	Nil	
AN026 and AN027	Avon North	Friday, 8 February 2019	12:12:00	0.25	102.1	0.25	102.7	0.42	106.3	0.4	84.2	2.66	123.6	1.64	118.52	12.5%	1	0.0%	0	8	Nil	
BRN263 Presplit	BRN	Tuesday, 12 February 2019	13:18:00	<0.24	<114	<0.24	<114	<0.45	99.1	<0.24	<114	0.30	92.6	0.24	90.30	11.1%	1	0.0%	0	9	Nil	
AN029	Avon North	Friday, 15 February 2019	12:09:00	0.32	82.1	0.29	86.8	0.33	105.4	0.4	84.2	2.22	112.2	1.43	107.56	10.0%	1	0.0%	0	10	Nil	
BRN264 Trim	BRN	Tuesday, 19 February 2019	13:13:00	<0.24	<114	0.22	96.3	0.46	101.9	<0.24	<114	0.34	104.4	0.27	102.10	9.1%	1	0.0%	0	11	Nil	
AN030	Avon North	Wednesday, 20 February 2019	12:11:00	<0.24	<114	<0.24	<114	<0.24	<114	<0.24	<114	1.23	109.5	0.77	104.53	8.3%	1	0.0%	0	12	Nil	
AN032	Avon North	Thursday, 21 February 2019	12:02:00	<0.24	<114	<0.24	<114	<0.24	<114	<0.24	<114	0.49	106.6	0.34	102.88	7.7%	1	0.0%	0	13	Nil	
BRN266	BRN	Wednesday, 27 February 2019	12:16:00	<0.24	<114	<0.24	<114	0.26	97.6	<0.24	<114	<0.24	<114	<0.24	<114	7.1%	1	0.0%	0	14	Nil	
AN034	Avon North	Friday, 1 March 2019	12:20:00	0.28	98.4	<0.24	<114	0.35	102.4	<0.24	<114	0.71	108.3	0.49	104.35	6.7%	1	0.0%	0	15	Nil	
BRN267	BRN	Monday, 4 March 2019	15:00:00	<0.24	<114	<0.24	<114	<0.24	<114	<0.24	<114	<0.24	<114	<0.24	<114	6.3%	1	0.0%	0	16	Nil	
AN036	Avon North	Friday, 8 March 2019	13:01:00	0.23	97.7	<0.24	<114	<0.24	<114	<0.24	<114	0.71	109.9	0.48	105.89	5.9%	1	0.0%	0	17	Nil	
AN031	Avon North	Thursday, 14 March 2019	12:14:00	<0.24	<114	<0.24	<114	0.28	104.0	<0.24	<114	1.96	111.6	1.18	106.27	5.6%	1	0.0%	0	18	Nil	
AN038	Avon North	Friday, 22 March 2019	15:26:00	0.26	88.2	0.38	88.7	0.3	100.9			2.20	108.0	1.44	103.58	5.3%	1	0.0%	0	19	2B	
AN037	Avon North	Friday, 29 March 2019	12:23:00	0.32	90.1	0.45	88.7	0.32	101.9			2.98	112.9	1.82	107.74	5.0%	1	0.0%	0	20	2A	
BRN268	BRN	Monday, 1 April 2019	14:16:00	<0.24	<114	<0.24	<114	0.39	99.7			0.28	96.4	0.23	94.12	4.8%	1	0.0%	0	21	Nil	
AN042	Avon North	Friday, 5 April 2019	12:07:00	<0.24	<114	<0.24	<114	0.22	103.2			0.50	112.8	0.35	108.97	4.5%	1	0.0%	0	22	Nil	
AN033	Avon North	Tuesday, 9 April 2019	12:18:00	0.23	94.2	<0.24	<114	0.27	99.1			1.00	108.6	0.70	104.80	4.3%	1	0.0%	0	23	Nil	
AN044	Avon North	Friday, 12 April 2019	12:14:00	0.27	97.7	0.27	98.8	0.38	82.8			2.20	111.1	1.46	106.77	4.2%	1	0.0%	0	24	Nil	
AN043	Avon North	Wednesday, 17 April 2019	11:34:00	0.33	90.1	0.54	80.8	0.49	82.8			2.91	112.9	1.98	108.87	4.0%	1	0.0%	0	25	1A	
AN046	Avon North	Thursday, 2 May 2019	12:14:00	0.37	82.1	0.34	80.8	0.45	105.1			1.81	111.7	1.24	107.70	3.8%	1	0.0%	0	26	Nil	
AN048	Avon North	Wednesday, 8 May 2019	12:20:00	0.23	85.7	0.26	96.3	0.31	105.1			1.26	115.0	0.90	111.10	3.7%	1	0.0%	0	27	Nil	
BRN269	BRN	Friday, 10 May 2019	12:09:00	<0.24	<114	<0.24	<114	0.70	92.3			0.23	87.5	0.19	85.23	3.6%	1	0.0%	0	28	Nil	
BRN269B	BRN	Tuesday, 14 May 2019	12:44:00	<0.24	<114	0.24	80.8	0.24	86.3			0.28	89.1	0.23	86.82	3.4%	1	0.0%	0	29	Nil	
AN047	Avon North	Friday, 17 May 2019	12:14:00	<0.24	<114	<0.24	<114	<0.24	<114			2.66	112.10	1.63	106.94	3.3%	1	0.0%	0	30	Nil	
AN053	Avon North	Wednesday, 22 May 2019	12:13:00	0.28	99.6	0.33	97.0	<0.24	<114			1.26	114.70	0.83	110.29	3.2%	1	0.0%	0	31	Nil	
AN055	Avon North	Friday, 24 May 2019	10:16:00	0.25	82.1	<0.24	<114	0.4	103.2			1.51	109.10	1.01	104.90	3.1%	1	0.0%	0	32	Nil	
AN056	Avon North	Wednesday, 29 May 2019	12:01:00	<0.24	<114	<0.24	<114	<0.24	<114			0.67	110.00	0.44	105.60	3.0%	1	0.0%	0	33	Nil	
AN059	Avon North	Friday, 31 May 2019	12:13:00	0.25	90.1	0.25	91.6	0.28	99.7			0.96	110.50	0.64	106.32	2.9%	1	0.0%	0	34	Nil	
BRN271	BRN	Wednesday, 5 June 2019	9:03:00	<0.24	<114	<0.24	<114	0.67	106.9			0.36	89.10	0.29	86.77	2.9%	1	0.0%	0	35	Nil	
AN060	Avon North	Friday, 7 June 2019	12:15:00	<0.24	<114	<0.24	<114	<0.24	<114			0.57	109.80	0.37	105.34	2.8%	1	0.0%	0	36	Nil	
AN061	Avon North	Friday, 14 June 2019	12:13:00	<0.24	<114	<0.24	<114	<0.24	<114			1.25	112.20	0.82	107.81	2.7%	1	0.0%	0	37	Nil	
BRN272	BRN	Tuesday, 18 June 2019	12:02:00	<0.24	<114	<0.24	<114	0.53	99.7			0.43	94.30	0.34	91.93	2.6%	1	0.0%	0	38	Nil	
AN064	Avon North	Friday, 21 June 2019	12:14:00	<0.24	<114	<0.24	<114	0.29	100.3			1.36	112.80	0.86	108.03	2.6%	1	0.0%	0	39	Nil	
BRN273	BRN	Monday, 24 June 2019	13:11:00	<0.24	<114	<0.24	<114	0.24	113.4			<0.24	<114	<0.24	<114	2.5%	1	0.0%	0	40	Nil	
AN066	Avon North	Wednesday, 26 June 2019	12:07:00	<0.24	<114	<0.24	<114	<0.24	<114			1.21	113.8	0.80	109.43	2.4%	1	0.0%	0	41	Nil	
BRN274	BRN	Friday, 28 June 2019	12:23:00	<0.24	<114	<0.24	<114	0.45	99.7			0.33	95.8	0.26	93.40	2.4%	1	0.0%	0	42	Nil	
AN067	Avon North	Wednesday, 3 July 2019	12:12:00	<0.24	<114	<0.24	<114	<0.24	<114			1.12	112.8	0.71	108.00	2.3%	1	0.0%	0	43	Nil	
AN070	Avon North	Tuesday, 9 July 2019	12:14:00	<0.24	<114	<0.24	<114	<0.24	<114			0.49	103.0	0.32	98.68	2.3%	1	0.0%	0	44	Nil	
AN071	Avon North	Friday, 12 July 2019	12:11:00	<0.24	<114	<0.24	<114	<0.24	<114			0.61	111.6	0.41	107.40	2.2%	1	0.0%	0	45	Nil	
BRN275	BRN	Wednesday, 17 July 2019	12:50:00	<0.24	<114	<0.24	<114	<0.24	<114			<0.24	<114	<0.24	<114	2.2%	1	0.0%	0	46	Nil	
AN073	Avon North	Friday, 19 July 2019	12:15:00	<0.24	<114	<0.24	<114	<0.24	<114			0.71	106.8	0.47	102.46	2.1%	1	0.0%	0	47	Nil	
BRN276	BRN	Wednesday, 24 July 2019	12:41:00	<0.24	<114	<0.24	<114	<0.24	<114			0.31	93.5	0.25	91.11	2.1%	1	0.0%	0	48	Nil	
AN074	Avon North	Friday, 26 July 2019	12:40:00	<0.24	<114	<0.24	<114	<0.24	<114			1.86	110.0	1.21	105.47	2.0%	1	0.0%	0	49	Nil	
BRN277	BRN	Wednesday, 31 July 2019	12:37:00	<0.24	<114	<0.24	<114	0.35	103.2			0.31	97.6	0.25	95.19	2.0%	1	0.0%	0	50	Nil	
AN076	Avon North	Friday, 2 August 2019	12:42:00	<0.24	<114	<0.24	<114	0.27	101.9			1.63	108.3	1.06	103.77	2.0%	1	0.0%	0	51	Nil	
BRN278	BRN	Tuesday, 6 August 2019	12:39:00	<0.24	<114	0.26	95.6	0.51	101.9			0.29	95.1	0.23	92.75	1.9%	1	0.0%	0	52	Nil	
AN078	Avon North	Friday, 9 August 2019	9:35:00	<0.24	<114	<0.24	<114	<0.24	<114			1.31	108.8	0.83	103.97	1.9%	1	0.0%	0	53	Nil	
BRN 279	BRN	Wednesday, 14 August 2019	12:38:00	<0.24	<114	<0.24	<114	0.42	99.1			0.41	96.4	0.33	94.02	1.9%	1	0.0%	0	54	Nil	
AN079	Avon North	Friday, 16 August 2019	12:42:00	0.29	82.1	0.29	84.3	0.37	102.4			1.1	118.6	0.74	114.46	1.8%	1	0.0%	0	55	Nil	
BRN280	BRN	Tuesday, 20 August 2019	14:34:00	<0.24	<114	<0.24	<114	0.37	102.4			0.43	101.9	0.34	99.54	1.8%	1	0.0%	0	56	Nil	
AN080	Avon North	Friday, 23 August 2019	12:38:00	<0.24	<114	<0.24	<114	<0.24	<114			1.61	106.2	0.99	101.06	1.8%	1	0.0%	0	57	Nil	
BRN281	BRN	Wednesday, 28 August 2019	12:43:00	<0.24	<114	0.25	94.6	<0.24	<114			0.35	94.3	0.28	91.97	1.7%	1	0.0%	0	58	Nil	
AN082	Avon North	Friday, 30 August 2019	12:44:00	<0.24	<114	<0.24	<114	<0.24	<114			0.72	112.7	0.46	108.00	1.7%	1	0.0%	0	59	Nil	
AN081	Avon North	Tuesday, 3 September 2019	12:37:00	0.23	93.4	<0.24	<114	<0.24	<114			1.04	109.8	0.69	105.56	1.7%	1	0.0%	0	60	Nil	
AN084	Avon North	Thursday, 12 September 2019	10:47:00	<0.24	<114	<0.24	<114	<0.24	<114			0.56	107.8	0.37	103.34	1.6%	1	0.0%	0	61	Nil	
AN088	Avon North	Friday, 20 September 2019	12:45:00	0.29	90.5	0.3	85.1	<0.24	<114			1.47	110.2	0.98	105.97	1.6%	1	0.0%	0	62	Nil	
AN089	Avon North	Friday, 27 September 2019	12:34:00	0.46	86.0	0.65	85.1	0.61	99.9			2.79	111.3	1.85	106.98	1.6%	1	0.0%	0	63	Nil	
AN090	Avon North	Friday, 4 October 2019	12:34:00	0.28	97.3	<0.24	<114	0.25	95.1			1.77	107.6	1.16	103.14	1.6%	1	0.0%	0	64	Nil	
AN086	Avon North	Thursday, 10 October 2019	12:49:00	<0.24	<114	<0.24	<114	<0.24	<114			0.3	105.8	0.21	102.11	1.5%	1	0.0%	0	65	Nil	
AN095	Avon North	Wednesday, 16 October 2019	12:43:00	<0.24	<114	0.25	79.1	0.34	97.0			2.17	108.5	1.38	103.74	1.5%	1	0.0%	0	66	Nil	
AN096	Avon North	Friday, 18 October 2019	12:31:00	0.23	97.3	<0.24	<114	0.25	98.6			0.86	104.5	0.56	100.00	1.5%	1	0.0%	0	67	Nil	
AN097	Avon North	Friday, 25 October 2019	12:43:00	0.25	86.0	<0.24	<114	0.28	97.8			0.93	111.6	0.86	110.18	1.5%	1	0.0%	0	68	Nil	
AN100	Avon North	Wednesday, 30 October 2019	12:39:00	<0.24	<114	<0.24	<114	<0.24	<114			0.62	100.3	0.42	96.29	1.4%	1	0.0%	0	69	Nil	
AN102	Avon North	Friday, 1 November 2019	12:29:00	0.28	88.5	0.25	85.1	0.24	97.8			1.26	106.8	0.17	102.39	1.4%	1	0.0%	0	70	Nil	
AN099	Avon North	Friday, 8 November 2019	10:21:00	0.22	82.5	<0.24	<114	<0.24	<114			0.67	109.3	0.43	104.73	1.4%	1	0.0%	0	71	Nil	

Shot #	Location	Date	Time	Isaac (B1) 7432		Ex-Judge (B2) 7441		Atkins (B6) 7434		Woodford 7422		Clarke (B5) (Mine-owned) 7433 (previously 7377)		Bagnall (Extrapolated result)		Overpressure Site Exceedance [1]	Overpressure "Cumulative Exceedance" [1]	Ground Vibration Site Exceedance [1]	Ground Vibration "Cumulative Exceedance" [1]	Monitored Blasts[1]	Fume Rating	Observations
			24hr	mm/s	dBL	mm/s	dBL	mm/s	dBL	mm/s	dBL	mm/s	dBL	mm/s	dBL	%		%				
AN103	Avon North	Friday, 15 November 2019	11:02:00	0.28	86.0	<0.24	<114	0.26	103.0			1.37	111.0	0.89	106.52	1.4%	1	0.0%	0	72	Nil	
AN106	Avon North	Wednesday, 20 November 2019	12:48:00	<0.24	<114	<0.24	<114	<0.24	<114			0.26	103.4	0.17	98.94	1.4%	1	0.0%	0	73	Nil	
RSV283	Roseville West	Thursday, 21 November 2019	12:36:00	0.32	107.1	0.37	107.7	0.39	104.2			<0.24	<114	<0.24	<114	1.4%	1	0.0%	0	74	Nil	
AN104	Avon North	Friday, 22 November 2019	12:50:00	0.32	88.5	<0.24	<114	0.29	100.5			2.88	108.9	1.82	104.11	1.3%	1	0.0%	0	75	Nil	
BRN285	BRN	Wednesday, 27 November 2019	12:45:00	<0.24	<114	<0.24	<114	<0.24	<114			<0.24	<114	<0.24	<114	1.3%	1	0.0%	0	76	Nil	
AN107	Avon North	Friday, 29 November 2019	14:22:00	0.27	93.4	<0.24	<114	<0.24	<114			1.47	112.3	0.94	107.58	1.3%	1	0.0%	0	77	Nil	
AN108	Avon North	Thursday, 5 December 2019	12:54:00	0.31	86.0	0.28	79.1	0.31	100.5			1.08	109.1	1.08	109.10	1.3%	1	0.0%	0	78	Nil	
RSV286	Roseville West	Tuesday, 10 December 2019	12:42:00	0.50	112.3	0.36	116.1	0.31	117.8			0.24	103.8	0.24	103.80	2.5%	2	0.0%	0	79	Nil	
AN108B	Avon North	Friday, 13 December 2019	12:34:00	0.27	82.5	<0.24	<114	<0.24	<114			0.99	107.1	0.65	102.80	2.5%	2	0.0%	0	80	1A	
RSV288	Avon North	Monday, 16 December 2019	12:39:00	0.28	92.0	0.3	99.9	0.43	109.7			<0.24	<114	<0.24	<114	2.5%	2	0.0%	0	81	Nil	
AN111	Avon North	Tuesday, 17 December 2019	12:38:00	<0.24	<114	<0.24	<114	0.24	95.1			0.57	106.8	0.40	103.01	2.4%	2	0.0%	0	82	Nil	
AN112	Avon North	Thursday, 19 December 2019	12:38:00	<0.24	<114	<0.24	<114	<0.24	<114			0.46	104.2	0.30	99.70	2.4%	2	0.0%	0	83	Nil	

Note 1 Site exceedance, monitored blasts & cumulative exceedances reference blasts from 1/1/19 to 31/12/19.
Note 2 Blast exceedance of 115dBL or 5mm/s.
Note 3 Blast exceedance of 120dBL or 10mm/s

**Note: Blast compliance,*

- *No more than 5% of total blasts for annual monitoring period to exceed an overpressure of 115dB(L) or ground vibration of 5mm/s.*
- *No blast is to exceed an overpressure of 120dB(L) or ground vibration of 10mm/s.*

Appendix 6:

Real – Time Noise Monitoring Response Register

SMC Real-Time Noise Monitoring Response Register *'ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

Alarm Description				Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
3/01/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/01/2019	8:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	Minor Dozer Track Slap, Environmental noise noted on recording
3/01/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
3/01/2019	11:00:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
7/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
7/01/2019	9:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
7/01/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
8/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
8/01/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
8/01/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
9/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/01/2019	12:00:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/01/2019	12:15:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
10/01/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
10/01/2019	11:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
11/01/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/01/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/01/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/01/2019	7:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/01/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/01/2019	12:45:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/01/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/01/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/01/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/01/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/01/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
22/01/2019	12:01:20 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
22/01/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
22/01/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
29/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise, Environmental noise noted on recording
29/01/2019	8:30:15 PM	Stratford	AmberEStratford	Yes	Other		No Audible Mine Noise, Environmental noise noted on recording
29/01/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	Other	N/A	No Audible Mine Noise, Environmental noise noted on recording
30/01/2019	6:45:15 PM	Stratford	RedEStratford	Yes	Other	N/A	No Audible Mine Noise, Environmental noise noted on recording
30/01/2019	9:15:15 PM	Stratford	AmberEStratford	Yes	Other	N/A	No Audible Mine Noise, Environmental noise noted on recording
30/01/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	Other	N/A	No Audible Mine Noise, Trafffic Noise Noted.
30/01/2019	10:45:15 PM	Stratford	RedNStratford	Yes	Other	N/A	No Audible Mine Noise, Trafffic Noise Noted.
30/01/2019	11:30:15 PM	Stratford	AmberNStratford	Yes	Other	N/A	No Audible Mine Noise, Environmental noise noted on recording
30/01/2019	11:45:20 PM	Stratford	RedNStratford	Yes	Other	N/A	No Audible Mine Noise
31/01/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise
31/01/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise, Environmental noise noted on recording
31/01/2019	9:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise
31/01/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	N/A	No Audible Mine Noise
7/02/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/02/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise
11/02/2019	8:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise, Environmental noise noted on recording
11/02/2019	11:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/02/2019	8:18:11 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
18/02/2019	10:18:11 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/02/2019	12:18:11 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/02/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/02/2019	8:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/02/2019	9:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/02/2019	11:00:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/02/2019	11:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/02/2019	7:45:15 PM	Stratford	AmberEStratford	Yes	Other	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/03/2019	8:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/03/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/03/2019	10:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
6/03/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
6/03/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/03/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/03/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
12/03/2019	8:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
12/03/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
13/03/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	N/A	No Audible Mine Noise, Trafffic Noise Noted.
13/03/2019	11:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	N/A	No Audible Mine Noise, Environmental noise noted on recording
14/03/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	N/A	No Audible Mine Noise
14/03/2019	10:45:20 PM	Stratford	RedNStratford	Yes	External Noise Source	N/A	No Audible Mine Noise
18/03/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
19/03/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/03/2019	9:15:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/03/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/03/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/03/2019	8:00:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/03/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/03/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/03/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/03/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	2 Review the audio to determine	No Audible Mine Noise

SMC Real-Time Noise Monitoring Response Register *'ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

Alarm Description				Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
21/03/2019	8:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	3 Review the audio to determine	No Audible Mine Noise
21/03/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	4 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/03/2019	10:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	5 Review the audio to determine	No Audible Mine Noise
21/03/2019	11:00:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	6 Review the audio to determine	No Audible Mine Noise
21/03/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	7 Review the audio to determine	No Audible Mine Noise
25/03/2019	8:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/03/2019	11:00:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
26/03/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/03/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source		No Audible Mine Noise
27/03/2019	12:00:15 AM	Stratford	AmberNStratford	Yes	External Noise Source		No Audible Mine Noise
27/03/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/03/2019	12:00:20 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
28/03/2019	8:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/03/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/04/2019	6:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/04/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/04/2019	7:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/04/2019	8:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/04/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/04/2019	12:15:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
3/04/2019	7:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/04/2019	9:30:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/04/2019	9:45:20 PM	Stratford	RedEStratford	Yes			No Audible Mine Noise
3/04/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/04/2019	11:00:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/04/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
9/04/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/04/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/04/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/04/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/04/2019	11:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/04/2019	7:31:00 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	Minor Mine Noise Noted, Environmental noise dominant
11/04/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
11/04/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/04/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/04/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
16/04/2019	7:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/04/2019	8:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/04/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/04/2019	11:00:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/04/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/04/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/04/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/04/2019	10:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/04/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/04/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
18/04/2019	9:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/04/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/04/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
22/04/2019	8:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
22/04/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
22/04/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
23/04/2019	10:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
24/04/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/04/2019	9:00:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
29/04/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/04/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/04/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/04/2019	7:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/04/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/04/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
30/04/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
1/05/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
1/05/2019	9:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
1/05/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
1/05/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
2/05/2019	7:30:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/05/2019	8:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
2/05/2019	9:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
2/05/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
2/05/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/05/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/05/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/05/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
7/05/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
7/05/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
7/05/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/05/2019	7:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/05/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/05/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	7:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	8:15:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	8:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	9:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	9:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/05/2019	11:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	7:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	9:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/05/2019	11:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/05/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/05/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/05/2019	9:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording

SMC Real-Time Noise Monitoring Response Register *'ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

Alarm Description				Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
14/05/2019	10:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/05/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/05/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/05/2019	9:45:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/05/2019	11:30:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/05/2019	12:00:11 AM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/05/2019	12:15:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
16/05/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
16/05/2019	7:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/05/2019	9:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
16/05/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/05/2019	11:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/05/2019	11:45:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/05/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/05/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/05/2019	7:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
20/05/2019	8:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/05/2019	8:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/05/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/05/2019	7:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/05/2019	7:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/05/2019	7:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/05/2019	8:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/05/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
22/05/2019	6:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
22/05/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/05/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/05/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/05/2019	9:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/05/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/05/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/05/2019	7:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	8:15:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	8:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	9:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/05/2019	11:45:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
27/05/2019	6:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/05/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/05/2019	10:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
27/05/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
29/05/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
29/05/2019	11:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
30/05/2019	12:00:11 AM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
30/05/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
30/05/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
30/05/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
3/06/2019	7:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/06/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/06/2019	7:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/06/2019	9:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/06/2019	10:45:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/06/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
5/06/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/06/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/06/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
5/06/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
5/06/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/06/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
6/06/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
6/06/2019	8:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
6/06/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
6/06/2019	11:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/06/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/06/2019	8:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/06/2019	9:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
11/06/2019	6:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/06/2019	8:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/06/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/06/2019	11:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/06/2019	11:45:50 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
12/06/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
12/06/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
12/06/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
12/06/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/06/2019	8:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
12/06/2019	9:00:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
12/06/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
12/06/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/06/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
13/06/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/06/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/06/2019	9:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/06/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/06/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/06/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/06/2019	7:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/06/2019	8:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/06/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/06/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/06/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/06/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/06/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording

SMC Real-Time Noise Monitoring Response Register *ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

		Alarm Description		Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
20/06/2019	9:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
20/06/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/06/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/06/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/06/2019	10:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	Minor Mine Noise Noted, Environmental noise dominant
24/06/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
24/06/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/06/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/06/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
25/06/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/06/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/06/2019	6:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/06/2019	7:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/06/2019	9:30:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/06/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	8:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/06/2019	11:00:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/07/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/07/2019	7:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/07/2019	8:00:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/07/2019	8:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	7:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	8:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	8:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	9:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	9:15:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	9:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	11:00:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/07/2019	11:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/07/2019	7:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/07/2019	7:15:20 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/07/2019	10:45:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/07/2019	11:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/07/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/07/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/07/2019	8:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/07/2019	10:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
9/07/2019	10:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	Minor Mine Noise Noted, Environmental noise dominant
9/07/2019	11:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
9/07/2019	11:45:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/07/2019	7:45:15 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/07/2019	9:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
10/07/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
10/07/2019	10:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
10/07/2019	11:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
11/07/2019	12:00:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/07/2019	12:15:11 AM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/07/2019	7:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/07/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/07/2019	9:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/07/2019	10:45:15 PM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/07/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/07/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/07/2019	7:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/07/2019	8:00:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/07/2019	8:15:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/07/2019	9:30:15 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/07/2019	9:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/07/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/07/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/07/2019	7:30:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/07/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/07/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/07/2019	8:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/07/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/07/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/07/2019	7:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/07/2019	8:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/07/2019	8:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	Minor Mine Noise Noted, Environmental noise dominant
17/07/2019	10:45:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
17/07/2019	11:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	7:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	10:30:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/07/2019	10:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/07/2019	6:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/07/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/07/2019	11:00:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/07/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/07/2019	9:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/07/2019	10:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/07/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/07/2019	12:30:10 AM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/07/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/07/2019	8:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording

SMC Real-Time Noise Monitoring Response Register *ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

		Alarm Description		Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
24/07/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/07/2019	12:15:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/07/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/07/2019	7:45:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/07/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/07/2019	8:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
25/07/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	8:00:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	8:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	8:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/07/2019	10:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/07/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/07/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/07/2019	10:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
31/07/2019	7:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
31/07/2019	8:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
31/07/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
31/07/2019	10:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/08/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/08/2019	8:30:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/08/2019	8:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/08/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/08/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/08/2019	11:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/08/2019	7:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/08/2019	8:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/08/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/08/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/08/2019	7:15:10 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/08/2019	8:00:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/08/2019	8:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/08/2019	12:15:11 AM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/08/2019	7:15:20 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/08/2019	7:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
7/08/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/08/2019	12:00:11 AM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
8/08/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
8/08/2019	12:15:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
8/08/2019	7:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/08/2019	7:30:10 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
8/08/2019	8:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/08/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
12/08/2019	10:45:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	12:45:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	7:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	7:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	7:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	7:30:25 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	10:30:10 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	11:15:10 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/08/2019	11:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
14/08/2019	12:30:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
14/08/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
14/08/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
14/08/2019	8:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
14/08/2019	8:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
14/08/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/08/2019	12:30:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/08/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/08/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
15/08/2019	8:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
15/08/2019	9:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/08/2019	9:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/08/2019	9:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/08/2019	10:45:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/08/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise

SMC Real-Time Noise Monitoring Response Register *ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

		Alarm Description		Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
19/08/2019	7:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
19/08/2019	8:00:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/08/2019	9:45:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/08/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/08/2019	8:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/08/2019	11:45:15 PM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/08/2019	12:00:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/08/2019	7:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/08/2019	7:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/08/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/08/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/08/2019	10:45:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/08/2019	11:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
22/08/2019	6:45:10 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
22/08/2019	9:45:15 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/08/2019	6:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
26/08/2019	7:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/08/2019	9:15:20 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/08/2019	7:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
27/08/2019	10:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/08/2019	7:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
28/08/2019	9:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/08/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
28/08/2019	10:15:10 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/08/2019	11:15:15 PM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/08/2019	11:30:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/08/2019	12:30:11 AM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
29/08/2019	12:45:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
29/08/2019	9:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
29/08/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
29/08/2019	10:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
2/09/2019	7:30:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Wind noise noted on noise recording
2/09/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
2/09/2019	11:15:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/09/2019	11:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/09/2019	7:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/09/2019	8:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/09/2019	9:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
3/09/2019	10:30:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/09/2019	11:45:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	12:00:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	6:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	9:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	10:45:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	11:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/09/2019	11:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/09/2019	12:00:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/09/2019	7:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/09/2019	7:15:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/09/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/09/2019	8:45:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/09/2019	10:45:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
5/09/2019	11:00:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/09/2019	12:00:11 AM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
9/09/2019	8:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
9/09/2019	11:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/09/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/09/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/09/2019	12:30:15 AM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/09/2019	7:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/09/2019	7:45:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/09/2019	9:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
12/09/2019	12:15:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/09/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/09/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
12/09/2019	7:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/09/2019	8:00:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/09/2019	8:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/09/2019	8:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
12/09/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
12/09/2019	11:00:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/09/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/09/2019	7:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/09/2019	10:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/09/2019	11:15:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/09/2019	7:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/09/2019	12:45:15 AM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/09/2019	7:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/09/2019	10:45:15 PM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/09/2019	11:00:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/09/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/09/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/09/2019	11:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/09/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/09/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/09/2019	11:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/09/2019	11:45:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	12:30:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	12:30:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	8:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	9:00:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
24/09/2019	11:30:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/09/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/09/2019	8:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/09/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/09/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
25/09/2019	11:00:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/09/2019	8:00:15 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/09/2019	8:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/09/2019	9:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/09/2019	9:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
30/09/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
30/09/2019	10:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
30/09/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise

SMC Real-Time Noise Monitoring Response Register *ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

Alarm Description				Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
1/10/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/10/2019	7:45:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/10/2019	8:30:15 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/10/2019	9:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/10/2019	9:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/10/2019	10:30:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
1/10/2019	10:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/10/2019	12:30:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/10/2019	8:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
3/10/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/10/2019	8:30:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/10/2019	11:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/10/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
7/10/2019	8:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
7/10/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/10/2019	6:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
8/10/2019	10:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
9/10/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
9/10/2019	8:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/10/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/10/2019	9:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
10/10/2019	9:45:15 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
11/10/2019	12:45:15 AM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/10/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/10/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/10/2019	10:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/10/2019	11:00:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/10/2019	12:15:20 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/10/2019	9:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/10/2019	9:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
15/10/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/10/2019	10:45:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/10/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/10/2019	9:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/10/2019	9:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
16/10/2019	10:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
17/10/2019	7:00:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
17/10/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
17/10/2019	8:15:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/10/2019	8:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
17/10/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/10/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
21/10/2019	10:30:20 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
21/10/2019	11:15:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
21/10/2019	11:30:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Trafffic Noise Noted.
22/10/2019	7:45:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
22/10/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/10/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
23/10/2019	12:45:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
23/10/2019	8:30:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/10/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/10/2019	8:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
24/10/2019	8:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/10/2019	12:00:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/10/2019	12:15:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/10/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
29/10/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/10/2019	12:30:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/10/2019	6:45:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/10/2019	8:00:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
30/10/2019	9:00:11 PM	Craven	GreenECraven	Yes	External Noise Source	1 Review the audio to determine	Faint truck noise, Environmental noise dominant
31/10/2019	12:30:15 AM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
31/10/2019	7:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
31/10/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
4/11/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/11/2019	12:30:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/11/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/11/2019	7:30:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/11/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
5/11/2019	11:30:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	Faint reversing quaker, dozer track slap, trucks on main road
5/11/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/11/2019	12:00:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/11/2019	12:15:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
6/11/2019	10:45:15 PM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/11/2019	12:45:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording

SMC Real-Time Noise Monitoring Response Register *ster of alarms when the real-time monitoring system detects any potential exceedance of noise limits (NMP Section*

Alarm Description				Validate Data	Source Identification	Management Strategy	Review
Alarm Date	Alarm Time	Name/Location	What Performance Indicator has been exceeded?	Review of Meteorological Data (Does the noise criteria apply)	Review of real-time audio to determine mine contribution. Identify main contributing noise source.	Management measure taken, i.e. Additional mitigation measures applied or ceasing of activities.	Review of real-time data to determine whether the management strategy has resulted in a discernible noise reduction.
7/11/2019	7:33:11 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/11/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
7/11/2019	11:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/11/2019	8:00:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
13/11/2019	10:30:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/11/2019	9:00:20 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
14/11/2019	9:00:20 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
18/11/2019	7:16:20 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise, Environmental noise noted on recording
18/11/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	Truck noise, dozer track slap, reversing quaker
19/11/2019	8:00:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	Minor dozer track slap
20/11/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
20/11/2019	10:45:15 PM	Stratford	GreenNStratford	Yes	External Noise Source	1 Review the audio to determine	Faint truck/dozer noise
21/11/2019	12:15:11 AM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	Possible train on main line
21/11/2019	12:30:15 AM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
21/11/2019	10:30:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	Minor dozer track slap, reversing quaker
25/11/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	Wind, rain
25/11/2019	7:15:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	Wind
25/11/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	Possible animal on microphone
26/11/2019	6:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/11/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/11/2019	8:15:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
26/11/2019	9:18:11 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	Possible animal on microphone, train horn
26/11/2019	10:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	Wind
26/11/2019	10:30:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	Wind
27/11/2019	12:00:15 AM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	Wind, possible animal on microphone
27/11/2019	7:00:15 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
27/11/2019	10:15:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/11/2019	12:00:13 AM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/11/2019	7:30:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
28/11/2019	10:15:20 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/12/2019	7:15:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
2/12/2019	8:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	
2/12/2019	9:00:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	Wind
2/12/2019	10:15:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	Wind
2/12/2019	11:15:11 PM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	Wind
3/12/2019	6:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	Train on main line
4/12/2019	7:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	Wind, aircraft, traffic on main road
4/12/2019	8:00:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
4/12/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	Reversing quaker, dozer track slap, truck noise
4/12/2019	10:15:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	Truck noise, dozer track slap, reversing quaker
4/12/2019	10:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	Dozer track slap, reversing quaker, truck noise
4/12/2019	11:00:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	Faint reversing quaker, CHPP hum, faint truck noise
4/12/2019	11:30:15 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	Train on main line
5/12/2019	7:30:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/12/2019	9:45:11 PM	Craven	AmberECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
9/12/2019	10:45:11 PM	Craven	GreenNCraven	Yes	External Noise Source	1 Review the audio to determine	Train on main line
10/12/2019	9:30:25 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
10/12/2019	10:15:25 PM	Stratford	RedNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/12/2019	7:15:25 PM	Stratford	GreenEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
11/12/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
15/12/2019	11:45:15 PM	Stratford	AmberNStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
16/12/2019	6:45:11 PM	Craven	RedECraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
17/12/2019	9:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
18/12/2019	12:15:11 AM	Craven	AmberNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/12/2019	6:45:20 PM	Stratford	RedEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/12/2019	7:15:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/12/2019	8:45:15 PM	Stratford	AmberEStratford	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise
19/12/2019	10:45:11 PM	Craven	RedNCraven	Yes	External Noise Source	1 Review the audio to determine	No Audible Mine Noise

Appendix 7:

Complaints and CCC Annual Report

STRATFORDCOAL
Part of the Yancoal Australia Group

Stratford Complaint Summary

Period:2019

Total No. of Complaints: 4 (4 blast, 1 noise, 0 air quality, 0 other)

Total No. of Complainants: 2

Date/Time of Complaint	Complainant Location	Method of Complaint	Nature of Complaint	Investigation/Outcome
8/02/2019 13:00hrs	Approx. 2.5km west of source (4.5kms from blast)	Direct to mobile.	Blast Overpressure	Complaint: "Blast overpressure was noticeable at residence and caused windows to shake." • The complaint was made directly to the E&C Supt. mobile. • MP advised a blast had been fired at 12:11pm on 08/02/2018. MP advised the overpressure and ground vibration results at the monitor in closest proximity to the complaints residence were compliant, however the results were higher than previous blasts. • The complainant advised this was the first blast they had noticed and didn't what this to become the norm as had previously been experienced from the Stratford operations. • MP advised SCPL was currently refining designs for blast patterns in the Avon North pit where complex geological structures have been identified to minimise potential impacts from overpressure and ground vibration.
15/02/2019 12:30hrs	Approx. 2.5km west of source (4.5kms from blast)	Direct to mobile.	Blast Overpressure	Complaint: "Blast overpressure from Stratford mine caused the windows on the house to shake again" • The complaint was made directly to the E&C Supt. mobile. • MP advised a blast had been fired at 12:09pm on 15/02/2018. MP advised the overpressure and ground vibration results at the monitor in closest proximity to the complainants residence were well below compliance levels (Stratford Village monitor 0.29mm/s, 86.8dB(L)). • MP and the complainant discussed the blasting operations at the Stratford Mine. MP discussed the blast criteria and the potential impacts and on residents. The complainant advised the blasting was an inconvenience and if the levels increase it would become unacceptable. • MP advised the measures which are undertaken in blast design to reduce the offsite impacts as much as practicable. MP stated the feedback from the community is useful to further improve blasting and the information is conveyed with the drill and blast engineer.
14/08/2019 08:45hrs	Approx. 2.5km west of source (4.5kms from blast)	Direct to mobile.	Mine Noise	Complaint: "Noise from Stratford Mine louder during morning hours. Mostly sounds like truck noise and dozer clatter from direction of BRN and Avon North". • Weather conditions: Strong inversion. Light NE wind. • Production: MP discussed noise complaint with BRN and Avon North OCEs at 9:30am. BRN haul fleet to RL30 dump. Dozers on pit floor. Avon North haul fleet running to high dump. Noise possibly from dozer on high dump. Discussed with OCEs to limit elevated dozer use prior to 9am. • MP called complainant at 11:00am, no answer. MP called again at 12pm and no answer. • SCPL to continue implementing noise mitigation measures for mobile plant.
10/12/2019 12:50hrs	Approx. 2.5km west of source (2.5kms from blast)	Direct to mobile.	Blast Overpressure	Complaint: "Blast overpressure from Stratford mine caused the windows on the house to shake. Blast was larger than others previously." • MP advised a blast had been fired at 12:42pm on 10/12/2019. MP advised he would follow-up with blast monitoring results and any comments from the blast crew. • The overpressure and ground vibration results at the monitor in closest proximity to the complainants residence were >115dB(L) overpressure. MP advised an internal review of the blast would be undertaken and it appeared loss of containment of one drill hole had occurred causing a spike in overpressure. • MP and the complainant discussed the blasting operations at the Stratford Mine. The complainant advised they had previously had issues with blasting and it was unacceptable for this to start again. MP advised Stratford Coal take all efforts in blast design to reduce the overpressure and ground vibration as much is feasible. • The complainant advised they would not put up with blasting at these levels. It was causing damage and was not acceptable to expect people to live under these conditions. MP advised there are processes available under the Development Consent to have either building inspections or investigations undertaken by independent personnel at the request of landowners. • MP advised the measures which are undertaken in blast design to reduce the offsite impacts as much as practicable and information is conveyed to the drill and blast engineer.
10/12/2019 12:50hrs	Stratford Village, Approx. 1.8km west of source	Community hotline.	Blast Overpressure	Complaint: "Blasting today is unacceptable. Going to report to authorities. Call back Immediately." • Complainant stated the mine was breaking the law and was contravening the Act. The complainant stated he was going to report it to the EPA. . • MP advised a blast had been fired at 12:42pm on 10/12/2019. The overpressure and ground vibration results at the monitor in closest proximity to the complainant's residence were >115dB(L) overpressure. MP advised an internal review of the blast would be undertaken and it appeared loss of containment of one drill hole had occurred causing a spike in overpressure. MP advised the blast remained within compliance criteria. • The complainant continued to discuss unacceptable noise and dust from the mine. • MP advised SCPL would continue to minimise its impacts as far as reasonably possible.

Stratford Coal Community Consultative Committee Annual Report for Year 2019

Community Consultative Committee Details

CCC / Project Name:	Stratford Coal Mining Complex	**Reporting Period:**	January - December 2019
Independent Chairperson:	**Margaret MacDonald-Hill**	**Proponent Contact:**	**Alarna Bristow**

1. Executive Summary

The Stratford Community Consultative Committee (CCC) is a long established committee initiated in 1995 as part of the Stratford Coal Mine Development Consent approval. With the subsequent approval of the Stratford Extension Project, the Committee members oversee the Stratford Mining Complex in accordance with the Department of Planning and Environment's 2019 Community Consultative Committee Guidelines for State Significant Projects. The mine's area of operation is a 1,500 ha site of former grazing land, east of The Bucketts Way and situated between the villages of Craven and Stratford.

The committee comprises:

- five local community representatives;
- two Mid Coast Council representatives (elected and staff);
- two Stratford Coal representatives, with attendance from other personnel as required;
- one independent Chairperson.

The Committee has maintained its quarterly meetings as the Stratford Extension Project progresses. The meetings are well attended and the members continue to be diligent in their representation of their local community. As stated in prior reporting, the CCC is comprised of long term community members and their knowledge is a valuable asset to the successful function of the committee. MidCoast Council staff and elected representatives also play an active role and form an integral conduit on local and regional matters. The combination of the two, together with the high standard of pre-meeting information reports and comprehensive presentations and accessibility by Stratford Coal personnel makes for an effective committee. A good rapport between all parties is self evident.

For the reporting period invited speakers were MidCoast Council's Director, Liveable Communities and the Coordinator, Community Strengthening to report on the allocation of community enhancement contributions paid to Council and Yancoal's Business Optimisation Manager for Stratford and Duralie operations to give updates on the Stratford Extension Project.

Other topics of discussion for the reporting period also included:

- general environmental management and monitoring, including air quality, noise, surface water and groundwater
- weeds, pest and pasture management
- community complaints

- broader community engagement and community enhancement contributions to Council and allocation thereof
- progress at the mine and the Stratford Extension Project including proposed road closures
- Rehabilitation progress
- Biodiversity offset strategy
- Successful Nest Box Program
- Yancoal land management, including rural leased lands
- Bushfire mitigation
- Post mining land use and mine closure planning
- Rocky Hill determination

2. CCC activities over last 12 months

- Committee meetings were held in the months of February, May, August and November 2019. The committee resumes its meeting schedule in February each year and will maintain a similar schedule as the previous year.
- Attendance at meetings is high, almost without exception, other than occasional apologies due to unforseen commitments. The committee sets its meeting dates at the end of each calendar year for the ensuing year to avoid any known potential conflicts.
- Committee site tours during 2019 included the Avon North Open Cut, the Stratford East Open Cut Conservation Area and the Wenham Cox Road Diversion.
- No joint CCC meetings were held during the period, although the committee is appraised of Yancoal's sister operations at Duralie as the mine approaches end of life stages.
- In May, the Stratford Coal Family Day took place, over 500 people attended. The mine was open to invited guests, including the CCC members and families, mine employees and families and local community groups. The day was a great success and likely to be repeated in future years.

3. Key issues

At the August meeting, a request was received from Advance Gloucester, a local grassroots association formed in 2014 to promote and support activities for the betterment of the Gloucester area and the benefit of the general population. The request was for a controlled release of water from the Stratford East Dam to provide for drought relief to the downstream landholders suffering from the ongoing drought conditions. The original members of the CCC recalled this had occurred in the past and were au fait with the regulatory obligations which Stratford Coal must adhere to. The CCC discussed the potential approvals process that would be required to be met to accede to such a request and the pros and cons of the current situation. The matter was referred to the Government agencies; Department of Planning, Industry and Environment and the Environmental Protection Agency, for determination.

The CCC acknowledged that long term measures and strategic planning by Government was necessary to identify mine infrastructure that could provide assets for future water use, not only in this region but Statewide**.**

The Stratford CCC continues support for the long running Stratford Coal Education Program and the benefits it brings to the youth of the local community. It remains vigilant that the benefits of such funding, along with other community enhancement contributions and Yancoal Community Support Programs should flow through to those communities directly impacted by mining.

Staff from MidCoast Council 's annual report to the CCC on the allocation of community enhancement contributions has led to a much improved understanding of the process. Concerns raised by CCC members has instigated Council's review of its management practices and financial reporting back to the committee.

A survey of the committee members' views on the efficacy of the CCC revealed positive feedback:

"the Stratford CCC is productive, constructive and meeting its objectives".

"there are differing views on many matters discussed, there is no strongly adversarial character to the discussions".

"it hasn't always worked well ... it was a frustrating experience ... positive approach by staff and current management, a preparedness to discuss any matters reciprocated by the community representatives has led to a constructive committee".

"flexibility of discussions, rather than narrowly sticking to the order of business has prevailed".

"flexibility has led to more constructive engagement and exchange".

Issue	Actions Taken	Next Steps
Stratford Coal Education and Yancoal Community Support Programs	Actively support ongoing success of Stratford Coal Education Program and Stratford Coal Community Support through CCC networks and media.	Ongoing
Stratford Extension Project	Update management plans and include relevant changes to committee presentations for discussion at CCC meetings.	As and when required
Biodiversity and Conservation Areas information exchange	Liaise and share information with MidCoast Council	Integration of biodiversity connectivity projects with MidCoast Council planning. Ongoing

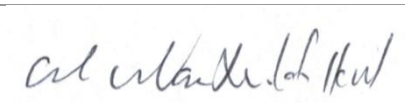
1. Focus for next 12 months

The planned activities for 2020 will continue to be guided by the contributions of the CCC members. These activities are likely to include:

- to investigate potential opportunities to increase agricultural land capability whilst meeting rehabilitation requirements
- interest in management of Yancoal owned land
- bush fire control
- interest in vegetation species used in rehabilitation and weed control.

To the best of my knowledge, there are no outstanding or emerging issues that have not been addressed or are in the process of being so, to the committee's satisfaction.

Committee Meeting minutes and presentations are available on the website within two weeks of each meeting.

Signature of Chair:	
Date:	March 11 2020

Appendix 8:

Export Train Summary

Export Train Summary

2019	
Departure Date	**Departure Time**
Tuesday, 22 January 2019	1:12:00 PM
Wednesday, 30 January 2019	1:28:00 PM
Monday, 11 March 2019	6:46:00 PM
Tuesday, 12 March 2019	12:51:00 PM
Wednesday, 13 March 2019	12:56:00 PM
Thursday, 14 March 2019	6:46:00 PM
Wednesday, 27 March 2019	8:35:00 PM
Thursday, 28 March 2019	1:30:00 PM
Friday, 5 April 2019	12:37:00 PM
Friday, 12 April 2019	12:56:00 PM
Thursday, 18 April 2019	1:22:00 PM
Monday, 27 May 2019	12:56:00 PM
Tuesday, 28 May 2019	12:51:00 PM
Friday, 31 May 2019	12:30:00 PM
Tuesday, 18 June 2019	12:51:00 PM
Friday, 5 July 2019	12:56:00 PM
Monday, 8 July 2019	12:56:00 PM
Tuesday, 9 July 2019	12:56:00 PM
Wednesday, 10 July 2019	12:56:00 PM
Thursday, 11 July 2019	1:06:00 PM
Friday, 12 July 2019	12:20:00 PM
Thursday, 18 July 2019	4:16:00 PM
Monday, 22 July 2019	12:16:00 PM
Thursday, 25 July 2019	2:34:00 PM
Friday, 26 July 2019	12:56:00 PM
Monday, 29 July 2019	12:30:00 PM
Monday, 29 July 2019	5:22:00 PM
Tuesday, 30 July 2019	11:52:00 AM
Tuesday, 30 July 2019	5:37:00 PM
Wednesday, 31 July 2019	11:34:00 AM
Wednesday, 31 July 2019	6:52:00 PM
Thursday, 1 August 2019	12:16:00 PM
Monday, 5 August 2019	11:09:00 AM
Monday, 12 August 2019	11:46:00 AM
Wednesday, 14 August 2019	12:56:00 PM
Thursday, 15 August 2019	8:30:00 AM
Thursday, 15 August 2019	10:48:00 PM
Friday, 16 August 2019	11:30:00 AM
Friday, 16 August 2019	11:26:00 PM
Saturday, 17 August 2019	2:31:00 PM
Monday, 19 August 2019	8:57:00 AM
Monday, 19 August 2019	10:47:00 PM
Tuesday, 20 August 2019	9:10:00 AM
Tuesday, 20 August 2019	8:49:00 PM
Wednesday, 21 August 2019	1:36:00 PM
Thursday, 22 August 2019	12:56:00 PM
Monday, 26 August 2019	12:57:00 PM
Tuesday, 27 August 2019	12:51:00 PM
Wednesday, 28 August 2019	1:10:00 PM
Thursday, 29 August 2019	12:56:00 PM
Monday, 2 September 2019	12:35:00 PM
Tuesday, 3 September 2019	9:10:00 AM
Wednesday, 4 September 2019	12:25:00 PM
Thursday, 5 September 2019	4:18:00 PM
Friday, 6 September 2019	12:39:00 PM
Monday, 9 September 2019	5:20:00 PM
Tuesday, 10 September 2019	12:45:00 PM
Wednesday, 11 September 2019	12:55:00 PM
Thursday, 12 September 2019	11:57:00 AM
Friday, 13 September 2019	11:45:00 AM
Monday, 16 September 2019	12:45:00 PM
Tuesday, 17 September 2019	11:55:00 AM
Wednesday, 18 September 2019	1:39:00 PM

Month	Number of Movements
January	2
February	0
March	6
April	3
May	3
June	1
July	16
August	19
September	17
October	18
November	14
December	14
Annual Total	**113**

Thursday, 19 September 2019	12:00:00 PM
Friday, 27 September 2019	1:07:00 PM
Monday, 30 September 2019	10:06:00 AM
Monday, 30 September 2019	4:00:00 PM
Tuesday, 1 October 2019	8:40:00 AM
Tuesday, 1 October 2019	2:18:00 PM
Tuesday, 1 October 2019	10:47:00 PM
Tuesday, 8 October 2019	1:02:00 PM
Wednesday, 9 October 2019	4:51:00 PM
Thursday, 10 October 2019	8:40:00 AM
Thursday, 10 October 2019	4:45:00 PM
Friday, 11 October 2019	8:40:00 AM
Friday, 11 October 2019	1:27:00 PM
Monday, 14 October 2019	11:28:00 AM
Monday, 21 October 2019	12:08:00 PM
Tuesday, 22 October 2019	5:08:00 PM
Thursday, 24 October 2019	4:19:00 PM
Friday, 25 October 2019	9:10:00 AM
Monday, 28 October 2019	5:40:00 PM
Tuesday, 29 October 2019	4:45:00 PM
Wednesday, 30 October 2019	12:52:00 PM
Thursday, 31 October 2019	9:10:00 AM
Friday, 1 November 2019	9:10:00 AM
Tuesday, 5 November 2019	5:10:00 PM
Wednesday, 6 November 2019	12:36:00 PM
Thursday, 7 November 2019	12:52:00 PM
Wednesday, 13 November 2019	9:10:00 AM
Thursday, 14 November 2019	12:52:00 PM
Friday, 15 November 2019	12:23:00 PM
Monday, 18 November 2019	9:41:00 AM
Friday, 22 November 2019	4:58:00 PM
Tuesday, 26 November 2019	11:40:00 AM
Wednesday, 27 November 2019	9:14:00 AM
Thursday, 28 November 2019	9:10:00 AM
Thursday, 28 November 2019	5:23:00 PM
Friday, 29 November 2019	12:37:00 PM
Monday, 2 December 2019	1:12:00 PM
Tuesday, 3 December 2019	12:30:00 PM
Wednesday, 4 December 2019	1:16:00 PM
Thursday, 5 December 2019	12:52:00 PM
Friday, 6 December 2019	12:37:00 PM
Monday, 9 December 2019	5:40:00 PM
Tuesday, 10 December 2019	11:37:00 AM
Wednesday, 11 December 2019	9:10:00 AM
Thursday, 12 December 2019	12:36:00 PM
Friday, 13 December 2019	12:26:00 PM
Tuesday, 17 December 2019	4:18:00 PM
Wednesday, 18 December 2019	12:25:00 PM
Thursday, 19 December 2019	9:10:00 AM
Friday, 20 December 2019	9:10:00 AM

Appendix 9:

Stratford Mining Complex –

Annual Biodiversity Report 2019

Stratford Mining Complex Annual Biodiversity Report

FOR THE YEAR ENDING 31 DECEMBER 2019

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List of Appendices

Appendix A: SMC Annual Review 2019 - Disturbance & Rehabilitation Areas Figure 3

Appendix B: Biodiversity Offset Area – Areas proposed for revegetation in 2020

Appendix C: SMC Vegetation Clearance & Nest Box Replacement Requirements 2019

Appendix D: Stratford Biodiversity Offset Flora Monitoring Report 2019

Appendix E: SMC 2019 Squirrel Glider Colony & Home Range Report

Appendix F: SMC Hollow-bearing Tree Census Report 2019

Appendix G: SMC Fauna Survey 2019

Appendix H: Executed Positive Covenants and Registration Notices

1 INTRODUCTION

The Stratford Mining Complex (**SMC**), located in the Northern part of the Gloucester Basin NSW, is approximately 10 kilometres south of Gloucester and is owned and operated by Stratford Coal Pty Ltd (**SCPL**), a fully owned subsidiary of Yancoal Australia Limited (**YAL**).

1.1 Scope

In accordance with the Stratford Extension Project Development Consent SSD-4966, the proponent (SCPL) is required in accordance with *Schedule 2, condition 39* to prepare and implement a Biodiversity Management Plan (BMP). This Plan must include:

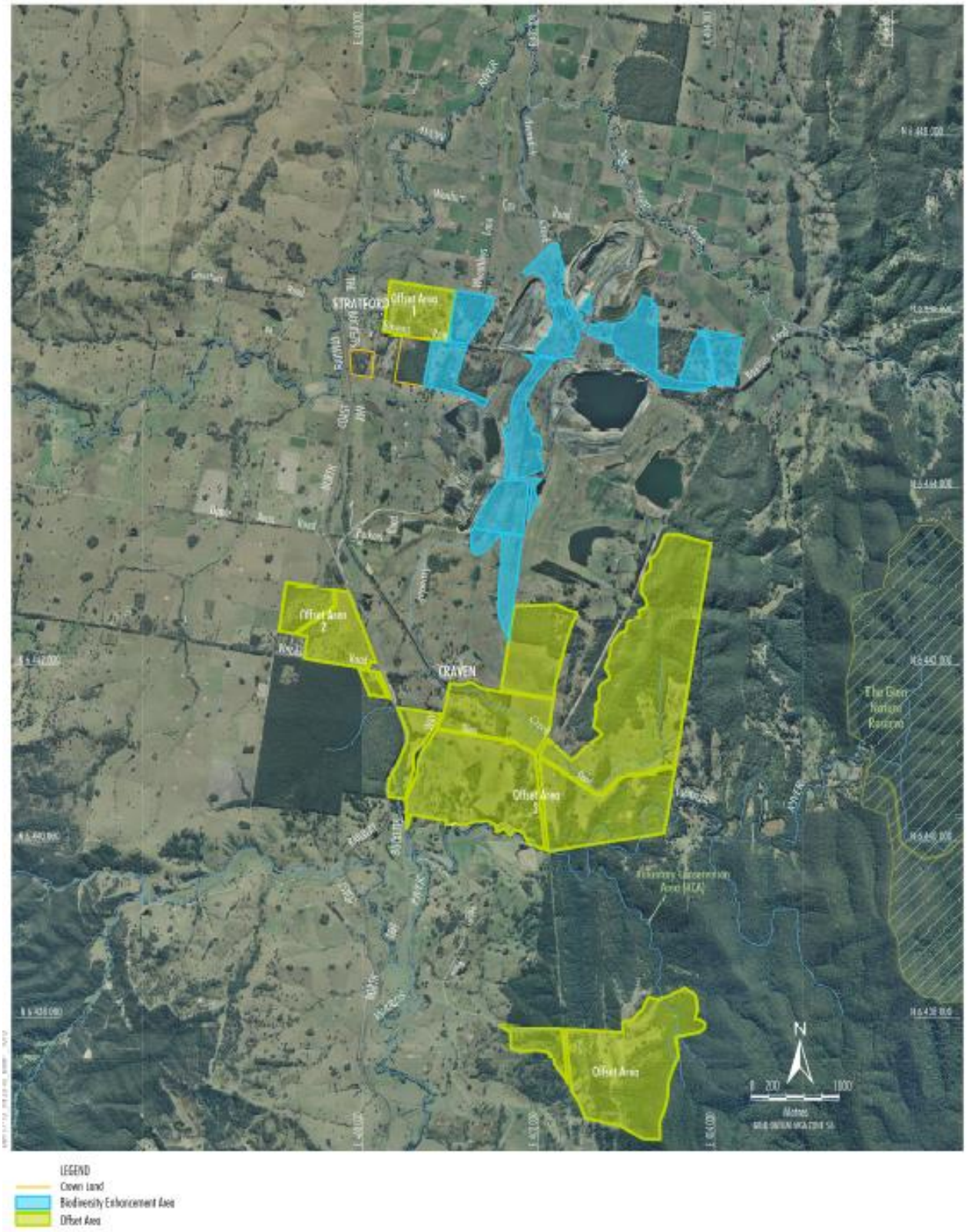
> *"a program to monitor and report on the effectiveness of the measures in the Biodiversity Management Plan, and progress against the detailed performance and completion criteria".*

The BMP was approved by the Department of Planning & Environment on 4 April 2018. This is the second Annual Biodiversity Report prepared for the Stratford Extension Project. This SMC Annual Biodiversity Report provides a review of the effectiveness of measures in the BMP for the annual year ending 31 December 2019 in accordance with Section 8.2.1 of the BMP. The scope of the review includes the Mining Lease areas, the Biodiversity Offset areas and the Biodiversity Enhancement area as indicated on Plan A.

This report (and associated Appendices) is included as an Appendix of the SMC Annual Review which is available on the Stratford Coal website www.stratfordcoal.com.au.

2 STATUS OF BMP PERFORMANCE CRITERIA

Performance criteria as prescribed in the BMP is presented in **Tables 1 to 9**. The performance criteria have been developed to meet the specific objectives for the areas described in Section 1.2 of the BMP. All performance criteria are linked to the management specifications listed in the BMP Section 4 and Section 5, and monitoring/reporting specifications in the BMP Section 7. The status of BMP performance criteria is provided in the subsequent sections of this report.



Plan A – BMP Figure 3

3 VEGETATION CLEARANCE PROTOCOL

3.1 Vegetation Clearance Report

Vegetation clearance is undertaken in accordance with the BMP Section 4.1 Vegetation Clearance Protocol. Prior to any clearance operations being undertaken a Clearing Plan is prepared, and pre-clearance surveys are undertaken.

During the 2019 reporting period, vegetation clearance was undertaken in advance of mining operations in the following areas:

- Stratford East Open Cut Stage 1
- Stratford East Haul Road
- Avon North Open Cut Stage 3.

The area of disturbance at the end of 2019 is shown in the SMC Annual Review 2019 Figure 3 (Appendix A).

Information obtained during the preparation of the Clearing Plans and the vegetation clearance activities (i.e. habitat features, hollows cleared and fauna observed) is used to determine the requirements for nest box replacement in the Biodiversity Offset and Enhancement Areas (refer to Section 9). A summary of the vegetation cleared including habitat features and tree hollows is included in Appendix C. During the 2019 reporting period a total of forty-two (42) habitat features and fourteen (14) tree hollows were removed.

3.2 Salvaged and Reused Material for Habitat Enhancement

Section 4.1.4 of the BMP requires salvaged material from vegetation clearance activities to be used for habitat enhancement within the rehabilitation, Biodiversity Offset areas and Biodiversity Enhancement Areas. Habitat features such as trunks, logs, large rocks, branches, stumps and roots are salvaged and relocated where practicable.

The areas cleared in advance of mining in 2019 as described in Section 3.1 where a mixture of previously cleared pasture and medium density woodland with habitat material available for salvage. In these areas, the cleared vegetation was managed as follows:

- Suitable trees and stumps were salvaged and stockpiled adjacent to the Avon North Open Cut for reuse.
- Suitable trees and stumps were salvaged and stockpiled adjacent to the Stratford East Box Cut.

4 MANAGING ACCESS, FENCING, GATES AND SIGNAGE

Managing access, fencing, gates and signage is undertaken in accordance with the BMP Section 5.1 and 5.2.

Table 1: Fencing, Gate and Signage Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Review of fencing requirements for offset areas.	Review of fencing complete including development of mapping showing fence and gate types, redundant fences and fences to be retained.	-	-	-
Gate and fence installations	50% of gates and fences installed	Installation of gates and fences complete	-	Gate and fence installations complete. Livestock excluded.
Redundant fence removal	50% of redundant fencing removed	Redundant fences removed	-	No redundant fencing
Installation of signage	-	Installation of signage complete	-	Signage installed

Table 2: Access Track Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Operational review and mapping to facilitate site access for offset management activities.	Operational review developed. Mapping complete	-	-	Operational review and mapping completed
Access track enhancement and maintenance	Enhancement of access tracks undertaken as identified in operational review.	Maintenance of access tracks annually	Maintenance of access tracks annually	-

Legend	Not commenced	In progress	Completed

The implementation of the BMP management measures continued in 2019. The BMP requires works to be undertaken to exclude livestock and control access to the Biodiversity Offset areas and Biodiversity Enhancement Areas.

Following the initial 2018 review of the existing fencing, gates and access tracks. Contractors were engaged to continue the removal of redundant fencing and install new fencing where required. Contractors were also engaged to maintain access tracks required for the ongoing management of the Biodiversity Areas. Fencing and access track work will continue during the next reporting period.

5 REVEGETATION MANAGEMENT

5.1 Seed Collection and Propagation

Seed collection and propagation is undertaken in accordance with the BMP Section 4.1.5 and 5.3.

Table 3: Seed Collection and Propagation Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Develop seed collection species list	Species list developed over time.			-
Seed collection	Seed collection commenced	Seed collection to continue	Seed collection to continue	-
Seed propagation	-	Seed propagation commenced	Seed propagation to continue	-

Revegetation in the BMP Revegetation Areas (BMP Management Zone A) will continue via seed and tube-stock. Local endemic (adapted) species are preferentially used where a seed supply is available, however consideration will be given to the use of a high quality seed sourced further from the site as required.

During 2019 SCPL prepared a scope and schedule for the revegetation works to be implemented (further discussed in Section 5.2). The total volume of seed required was calculated based on the floral listings for the target communities in the BMP appendices. During 2019 seed collection was conducted on felled Forest Oak (*Allocasuarina torulosa*), the seed will be used in seeding and tube-stock propagation in the next reporting period.
Kleinfelder, Cumberland Seeds, Hunter Indigenous and Riverdene Nursery have been engaged to assist in the propagation of native plant species with tube-stock grown under controlled nursery conditions and delivered to site as required for revegetation works in the next reporting period.

5.2 Revegetation and Regeneration

Revegetation management is undertaken in accordance with the BMP Section 5.3 Revegetation Programme. The aim of revegetation is to establish a range of habitat niches including native canopy, and understorey. The Revegetation Area (Management Zone A) in the Biodiversity Areas will be revegetated to substantially increase the area of native vegetation in the area and maximise habitat diversity and a range of successional stages.

Table 4: Revegetation and Regeneration Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Site Planning	Site inspection complete and advice received.	-	-	-
Map Revegetation Areas (Management Zone A) and identify target vegetation communities to establish	Mapping complete and target vegetation communities identified	-	-	-
Develop a species list for each target vegetation community	Species list developed	-	-	-

Develop application rates for seeds as well as planting densities for tube stock	Application rates developed	-	-	-
Implement revegetation schedule	Develop revegetation schedule	Implement revegetation schedule	Implement revegetation schedule	-
Revegetation Area (Management Zone A)	Commence revegetation works within the Revegetation Area (Management Zone A) (Figures 12a to 12c)	Continue revegetation works within the Revegetation Area (Management Zone A) (Figures 12a to 12c)	Continue revegetation works within the Revegetation Area (Management Zone A) (Figures 12a to 12c)	Vegetation established and provides suitable habitat for use by native fauna species.
Squirrel Glider Vegetation Pathways (Management Zone A1)	Commence planting *of* flora species which provide habitat for the Squirrel Glider within designated revegetation zones (Figures 12a to 12c)	Continue plantings of flora species which provide habitat for the Squirrel Glider	Continue plantings of flora species which provide habitat for the Squirrel Glider	Squirrel Glider vegetation pathways planted within the indicative area shown on Figures 12a to 12c, and provide connective habitat for the Squirrel Glider.
Allocasuarina spp. Plantings (Management Zone A2)	-	Commence planting of *Allocasuarina* spp. within designated revegetation zones (Figures 12a to 12c)	Complete *Allocasuarina* spp. plantings within Offset Area 3	*Allocasuarina* spp. plantings within the indicative area shown on Figures 12a to 12c, and provide foraging habitat for the Glossy Black-cockatoo
Coastal Floodplain Forest Revegetation (Management Zone A3)	-	-	Re-establishment of flora species characteristic of the Cabbage Gum open forest vegetation community	Improvement in condition of the riparian habitat along Avondale Creek within the indicative area shown on Figures 12a to 12c, as evidenced by monitoring data
Existing Remnant Vegetation (Management Zone B)	Inspection to be undertaken to monitor regeneration.	Inspection to be undertaken to monitor regeneration.	Inspection to be undertaken to monitor regeneration.	-
Power Line Corridor (Management Zone C)*	-N/A	-	-	-

Site Planning & Schedule

During 2019 SCPL prepared a scope and schedule for the revegetation works to be implemented. Kleinfelder have been engaged to assist with both the site planning and implementation of the revegetation works. The site planning included:

- Mapping of the priority revegetation areas to be completed in the following 2 years (Year 2 and Year 3).
- Calculation of seed and tube-stock requirements based on the indicative lists of flora species in the BMP appendices.

Plans showing areas proposed for revegetation in the Biodiversity Areas in 2020 are included in Appendix B.

Revegetation Implementation

Tube-stock for the Autumn 2019 revegetation work was divided into Two projects; Squirrel Glider Corridor and the Glen Road Offset Area. Revegetation ground preparation work was slashed by tractor to reduce the grass and woody weed biomass and then deep ripped (600-800mm) at a nominal 5m spacing. A total of 4000 canopy species and 3840 shrub species were planted into the Squirrel Glider Corridor and a total of 20558 canopy species and 8642 shrub species were planted into the Glen Road Offset Area during April and May 2019. Both areas were planted with species that reflected the Spotted Gum – Ironbark (Spotted Gum variant) woodland and Rough-Barked Apple – Red Gum Grassy Woodland (Cabbage Gum woodland variant) vegetation communities.

Plate 1 – Tube-stock planting in Glen Road South Offset Area

Tube-stock planting is scheduled to commence in March 2020. Details of the 2020 revegetation works will be included in the next annual biodiversity report.

Monitoring

Vegetation Monitoring was undertaken in 2019 to assess the effectiveness of revegetation in the Revegetation Area (Management Zone A) and to assess the natural regeneration in the Existing Remnant Vegetation Area (Management Zone B). The data gathered in 2019 will serve as a baseline to assess the success of the revegetation efforts. The full report can be found in Appendix D. Habitat and vegetation monitoring is discussed further in Section 11. Habitat and vegetation condition monitoring will continue to be undertaken annually to quantitatively measure the change in habitat and vegetation condition over time and to inform any ongoing maintenance requirements.

6 WEED CONTROL AND MONITORING

Weed control is undertaken in accordance with the BMP Section 4.4 and Section 5.6. The weed control program aims to manage weeds to minimise their impact on native flora and fauna

Table 5: Weed Management Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Monitoring of weed location and density	Mapping of weed extent and density produced	-	-	-
Bi-annual weed inspections and recording	Inspections and records completed	Inspections and records completed	Inspections and records completed	-

Weed control/treatment program	Strategic weed control as required, recording on areas worked and implementation of recommendations	Priority weed infestations appropriately controlled and minimised as evidenced through monitoring data

The general procedure for controlling weed involves:

- Monitoring to identify locations and densities of priority weed;
- Identification of suitable control measures;
- Implementation of the selected control measure by a suitable qualified person;
- Follow-up inspections to evaluate effective of weed control.

Weed spraying activities are generally undertaken between the months of September and April each year. Physical management measures such as mechanical removal, slashing and/or back-burning can be undertaken at other times of the year as required.

A contractor is engaged at the SMC to undertake weed management activities on an ongoing basis. Weed spraying commenced in September 2019 and continued through spring and summer. The weed control activities in 2019 continued to target areas of known weed infestation. The key species targeted included blackberry, lantana, privet, wild tobacco and Giant Parramatta grass.

Weeds mapping is proposed to be undertaken during the next reporting period to assist in setting future management priorities and developing on-ground actions for weed control.

7 FERAL ANIMAL CONTROL AND MONITORING

Feral animal control is undertaken in accordance with the BMP Section 4.5 and Section 5.7. The objective of the feral animal control program is to manage feral animals to minimise their impact on native flora and fauna in the Biodiversity Offset and Biodiversity Enhancement Areas and/or their impact on agricultural production in other surrounding areas.

Table 6: Feral Animal Management Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Abundance of feral animal species established	Initial study undertaken in the Biodiversity Offset Area and Biodiversity Enhancement Area.	-	-	-
Feral animal control and monitoring	-	Inspections and records completed	-	-
Feral animal control program	Feral animal control as required.			Feral animal numbers within offset areas minimised as evidenced through monitoring data

MDP Vertebrate Pest Management has been engaged by SCPL since 2016 to implement wild dog and fox control programs across property owned by SCPL including both the Stratford & Duralie Mining Leases and the Stratford & Duralie Biodiversity Offset Areas. During the reporting period two wild dog control programs were undertaken. The first was between **30 April 2019** to **14 May 2019** the 14-Day control program was productive and successful with a total of 4 wild dogs and 3 foxes trapped and shot. The second was between **15 October 2019** to **13 November 2019**. The program was productive and successful with a total of 6 wild dogs and 5 foxes trapped and Shot over the 30-Day control program.

Plate 2 – Wild Dog captured on camera

Wild dogs, foxes and wild cats will be targeted within the next reporting.

In accordance with the BMP Section 5.7 follow-up feral animal monitoring surveys would be undertake every two years. A feral animal survey of the Biodiversity Offset Area and Biodiversity Enhancement Area will be undertaken during the next reporting period.

8 BUSHFIRE PREVENTATION AND RISK MANAGEMENT

Bushfire management is undertaken in accordance with the BMP Section 4.7 and Section 5.9. The objective of bushfire management in the Biodiversity Areas is to prevent impacts from unplanned bushfire and to use fire to promote biodiversity.

Table 7: Bushfire Management Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (January – December 2018)	Year 2 (January – December 2019)	Year 3 (January – December 2020)	
Mapping of Fire Breaks and Trails	Mapping complete	-	-	-
Monitoring of Fuel Loads	Inspections and records completed	Inspections and records completed	Inspections and records completed	-
Controlled Burning	-	Implement (if required)	Implement (if required)	Controlled burns implemented (where required)

Monitoring of fuel loads to evaluate bushfire risk and guide bushfire hazard reduction activities is undertaken in conjunction with the annual vegetation monitoring was conducted in February 2019. Further detail is included in Section 11.

Section 4.7 of the BMP states SCPL will:

- ensure that the development is suitably equipped to respond to any fires on site; and
- assist the Rural Fire Service (RFS), emergency services and National Parks and Wildlife Service as much as possible if there is a fire in the surrounding area.

During the 2019/2020 fire season the local RFS's accessed hydrants at the SMC site using water from the mine storage system to contain and fight fires in the region.

9 NEST BOX PROGRAMME

Nest box management is undertaken in accordance with the BMP Section 5.10. Nest boxes will be installed to provide habitat opportunities in the short to medium-term for a number of arboreal fauna species including the Squirrel Glider.

Table 8: Nest Box Program Performance and Completion Criteria

Management Action	Performance Criteria			Completion Criteria
	Year 1 (2018)	Year 2 (2019)	Year 3 (2020)	
Nest Boxes – Installation	Nest boxes installed for clearing activities	Installation continued as clearing progresses	Installation continued as clearing progresses	Nest boxes installed as required.
Nest Boxes – Monitoring and Reporting	Quarterly inspections undertaken – undertaken in Year 2	Annual inspection and records completed	Annual inspection and records completed	-
Nest Boxes – Maintenance	-	Maintenance or replacement as required	Maintenance or replacement as required	Nest boxes functioning as designed

The nest box programme consists of two main components to replace any tree hollows cleared prior to mining activities as described in Section 3:

- Suitable nest boxes for the Squirrel Glider will be installed at a ratio of least 3:1 for each tree hollow cleared suitable for the Squirrel Glider. Squirrel Glider nest boxes will have a small entrance hole (45-50 millimetres diameter) to exclude larger possums and birds.
- For tree hollows that provide habitat to arboreal fauna species (other than the Squirrel Glider), nest boxes will be installed at a minimum ratio of 1:1 (i.e. one nest box of appropriate size to replace one hollow of similar size and properties). These next boxes will be provided for birds, bats and arboreal mammals.

Nest boxes will be installed within the Biodiversity Offset Area and Biodiversity Enhancement Area in Existing Remnant Vegetation (Management Zone B) as well as the Revegetation Area (Management Zone A).

During the 2019 reporting period a total of Forty-Two (42) habitat features, Nine (9) tree hollows suitable for habitat for arboreal fauna species and Five (5) tree hollows suitable for the Squirrel Glider were removed (Appendix C). As such, Fifteen (15) Squirrel Glider specific nest boxes and Nine (9) other arboreal nest boxes for a total of Twenty-four (24) nest boxes were required to be replaced.

The current nest box program involves:

- Five (5) targeting Squirrel Glider *(Petaurus norfolcensis),* Installed December 2018.
- Twenty-Five (25) targeting Squirrel Glider *(Petaurus norfolcensis),* Installed May 2019
-

Sixty (60) Squirrel Glider and Eighteen (18) other arboreal nest boxes for other arboreal fauna are proposed to be installed in April 2020. Next Boxes will continue to be installed in accordance with the BMP.

Monitoring

In Accordance with section 5.10 of the BMP nest boxes will be monitored by suitably qualified personnel with quarterly inspections during the first year followed by annual inspections in spring. Monitoring details the nest box identification number, the tree species on which the box is installed, evidence of use and whether fauna was present. Details on each of the fauna species present within nest boxes is collected (sex, weight, length, breeding status and if it had been a new capture or recapture). Quarterly monitoring nest box was undertaken in July and October 2019.

A summary of results from the July 2019 report is provided below:

- Seven squirrel gliders were found occupying the nest boxes across the SMC during Stage 1 of the monitoring program. One (male) was found in nest box 29. Six squirrel gliders (three males and three females) were found in nest box 30. Six nest boxes showed signs of previous occupancy by vertebrates including leaf nests and scratching.

PLATE 1 FRESH GLIDER BOWL (BOX29) AFTER GLIDER WAS REMOVED

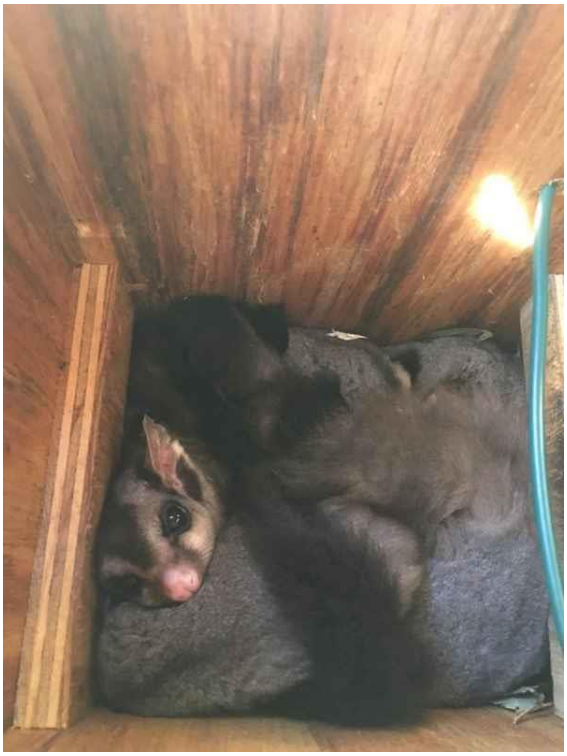


PLATE 2 SIX SQUIRREL GLIDERS (BOX30)

A summary of results from the October 2019 report is provided below:

- A single squirrel glider was found occupying the nest boxes across the SMC during Stage 2 of the monitoring program.

- Four of the five marine ply nest boxes showed signs of previous occupancy by vertebrates with fresh leaves shaped into glider bowls. This round of monitoring no new evidence of use was observed in most nest boxes.

PLATE 3 SQUIRREL GLIDER (BOX 6)

Quarterly monitoring is scheduled for January and April 2020. Annual monitoring will be completed following the April survey.

10 SQUIRREL GLIDER MANAGEMENT PLAN

In accordance with Condition 38(a), Schedule 3 of the Development Consent SSD-4966 the management of Squirrel Glider populations is undertaken in accordance with the Squirrel Glider Management Plan (SQMP). The SQMP was approved by the DP&E on 19 October 2018 and includes specific management measures in addition to those in the BMP. The SGMP has been prepared to facilitate the management of squirrel gliders at the SMC, Biodiversity Enhancement Areas and Biodiversity Offset Areas.

Squirrel Glider programs which commenced during the reporting period include the identification of the Squirrel Glider home ranges (SQMP 4.2), the tree hollow census and nest box program (SQMP Section 7) further details are found in section 10.1 and 10.2.

Programs proposed to commence in the next reporting period will include squirrel glider food resources (SQMP Section 6), and vegetation pathways (SQMP Section 8.1).

10.1 Squirrel Glider Home Range

Objectives outlined in Section 4 of the SGMP require measures to establish the home range size of squirrel glider colonies within SMC. This information will be used to guide the ongoing management of squirrel glider populations within the SMC Biodiversity Offset Areas and Biodiversity Enhancement Areas. This information will also define the study area for further programs including the census of suitable tree hollows, food resources surveys and habitat enhancement including nest box installations.

Kleinfelder Australia was commissioned by SCPL to conduct an initial targeted squirrel glider survey to establish the locations of any existing Squirrel Glider colonies within the potential habitat in the vicinity of SMC. This involved the use of baited remote cameras placed throughout the biodiversity offset and biodiversity enhancement areas. From the areas identified to contain squirrel gliders, radio-tracking was conducted to estimate the home range of the local population of squirrel gliders within these areas of the SMC.

Two radio tracking programs were conducted between January - April 2019 and July - September 2019 in the 2019 reporting period. The 2019 tracking programs consisted of trapping of the Squirrel Gliders, processing and collaring trapped squirrel gliders, radio tracking selected gliders, analysing and estimating home ranges for each radio-tracked squirrel glider. The findings of the initial survey and home range estimations with appropriate recommendations are provided in the 2019 SMC Squirrel Glider Colony & Home Range Report, Appendix E. the following is an extracted summary from the Squirrel Glider & Home Range Report:

> *"An initial targeted squirrel glider survey was undertaken to establish the locations of any existing Squirrel Glider colonies within the potential habitat in the vicinity of SMC. The initial survey was undertaken from 26 November to 17 December 2018 consisting of a total of 692 trap nights over 37 locations. Squirrel glider presence was confirmed at five locations. Four of these locations were determined as suitable areas to conduct home range surveys using radio-tracking.*

Radio-tracking was undertaken to examine spatial requirements and use, and den preferences. Radio-tracking was conducted in two periods of 40 nights and are subsequently referred to as seasons. A total of 36 squirrel gliders were captured, 19 gliders were fitted with radio collars and sufficient data points were obtained to allow home range estimates for 13 gliders.

Results of the radio-tracking study showed that the seasonal home range for squirrel gliders within the Stratford area in period 1 (Summer) was FK95% 3.9 ± 0.3. ha and MCP100% was 9.7 ± 1.6ha. The FK95% for period 2 (Winter) was 3.6 ± 0.3 and the MCP100% was 12.8 ± 2.1. There was no significant difference between periods (P = 0.366, F7,5 = 1.407). This study also identified areas within the impact area of the Avon North extension where squirrel gliders were denning and foraging.

Further studies in accordance with the Squirrel Glider Management Plan into the population dynamics of the squirrel glider within the Biodiversity Offset areas and Biodiversity Enhancement areas would be conducted to determine the impacts predators and habitat fragmentation are having on the local population. This will provide information on the effectiveness of the offset measures and habitat enhancement being implemented for the species."

PLATE 4 RADIO-TRANSMITTING COLLAR AND FINGERLING TAGS FITTED TO SQUIRREL GLIDER

PLATE 5SQUIRREL GLIDER DETECTED DURING REMOTE CAMERA SURVEY

PLATE 6 SQUIRREL GLIDER (SHARON) WITH YOUNG.

10.2 Tree Hollow Census

Condition 38(b), Schedule 3 of Development Consent SSD-4966 requires a census of suitable tree hollows in home ranges and offset areas suitable for Squirrel Gliders. A tree hollow census was undertaken within the home ranges identified by the radio tracking program (Section 10.1) to identify hollow bearing trees suitable for use as den sites by the Squirrel Glider.

An extracted summary of the census results from the 2019 Stratford Mining Complex Hollow-bearing Tree Census Report Appendix F:

"Radio-tracking and home range estimations was undertaken to comply with the requirement outlined in section 4.2 of the Squirrel Glider Management Plan (SGMP) (Stratford Coal 2018, Kleinfelder 2019). The areas identified to form part of a squirrel gliders home range were then used as study sites for the hollow-bearing tree census as required by Section 7.1 of the SGMP.

The hollow-bearing tree census identified and mapped 480 hollow-bearing trees which contained a combined total of 648 hollows. Attributes of available hollows and known den hollows were compared to investigate the hollow preferences of squirrel gliders. The results indicated that hollow entrance size (area and width of hollow opening) was the most important factors in determining whether a hollow would be selected as a den by a squirrel. Tree species was not a determining factor with seven species being used for dens. Stags and Eucalyptus siderophloia (Grey Ironbark) were the most commonly used den species.

Direct comparison of the density of hollow-bearing trees recorded in the biodiversity enhancement and offsets areas vegetation community benchmark data for the relevant vegetation type shows that the two major vegetation communities at the SMC were found to contain significantly lower densities of hollow-bearing trees.

Once the squirrel glider food resources have been mapped as outlined in section 6.1 of the SGMP, information provided in this report can be used to identify areas best suited for nest box installation. Nest boxes will be best situated in areas currently lacking tree hollows but have an adequate number of food resources."

11 BIODIVERSITY OFFSET MONITORING AND REPORTING

The Biodiversity Offset monitoring program is prescribed in the BMP Section 7. The program aims to monitor and report on the effectiveness of the BMP management measures and progress against the detailed performance and completion criteria.

Table 9: Monitoring Program – Biodiversity Offset Strategy

Monitoring Program	Relevant BMP Section	Frequency
Visual Monitoring	Section 7.1.1	Annual
Photo Monitoring	Section 7.1.2	Annually (spring)
Habitat and Vegetation Monitoring Program	Section 7.1.3	Annually (spring)
Fauna Monitoring Program	Section 7.1.4	Every three years
Weed Monitoring	Section 5.6	Biannually
Initial Feral Animal Study of the Biodiversity Offset Area and Biodiversity Enhancement Area	Section 5.7	Within 12 months of approval of the BMP
Feral Animal Monitoring	Section 5.7	Every two years
Nest Box Monitoring	Section 5.10	Quarterly for 12 months and then biannually

11.1 Habitat and Vegetation Condition Monitoring

Habitat and vegetation condition monitoring is undertaken to quantitatively measure the change in habitat and vegetation condition over time. The visual monitoring and photo monitoring programs are undertaken concurrently with the vegetation monitoring to provide additional information on the change of the Biodiversity Areas over time and inform maintenance requirements.

To monitor the effectiveness of revegetation in the Biodiversity Areas Kleinfelder was commissioned to undertake the baseline habitat and vegetation monitoring. The monitoring which was completed in February 2019 was the first survey in accordance with the Stratford Mining Complex (Stratford Extension Project) – Biodiversity Management Plan (BMP 2018) to provide baseline data for subsequent surveys of the revegetation progress against the project specific performance and completion criteria. This survey has been undertaken prior to the revegetation works commencing in the Biodiversity Offset areas.
An extracted summary of the survey results from the *2019 Stratford Mining Complex Biodiversity Offsets Flora Monitoring Report (Appendix D*).

> *"This report is the first monitoring event for the Stratford Offset Revegetation program and the results provides data immediately after the revegetation had commenced, although some smaller areas in the Biodiversity Enhancement Area (e.g. Q5) had been planted in previous years. The results show that the native vegetation in the Offsets areas is very sparse, especially canopy and midstorey strata even in those areas where natural recruitment is occurring. The Biodiversity Enhancement Areas generally recorded higher densities of native species in these strata. Both revegetation areas will have increased densities of native species as a result of the revegetation program."*

11.2 Fauna Monitoring

Monitoring of fauna usage within the Biodiversity Areas is conducted every three years to document the fauna species response to improvement in vegetation and habitat in the Biodiversity Areas and assess the performance in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance.

During 2019 AMBS Ecology & Heritage (AMBS) were engaged to undertake a fauna survey within the SMC Biodiversity Offset areas and Biodiversity Enhancement Areas (Appendix G).

> *"Targeted fauna surveys were undertaken at eight sites. Six sites within the Stratford Offset Areas and two sites within the Biodiversity Enhancement Area. Field surveys occurred during two weeks, from 23 to 27 September 2019 and 28 October to 2 November 2019. At each site survey techniques included pitfall traps, funnel traps, Elliott A traps, harp traps, ultrasonic call recording, spotlighting, diurnal bird surveys and reptile searches. In addition, targeted frog surveys were undertaken at four water sources, one located in the Biodiversity Enhancement Area and three in the Biodiversity Offset Area. Opportunistic observations of signs of fauna were noted throughout the field survey period, including during transit between surveys sites.*
>
> *A total of 167 species of vertebrate were recorded, comprising 11 frogs, 16 reptiles, 97 birds and 43 mammals, most of which were native. Six introduced species were recorded during the surveys, including the Red Fox (Vulpes vulpes), Feral Cat (Felis catus), Black Rat (Rattus rattus), European Rabbit (Oryctolagus cuniculus), European Brown Hare (Lepus europaeus) and Cattle (Bos taurus). This is a reasonable diversity of fauna considering extreme drought conditions throughout the year and the relatively short length of the survey.*
>
> *Twenty-two of the species detected are listed as threatened or migratory on the schedules of the BC Act and/or EPBC Act, including:*
>
> - *White-bellied Sea-eagle (Haliaeetus leucogaster)*
> - *Dusky Woodswallow (Artamus cyanopterus cyanopterus)*

- *Black-chinned Honeyeater (eastern subspecies) (Melithreptus gularis gularis)*
- *Black-faced Monarch (Monarcha melanopsis)*
- *Spectacled Monarch (Symposiachrus trivirgatus)*
- *Varied Sittella (Daphoenositta chrysoptera)*
- *Grey-crowned Babbler (eastern subspecies) (Pomatostomus temporalis temporalis)*
- *Black-necked Stork (Ephippiorhynchus asiaticus)*
- *Little Lorikeet (Glossopsitta pusilla)*
- *Yellow-bellied Sheathtail-bat (Saccolaimus flaviventris)*
- *Little Bent-winged Bat (Miniopterus australis)*
- *Large Bent-winged Bat (Miniopterus orianae oceanensis)*
- *Eastern Coastal Free-tailed Bat (Micronomus norfolkensis)*
- *Large-eared Pied Bat (Chalinolobus dwyeri)*
- *Southern Myotis (Myotis macropus)*
- *Greater Broad-nosed Bat (Scoteanax rueppellii)*
- *Brush-tailed Phascogale (Phascogale tapoatafa)*
- *Red-legged Pademelon (Thylogale stigmatica)*
- *Yellow-bellied Glider (Petaurus australis)*
- *Squirrel Glider (Petaurus norfolcensis)*
- *Koala (Phascolarctos cinereus)*
- *New Holland Mouse (Pseudomys novaehollandiae)*

The fauna surveys suggest the Stratford Offset and Biodiversity Enhancement Areas provide habitat for a range of native vertebrate fauna, including birds, mammals, reptiles and frogs. Two of the threatened species recorded, the Black-chinned Honeyeater and Red-legged Pademelon, have not previously been recorded at the Stratford Mining Complex."

PLATE 7 BRUSH-TAILED PHASCOGALE (PHASCOGALE TAPOATAFA)

PLATE 8 KOALA (PHASCOLARCTOS CINEREUS)

PLATE 9 RED-LEGGED PADEMELON (THYLOGALE STIGMATICA)

12 LONG TERM SECURITY AND CONSERVATION BOND

12.1 Long-term Security

In accordance with Condition 36, Schedule 3 of Development Consent SSD-4966, SCPL is required to make suitable arrangements for the long-term security of the Stratford Extension Project Biodiversity Offset Area. SCPL proposes to pursue the mechanisms available under section 88E(3) of the NSW Conveyancing Act, 1919, namely:

- Registration of a Positive Covenant under section 88E(3) of the NSW Conveyancing Act, 1919; and
- Registration of a Restriction on the Use of Land by a Prescribed Authority under section 88E(3) of the NSW Conveyancing Act, 1919.

To finalise securing the offset areas, the following actions were conducted:

- confirmation that the completed instruments are to the satisfaction of the Secretary;
- execution of the instruments by the prescribed authority (the DP&E);
- execution of the instruments by the three separate registered proprietors of the offset lands (i.e. Yancoal's subsidiary companies, CIM Stratford Pty Ltd; Stratford Coal Pty Ltd and Gloucester Coal Limited);
- lodgement of the executed instruments with NSW Land Registry Services (LRS) in accordance with LRS's dealing lodgement requirements;
- LRS assessment/review of the instruments to confirm the instruments are acceptable for registration; and
- if acceptable, registration of the instruments on the titles of the offset lands.

Copies of the executed Positive Covenants and registration of the instruments are provided in Appendix H.

12.2 Conservation Bond

In accordance with Condition 40, Schedule 3 of Development Consent SSD-4966, SCPL is required to lodge a Conservation Bond with the DP&E which covers the cost of implementing the Biodiversity Offset Strategy detailed in the BMP.

The conservation bond calculation was prepared by Kleinfelder and a verification of the costs was undertaken by Rider Levett Bucknall. The conservation bond calculation was submitted in January 2019 and subsequently approved by DP&E on 15 January 2019.

The Conservation Bond in the form of a bank guarantee was executed and lodged with DP&E on 8 February 2019.

13 COMMONWEALTH EPBC APPROVAL COMPLIANCE REPORTS

In accordance with Condition 10 of EPBC 2011/6176 for the Stratford Extension Project, by 31 March of each year after the commencement of the action, or as agreed with DoEE, SCPL is required to publish a report addressing compliance with the conditions of EPBC 2011/6176 during the previous calendar year, including implementation of any management documents as specified in the conditions of EPBC 2011/6176.

SCPL commenced the action approved under EPBC 2011/6176 on 4 April 2018. The first annual compliance report was submitted in March 2019. The 2020 compliance report was submitted on 9 April 2020.

Condition 10 also requires reporting on the implementation of the relevant management documents required in accordance with the conditions of EPBC 2011/6176. This SMC Annual Biodiversity Report provides a review of the implementation of the management measures in the BMP for the annual year ending 31 December 2019. This report is included as an Appendix of the SMC Annual Review.

14 APPENDICES

Appendix A: SMC Annual Review 2019 - Disturbance & Rehabilitation Areas Figure 3

Appendix B: Biodiversity Offset Area – Areas proposed for revegetation in 2020

Appendix C: SMC Vegetation Clearance & Nest Box Replacement Requirements 2019

Appendix D: Stratford Biodiversity Offset Flora Monitoring Report 2019

Appendix E: SMC 2019 Squirrel Glider Colony & Home Range Report

Appendix F: SMC Hollow-bearing Tree Census Report 2019

Appendix G: SMC Fauna Survey 2019

Appendix H: Executed Positive Covenants and Registration Notices

(Appendices available on request)