Centennial Coal

SPRINGVALE COAL PTY LTD
WESTERN COAL SERVICES
2016 ANNUAL REVIEW

March 2017

Centennial Coal
Environment Matters

Table 1 - WCS 2016 Annual Review Title Block

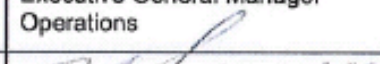
Name of Operation	Western Coal Services (WCS)
Name of Operator	Springvale Coal Pty Ltd
Development Consent/ Project Approval #	SSD-5579
Mining Lease #	CCL 733, ML 204, ML 1319, ML 564, CL 394, CL 361, ML 1352, ML 1448, MPL 314, MLA 497, MLA 498, PLL 133
Name of Holder of Mining Lease	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
MOP/RMP Start Date	1 November 2015
MOP/RMP End Date	31 July 2022
Annual Review Start Date	1 January 2016
Annual Review End Date	31 December 2016

I, Mick Cairney[1] certify that this audit report is a true and accurate record of the compliance status of WCS for the period 1 January 2016 to 31 December 2016 and that I am authorized to make this statement on behalf of Springvale Coal Pty Ltd.

Note:

a) *The Annual Review is an 'environmental audit' for the purposes of s122B(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 a 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	Mick Cairney
Title of Authorised Reporting Officer	Executive General Manager Operations
Signature of Authorised Reporting Officer	
Date	27/03/2017

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1. STATEMENT OF COMPLIANCE

Table 2 - WCS 2016 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
Development consent SSD-5579	**No**
Mining Lease number CCL 733	**Yes**
ML 204	**Yes**
ML 1319	**Yes**
ML 564	**Yes**
CL 394	**Yes**
CL 361	**Yes**
ML 1352	**Yes**
ML 1448	**Yes**
MPL 314	**Yes**
MLA 497	**Yes**
MLA 498	**Yes**
PLL133	**Yes**
Environmental Protection Licence 3607	**No**
Radiation Licence	**Yes**

Table 3 – WCS 2016 Non-Compliances

Relevant Approval	Condition #	Condition summary	Compliance Status	Comment	Section # addressed in Annual Review
SSD-5579	Schedule 2 Condition 9	Surrender of existing consents	**Non-Compliant**	Surrender yet to be finalised	10, 11
SSD-5579	Schedule 3 Condition 7	Noise Criteria	**Non-Compliant**	Exceedance of noise limits	6.2, 10, 11
SSD-5579	Schedule 3 Condition 13	Air Quality	**Non-Compliant**	Exceedance of 24 hour PM_{10} limit	11
SSD-5579	Schedule 3 Condition 20	Water Pollution	**Non-Compliant**	Exceedance of schedule 3 condition 20	11
SSD-5579	Schedule 3 Condition 20	Water Management Performance Measures	**Non-Compliant**	Capture of all runoff from a 95 percentile 5 day rain event.	11
EPL 3607	L2 Concentration Limits	Water concentration limits	**Non-Compliant**	Exceedance of limits for turbidity and total suspended solids	11

Note: Compliance Status Key for Table 3 above

Risk Level	Colour Code	Description
High		Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium		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-compliance with: • Potential for moderate environmental consequences, but is unlikely to occur; or • Potential for low environmental consequences, but is likely to occur
Administrative		Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2. INTRODUCTION

WCS consists of a coal handling and processing plant, reject and tailings emplacement facilities, and a coal distribution network of conveyors from the existing Springvale Coal Mine to Mt Piper Power Station and from the Springvale Coal Services site to Lidsdale Siding for export. The project area also includes the existing and approved private haul roads, and the Kerosene Vale Coal Stockpile Area.

Table 4 – WCS Operational Contact Details

Position	Contact Details
Manager Springvale Coal Services	02 6355 9508
Environment and Community Coordinator	02 6355 9509
Community contact number	02 6355 9500

2.1. Meteorological monitoring

Meteorological monitoring for WCS in 2016 is provided below that details rainfall, temperature, and wind monitoring undertaken through the reporting period.

Rainfall

The monthly rainfall for WCS for the 2016 reporting period is summarised in Table 5 and Figure 1 below.

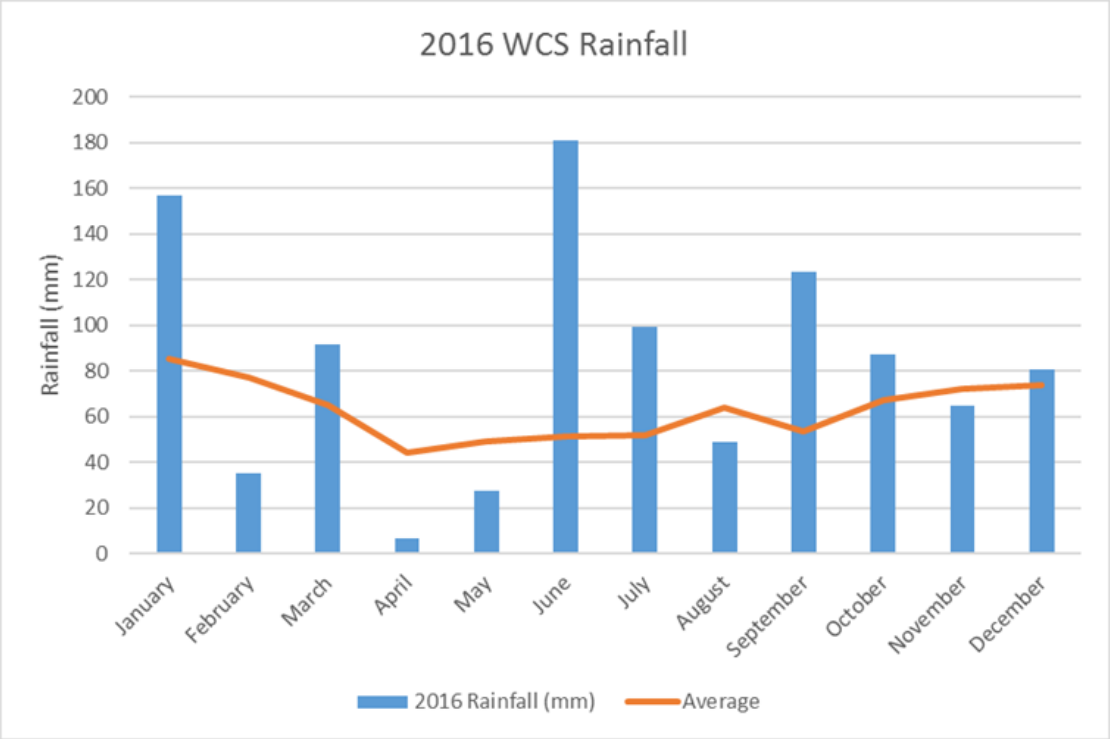


Figure 1 - WCS 2016 Rainfall summary

Table 5 - WCS 2016 Monthly Rainfall Summary

Month	Total rainfall (mm)[1]	Average[2]
January	157	85.2
February	35	77
March	91.5	65.1
April	6.5	43.9
May	27.5	49
June	181.0	51.2
July	99.5	51.6
August	49.0	64
September	123.5	53.6
October	87.5	67.2
November	65.0	72.2
December	80.4	73.8
Total	**1003.4**	

The total monthly rainfall at WCS for the 2016 reporting period is compared against the average monthly rainfall recorded at the Bureau of Meteorology (BOM) station 063132 (Maddox Lane, Lidsdale).

[1] Monthly rainfall taken from either LDP006 rain gauge or WCS AWS
[2] BOM station 063132 Lidsdale (Maddox Lane) 1959-2016

Temperature

The minimum and maximum monthly temperature for WCS for the 2016 reporting period is summarised in Table 6 and Figure 2 below.

Table 6 – WCS 2016 Monthly Temperature Summary

Month	Min	Max
January	7.82	34.7
February	8.51	34.5
March	6.27	33.0
April	3.75	28.7
May	-4.55	26.0
June	-4.22	17.8
July	-4.38	18.9
August	-3.27	20.1
September	0.90	21.4
October	0.11	27.4
November	0.17	30.1
December	4.34	33.1

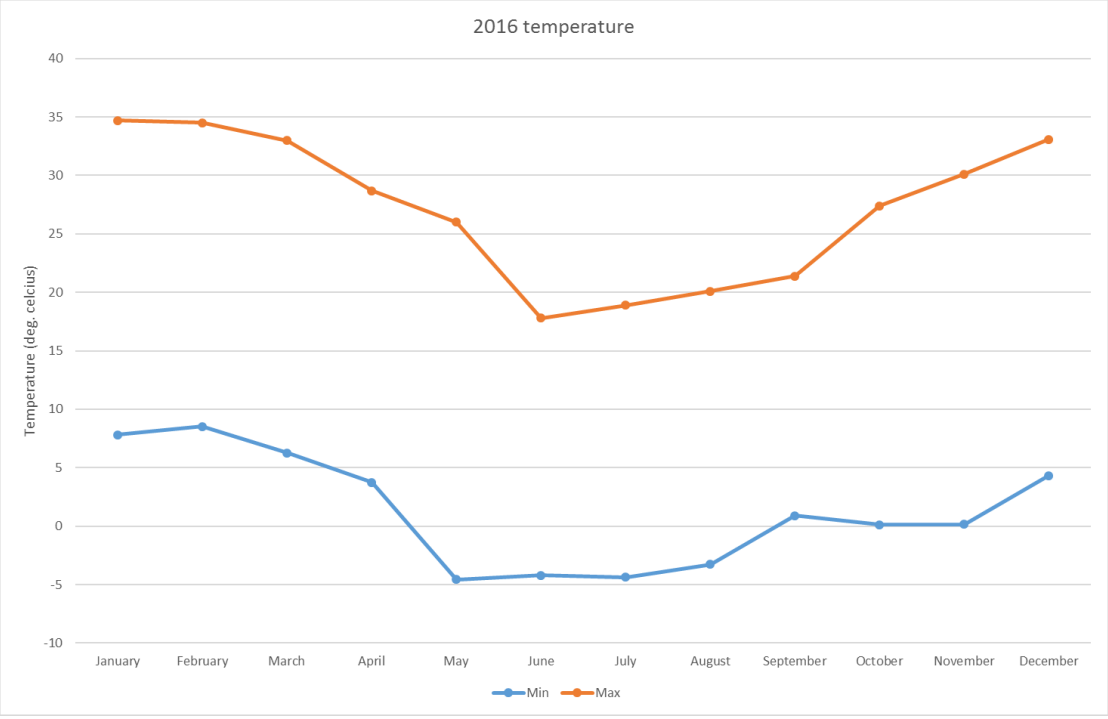
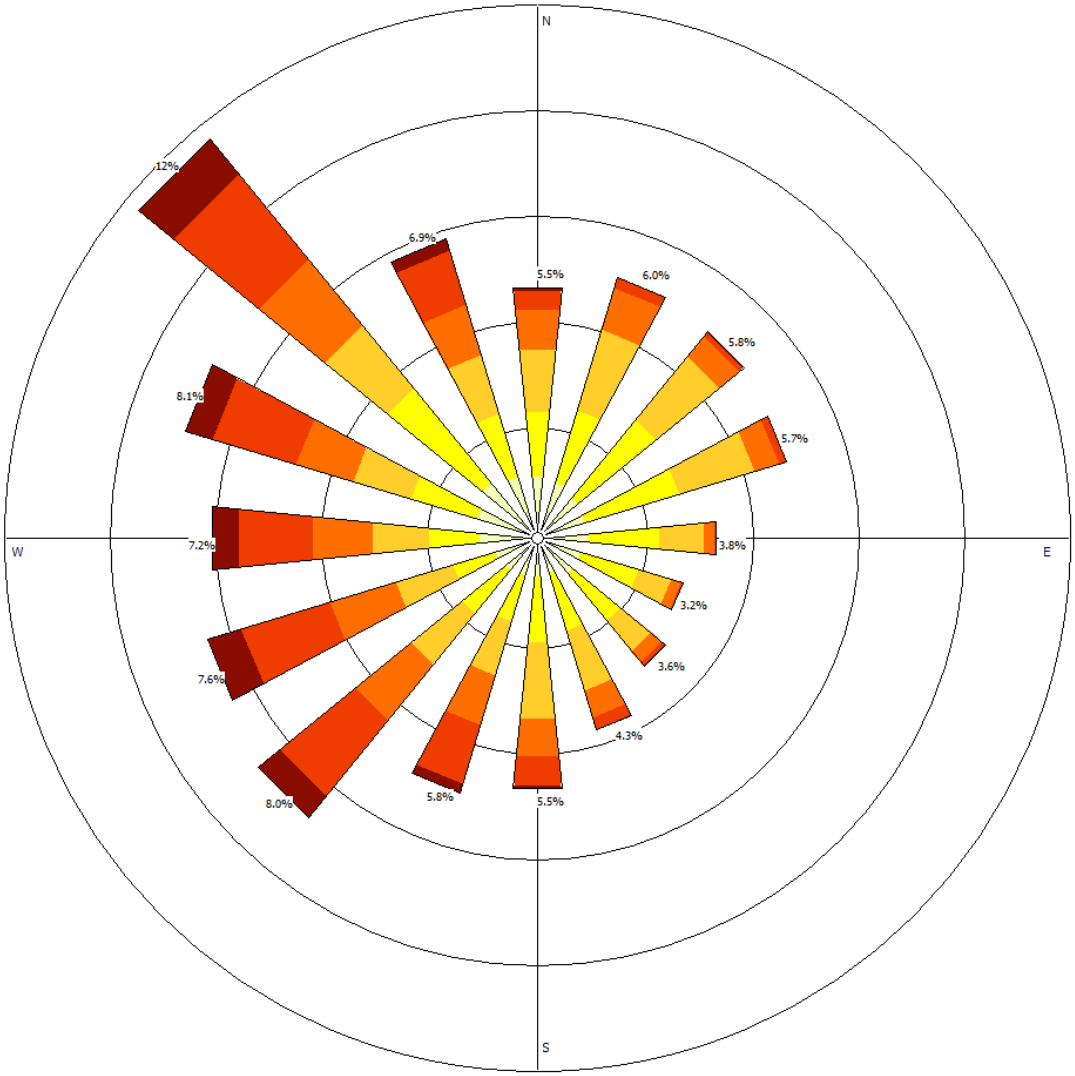


Figure 2 - WCS 2016 Monthly Temperature Summary

Wind

The wind rose for the 2016 reporting period is shown in Figure 3 below. The predominant wind direction is from the north-west, occurring for 12% of the year. The strongest winds

occur from the south-west to the north-west. The predominant wind speed is 2-5 km/h occurring 25.4% of the year.



%	
4.4	> 25 km/h
15.2	15 < 25 km/h
15.6	10 < 15 km/h
22.8	5 < 10 km/h
25.4	2 < 5 km/h
15.3	0.5 < 2 km/h
1.4	< 0.5 km/h

Figure 3 - WCS 2016 Wind Rose

3. APPROVALS

The WCS Approvals summary is provided in Table 7 below.

Table 7 – WCS Approvals Summary

Consent	Description	Expiry	Holder
SSD-5579	Coal transportation and processing	30 June 2039	Springvale Coal Pty Limited
EPL 3607	Coal works		Springvale Coal Pty Limited
Radiation Management Licence 5061304	Radiation apparatus	15 Jun 2017	Springvale Coal Pty Limited
CCL 733	Consolidated Coal Lease	09/03/2025	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
ML 204	Mining Licence	27/05/2033	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
ML 1319	Mining Licence	05/07/2035	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
ML 564	Mining Licence	02/05/2023	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
CL 394	Consolidated Coal Lease	27/05/2034	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
CL 361	Consolidated Coal Lease	16/07/2032	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
ML 1352	Mining Licence	23/06/2036	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
ML 1448	Mining Licence	31/05/2020	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
MPL 314	Mining Licence	03/08/2035	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd

4. OPERATIONS SUMMARY

The WCS 2016 actual Production Summary and as 2017 Production Forecast Summary (as of 31/03/17) is provided in Table 8 below.

Table 8 – WCS 2016 Actual Production Summary & 2017 Production Forecast Summary

Material	SSD-5579 Approved Limit (tonnes)	Previous Reporting Period CY 2015	This Reporting Period (actual tonnes) CY 2016	Next Reporting Period (Forecast tonnes) CY 2017
Waste Rock/ Overburden	NA	362,000 m^3	0	0
ROM Coal	Receive 9,500,000 ROM coal Process 7,000,000 ROM coal process	3,853,628 t	4,288,601	4,296,847
Coarse reject	NA	238,709 t	162,141	93,331
Fine reject (Tailings)	NA	238,709 t	162,141	93,331
Saleable product	NA	3,476,119 t	Mt Piper 2,944,847 Lidsdale Siding 1,035,981	Mt Piper 3,315,023 Lidsdale Siding 720,495

4.1. Other Operations

The WCS 2016 Other Operations Summary is provided in Table 9 below.

Table 9 – WCS 2016 Other Operations Summary

	Approved Limit (and source)	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Comment
Hours of operation	24 hours a day, 7 days per week	**Compliant**	**Compliant**	N/A
Transport (road)	No truck movement to take place during the night on the Wallerawang power station haul road.	**Compliant**	**Compliant**	Deliveries to Kerosene Vale commenced December 2016. Day haulage only and ceased January 2017 with no further truck movements currently proposed for 2017.
Transport (road)	No truck movement to occur during adverse meteorological events during the night on the Angus Place to Mount Piper haul road.	**Compliant**	**Compliant**	No truck movements occurred during the reporting period

4.2. Next Reporting Period

No material change in operations is forecast for the next reporting period at WCS. Modifications to development Consent SSD_5579 will be submitted to the DPE in accordance with approved regulatory modification pathways as required.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

Actions required from the 2015 Annual Review are listed in Table

Table 10 – WCS Actions from 2015 Annual Review

Action Required	Requested By	Action Taken	Where addressed in Annual Review
Commission the new reject emplacement area		Construction of stage one of the reject emplacement facility was finalised in February 2016. Stage two construction commenced in Q4 2016 and will continue in to 2017.	Section 6.1 and 8
Complete noise modelling of Centennial operations in the Lidsdale and Wallerawang areas	DPE	Centennial conducted extensive noise modelling and monitoring of the complex noise environment in the Lidsdale/Wallerawang/ Blackmans Flat area in 2016. A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang / Blackmans flat area was a priority for Centennial in 2016. Noise mitigation at WCS is being given attention at the highest level in the Centennial Group, with a committed, experienced and resourced project team engaged to drive identified noise mitigation work and studies.	Section 6.2,10, and 11
Prepare regional management plans for noise, water, air, biodiversity	DPE	Centennial Western Region Management Plans for Noise, Air Quality, Biodiversity and Water were submitted to DPE in 2016. WCS site was included in the following plans; • Noise; • Air Quality & Greenhouse Gas; and • Biodiversity. The Centennial Western Region management plans for Noise and Air Quality & Greenhouse Gas were approved by DPE and implemented across site.	Section 6.1

		The Centennial Western Region management plan for water was approved by DPE in 2016 but did not include WCS operations. The WCS Water Management Plan (WMP) was revised in 2016 with a draft received in December 2016. The WMP review included appropriate water management procedures for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points. The provision of submission for the final WMP and incorporation into the Centennial Western Region Management Plan as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the Springvale Water Treatment Project. Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment as detailed in the Western Region Water management Plan. The Western Region Biodiversity Management Plan (BMP) was submitted to DPE in December 2016. No correspondence or feedback has been received from the DPE in relation to the submission. The BMP will be resubmitted by 28 April 2017 including WCS Operations.	
Complete the review of surface water modelling for Western Coal Services	DPE	The WCS Water Management Plan (WMP) was revised in 2016 with a draft received in December 2016. The WMP review included appropriate water management procedures	

		for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points, and a comprehensive review of surface water modelling, ground water modelling, site water and salt balances, hydrogeological studies, and a range of other items associated with the proposed modification of the WCS Development Consent SSD_5579 to receive residuals from the proposed Springvale Water Treatment Plant project (SWPT). The provision of submission for the final WMP and incorporation into the Centennial Western Region Management Plan as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the SWTP. Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment as detailed in the Western Region Water management Plan. Additionally surface water modelling was completed for the site to improve the separation of clean and dirty water through the site with designs for this work separated into a 2 x stage process with Stage 1 works proposed for completion in 2017.	
Complete consultation with landowners and apply to surrender the existing development consents that have been replaced by the WCS approval SSD-5579	DPE	On 4 April 2014, Centennial was granted Development Consent (SSD-5579) for the WCS Project. Centennial, in accordance with Condition 9 Schedule 2 of the Development Consent conditions, is required to surrender all existing development approvals relating to the WCS operations.	Section 10.

		In accordance with Section 97(1)(e) of the Environmental Planning and Assessment Regulation 2000, landowner consent is required to be obtained in order to surrender the consents. One development approval (DA 06-0017 as modified) is in existence over the WCS operations. DA 06-0017 was granted by the (then) Minister for Planning on 12 May 2006. This development consent is no longer relevant to the WCS operations as all operations at the facility are now covered by SSD-5579. As such the development approval is required to be surrendered by Centennial. In 2015 and 2016, gap analysis of the SSD-5579 Development Consent verses Development Consent DA 06-0017 was completed that demonstrated that SSD-5579 provides ongoing authorisation for coal transport and processing operations until the 30 June 2039. DA 06-0017 is on land owned by Energy Australia, and Centennial Springvale Pty Limited and Springvale Kores Pty Limited as joint tenants. Consultation with Energy Australia commenced in April 2016 with formal landowner consent to surrender DA 06-0017 was received in June 2016. Internal Centennial consultation with Joint venture land owners Centennial Springvale Pty Limited and Springvale Kores Pty Ltd was completed in Q3 and 4 2016, with formal landowner consent to surrender DA 06-0017 was received in December 2016. Formal surrender of consent DA 06-0017 is proposed to be completed in 2017.	

6. ENVIRONMENTAL PERFORMANCE

6.1. Biodiversity

Biodiversity at WCS is managed in accordance with the biodiversity management plan requirements detailed in Schedule 3 Condition 29 of the Project Approval SSD-5579.

The Western Region BMP will be resubmitted by 28 April 2017 including WCS. No correspondence or feedback has been received from the DPE in relation to the Western Region BMP submitted in December 2016.

WCS Rehabilitation Monitoring Program

Annual rehabilitation monitoring at SCSO commenced in 2010, and the 2016 year constitutes the seventh year of data acquisition for some of the monitoring sites.

Monitoring is undertaken across monitoring sites located within rehabilitated areas across the site, within which data are collected using a combination of methodologies and tools developed to assess the performance of the establishing ecosystems.

The monitoring includes the following components: Landscape Function Analysis (LFA), vegetation dynamics, habitat complexity, disturbance assessment and photographic monitoring.

Overall, the applied methodology provides scientifically robust data on the rehabilitated sites, which when compared to the data collected from analogue sites, reflect if the rehabilitation areas are on a trajectory towards a sustainable ecosystem.

In turn, the interpretation of this data enables an assessment of the effectiveness of rehabilitation techniques as well as the development of land management recommendations to address those sites having lower performance rankings.

This is done with the aim of achieving safe, stable, non-polluting and sustainable post-mining vegetation communities which are aligned to the site consent approvals and proposed post-mining land use for the project area, and ultimately achieve the successful relinquishment of mining leases. Rehabilitation objectives are provided in Table 11 below.

Table 11 – WCS Rehabilitation objectives

Feature	Objective
Mine site (as a whole)	• Safe, stable, non-polluting.
Revegetated final landforms	• Stable and sustain the intended land use. • Consistent with surrounding topography to minimise visual impacts. • Incorporate relief patterns and designs principles consistent with natural drainage.
Native flora and fauna	• Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity. • Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.

In the context of this monitoring program, ‘local native plant species’ referred to in Table 11 are those found in the analogue sites and aligned to the ‘Southern Tablelands Dry Sclerophyll Forest’ vegetation community types that are found in the adjacent Bell Bullen State Forest.

2016 Rehabilitation Monitoring Activities

The suite of monitoring sites forming the SCSO monitoring program is presented in Table 13 and Figure 4 below. Analogue monitoring sites were monitored in 2015, and in line with the established biennial monitoring frequency were not re-monitored in 2016 with the 2016 program of works limited to the monitoring of rehabilitation sites with a total of five rehabilitation sites were monitored (including four historic sites and one new site).

Each monitoring site consists of a 50 metre linear transect delineated by permanently established metal star picket, as well as nested plots (5m x 5m) and quadrats (1m x 1m).

Table 13 – WCS Rehabilitation Monitoring Program – Monitoring sites

Type	Site name	Rehab year	Rehab age	Years monitored						
				2010	2011	2012	2013	2014	2015	2016
Analogue	CSV A3	N/A	N/A			X	X		X	
	CSV A4	N/A	N/A						X	
Rehabilitation	CSV R3	2007	8 years	X	X	X	X	X	X	X
	CSV R4	1990s	~20 years				X	X	X	X
	CSV R5	2007	8 years				X	X	X	X
	CSV R6	2007	8 years						X	X
	CSV R7 #	1990s	~20 years							X

 # New transect established in 2016

2016 Monitoring Methodology

The methodology used for the 2016 monitoring program for both field work components and data analysis was consistent with that applied in previous years and included the following components:

- Landscape Function Analysis (LFA), comprised of:
  - Landscape organisation assessment – producing a Landscape Organisation Index (LOI) and a Patch Area Index (PAI); and
  - Soil surface assessment – producing soil surface condition indices (SSCI), including stability, infiltration and nutrient cycling indices.
- Vegetation dynamics, comprising:
  - Ground cover protection;
  - Canopy Foliage Protective Cover (FPC);
  - Woody plants density; and
  - Woody plants diversity.
- Habitat complexity;
- Disturbance monitoring; and
- Photographic monitoring.

The 2016 field monitoring was undertaken on the 23rd and 24th November 2016.

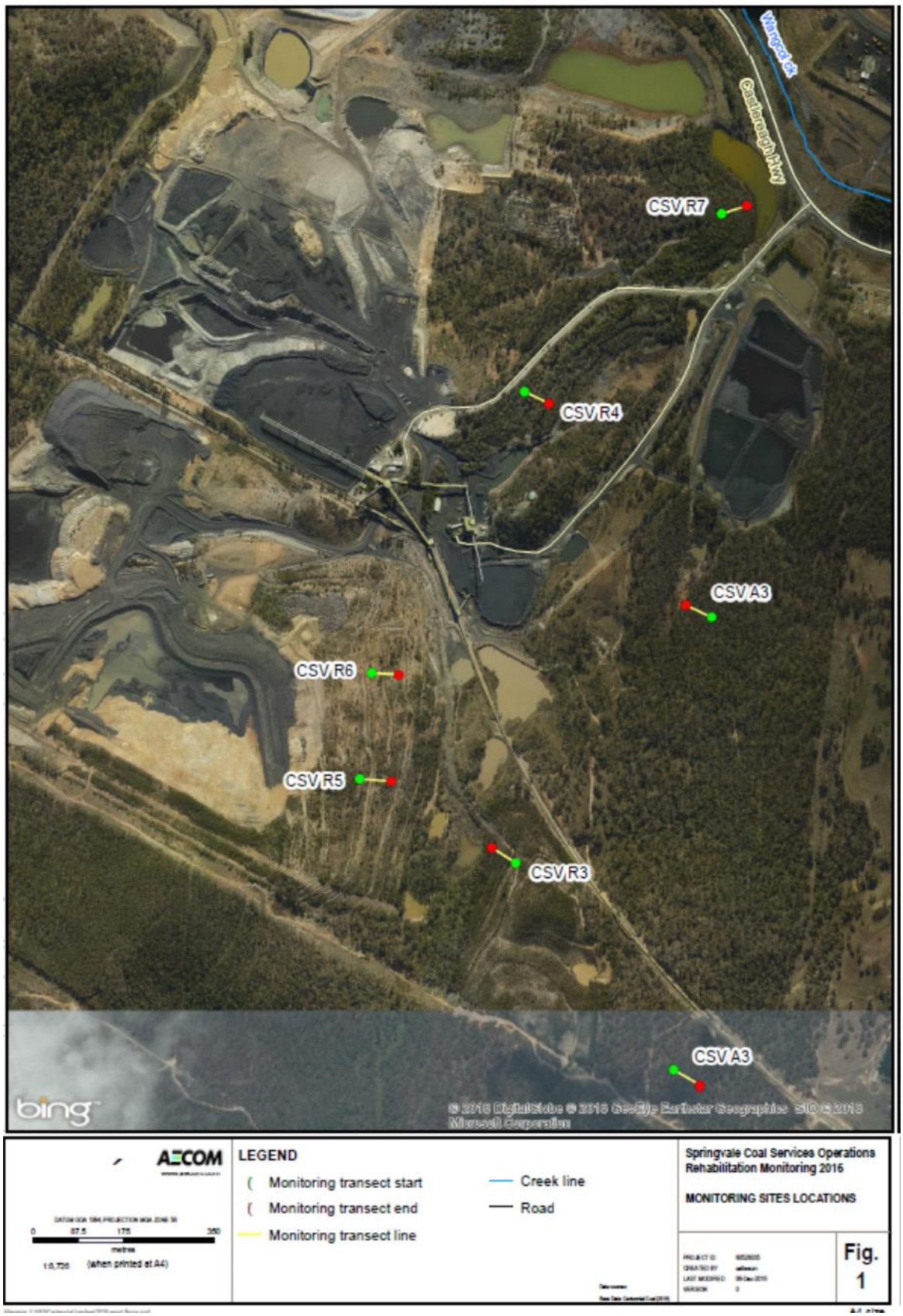


Figure 4 - WCS Rehabilitation Monitoring Sites

2016 Rehabilitation Monitoring Results

This section provides a discussion of the 2016 field monitoring results collected at the rehabilitation sites, with reference made to previous years' data for performance trend analysis.

For ease of discussion, monitoring sites have been grouped into 'younger rehabilitation' (CSV R3, CSV R5 and CSV R6) and 'older rehabilitation' (CSV R4 and CSV R7).

Younger Rehabilitation - Ground Cover and Landscape Function

In line with previous years' results, vegetative ground cover (i.e. grasses) remained limited at the CSV R3, CSV R5 and CSV R6 monitoring sites – with between 8% (CSV R6) and 18% (CSV R3) recorded in 2016.

- At these sites, the lack of ground vegetation is due to the absence of topsoil / organic growing media and to ground cover species likely not being included into the species mix used in rehabilitation works.

- As a result, these sites mostly relied on organic litter to provide ground cover protection. Although a ground cover dominated by litter and with only sparse grass cover is acceptable in an established community (as is the case at the analogue sites), long timeframes will likely be required for rehabilitated sites to accumulate enough litter so that adequate ground protection is achieved, and such a state will only be achieved where long lived woody species successfully established across the area.

- Despite being rehabilitated at the same time (2007), the establishment of woody species (and subsequently of ground litter cover) continued to be inconsistent between the three monitoring sites.

- With a better (i.e. denser) establishment of shrubs and trees, CSV R3 returned a greater percentage cover of deposited litter (~50%, slight increase from last year's result) than CSV R5 (~34% litter cover, consistent with last year's result) and CSV R6 (~3% litter cover, slight decrease from last year's result).

- In turn and consistently with last years' observations, this led to CSV R6 showing the greatest extent of exposed bare ground (85%) followed by CSV R5 (50%) and CSV R3 (27%).

Landscape function scores (being largely a reflection of the ground cover condition) were therefore correlated to the ground cover performance at each site:

- CSV R3 returned satisfactory LOI and PAI scores (i.e. comprised between 0.5–0.7) with both indices showing a score increase since last year. Historic data for this site (since 2010) show a clear improving trend in landscape organisation over time, reflecting a progressive accumulation and improved retention of resources in situ both down and across the slope, and a gradual reduction in bare ground. Likewise, all SSCIs at CSV R3 showed slight score increases in 2016, with a good stability index (55.6%) and satisfactory infiltration and nutrient cycling indices (30.7% and 26.5%, respectively).

- With ground cover results consistent with those recorded last year, landscape function performance at CSV R4 showed little variation in 2016. With over 50% exposed bare ground persisting, the LOI and PAI index scores remained poor at this site (i.e. comprised within 0.3–0.5) (although it is noted that an increase in PAI score was observed indicating a cross slope improvement in resource retention). Likewise, SSCIs (despite slight annual variations) generally were aligned with last year's results, with a satisfactory stability index (48.9%) and poor infiltration and nutrient cycling indices (24.7% and 21%, respectively).

- Landscape function scores at CSV R6 showed slight decreases in 2016. As a direct reflection of the poor vegetative ground cover performance (85% bare ground), this site again returned very poor LOI and PAI index scores (i.e. <0.3), and very poor infiltration and nutrient cycling scores (18.8% and 12.7%, respectively). Only the stability index at this site was within the satisfactory range of values (41.9%), which was achieved as a function of the hard and compacted soil surface. At his site, the lack of troughs / depressions and ground obstructions (e.g. logs) lead to resources not being efficiently retained in situ.

Younger Rehabilitation - Woody Vegetation Dynamics

The 2016 monitoring of woody plants densities in younger rehabilitation indicated the following:

- Consistently with previous years, CSV R3 showed the highest density of woody plants with an estimated 10,600 stems/ha. This is the second consecutive yearly decrease in stem densities recorded for this site (with densities now approximately 30% lower than in 2014), and is reflective of the continuing dieback process of short-lived acacias. Despite this decrease in plants density, protective foliage cover remained constant (40%).

- Woody plants density increased slightly at CSV R5 (~6,600 stems/ha against ~5,600 stems/ha in 2015), mainly as a result of the high number of emerging acacia saplings observed (refer to Plate 5). Dieback of acacias was also recorded at this (refer to Plate 6). As this site only contained few trees/shrubs in the upper height strata, protective foliage cover (>5m canopy) remained low (16%).

- Plant densities sharply declined at CSV R6, with ~3,500 stems/ha recorded against ~ 6,500 stems/ha recorded in 2015. Plant numbers decreased in all height strata, indicating that both senescing/dieback of mature plants has occurred (refer Plate 7) and that young seedlings recorded in 2015 have not survived. The absence of tall shrubs or trees within the monitoring plot at this site led to no protective foliage cover (>5m) being recorded – although it is noted that these occurred sparsely throughout the wider area.

Younger Rehabilitation – Habitat Complexity

Due to the young age of the rehabilitation and the timeframes required for a mature / complex vegetation community to establish, habitat complexity scores remained relatively low for all sites.

- An overall lack of grass and litter cover and of mature canopy trees, habitat complexity in these areas was generally only provided by the dense layer of acacia shrubs.

- Although they may provide some foraging habitat for small woodland birds, the rehabilitated areas in their current state remained relatively unconducive to faunal recolonization due to the limited variety of available ecological niches, particularly for larger birds (lack of mature trees), small ground mammals and reptiles (lack of woody debris, logs and accumulated organic litter) and larger mammals (macropods).

Younger Rehabilitation - Disturbance

Disturbance factors and their severity remained consistent with those recorded in previous monitoring years, and disturbance levels were generally limited with no severe

issues occurring that could undermine the overall rehabilitation establishment and success in the long term.

- Some erosion processes were active at most sites as a result of the generally poor ground cover protection, with low intensity sheet and rill erosion observed throughout.

- The severity of the observed erosion features did not appear to have worsened since the last monitoring event.

- Overall, the slopes across the area appeared stable with no severe erosion features that could undermine the stability of the rehabilitated landforms.

- It was also noted that that at several locations across the dump containing CSV R5 and CSV R6 water ponding occurred within the contour banks indicating that the landform is potentially not wholly free draining, and should be monitored to ensure frequent water accumulation does not pose a threat to the stability / integrity of the contour bank.

- Conversely these areas clearly represent localised resources collection areas on the dump (for moisture, sediments, nutrients, seeds, etc.), and if visual monitoring indicates that water ponding does not compromise the bank stability, then these areas should be conducive to colonisation by a range of species and may also be suited for selective seeding and or tube stock planting to enhance species diversity in the rehabilitated areas.

- Weeds were generally not an issue across the younger rehabilitated areas at SCSO. As noted in 2015, large volumes of Sifton bush (*Cassinia arcuata*) occurred at all monitoring sites, and were mainly prevalent and the most severe within the contour troughs where water availability / moisture levels are higher. The species is a local native and has the ability to establish well on bare ground and disturbed areas and to spread rapidly through massive seed production. In this respect the species can be regarded as a weed, however it is mainly problematic in areas of grazing pastures (NSW DPI, 2011).

- As rehabilitation at SCSO aims to re-establish native woodland communities, it is expected that as woody vegetation establishes and grows the Sifton bush infestations will progressively be shaded out and outcompeted, and return to abundance levels similar to those observed in native surrounding communities at the analogue sites. As such, the current monitored volumes of the species are not considered problematic at this stage.

- Evidence of rabbit presence (scats and live individuals sighted) was collected at all young rehabilitation sites with the severity of associated impact very limited and not posing a serious concern at his stage in relation to vegetation establishment.

Older Rehabilitation - Ground Cover and Landscape Function

In contrast with younger rehabilitation sites, ground cover performance was excellent within older rehabilitation areas at CSV R4 and CSV R7.

- At these sites exposed bare ground was minimal (<10%) and the ground layer was dominated by grasses and deposited leaf litter occurring in varying proportions (with grass cover dominating at CSV R7 and litter cover dominating at CSV R4).

- Although it appeared that like in younger areas topsoil was not originally applied at CSV R4 and CSV R7, given the older age of the rehabilitation in these areas (~20 years) sufficient deposited organic matter has accumulated on the ground to create an A0 soil layer and provide an adequate growing media for grasses to establish.

- The grass layer at both sites was not particularly diverse but dominated by native species including Wallaby grass (*Rytidosperma spp*.) and Tussuck grasses (*Poa* spp.)

- Both sites also contained noticeable cover of cryptograms (~2.5%) indicating that nutrient recycling was actively occurring at the sites; as well as some woody debris in very low amounts.

- The recorded ground cover performance was directly correlated to higher landscape function index scores at these sites.

- With only limited bare ground and intensive perennial ground obstructions, both sites returned good to excellent LOI and PAI scores (generally >0.9), indicating that resources loss is minimal at these sites which effectively retain materials in situ.

- Likewise, SSCIs scores were monitored as excellent and very consistent between the two sites. The high combined levels of grass and litter cover, coupled with the high shrub densities and elevated protective foliage canopy cover provided excellent soil stability (stability index >65% at both sites), excellent water infiltration properties (infiltration index >42% at both sites), and good (CSV R7) to excellent (CSV R4) soil nutrient cycling (nutrient index >33% and 35%, respectively).

Older Rehabilitation - Woody Vegetation Dynamics

Woody species densities and stratification were similar between CSV R4 and CSV R7. Vegetation communities at these sites were older and better established with the successional sequence further advanced, and as such stem densities are generally lower than those observed in younger areas.

- CSV R4 recorded stem densities of ~3,200 stems/ha and CSV R7 ~3,800 stems/ha. Plant densities at CSV R4 showed a marked increase from the 2015 data (~1,900 stems/ha) as a factor of the greater plant densities recorded in the 0-1m layer (mostly as acacia germinates/seedlings rather than ground shrubs).

- Vegetation structure is consistent between the two sites with the majority of plants occurring within the lower stratum and with plant densities progressively decreasing in each subsequent height stratum.

- Both sites included specimen within the higher vegetation layers, providing good levels of canopy foliage protective cover (48% FPC at CSV R4 and 36% at CSV R7).

- A decrease in FCP was recorded at CSV R4 in 2016 (68% cover recorded in 2015), which was largely explained by the continuing acacia dieback process taking place in that area.

- Vegetation community assemblages and structure was best at CSV R4 were several mature and healthy eucalypt trees occurred throughout and at good densities, with a mid and understorey of acacias and few ground shrubs throughout.

- A total of eleven woody species were recorded at CSV R4 (slight increase from 2015). Notably, all eucalypt trees in this rehabilitated areas appeared to have come from tubestock plantings (wooden stakes were observed remaining around the base of the trees) which likely explains their very successful establishment.

- Furthermore, several eucalypt seedlings were recorded (and sighted in the wider area) indicating successful recruitment from established mature trees. Overall, woody vegetation growth and condition remained excellent at this site.

- Despite excellent woody vegetation establishment and growth, the vegetation community establishing at CSV R7 was less diverse (total of seven woody species recorded) and exclusively consisted of acacia species in the mid and upper vegetation layers, with only sparsely occurring ground shrubs.

- Although a few very tall and mature acacias were present in the upper vegetation layer, eucalypt species were altogether absent from this area where tubestock plantings were clearly not undertaken – making the community assemblages poorly aligned to native communities occurring in the region.

- Progressive dieback of mature acacias was also evident across the site and in this regard the absence of long-lived eucalypt species could prove problematic in the future should natural recruitment of acacia be unsuccessful (a multitude of young acacia seedlings were recorded at the site, but these will need to survive and establish).

- Finally, although Sifton bush was strongly represented at older rehabilitation sites, its presence and abundance was much lower than what was recorded at the younger sites. This demonstrates that as ground cover establishes and woody vegetation structure develops, the incidence of the species will decrease as it naturally auto-regulates.

Older Rehabilitation - Habitat Complexity

With better established and more mature communities, CSV R4 and CSV R7 recorded higher habitat complexity scores (6.0 and 6.33, respectively) and provided more ecological niches for native fauna.

Habitat complexity scores were driven by the high incidence of grass and litter cover in addition to some level of coarse woody debris on the ground (mostly from broken limbs of senescing acacias), as well as the greater shrub and tree canopies present at these sites.

Older Rehabilitation - Disturbance

Consistently with areas of younger rehabilitation, disturbance factors affecting CSV R4 and CSV R7 were minimal.

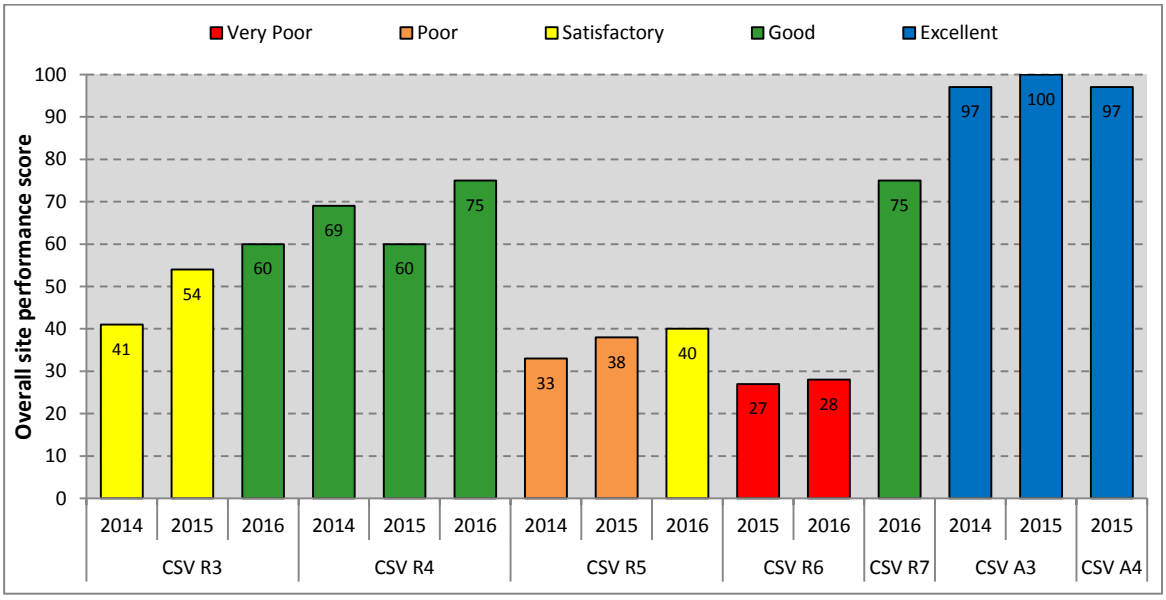
Both sites were stable as a function of the high ground cover and vegetation establishment, and no signs of active soil erosion were noted.

Likewise, impacts from weeds and feral pests were generally not an issue. However, it is noted that at both sites limited incidence of *Hypericum perforatum* (St John's Wart) was recorded.

WCS 2016 Rehabilitation Site Performance Rating

The overall performance rating of the rehabilitation monitoring sites based on the 2016 monitoring results are provided in Table 13 below.

Table 13 – WCS 2016 Rehabilitation Site Performance Rating



The 2016 monitoring event results – together with previous years data, indicate that rehabilitation performance scores generally are on a slowly improving trend across the site.

Overall, older rehabilitation sites show good to excellent performance and appear on a trajectory towards achieving a vegetation community meeting the site's rehabilitation objectives – the exception being the lack of long-lived species at CSV R7 which may prove detrimental over the long term.

In contrast, rehabilitation performance remains well below analogue benchmarks in younger rehabilitated areas, which can be expected given the relatively young age of rehabilitation (~8 years).

Given the overall absence of severe disturbance factors across the site (i.e. erosion, weeds), it is expected that rehabilitation performance should keep improving over time.

At the time of the 2016 monitoring the following key deficiencies remain in younger rehabilitated areas:

- Poor to very poor ground cover (including grass cover, accumulated and litter and woody debris);
- Sub-adequate vegetation community structure and composition (species assemblages);
- Low vegetation canopy cover, and
- Poor habitat complexity and ecological niches as available to native fauna.

Overall, the following key findings from the 2016 site performance assessment are noted:

- Older rehabilitation sites (CSV R4 and CSV R7) remained the strongest performing sites, with overall performance rating scores towards the higher end of the 'good' performance range.

- These sites performed positively against the conditions observed at the corresponding analogue sites, particularly in terms of ground cover protection, slope stability and vegetation structure.

- The successful establishment of a well-structured vegetation community at these sites generally places them on a trajectory towards successful achievement of the rehabilitation objectives and outcomes.

- The one exception being the absence of long lived canopy eucalypt species within the CSV R7 area which may hinder the achievement of the targeted vegetation community composition.

- CSV R3 showed a second consecutive increase in performance rating score and moved from a 'satisfactory' performance in 2014 and 2015 to a 'good' performance in 2016 with an overall score within in the lower end of the 'good' range of values.

- Despite large areas of exposed rocky bare ground remaining (particularly on contour banks), long term monitoring data indicates that ground cover protection is steadily improving at this site which, coupled with the high density of woody plants provides adequate soil binding and overall good slope stability throughout.

- Conversely the very high density of shrubs at this site currently restricts the growth and establishment of mature eucalypts, which undermines the site performance in terms of community structure against the analogue site benchmarks.

- Conversely high total species diversity occurs at the site (comparing positively against analogue benchmarks) and an adequate representation of juvenile eucalypt species is present throughout, which indicates that an adequate vegetation community is likely to establish with time as acacia dieback continues and vegetation thins back.

- The overall score of CSV R5 increased from 'poor' in 2015 to 'satisfactory' in 2016 – albeit with a score in the lower end of the 'satisfactory' range of values; while CSV R6's performance score remained 'very poor'. These two monitoring sites are located on the same rehabilitated dump and remained the lowest performing rehabilitation areas across SCSO.

- The difference in overall site scores between these two sites (40 for CSV R5 vs. 28 for CSV R6) is largely due to the slightly better ground cover performance (and subsequently slightly better LFA scores) at CSV R5 (with ~45% protective ground cover against only ~13% at CSV R6); whilst vegetation dynamics performance is generally comparable between the two sites.

- Despite this difference in overall scores, both sites shared very similar characteristics and generally performed poorly against the analogue benchmarks in terms of ground cover (including LFA) and vegetation dynamics. Large areas of exposed bare ground remained across the rehabilitated dump and some low intensity active erosion (rilling, sheet) occurs throughout – although not compromising overall slope stability.

- The less successful establishment of shrubs and trees (as compared to the densities that are observed at CSV R3) means that ground organic litter is not

accumulating as rapidly, which clearly hinders the establishment of a perennial protective ground cover across the area.

- On the back of this, one positive effect of lower shrub densities is that long lived eucalypt species are achieving better growth with more mature individual recorded (with broader canopies). Vegetation condition appeared sub-optimal in places across the area, with senescence / dieback observed in what appeared to be relatively young specimens.

WCS 2016 Rehabilitation Monitoring Recommendations

In summary, the key lessons learned from the annual monitoring program and the key factors to address in order to improve the performance of post mined rehabilitated lands at WCS include:

- Selection of appropriate species in the revegetation mix, including species for all strata including ground cover herbaceous species together with longer living species of lower storey shrubs and upper canopy species (eucalypts). For reference, a list of native species commonly found in the Southern Tablelands Dry Sclerophyll Forest vegetation community within the locality is provided in Table 12.

- Completion of regular walkthrough of rehabilitated areas to visually monitor erosion and consider implementing remediation works as required if overall landform stability gets compromised.

- Undertake maintenance tube stock plantings of endemic canopy eucalypt species in areas where trees are failing to establish– including older rehabilitation areas around CSV R7.

- Consider modifications and improvements for annual and seasonal weed control programs to ensure improved targeting of St John's Wart in older rehabilitation.

For all future rehabilitation areas or re-work/maintenance areas:

- If topsoil is not to be used, it is recommended that organic material is added / spread onto the soil surface during early rehabilitation works to enhance ground cover and soil organic matter content. This can be in the form of brush material from local native plants, wood chips, compost, etc.

- Use fast growing and establishing sterile ground cover crop species to protect and stabilise the soil surface during the early phase of the rehabilitation program (such as Japanese Millet or cereal Rye-corn).

- Increased installation of habitat structures such as rock or timber emplacements, stag trees as well as water features such as dams to encourage fauna re-colonisation and the provision of sheltered sites for plant regeneration as well as assisting in the prevention of erosion.

- Vegetation community composition and structure is best achieved in areas where canopy eucalypt species have been planting using tube stocks with this practice considered in future rehabilitation activities.

WCS 2016 Additional Rehabilitation and Weed Control Activities

Maintenance of the rehabilitation areas and mowing and brush cutting of all grassed areas around the site were carried out during the 2016 period on a seasonal basis and periodically as required.

Weed control programs were undertaken specifically along the length of the overland conveyor (OLC) system, all WCS operational areas, through rehabilitation areas, and generally across infrastructure areas targeting scheduled, noxious, and problematic weed control via chemical and manual suppression and control techniques.

Significant rectification works were completed on the Lamberts Gully Rehabilitation to improve surface water drainage and reduce erosion.

6.2. Noise

Noise at WCS is managed in accordance with the Centennial Coal Western Region Noise Management Plan (CCWRNMP) and WCS SSD_5579 consent criteria provided in Table 14 below.

Table 14 – WCS – noise criteria dB(A)

Site	Day LAeq,15min	Evening LAeq,15min	Night LAeq,15min	Night LA1,1min
B12 (NM1)	40	35	35	47
B13 (NM1)	41	36	36	50
B14 (NM2)	41	35	35	55
B15 (NM3)	36	35	35	45
B16 (NM4)	35	35	36	45
B17	42	44	45	45
W1 (NM7)	37	37	41	45
W2 (NM7)	35	35	36	45
L1 (NM11)	42	35	35	45
L2	40	39	35	45
WR1 (NM5)	41	38	36	57
WR2 (NM5)	38	37	35	48
S3 (NM6)	36	36	39	45
All other privately owned residences	35	35	35	45

2016 Noise monitoring works

All noise monitoring was completed as required under SSD 5579 for the 2016 period.

Attended noise monitoring was undertaken each month in 2016.

All monitoring data was reviewed as part of the regional noise impact assessment works completed in 2016.

Attended noise monitoring is undertaken at locations as prescribed in the CCWRNMP as illustrated in Figure 5 below.

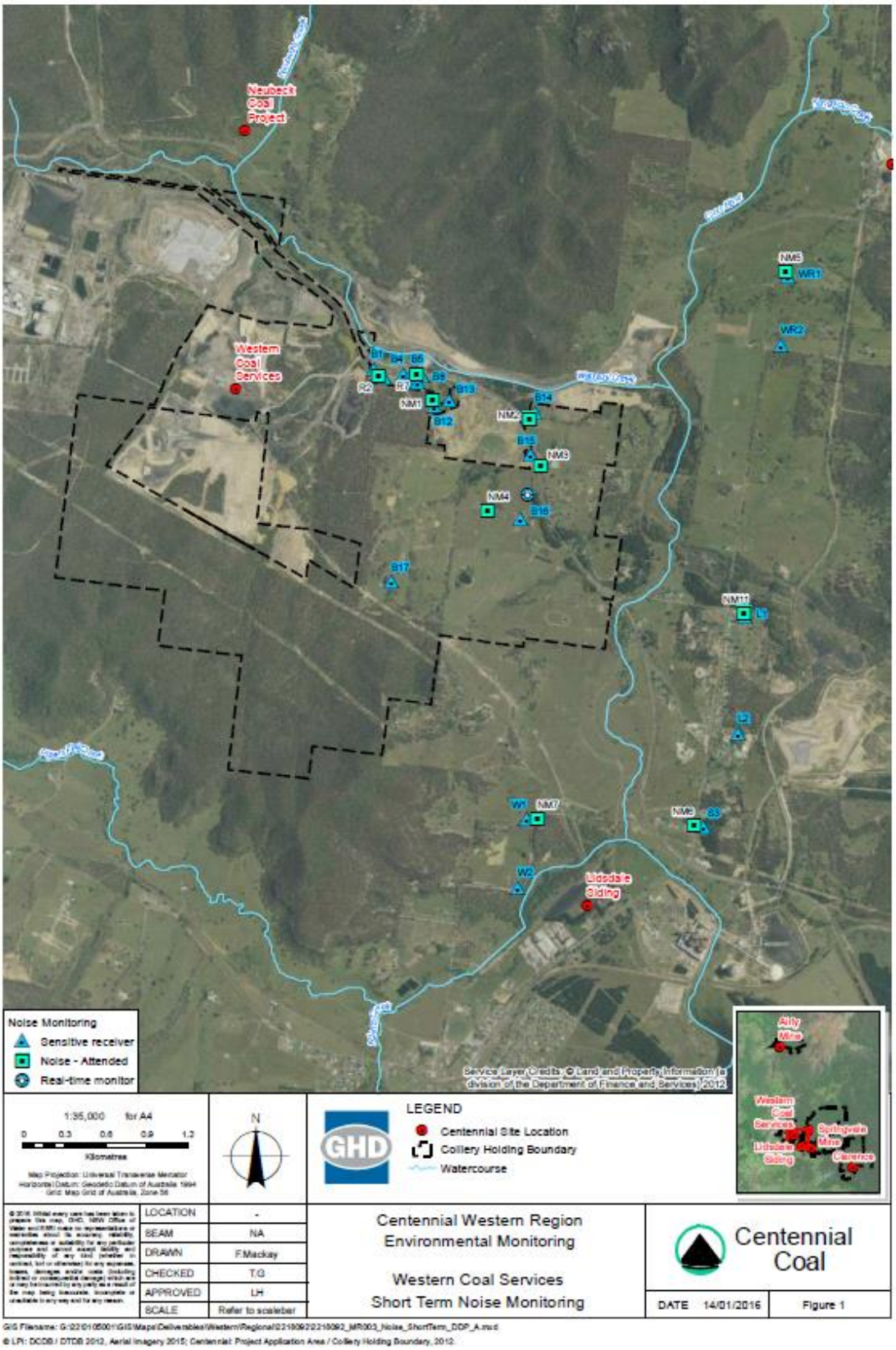


Figure 5 - WCS Attended Noise Monitoring Sites

Noise exceedances

Noise criteria were recorded as exceeding noise receiver locations as detailed in Table 15, 16, & 17 below from attended noise monitoring results undertaken during 2016.

Attended noise monitoring measure compliance against LAeq, 15min dB, LA1, 1min dB and Low frequency noise criteria (LAeq).

Table 15 – WCS Noise exceedances – LAeq,15min dB

Location	Start Date and Time	Period	Criterion dB	$L_{Aeq,15min}$ dB	Exceedance dB	DPE Notification
NM6	12/01/2016 20:07	Evening	36	45	9	18/01/2016
NM7	12/01/2016 21:44	Evening	37	42	5	18/01/2016
NM7	12/01/2016 22:00	Night	41	42	1	18/01/2016
NM6	13/01/2016 01:03	Night	39	45	6	18/01/2016
NM7	09/02/2016 20:07	Evening	37	42	5	22/02/2016
NM7	09/02/2016 23:57	Night	41	44	3	22/02/2016
NM6	10/02/2016 21:32	Evening	36	45	9	22/02/2016
NM6	10/02/2016 23:32	Night	39	45	6	22/02/2016
NM7	10/02/2016 16:27	Day	37	41	4*	22/02/2016
NM6	10/03/2016 21:45	Evening	36	46	10	23/03/2016
NM7	10/03/2016 21:45	Evening	37	40	3	23/03/2016
NM6	10/03/2016 22:03	Night	39	46	7	23/03/2016
NM7	12/03/2016 09:20	Day	37	39	2	23/03/2016
NM6	19/04/2016 17:26	Day	36	42	6	06/05/2016
NM6	19/04/2016 18:25	Evening	36	43	7	06/05/2016
NM7	19/04/2016 20:21	Evening	37	45	8	06/05/2016
NM6	20/04/2016 0:01	Night	39	44	5	06/05/2016
NM7	20/04/2016 22:50	Night	41	42	1	06/05/2016
NM4	16/08/2016 21:09	Evening	35	41	6	26/08/2016
NM6	16/08/2016 20:38	Evening	36	43	7	26/08/2016
NM7	16/08/2016 21:21	Evening	37	46	9	26/08/2016
NM6	05/09/2016 21:12	Evening	36	43	7	13/09/2016
NM7	05/09/2016 20:53	Evening	37	44	7	13/09/2016
NM1	05/09/2016 23:17	Night	35	41	6	13/09/2016
NM4	05/09/2016 22:29	Night	36	39	3	13/09/2016
NM6	06/09/2016 00:51	Night	39	42	3	13/09/2016
NM7	06/09/2016 01:20	Night	41	43	2	13/09/2016
NM1	19/10/2016 19:23	Evening	35	39	4	11/11/2016
NM3	19/10/2016 20:02	Evening	35	37	2	11/11/2016

Location	Start Date and Time	Period	Criterion dB	$L_{Aeq,15min}$ dB	Exceedance dB	DPE Notification
NM7	19/10/2016 21:09	Evening	37	48	11	11/11/2016
NM7	19/10/2016 23:56	Night	41	45	4	11/11/2016
NM6	20/10/2016 00:14	Night	39	40	1	11/11/2016
NM1	15/11/2016 19:37	Evening	35	38	3	28/11/2016
NM4	15/11/2016 19:15	Evening	35	39	4	28/11/2016
NM6	15/11/2016 20:35	Evening	36	40	4	28/11/2016
NM7	15/11/2016 20:12	Evening	37	43	6	28/11/2016
NM1	15/11/2016 23:35	Night	35	41	6	28/11/2016
NM2	15/11/2016 23:54	Night	35	41	6	28/11/2016
NM3	16/11/2016 00:13	Night	35	37	2	28/11/2016
NM6	16/11/2016 11:37	Day	36	40	4	28/11/2016
NM6	16/11/2016 00:32	Night	39	42	3	28/11/2016
NM6	6/12/2016 20:29	Evening	36	41	5	19/12/2016
NM7	7/12/2016 17:37	Day	37	41	4	19/12/2016
NM6	7/12/2016 23:16	Night	39	44	5	19/12/2016
NM7	8/12/2016 0:16	Night	41	43	2	19/12/2016

** L_{Aeq} 36dB + 5 dB low frequency penalty = 41 dB (4 dB exceedance)*

Table 16 WCS - Noise exceedances – LA1,1min dB

Location	Start Date and Time	Period	Criterion dB	$L_{A1,1min}$ dB	Exceedance dB	DPE Notification
NM6	13/01/2016 01:03	Night	45	46	1	18/01/2016
NM6	10/02/2016 23:32	Night	45	46	1	22/02/2016
NM6	10/03/2016 22:03	Night	45	47	2	23/03/2016
NM7	19/10/2016 23:56	Night	45	49	4	11/11/2016

Table 17 – WCS Noise exceedance summary – Low frequency noise criteria

Location	Start Date and Time	Period	Criterion dB	WCS only L_{Aeq} dB	Exceedance dB	DPE Notification
NM7	10/02/2016 16:27	Day	37	53	16	22/02/2016
NM7	12/03/2016 09:20	Day	39	52	13	23/03/2016
NM6	10/03/2016 21:45	Evening	46	54	8	23/03/2016
NM7	10/03/2016 21:45	Evening	40	51	11	23/03/2016
NM6	10/03/2016 22:03	Night	46	54	8	23/03/2016
NM6	19/04/2016 17:26	Day	42	50	8	06/05/2016
NM6	19/04/2016 18:25	Evening	43	50	8	06/05/2016
NM6	20/04/2016 0:01	Night	44	53	9	06/05/2016

Location	Start Date and Time	Period	Criterion dB	WCS only L_{Aeq} dB	Exceedance dB	DPE Notification
NM4	16/08/2016 21:09	Evening	41	50	9	26/08/2016
NM6	16/08/2016 20:38	Evening	43	52	10	26/08/2016
NM7	16/08/2016 21:21	Evening	46	57	10	26/08/2016
NM1	19/10/2016 19:23	Evening	39	53	14	11/11/2016
NM7	19/10/2016 21:09	Evening	48	56	8	11/11/2016
NM6	20/10/2016 00:14	Night	40	52	12	11/11/2016
NM7	19/10/2016 23:56	Night	45	57	12	11/11/2016

All Noise exceedances recorded in 2016 were attributed to CHPP continuum and the operation of the overland conveyor across day, evening and night periods in independent cumulative scenarios.

All noise exceedances recorded in 2016 were reported to the DPE in accordance with project approval conditions.

All noise exceedances recorded in 2016 were notified to affected landholders in accordance with project approval conditions.

2016 Historic timeline of key Centennial and DPE interface events

- On 11 February 2016 a draft Centennial Coal Western Region Noise Management Plan was submitted to DPE for review and approval.
- On 29 February 2016 Centennial completed a regional noise model to understand existing noise environment and impacts from individual and cumulative operations in the region.
- On 31 March 2016 Centennial completed the identification of options for noise mitigation.
- On 13 April 2016, DPE wrote to Centennial requesting timeframes for all noise mitigation corrective actions for WCS as previously communicated to be provided.
- On 22 April 2016, Centennial provided DPE with a timeframe for implementation of corrective actions for noise issues. All actions were completed including completed noise modelling of the Lidsdale Siding and WCS operations, and the identification of strategies to target key noise areas to be developed and implemented.
- On 08 July 2016 the Centennial Coal Western Region Noise Management Plan was re-submitted to DPE for review and approval.
- On 18 July 2016, DPE issued a Show Cause Notice to Centennial for noise issues at Western Coal Services.
- On 22 July 2016 the Centennial Coal Western Region Noise Management Plan was approved by DPE.
- On 5 August 2016, Centennial provided a response to the DPE Show Cause notice for WCS noise issues.
- On 7 October 2016, Centennial and a DPE representative met onsite at WCS where the DPE representative was provided an informal appraisal of the current status of noise management at WCS including progress on noise mitigation strategies.
- On 16 December 2016, DPE requested copies of attended noise monitoring reports Western Coal Services.
- On 16 December 2016, Centennial provided copies of the requested noise Western Coal Services.

- On 30 January 2017 the DPE issued Centennial with an Official Caution and Draft Order to ensure compliance with noise criteria in the WCS SSD_5579.
- On 17 February 2017 Centennial provided the DPE with a response to the draft order including modelling for WCS as 'stand-alone' operation as well as the regional cumulative noise scenario, and the operational management and technical measures in train and proposed via a detailed works plan.
- On 15 March 2017 Centennial and DPE representatives met to discuss the path forward for modification to the WCS Development Consent SSD_5579, and to determine an approach for reassessment of the projects noise impacts.

Additional Noise Management Information & 2016 Activities.

All monitoring data was reviewed as part of the regional noise impact assessment (NIA) works completed in 2016 as submitted to DPE on 17 February 2017.

Various Sound Power Level (SPL) testing was completed for the NIA and operational management. SPL testing was completed as follows:

- 10/02/2016: CHPP and D11R dozer
- 26/04/2016: Overland conveyors (OLC) 1 and 2
- 23/08/2016: OLC 1 and 2 after low idler installation
- 30/11/2016: OLC variable speed testing with assessment completed to determine sound power for OLC under different speeds and load configurations.

Noise predictions against WCS Project Environmental Impact Study Assessment

Trends for noise monitoring data over the life of the project continue to show exceedances above the noise criteria within the approval and the WCS Project Environmental Impact Study (EIS) assessment.

The EIS assessment stated the Project would meet the noise criteria of other Centennial Coal project approvals at the following locations:

- Wallerawang (Lidsdale Siding Upgrade Project PA 08_0223),
- Lidsdale and Wolgan Road (Angus Place PA06_0021)
- Springvale (Industrial Noise Policy)

Noise predictions showed that residual noise impacts above the INP project specific noise criteria would be likely at some Blackmans Flat receptors surrounding the Project site.

Table 18 below provides the existing noise limits compared to the Predicted Operational Noise Levels within the EIS Assessment.

During the 2016 reporting period, the Blackmans Flat (NM1-NM4), Wallerawang (NM7) and Springvale (S3) monitoring sites recorded exceedances of the WCS noise criteria.

Exceedances ranged from 1 to 11 dB above the noise criteria.

Table 18 – WCS Comparison of existing noise limits against modelled pre-project approval levels and 2016 exceedances

Location	Monitoring Site	Existing Day, Evening and Night LAeq (15min)	Existing Night LA1 (1min)	Predicted Operational Noise Levels	Exceedance range (2016) LAeq (15min)
B12	NM1	35-40	47	32-40	38-41
B13	NM1	36-41	50	34-42	38-41
B14	NM2	35-41	55	35-41	41
B15	NM3	35-36	45	<30-37	37
B16	NM4	35-36	45	<30-36	39-41
B17	-	42-44	45	42-44	
W1	NM7	37-41	45	37	39-48
W2	-	35-36	45	31-32	
L1	NM11	35-42	45	<30-36	-
L2	-	35-40	45	<30-40	
WR1	NM5	36-41	57		-
WR2	-	35-38	48		
S3	NM6	36-39	45		40-46
All other privately-owned residences	-	35	45		

Significant works have been undertaken in 2016 to determine why WCS operational activities have consistently exceeded EIS noise assessment and the lower noise predictions contained in the assessment.

The following has been identified as the key potential items contributing to differences between operational noise generated and monitored, assessment criteria, and differences between the noise sources included in the noise model and their associated sound power levels.

- The overland conveyor sound power used in the EIS assessment report is up to 6 dB(A) lower than the post approval monitored sound power values recorded.

- The overland conveyors vary in sound power and typically have 'open' and 'closed' sections where corrugated sheeting has been implemented, along with immediate fencing or barriers.

- A single sound power value for the overland conveyors was applied to project assessment modelling been used over the entire length of overland conveyor 1 and 2.

- Overland conveyor drive units (1 and 2), and the Wallerawang Power Station conveyor section and drive unit were not included in the assessment model. They are not listed in the equipment sound power table, nor appear present in the noise contour images with negligible deviation in contours where there should be.

- Revised Noise Impact assessment uses seven sound power values to represent the overland conveyors.

Revised noise modelling completed in 2016 has considered noise impacts with and without noise mitigation structures.

Modelling undertaken has indicated that the adoption of low noise rollers at strategic locations would provide the most effective noise attenuation for the OLC system.

Centennial Coal installed additional low noise idlers along the majority of Overland Conveyor 1 (OL1) and the lower half of Overland Conveyor 2 (OL2) where the modeling indicated greatest benefit in 2016.

A series of sound pressure level tests were conducted on the OLC system both before and after low noise idler rolls installed. With the unaided ear it was readily apparent that the low noise idlers had reduced the noise output from the conveyor sections where installed. The testing validated this noticeable reduction and showed that in the area next to the conveyor the low noise idler roller installation reduced the sound pressure level by about 6dBA or, in power terms, to a quarter of what it was previously.

The detailed works plan provided to DPE on 17 February 2017 provided all the current and proposed works and actions Centennial had and would undertake as known at the time of submission.

Additional works and actions as a result of the meeting held 15 March 2017 between Centennial and DPE representatives are proposed for completion in 2017 and beyond.

6.3. Air Quality

Air quality at WCS is managed in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan. Monitoring for the period was under the short term monitoring program in the new management plan and will transition to the long term program during 2017.

The predictive modelling and daily dust risk forecast allows for the active management of dust generated from hard stand areas and has aided in the maintaining compliance for the reporting period.

- The short-term (24 hour) PM10 criteria is 50 µg/m^3 at any residence on private land.
- The long-term (annual) PM10 criteria is 30 µg/m^3 and TSP criteria is 90 µg/m^3 at any residence on private land.

The 2016 results are summarised in Table 19 below.

Table 19 – WCS 2016 air quality summary

	Criteria	Maximum	Mean
Short term 24hr PM10	50 µg/m^3	42.0	11.27
Long term TSP	90 µg/m^3	-	27.80
Long term PM10	30 µg/m^3	-	11.95

TSP

A consistent TSP to PM10 ratio has been established using the high volume air sampler (HVAS) data over several annual cycles.

This ratio for WCS is 0.43 and is used to estimate the TSP concentration based on measured PM10 concentrations.

PM10

The 24 hour PM10 average concentration for 2016 is presented in 6 below.

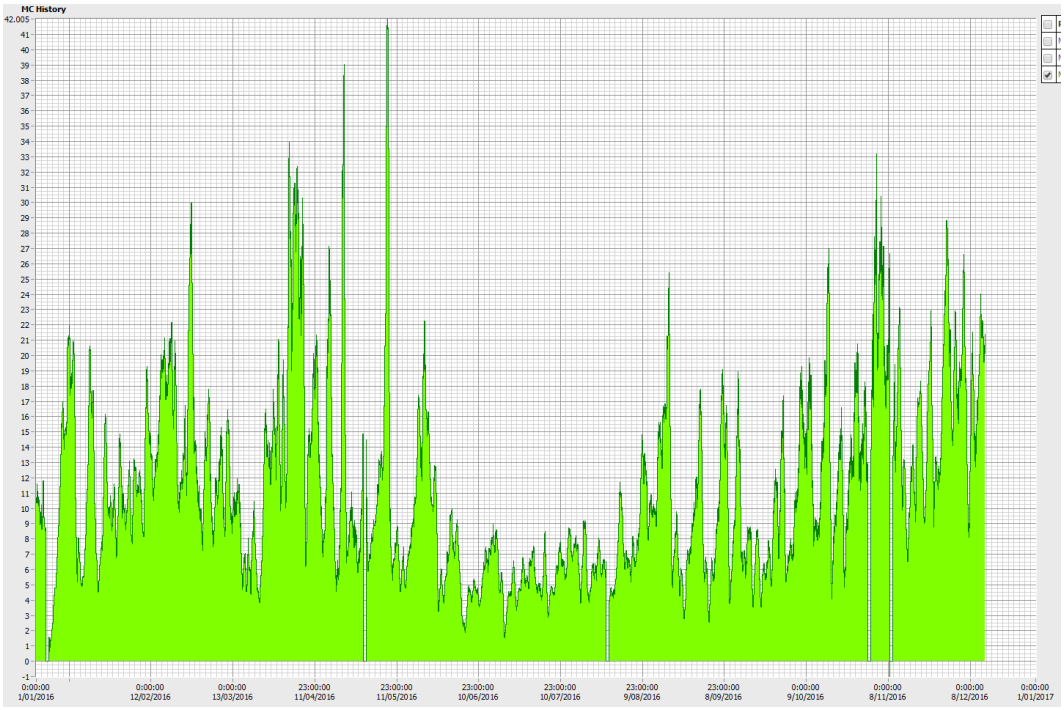


Figure 6 – WCS 2016 24 hour PM10 average concentration for 2016

Depositional Dust

Depositional dust is monitored at three locations (DG3, DG4, DG5) as shown in the *WCS Environmental Monitoring Locations (Water and Air Quality) Map* attached in appendix 1 with monthly depositional dust results are presented in Figure 7 below.

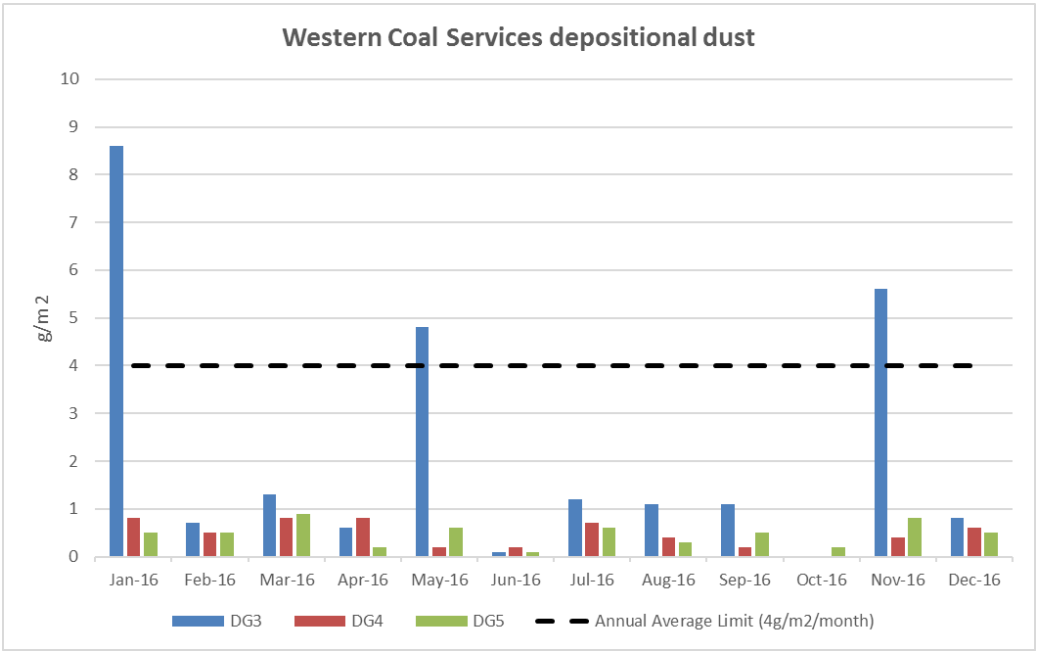


Figure 7 – WCS 2016 depositional dust summary

DG4 and DG5 were consistently below 1 g/m2/month. DG3 showed several higher months (January, May and November). This gauge is located away from the main operational area and higher results are not attributed to WCS activities.

Depositional dust emissions were below the annual average trigger (4g/m^2/month) at all sites during 2016 as listed in table 20 below.

Table 20 – WCS 2016 Depositional dust summary

Dust Gauge	3	4	5
Max	8.6	0.8	0.9
Min	<0.1	<0.1	0.1
Average	2.16	0.47	0.48

The six year comparison of the annual average of depositional dust for WCS is illustrated in Figure 8 below.

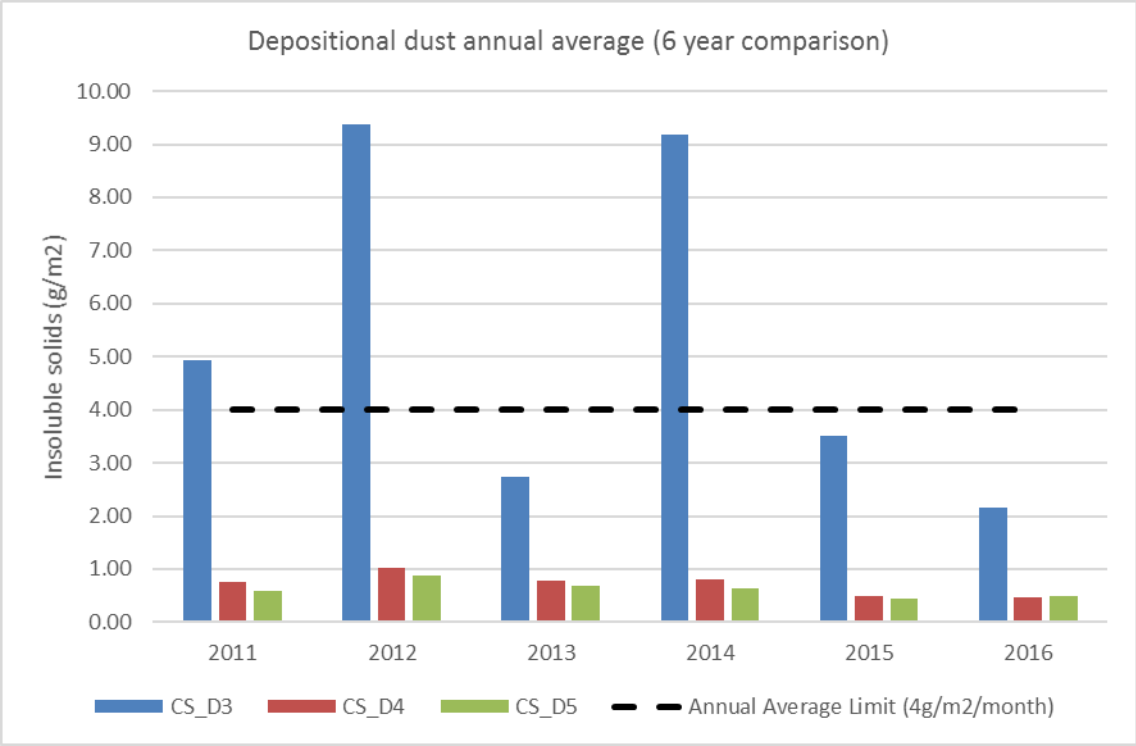


Figure 8 – WCS 6 year comparison of the annual average of depositional dust

Since 2015, CS_D3 has remained under the annual average limit of 4g/m2/month. Since 2011, CS_D4 and CS_D5 have remained under the annual average limit of 4g/m2/month.

The 12-month rolling average for depositional dust is illustrated in Figure 9 below.

The exceedance from January 2016 to May 2016 is due to a spike in depositional dust from June to October 2015. This was due to the development of storage units that are situated near the monitoring location for DG3.

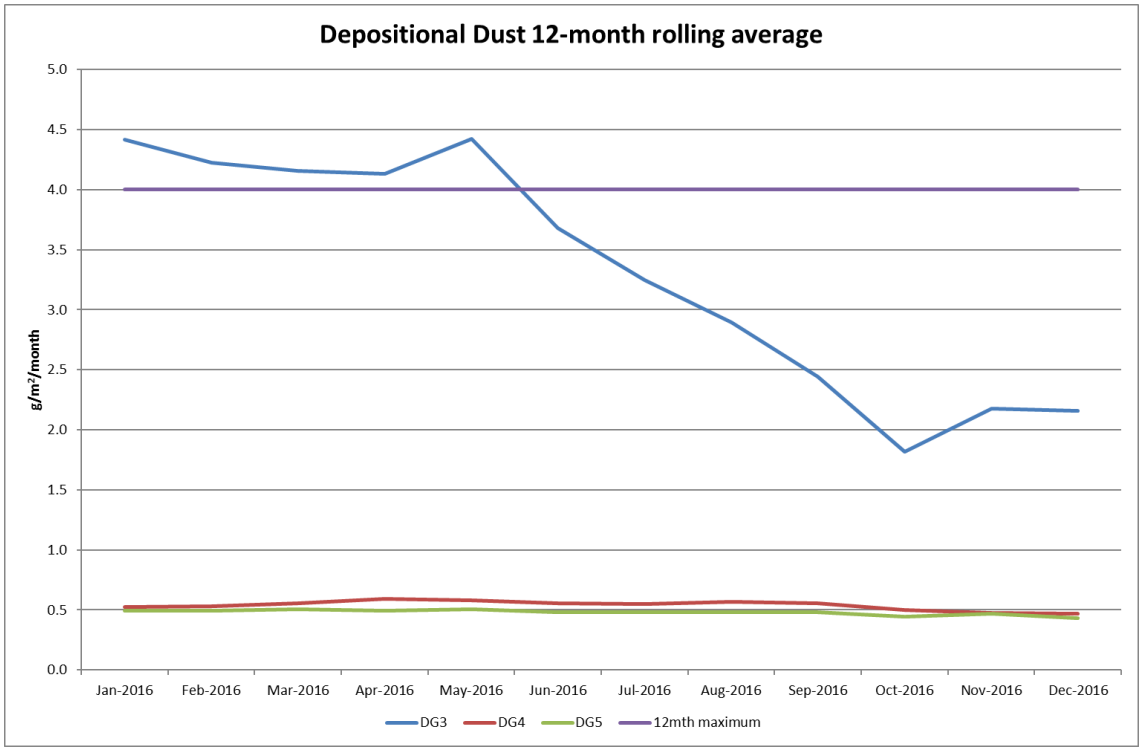


Figure 9 – WCS Depositional dust 12-month rolling average

The rolling average for depositional dust uses 12 months of data from January 2013 to generate the graph commencing January 2014 as shown in Figure 10 below.

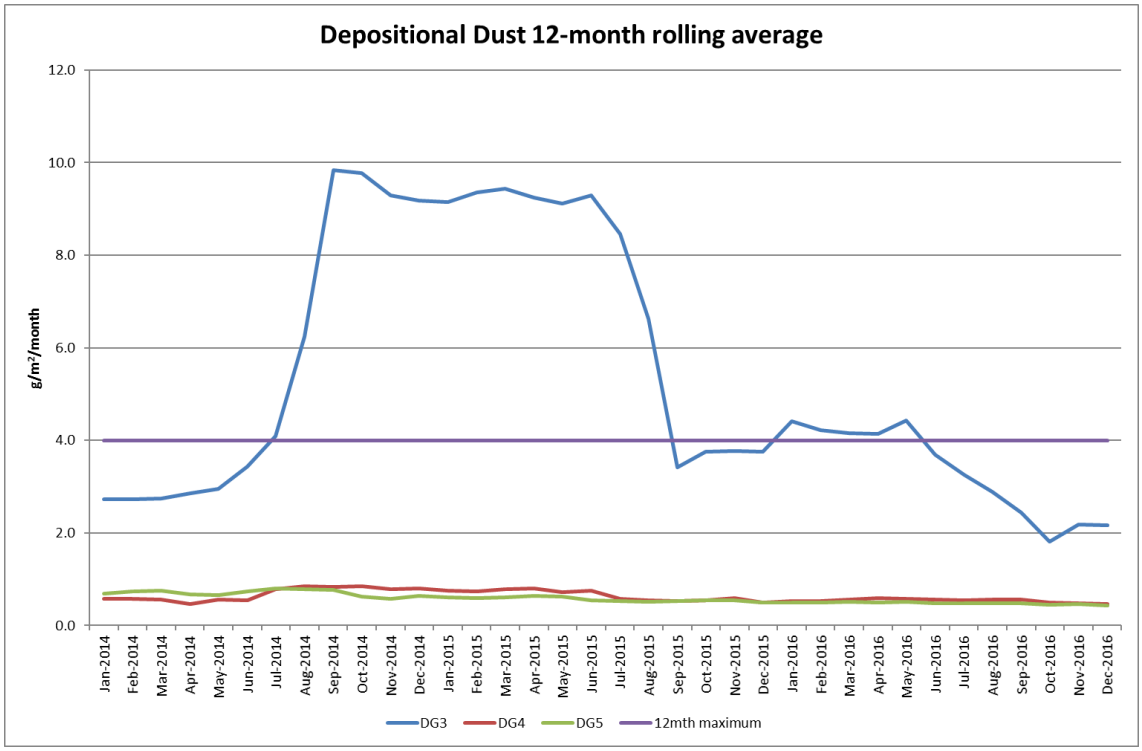


Figure 10 – WCS January 2013-December 2016 depositional dust 12-month rolling average

Centennial use daily dust forecast reports to determine the frequency of watering unsealed areas and to schedule dust suppression activities and operational mitigation strategies.

6.4. Aboriginal Cultural Heritage

Aboriginal cultural heritage at WCS is managed in accordance with the Western Region Cultural Heritage Management Plan (WRCHMP).

The Western Region Aboriginal Cultural Heritage Committee hosted a meeting on 26 October 2016.

All operations at WCS including Aboriginal stakeholder consultation, site surveys, reporting, impact assessment, site assessment, monitoring and management of Aboriginal cultural heritage sites was undertaken in accordance with the WRCHMP.

In 2016 at WCS;

- No activities impacted any Aboriginal cultural heritage site
- No incidents occurred that related to any Aboriginal cultural heritage site or WRCHMP management measures at WCS
- No incursions against any Aboriginal cultural heritage sites
- No unauthorized activity occurred against any Aboriginal cultural heritage sites occurred or against any WRCHMP management measures
- No new Aboriginal cultural heritage sites identified
- No unplanned activities undertaken near Aboriginal cultural heritage sites

Aboriginal Heritage Information Management System (AHIMS) site 45-1-0218 (open site with potential archaeological deposit (PAD)) was identified as a future monitoring site for the Western Region Aboriginal Cultural Heritage Committee.

As part of the Reject Emplacements Area Construction a weekly site inspection of boundary for AHIMS #45-1-0218 was undertaken in 2016 with no incursions or impacts identified from any WCS activities. Works completed to remove a fallen tree from site barricade fence were completed in January 2017.

No artefacts or skeletal remains have been found during construction of the new Reject Emplacement Area.

017/03/2017, an Aboriginal cultural heritage due diligence archaeological survey inspection was completed for the highly modified catchment for proposed site water diversion works.

The archaeological survey identified no new Aboriginal objects. One previously registered Aboriginal object (AHIMS #45-1-2723) was groundtruthed during the survey. It is located approximately 80m south of the proposed works footprint at the southern boundary of the project area and is not proposed for impact with all works to avoid the object via notification of onsite personnel of its location to avoid the area. WCS will implement all recommendations as identified in the survey report and additionally install temporary barricade fencing to prevent access to AHIMS #45-1-2723 during construction activity. The site is pictured in Figure 11 below.

Figure 11 – AHIMS #45-1-2723 (facing east)

7. WATER MANAGEMENT

Water discharges

WCS Water monitoring sites are illustrated in in the *WCS Environmental Monitoring Locations (Water and Air Quality) Map* attached in appendix 1

EPL 3607 requires monthly monitoring of conductivity, filterable iron, filterable manganese, oil and grease, pH, total suspended solids and turbidity at LDP006 when flowing.

- 2016 water monitoring data for LDP006 is provided in Table 21 below.
- 2016 flow data for LDP006 period is provided in Table 22 below.
- 2016 discharges data from LDP006 is illustrated in Figure 12 below.

LDP007 requires monthly monitoring of conductivity, pH and total suspended solids when discharging with zero discharges recorded in 2016.

- No 2016 LDP007 data is presented, reviewed, or summarised as a result of zero discharges occurring in the reporting period.
- This monitoring location generally has no discharge and historic data trends are not available to present graphically.

Table 21 – WCS LDP006 Water Monitoring Data

Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value	EPL limit
Conductivity	microsiemens per centimetre	12	12	1,703	3,867	5,190	#
Filterable iron	milligrams per litre	12	12	0.21	0.40	1.10	#
Filterable manganese	milligrams per litre	12	12	2.01	3.42	4.38	#
Oil and grease	milligrams per litre	12	12	<5	<5	<5	10
pH	pH	12	12	**6.1**	6.87	7.51	6.5-8.5
Total suspended solids	milligrams per litre	12	12	<5	4.5	10	30
Turbidity	nephelometric turbidity units	12	12	6	10.73	22	50

no concentration limit

Table 22 – WCS LDP006 Water Monitoring Data

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	High result
Megalitres per day	Daily during any discharge	366	0.028	3.32	25.70

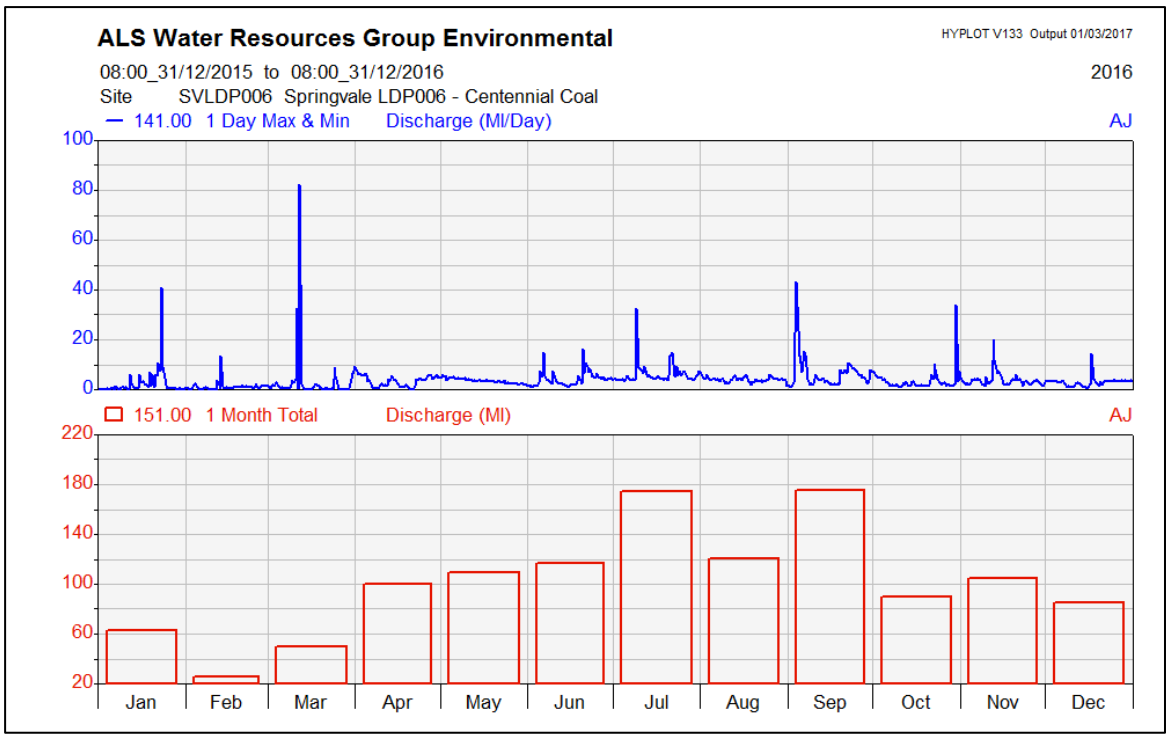


Figure 12 – WCS 2016 LDP006 discharges

7.1. Water quality data representation and analysis

Surface water pH, total suspended solids, electrical conductivity, oil and grease, turbidity, filterable iron, and filterable manganese are monitored at LDP006. Results are presented graphically for LDP006 to show a comparison with historic data trends in the following pages. LDP006 displays an increasing trend of electrical conductivity over the last three years as illustrated in Figure 13 below.

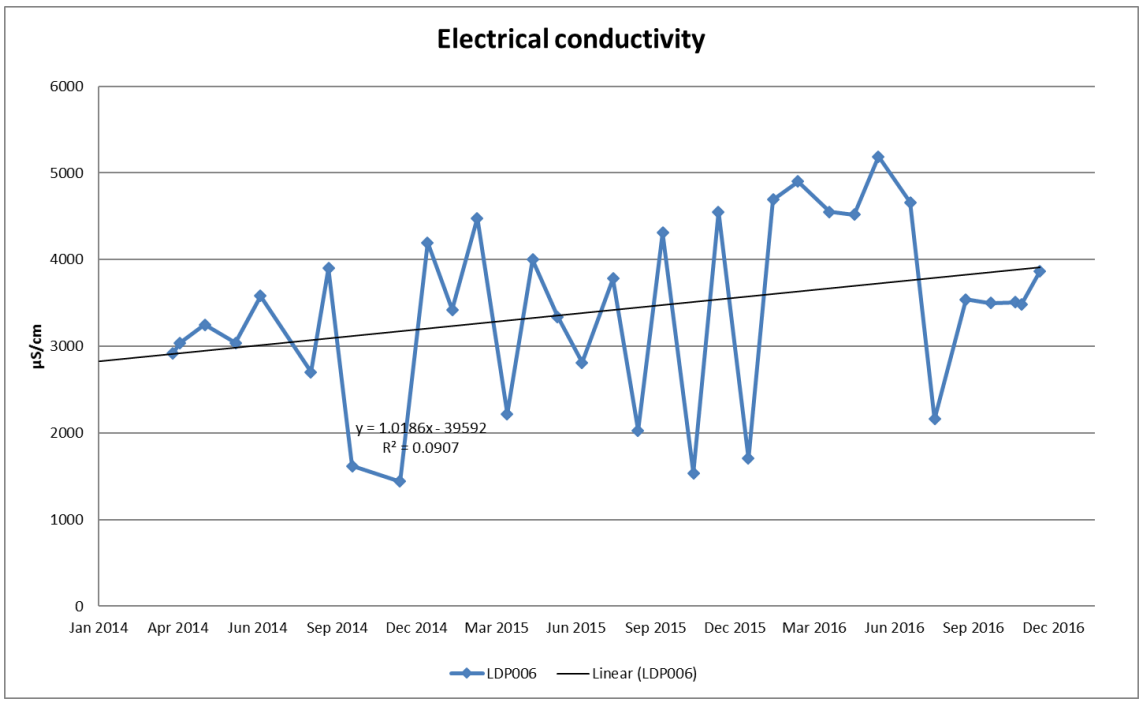


Figure 13 – WCS LDP006 Electrical Conductivity 2014-2016

Analysis of the 2016 data saw a decreasing linear trend but with greater variability. The increase in EC has been attributed to increasing conductivity in groundwater entering Cooks Dam and investigations are currently underway to better understand the source of the conductivity.

The variability identified generally correlates to rainfall events which dilute Cooks Dam water with low conductivity surface water runoff at LDP006. The source of the low conductivity water is surface runoff from the Lamberts Gully catchment.

Filterable iron results across the three years 2014-2016 are highly variable with a maximum of 2.1 mg/L and minimum below the limit or reporting <0.05 mg/L. Linear regression analysis shows a downward trend as illustrated in Figure 14 below.

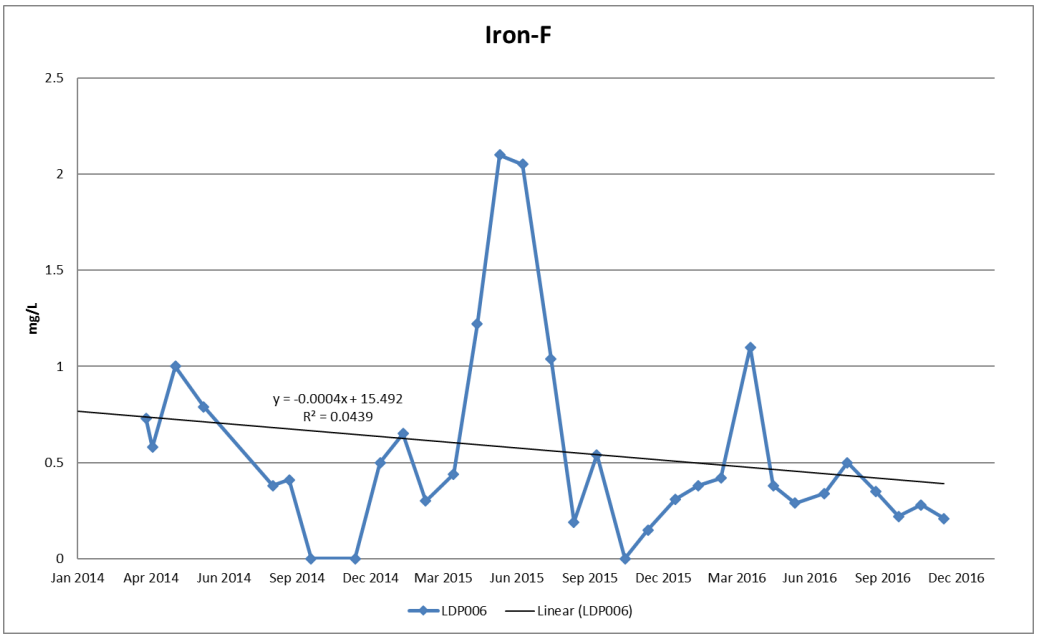


Figure 14 – WCS LDP006 Filterable Iron 2014-2016

Filterable manganese results across the three years 2014-2016 are highly variable with a maximum of 5.22 mg/L and minimum of 0.70 mg/L. Linear regression analysis shows a slight trend upwards as illustrated in Figure 15 below.

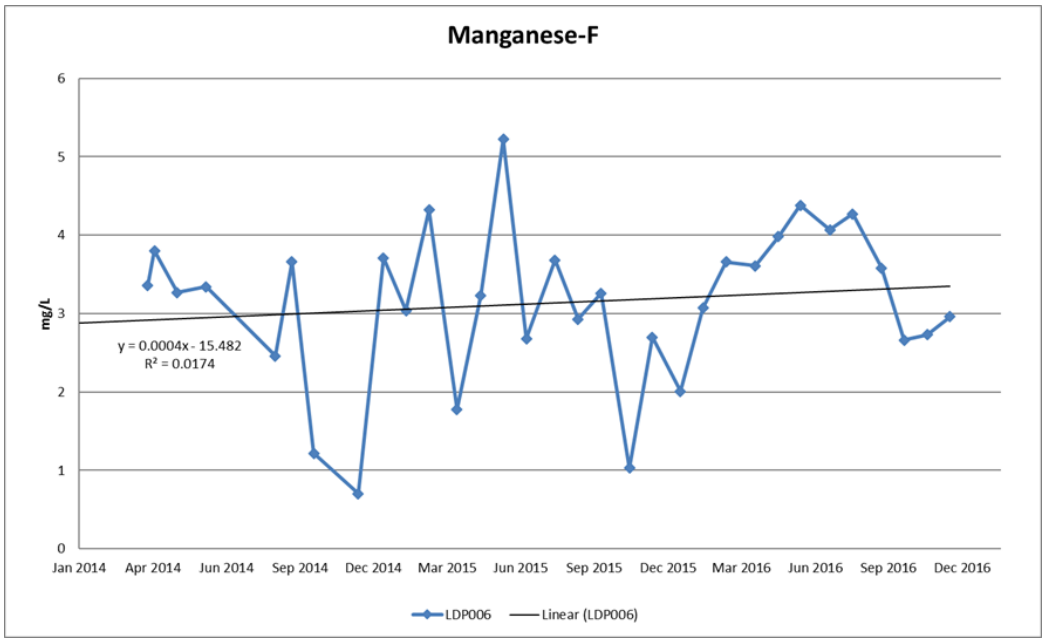


Figure 15 – WCS LDP006 Filterable Manganese 2014-2016

Oil and grease results are consistently below the laboratory limit of reporting of 5 mg/L as illustrated in Figure 16 below.

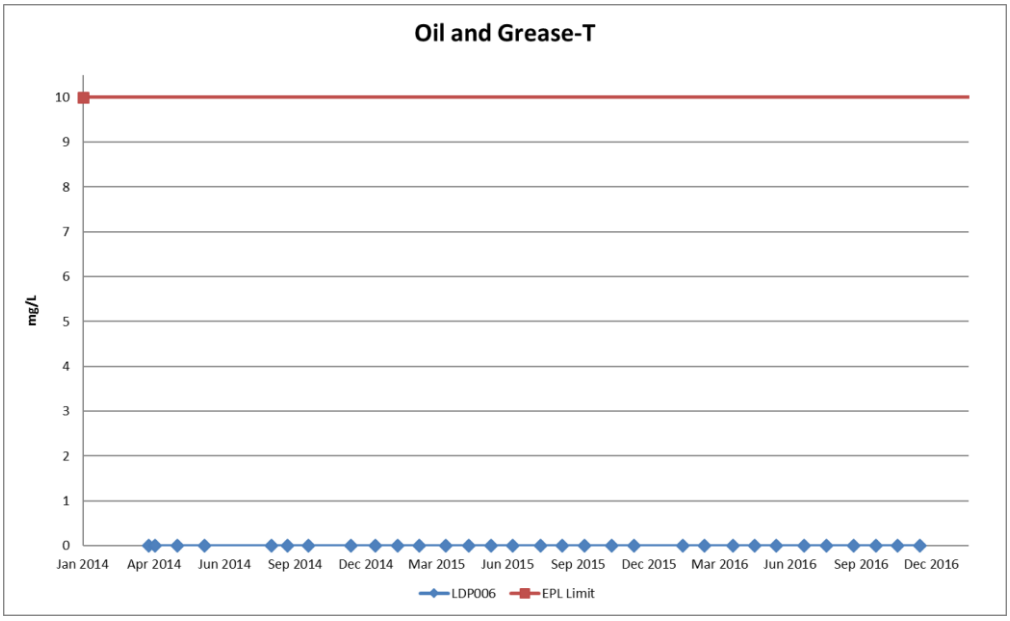


Figure 16 – WCS LDP006 Oil and Grease 2014-2016

During 2016, pH was compliant with EPL limits with the exception of a low result of 6.17 recorded on 02/03/2016 as illustrated in Figure 17 below.

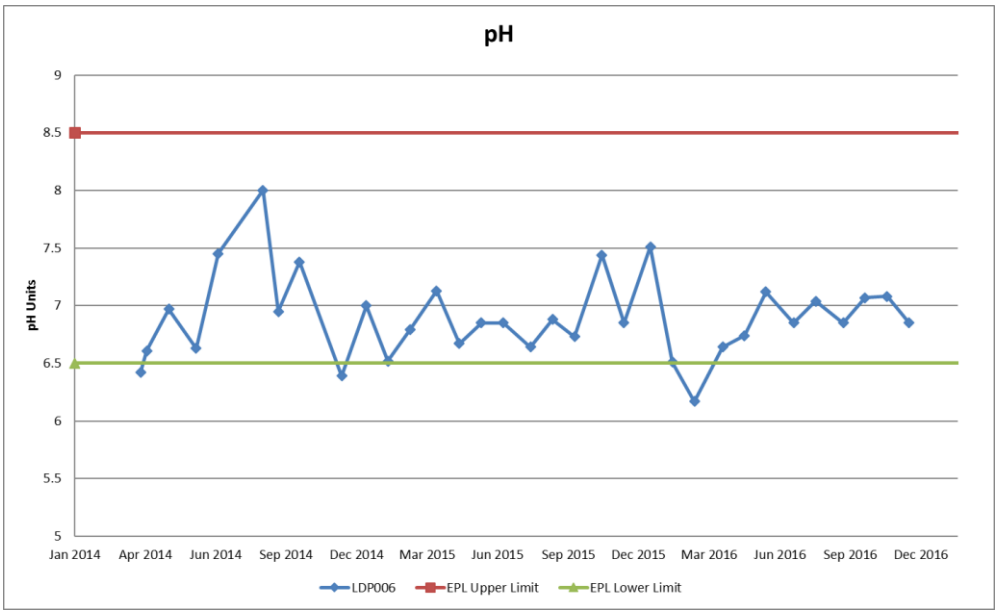


Figure 17 – WCS LDP006 pH 2014-2016

It has been observed that pH decreases when groundwater from historic underground workings, discharged via Cooks Dam, is the predominant discharge.

Rainfall and surface water flow in the Lamberts Gully catchment generally results in an increase in pH measured at LDP006.

Total suspended solids and turbidity display no discernable trend from and were compliant with the EPL concentration limit as illustrated in Figures 18 and 19 below.

All spikes in the TSS and turbidity readings across the three years of data are associated with rainfall events, which increase surface water flows in the Lamberts Gully catchment.

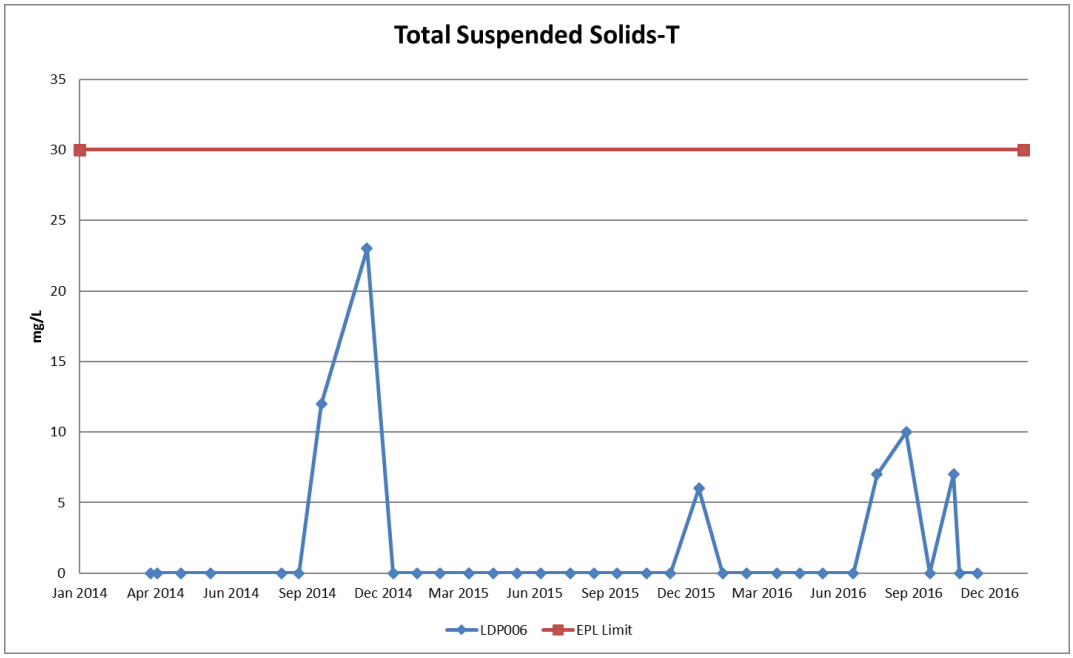


Figure 18 – WCS LDP006 Total Suspended Solids 2014-2016

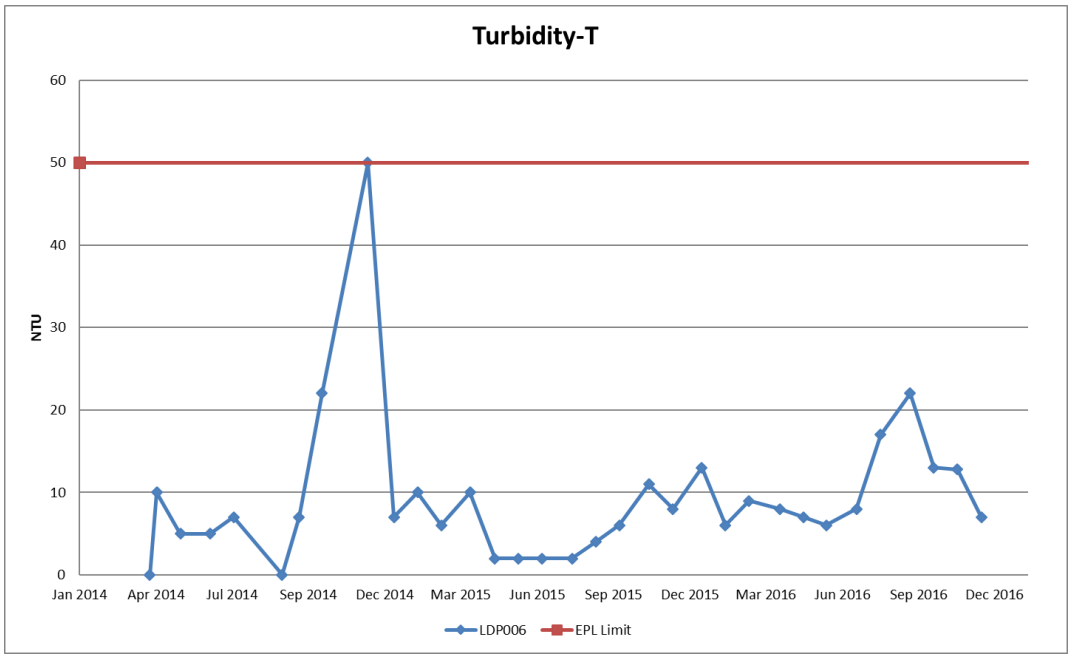


Figure 19– WCS LDP006 Turbidity 2014-2016

EPL condition L2.5 states the concentration limits for LDP006 are deemed not to apply when the discharge from the storm water control structures (sediment dams) occurs solely as a result of rainfall measured at the premises which exceeds:

a) for the Washery and Stockpile Sediment dams, a total of 56 millimetres of rainfall over any consecutive 5 day period.

b) for the Main Sediment dam, a total of 29mm of rainfall over any consecutive five day period.

7.2. River health monitoring

River Health monitoring is conducted on Wangcol Creek upstream and downstream of the WCS site twice a year in autumn and spring. River health monitoring in Q1 2016 determined all sites recorded diversity values within the range of their respective mean values. Monitoring sites are illustrated in in the *WCS Environmental Monitoring Locations (Water and Air Quality) Map* attached in appendix 1.

Riparian, Channel and Environment (RCE) Inventory results are consistent across the last six years of monitoring. Higher RCE Scores indicate better riparian and channel aquatic habitat condition.

Wangcol Creek upstream site (WCup) has recorded the largest decrease over time from 33.5 to 27. The downstream sites remain consistent

RCE scores are generally poor with low individual category scores due to all sites being surrounded by cleared agricultural lands and industrial areas, with very few sections of continuous riparian woody corridors.

A summary of RCE scores from 2011-2016 are presented in Table 23 and Figure 20 below.

Table 23 – WCS River Health Monitoring Wangcol Creek RCE Inventory results

Survey Date	Wangcol Creek Upstream	Wangcol Creek 1	Wangcol Creek 2	Wangcol Creek 3
Autumn 2016	27	25	26	28
Spring 2015	29	25	26	28
Autumn 2015	28	25	26	28
Autumn 2012	33.5	23	23	27.5
Spring 2011	33	23.5	23	28
Autumn 2011		23.5	23	

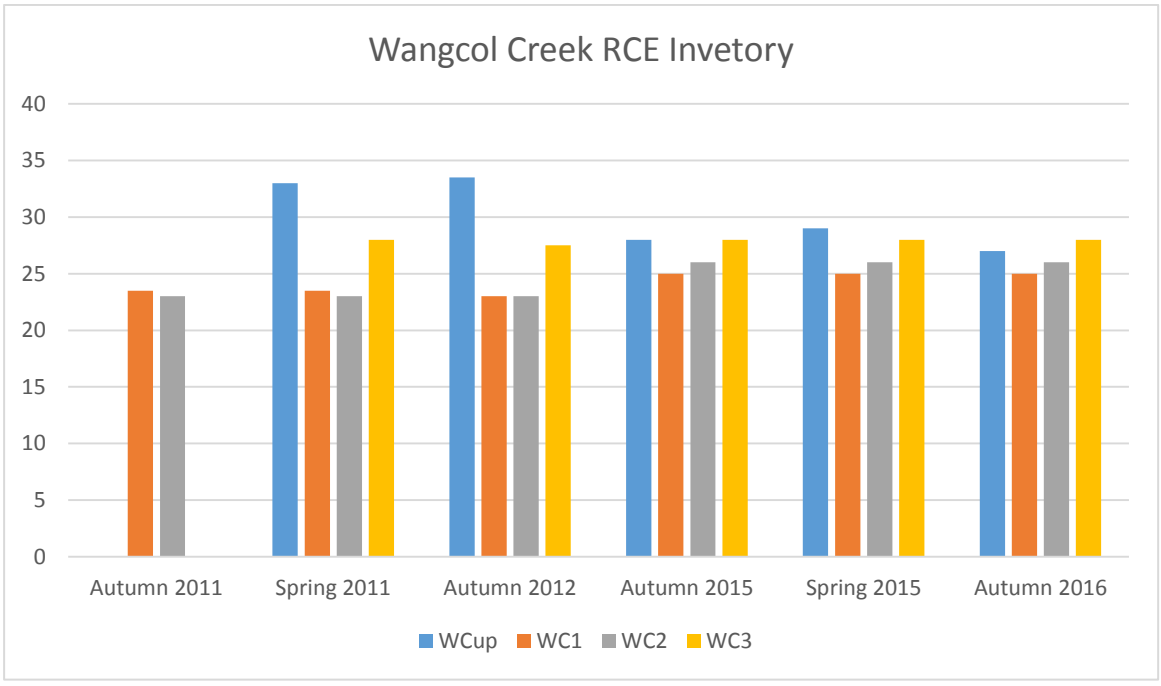


Figure 20– WCS River Health Monitoring Wangcol Creek RCE Inventory results

8. REHABILITATION

Rehabilitation at WCS is managed in accordance with the approved WCS Mine Operations Plan - December 2015 (MOP). The approval of the MOP requires the preparation and submission of a capping design for the reject emplacement area (REA) within 18 months of the approval. Once the capping design is approved by DRE it is anticipated a review of the bond security for WCS will be undertaken.

The capping strategy will be developed in 2017 for submission to DRE.

High risk activity authorisation was received from DRE to construct the new reject emplacement area on the 24 August 2015. Construction of stage one of the reject emplacement facility was finalised in February 2016. Stage two construction has proceeded through Q4 2016 with further and ongoing instruction continuing. Maintenance works were undertaken on the Lamberts Gully rehabilitation area to remove the tree guards and stakes from trees that had died. All living trees remain untouched by animals.

No new rehabilitation was undertaken in 2016. In 2016 Rehabilitation monitoring was undertaken with various seasonal and periodic weed control programs also completed. Additional and detailed information is provided in section 6.1 above.

8.1. Next Reporting Period

The following activities are proposed for 2017;

- Preparation and submission of a capping design for the REA capping strategy
- Annual rehabilitation maintenance and monitoring
- Revision of the MOP and associated Rehabilitation Cost Estimates (RCE)
- Periodic and seasonal weed control programs targeting rehabilitation weed species
- Implementation of recommendations from 2016 Rehabilitation monitoring
- Progress area 4 closure planning.

Table 24 below details the WCS Rehabilitation status which remains unchanged from 2015 with no new disturbance or rehabilitation currently proposed in 2017.

Table 24 – WCS Rehabilitation status

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2015 (ha)	2016 (ha)	2017 (ha)
A. Total mine footprint[3]	906	906	906
B. Total active disturbance[4]	164.6	164.6	164.6
C. Land being prepared for rehabilitation[5]	22.5	22.5	22.5
D. Land under active rehabilitation[6]	40	40	40
E. Completed rehabilitation[7]	0	0	0

[3] ***Total Mine Footprint:*** *includes all areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to mining and associated activities. As such it is the sum of total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem establishment, ecosystem development and relinquished lands (as defined in the DRE MOP/RMP Guidelines). Please note that subsidence remediation areas are excluded.*

[4] ***Total Active Disturbance:*** *includes all areas requiring rehabilitation. *Note the 2015 7 2016 data is based on 2015 7 2016 aerial photography and new classifications using the DRE MOP Guidelines whereas the 2014 data was based on dated plans resulted in some data discrepancies with the 2015 reporting period.*

[5] ***Land being prepared for rehabilitation:*** *includes the sum of mine disturbed land that is under the following rehabilitation phases – decommissioning, landform establishment and growth medium development (as defined in DRE MOP/RMP Guidelines)*

[6] ***Land under active rehabilitation:*** *includes areas under rehabilitation and being managed to achieve relinquishment – includes 'ecosystem and land use establishment' and 'ecosystem and land use sustainability (as defined under the DRE MOP/RMP Guidelines)*

[7] ***Completed rehabilitation****: requires formal sign off from DRE that the area has successfully net the rehabilitation land use objectives or completion criteria*

9. COMMUNITY

In 2016 there were no complaints received at WCS.

A community information line currently exists for WCS to receive calls from the local community that operates 24 hours a day, 7 days a week.

The combined Western Region Community Consultative Committee hosted three meetings during 2016.

These meetings provide a forum for discussion on issues of interest to the community that relate to the Lidsdale and Wallerawang area from Centennial Operations including Lidsdale Siding, Western Coal Services, Springvale Mine, and Angus Place Mine, including a review of community complaints in the period.

No specific issues action or management actions were identified for WCS by the committee.

The next CCC meeting will be held on 4 April 2017.

10. INDEPENDENT ENVIRONMENTAL AUDIT

The WCS Independent Environmental Audit was undertaken in Q1 2016.

The recommendations made by the auditor are in an action plan, which has been submitted to DPE. Actions are entered into the Centennial Compliance Database and actions assigned to the appropriate personnel for completion.

Table 25 below outlines the response to the WCS Independent Environmental Audit.

Table 25 – WCS Response to the Independent Environmental Audit

Condition Number	Condition	Compliance Status	Response
SSD-5579 2.9	**Surrender of Existing Development Consents** Prior to the end of December 2015, or as otherwise agreed by the Director-General, the Applicant shall surrender all existing development consents or approvals that it holds for the site in accordance with section 104A of the EP&A Act. *Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.*	**Non-compliant**	On 4 April 2014, Centennial was granted Development Consent (SSD-5579) for the WCS Project. Centennial, in accordance with Condition 9 Schedule 2 of the Development Consent conditions, is required to surrender all existing development approvals relating to the WCS operations. In accordance with Section 97(1)(e) of the Environmental Planning and Assessment Regulation 2000, landowner consent is required to be obtained in order to surrender the consents. One development approval (DA 06-0017 as modified) is in existence over the WCS operations. DA 06-0017 was granted by the (then) Minister for Planning on 12 May 2006. This development consent is no longer relevant to the WCS operations as all operations at the facility are now covered by SSD-5579. As such the development approval is required to be surrendered by Centennial. In 2015 and 2016, gap analysis of the SSD-5579 Development Consent verses Development Consent DA 06-0017 was completed that demonstrated that SSD-5579

Condition Number	Condition	Compliance Status	Response
			provides ongoing authorisation for coal transport and processing operations until the 30 June 2039. DA 06-0017 is on land owned by Energy Australia, and Centennial Springvale Pty Limited and Springvale Kores Pty Limited as joint tenants. Consultation with Energy Australia commenced in April 2016 with formal landowner consent to surrender DA 06-0017 was received in June 2016. Internal Centennial consultation with Joint venture land owners Centennial Springvale Pty Limited and Springvale Kores Pty Ltd was completed in Q3 and Q4 2016, with formal landowner consent to surrender DA 06-0017 was received in December 2016. Formal surrender of consent DA 06-0017 is proposed to be completed in Q1 2017.
SSD-5579 3.6	**Hours of Operation** Except for the carrying out of construction, the Applicant shall comply with the operating hours in Table 2. *Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.*	**Compliant**	Angus Place Colliery was placed on Care and Maintenance in early 2015, and subsequently no haul truck has travelled Mount Piper Station haul roads, during day-time or night-time hours, since 6 March 2015. Deliveries to Kerosene Vale commenced December 2016 via the Wallerawang – Angus Place Haul Road with haulage conducted during day periods only and ceased January 2017. No further truck movements currently proposed for 2017. All Kerosene Vale stockpile operational activities occurred during day periods only. No truck haulage occurred during any night time periods and consequently no haulage activity occurred during adverse meteorological conditions during the night. All other operational activities are permitted 24 hours a day, 7 days a week.
SSD-5579 3.7	**Noise Criteria** Except for the carrying out of construction, and for the land in Table 1, the Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately owned land. *Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.*	**Non-compliant**	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang / Blackmans flat area was a priority for Centennial in 2016 and remains so in 2017. Noise mitigation at WCS is being given attention at the highest level in the Centennial Group, with a committed, experienced and resourced project team engaged to drive identified drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits. Centennial conducted extensive noise modelling and monitoring of the complex noise environment in the Lidsdale/Wallerawang/ Blackmans Flat area in 2016.

Condition Number	Condition	Compliance Status	Response
			2016 /2017 YTD Historic timeline of key Centennial and DPE interface events • On 11 February 2016 a draft Centennial Coal Western Region Noise Management Plan was submitted to DPE for review and approval. • On 29 February 2016 Centennial completed a regional noise model to understand existing noise environment and impacts from individual and cumulative operations in the region. • On 31 March 2016 Centennial completed the identification of options for noise mitigation. • On 13 April 2016, DPE wrote to Centennial requesting timeframes for all noise mitigation corrective actions for WCS as previously communicated to be provided. • On 22 April 2016, Centennial provided DPE with a timeframe for implementation of corrective actions for noise issues. All actions were completed including completed noise modelling of the Lidsdale Siding and WCS operations, and the identification of strategies to target key noise areas to be developed and implemented. • On 08 July 2016 the Centennial Coal Western Region Noise Management Plan was re-submitted to DPE for review and approval. • On 18 July 2016, DPE issued a Show Cause Notice to Centennial for noise issues at Western Coal Services. • On 22 July 2016 the Centennial Coal Western Region Noise Management Plan was approved by DPE. • On 5 August 2016, Centennial provided a response to the DPE Show Cause notice for WCS noise issues. • On 7 October 2016, Centennial and a DPE representative met onsite at WCS where the DPE representative was provided an informal appraisal of the current status of noise management at WCS including progress on noise mitigation strategies. • On 16 December 2016, DPE requested copies of attended noise monitoring reports Western Coal Services. • On 16 December 2016, Centennial provided copies of the requested noise Western Coal Services. • On 30 January 2017 the DPE issued Centennial with an Official Caution and Draft Order to ensure compliance with noise criteria in the WCS SSD_5579. • On 17 February 2017 Centennial

Condition Number	Condition	Compliance Status	Response
			provided the DPE with a response to the draft order including modelling for WCS as 'stand-alone' operation as well as the regional cumulative noise scenario, and the operational management and technical measures in train and proposed via a detailed works plan. • On 15 March 2017 Centennial and DPE representatives met to discuss the path forward for modification to the WCS Development Consent SSD_5579, and to determine an approach for reassessment of the projects noise impacts. The detailed works plan provided to DPE on 17 February 2017 provided all the current and proposed works and actions Centennial had and would undertake as known at the time of submission. Additional works and actions as a result the meeting held 15 March 2017 Centennial and DPE representatives are proposed for completion in 2017 and beyond.
SSD-5579 3.8	**Operating Conditions** The Applicant shall: a) Implement best management practice to minimise the construction, operational and road noise of the development; b) Operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day-to-day planning of coal transport and processing operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent; c) Minimise the noise impacts of the development during meteorological conditions under which the noise limits in this consent do not apply (see Appendix 5); d) Co-ordinate noise management on site with the noise management of other approved developments and/or projects on or in the vicinity of the site to minimise cumulative noise impacts; and e) Carry out regular monitoring to determine whether the development is complying with the relevant conditions of this	**Non-compliant**	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang / Blackmans flat area was a priority for Centennial in 2016 and remains so in 2017. Noise mitigation at WCS is being given attention at the highest level in the Centennial Group, with a committed, experienced and resourced project team engaged to drive identified drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits. Centennial conducted extensive noise modelling and monitoring of the complex noise environment in the Lidsdale/Wallerawang/ Blackmans Flat area in 2016. **2016 /2017 YTD Historic timeline of key Centennial and DPE interface events** • On 11 February 2016 a draft Centennial Coal Western Region Noise Management Plan was submitted to DPE for review and approval. • On 29 February 2016 Centennial completed a regional noise model to understand existing noise environment and impacts from individual and cumulative operations in the region. • On 31 March 2016 Centennial completed the identification of options for noise mitigation. • On 13 April 2016, DPE wrote to Centennial requesting timeframes for all noise mitigation corrective actions for WCS as previously communicated to be provided.

Condition Number	Condition	Compliance Status	Response
	consent, to the satisfaction of the Director-General.		• On 22 April 2016, Centennial provided DPE with a timeframe for implementation of corrective actions for noise issues. All actions were completed including completed noise modelling of the Lidsdale Siding and WCS operations, and the identification of strategies to target key noise areas to be developed and implemented. • On 08 July 2016 the Centennial Coal Western Region Noise Management Plan was re-submitted to DPE for review and approval. • On 18 July 2016, DPE issued a Show Cause Notice to Centennial for noise issues at Western Coal Services. • On 22 July 2016 the Centennial Coal Western Region Noise Management Plan was approved by DPE. • On 5 August 2016, Centennial provided a response to the DPE Show Cause notice for WCS noise issues. • On 7 October 2016, Centennial and a DPE representative met onsite at WCS where the DPE representative was provided an informal appraisal of the current status of noise management at WCS including progress on noise mitigation strategies. • On 16 December 2016, DPE requested copies of attended noise monitoring reports Western Coal Services. • On 16 December 2016, Centennial provided copies of the requested noise Western Coal Services. • On 30 January 2017 the DPE issued Centennial with an Official Caution and Draft Order to ensure compliance with noise criteria in the WCS SSD_5579. • On 17 February 2017 Centennial provided the DPE with a response to the draft order including modelling for WCS as 'stand-alone' operation as well as the regional cumulative noise scenario, and the operational management and technical measures in train and proposed via a detailed works plan. • On 15 March 2017 Centennial and DPE representatives met to discuss the path forward for modification to the WCS Development Consent SSD_5579, and to determine an approach for reassessment of the projects noise impacts. The detailed works plan provided to DPE on 17 February 2017 provided all the current and proposed works and actions Centennial had and would undertake as known at the time of submission. Additional works and actions as a result the meeting held 15 March 2017 Centennial and

Condition Number	Condition	Compliance Status	Response
			DPE representatives are proposed for completion in 2017 and beyond.
SSD-5579 3.9	**Noise Management Plan** The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Director-General. This plan must: a) Be prepared in consultation with the EPA, and submitted to the Director-General for approval within 4 months of the date of this approval, unless otherwise agreed by the Director-General; b) Describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this consent; c) describe the proposed noise management system in detail; and d) Include a monitoring program that: - evaluates and reports on: • the effectiveness of the on-site noise management system; • compliance against the noise criteria in this consent; and • compliance with the noise operating conditions; - includes a program to calibrate and validate real-time noise monitoring results with attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria and as a trigger for further attended monitoring); and - defines what constitutes a noise incident, and includes a protocol for identifying and notifying P&I and relevant stakeholders of any noise incidents.	**Compliant**	The WCS NMP was included in the WRNMP approved in 2016 with stakeholder consultation and approval completed as detailed below. • 20 October 2015 Letter sent to the Department of Planning and Environment detailing the regional approach to the development of the centennial Western Region Noise Management Plan and requesting a 2 month extension to the timeframe for submission. • 30 October 2015 Letter sent to the Department of Planning and Environment requesting approval to consolidate the Noise Management Plan into a regional Management Plan. • 2 November 2015 Approval received from the Department of Planning and Environment on the 2 month extension to the timeframe for submission with the Management Plan required to be submitted by 21 February 2016. • 17 November 2015 Meeting with the EPA (Sydney) discussed regional approach being undertaken for the development of the Management Plans. • 19 November 2015 Approval received from the Department of Planning and Environment to consolidate the Management Plans into regional Management Plans. • 15 January 2016 Draft Noise Management Plan submitted to the EPA for review and comment. • 11 February 2016 Final draft Noise Management Plan submitted to the DPE for review and approval. • 22 July 2016 Noise Management Plan approved by the Secretary. Where periodic and regular internal review and audit of WCS compliance to the WMP indicate various items to modify in the plan, amendment is proposed in accordance with approval timelines in accordance with formal processes established by Centennial for the variation and amendment to regional plans. The WRNMP is proposed to next be amended in April 2017 to meet approval timelines for the Airlie Mine approval.
SSD-5579 3.20 and EPL L1.1	**Water Pollution** Unless an EPL authorizes otherwise, the Applicant shall comply with Section 120 of the POEO Act.	**Compliant**	WCS operates in accordance with an existing Environmental Protection Licence EPL 3607. Centennial have initiated discussions with the Environment Protection Authority (EPA) in relation to application and timing for an independent EPL for WCS. It is anticipated that a site-specific EPL will provide WCS with specific trigger values and limits, in turn supplying further certainty and direction with regards to compliance with

Condition Number	Condition	Compliance Status	Response
			Section 120 of the POEO Act. Water management at WCS was included in investigations under the Upper Coxs River Action and Monitoring Plan submitted to the Secretary for approval in September 2016 following consultation with various stakeholders including WaterNSW, DPI-Water, the Environment Protection Authority and Energy Australia. This will culminate in the development of a revised Water Management Plan being developed for the WCS which is currently in draft format. The WCS Water Management Plan (WMP) was revised in 2016 with a draft received in December 2016. The WMP review included appropriate water management procedures for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points, and a comprehensive review of surface water modelling, ground water modelling, site water and salt balances, hydrogeological studies, and a range of other items associated with the proposed modification of the WCS Development Consent SSD_5579 to receive residuals from the proposed Springvale Water Treatment Plant project (SWPT). The provision of submission for the final WMP and incorporation into the Centennial Western Region Management Plan as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the SWTP. Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment as detailed in the Western Region Water management Plan. Additionally surface water modelling was completed for the site to improve the separation of clean and dirty water through the site with designs for this work separated into a 2 x stage process with Stage 1 works proposed for completion in 2017.
SSD-5579 3.22	The Applicant shall manage the remediation of WCS and the Kerosene Vale Coal Stockpile Area to the satisfaction of the EPA.	**Compliant**	Centennial have been communicating with the EPA on the progression of rehabilitation at WCS and Kerosene Vale. On the 3 June 2015 a copy of the Phase 2 Land Contamination Report was submitted to the EPA, and in March 2016 additional groundwater data was provided to the EPA at their request. Centennial shall commence preliminary works at Kerosene Vale in accordance with the objectives of the Rehabilitation and Closure Plan. These will include: • Disposal of the inert waste material at a licensed waste facility.

Condition Number	Condition	Compliance Status	Response
			• Finalisation of the 2013 draft Asbestos Assessment Report. • Undertaking of soil testing and characterisation to determine soil additives and fertilizer requirements. • Progressive revegetation of the stockpiles using direct sowing techniques. • Review of the application of sediment and erosion controls at Kerosene vale, focusing on sediment control at primary sources such as the stockpile. Preliminary works at Kerosene Vale will be completed by 30 June 2017. All rehabilitation works at Kerosene Vale nominated within the approved Mining Operations Plan (MOP) will be completed by the end of the MOP term, October 2022.
SSD-5579 3.23	The Applicant shall comply with the performance measures in Table 10 to the satisfaction of the Director-General. *Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.*	**Compliant**	Water management at WCS was included in investigations under the Upper Coxs River Action and Monitoring Plan submitted to the Secretary for approval in September 2016 following consultation with various stakeholders including WaterNSW, DPI-Water, the Environment Protection Authority and Energy Australia. This will culminate in the development of a revised Water Management Plan being developed for the WCS which is currently in draft format. The WCS Water Management Plan (WMP) was revised in 2016 with a draft received in December 2016. The WMP review included appropriate water management procedures for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points, and a comprehensive review of surface water modelling, ground water modelling, site water and salt balances, hydrogeological studies, and a range of other items associated with the proposed modification of the WCS Development Consent SSD_5579 to receive residuals from the proposed Springvale Water Treatment Plant project (SWPT). The provision of submission for the final WMP and incorporation into the Centennial Western Region Management Plan as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the SWTP. Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment as detailed in the Western Region Water management Plan.

Condition Number	Condition	Compliance Status	Response
			Additionally surface water modelling was completed for the site to improve the separation of clean and dirty water through the site with designs for this work separated into a 2 x stage process with Stage 1 works proposed for completion in 2017.
SSD-5579 3.24	**Water Management Plan** The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Director-General. This plan must: • Be prepared in consultation with the EPA, SCA, NOW, LCC, Forestry Corporation of NSW and Energy Australia by suitably qualified and experienced person/s whose appointment has been approved by the Director-General; • Be submitted to the Director-General for approval within 4 months of the date of this consent, unless otherwise agreed by the Director-General; *Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.*	**Compliant**	Water management at WCS was included in investigations under the Upper Coxs River Action and Monitoring Plan submitted to the Secretary for approval in September 2016 following consultation with various stakeholders including WaterNSW, DPI-Water, the Environment Protection Authority and Energy Australia. This will culminate in the development of a revised Water Management Plan being developed for the WCS which is currently in draft format. The WCS Water Management Plan (WMP) was revised in 2016 with a draft received in December 2016. The WMP review included appropriate water management procedures for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points, and a comprehensive review of surface water modelling, ground water modelling, site water and salt balances, hydrogeological studies, and a range of other items associated with the proposed modification of the WCS Development Consent SSD_5579 to receive residuals from the proposed Springvale Water Treatment Plant project (SWPT). The provision of submission for the final WMP and incorporation into the Centennial Western Region Management Plan as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the SWTP. Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment as detailed in the Western Region Water management Plan. Additionally surface water modelling was completed for the site to improve the separation of clean and dirty water through the site with designs for this work separated into a 2 x stage process with Stage 1 works proposed for completion in 2017. The Western Regional Water Management Plan (RWMP) has been developed to provide an overview of the water management requirements across Centennial sites within the western region and to standardise the management of water. This plan will replace the current plan when approved in 2017. No response has been received from DPE regarding 4/08/2014 submission of the WCS Water Management Plan.

Condition Number	Condition	Compliance Status	Response
SSD-5579 3.44	**Progressive Rehabilitation** The Applicant shall progressively rehabilitate the site, including the Kerosene Vale Stockpile Area, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies must be employed where areas prone to dust generation are not subject to active operations but cannot yet be permanently rehabilitated.	**Compliant**	Centennial have been communicating with the EPA on the progression of rehabilitation at WCS and Kerosene Vale. On the 3 June 2015 a copy of the Phase 2 Land Contamination Report was submitted to the EPA, and in March 2016 additional groundwater data was provided to the EPA at their request. Centennial shall commence preliminary works at Kerosene Vale in accordance with the objectives of the Rehabilitation and Closure Plan. These will include: • Disposal of the inert waste material at a licensed waste facility. • Finalisation of the 2013 draft Asbestos Assessment Report. • Undertaking of soil testing and characterisation to determine soil additives and fertilizer requirements. • Progressive revegetation of the stockpiles using direct sowing techniques. • Review of the application of sediment and erosion controls at Kerosene vale, focusing on sediment control at primary sources such as the stockpile. Preliminary works at Kerosene Vale will be completed by 30 June 2017. All rehabilitation works at Kerosene Vale nominated within the approved Mining Operations Plan (MOP) will be completed by the end of the MOP term, October 2022.
SSD-5579 5.2	**Adaptive Management** The Applicant shall assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this consent. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity: a) Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; b) Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred	**Non-Compliant**	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang / Blackmans flat area was a priority for Centennial in 2016 and remains so in 2017. Noise mitigation at WCS is being given attention at the highest level in the Centennial Group, with a committed, experienced and resourced project team engaged to drive identified drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits. Centennial conducted extensive noise modelling and monitoring of the complex noise environment in the Lidsdale/Wallerawang/ Blackmans Flat area in 2016. **2016 /2017 YTD Historic timeline of key Centennial and DPE interface events** • On 11 February 2016 a draft Centennial Coal Western Region Noise Management Plan was submitted to DPE for review

Condition Number	Condition	Compliance Status	Response
	remediation measures or other course of action; and c) Implement remediation measures as directed by the Secretary, to the satisfaction of the Director-General.		and approval. • On 29 February 2016 Centennial completed a regional noise model to understand existing noise environment and impacts from individual and cumulative operations in the region. • On 31 March 2016 Centennial completed the identification of options for noise mitigation. • On 13 April 2016, DPE wrote to Centennial requesting timeframes for all noise mitigation corrective actions for WCS as previously communicated to be provided. • On 22 April 2016, Centennial provided DPE with a timeframe for implementation of corrective actions for noise issues. All actions were completed including completed noise modelling of the Lidsdale Siding and WCS operations, and the identification of strategies to target key noise areas to be developed and implemented. • On 08 July 2016 the Centennial Coal Western Region Noise Management Plan was re-submitted to DPE for review and approval. • On 18 July 2016, DPE issued a Show Cause Notice to Centennial for noise issues at Western Coal Services. • On 22 July 2016 the Centennial Coal Western Region Noise Management Plan was approved by DPE. • On 5 August 2016, Centennial provided a response to the DPE Show Cause notice for WCS noise issues. • On 7 October 2016, Centennial and a DPE representative met onsite at WCS where the DPE representative was provided an informal appraisal of the current status of noise management at WCS including progress on noise mitigation strategies. • On 16 December 2016, DPE requested copies of attended noise monitoring reports Western Coal Services. • On 16 December 2016, Centennial provided copies of the requested noise Western Coal Services. • On 30 January 2017 the DPE issued Centennial with an Official Caution and Draft Order to ensure compliance with noise criteria in the WCS SSD_5579. • On 17 February 2017 Centennial provided the DPE with a response to the draft order including modelling for WCS as ‘stand-alone’ operation as well as the regional cumulative noise scenario, and the operational management and technical measures in train and proposed

Condition Number	Condition	Compliance Status	Response
			via a detailed works plan. • On 15 March 2017 Centennial and DPE representatives met to discuss the path forward for modification to the WCS Development Consent SSD_5579, and to determine an approach for reassessment of the projects noise impacts. The detailed works plan provided to DPE on 17 February 2017 provided all the current and proposed works and actions Centennial had and would undertake as known at the time of submission. Additional works and actions as a result the meeting held 15 March 2017 Centennial and DPE representatives are proposed for completion in 2017 and beyond.
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	**Compliant**	All monitoring and reporting of discharges in 2016 was undertaken in compliance with approval conditions.
SoC 3.3	Material haulage will be managed to maintain compliance with the approved noise criteria on the private Haul Roads.	**Compliant**	Angus Place Colliery was placed on Care and Maintenance in early 2015, and subsequently no haul truck has travelled Mount Piper Station haul roads, during day-time or night-time hours, since 6 March 2015. Deliveries to Kerosene Vale commenced December 2016 via the Wallerawang – Angus Place Haul Road with haulage conducted during day periods only and ceased January 2017. No further truck movements currently proposed for 2017. All Kerosene Vale stockpile operational activities occurred during day periods only. No truck haulage occurred during any night time periods and consequently no haulage activity occurred during adverse meteorological conditions during the night. All other operational activities are permitted 24 hours a day, 7 days a week. No noise exceedances in 2016 were attributed to haulage.
SoC 3.4	Reduction of truck movements along Mt Piper Haul Road during prevailing noise enhancing weather conditions in order to meet the nominated Project Specific Noise Criteria. The default level will be zero trucking during these conditions until such time as noise monitoring confirms the truck movements required to meet the Project Specific Noise Criteria during these conditions.	**Compliant**	Angus Place Colliery was placed on Care and Maintenance in early 2015, and subsequently no haul truck has travelled Mount Piper Station haul roads, during day-time or night-time hours, since 6 March 2015. Deliveries to Kerosene Vale commenced December 2016 via the Wallerawang – Angus Place Haul Road with haulage conducted during day periods only and ceased January 2017. No further truck movements currently proposed for 2017. All Kerosene Vale stockpile operational activities occurred during day periods only. No truck haulage occurred during any night time periods and consequently no haulage activity occurred during adverse

Condition Number	Condition	Compliance Status	Response
			meteorological conditions during the night. All other operational activities are permitted 24 hours a day, 7 days a week. No noise exceedances in 2016 were attributed to haulage.
SoC 5.7	Apply for a separate EPL covering the entire PAA that includes LDP 003 (Kerosene Vale Stockpile Area) and LDP 006 and LDP 007 (conveyor at Duncan Street, Lidsdale).	**Non-Compliant**	WCS operates in accordance with an existing Environmental Protection Licence EPL 3607. Centennial have initiated discussions with the Environment Protection Authority {EPA) in relation to application and timing for an independent EPL for WCS.
SoC 5.11	To better understand the groundwater linkages, within 12 months of Project Approval, a baseline groundwater monitoring program will be established for the Springvale Coal Services Site. The baseline groundwater monitoring program will include: • Quarterly monitoring of water levels from a network of monitoring bores following the completion of construction; • Six monthly sampling of monitoring bores for field analysis of pH, EC and temperature and laboratory analysis on major ions, pH, EC, TDS, dissolved arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc; and • An annual review so that its capacity as an accurate predictive tool can be assessed and maintained.	**Compliant**	Ground Water management at WCS was included in investigations under the Upper Coxs River Action and Monitoring Plan submitted to the Secretary for approval in September 2016 following consultation with various stakeholders including WaterNSW, DPI-Water, the Environment Protection Authority and Energy Australia. This will culminate in the development of a revised Water Management Plan being developed for the WCS which is currently in draft format. The WCS Water Management Plan (WMP) was revised in 2016 with a draft received in December 2016. The WMP review included appropriate water management procedures for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points, and a comprehensive review of surface water modelling, ground water modelling, site water and salt balances, hydrogeological studies, and a range of other items associated with the proposed modification of the WCS Development Consent SSD_5579 to receive residuals from the proposed Springvale Water Treatment Plant project (SWPT). The provision of submission for the final WMP and incorporation into the Centennial Western Region Management Plan as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the SWTP. Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment as detailed in the Western Region Water management Plan. The Western Regional Water Management Plan (RWMP) has been developed to provide an overview of the water management requirements across Centennial sites within the western region and to standardise the management of water. This plan will replace the current plan when approved in 2017.

11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

Table 26 below contains a summary for each incident and/or non-compliance during the Annual Review period.

Table 26 – WCS 2016 Incident/Non-Compliance Summary

Nature of the incident/non-compliance	**SSD 5579 Condition 3.7** **EPL 3607 L4** Exceedance of noise limits
Date of incident/ non-compliance (if known; if not known state not known)	NM1 05/09/2016; 19/10/2016; 15/11/2016 NM2 15/11/2016 NM3 19/10/2016; 16/11/2016 NM4 16/08/2016; 05/09/2016; 15/11/2016 NM6 12/01/2016; 13/01/2016; 10/02/2016; 10/03/2016; 19/04/2016; 20/04/2016 16/08/2016; 05/09/2016; 06/09/2016; 19/10/2016; 20/10/2016; 15/11/2016; 16/11/2016; 06/12/2016; 07/12/2016 NM7 12/01/2016; 09/02/2016; 10/02/2016; 10/03/2016; 12/03/2016; 19/04/2016 20/04/2016; 16/08/2016; 05/09/2016 06/09/2016; 19/10/2016; 15/11/2016 07/12/2016; 08/12/2016
The location of the incident/ non-compliance (include a figure if appropriate), if known	As above
Detail the cause of the incident/non-compliance	The CHPP continuum and the overland conveyor are the noise sources for all noise exceedances. Centennial consider the original noise criteria to be too low and not consider the full noise environment.
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang area has been a priority for Centennial in 2016 and will remain so in 2017 and beyond. Centennial has provided the DPE with a detailed work plan identifying operational management and technical measures undertaken to date and proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017.
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale/Wallerawang area has been a priority for Centennial in 2016 and will remain so in 2017 and beyond. Noise mitigation at WCS will continue to receive attention at the highest level in Centennial, with the committed, experienced and resourced project team continuing to be engaged to drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at WCS reduce their noise and achieve compliance with consented noise limits.

Nature of the incident/non-compliance	Broken depositional dust gauge – failure to monitor
Date of incident/ non-compliance (if known; if not known state not known)	19/01/2016
The location of the incident/ non-compliance (include a figure if appropriate), if known	DDG 5 on site
Detail the cause of the incident/non-compliance	The failure to monitor related to a broken depositional dust gauge.
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	The bottle was replaced during the next sampling round.
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	All dust gauges are sampled and inspected on a monthly basis. The gauges are placed in secure locations with minimal risk of vandalism.

Nature of the incident/non-compliance	Elevated depositional dust monitoring results
Date of incident/ non-compliance (if known; if not known state not known)	19/01/2016, 16/05/2016, 11/11/2016
The location of the incident/ non-compliance (include a figure if appropriate), if known	DG3 on site
Detail the cause of the incident/non-compliance	DG3 at WCS has exceeded the trigger three times this year of 4gm^2/month from unknown causes.
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	Samples were sent for fine particle analysis with exceedance of the dust criteria determined from unidentified causes.
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	Samples sent for fine particle analysis with review of results.

Nature of the incident/non-compliance	**Condition 20 schedule 3 SSD-5579** **L2 Concentration limits EPL 3607** Monitoring results on the 11/02/2016 and 2/03/2016 recorded an exceedance of the pH limits.
Date of incident/ non-compliance (if known; if not known state not known)	11/02/2016, 2/03/2016
The location of the incident/ non-compliance (include a figure if appropriate), if known	LDP006
Detail the cause of the incident/non-compliance	Groundwater inflows into Cooks Dam exceeded the pumping capacity to DML Dam, Washery and to Co Disposal Dam resulting in a discharge event through LDP006. Cooks Dam on the 11 February 2016 and 02 March 2016 with a recorded pH of 6.1.
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	A works plan has been submitted to the EPA that detail actions WCS will undertake to manage LDP006 discharges including the development of a long term beneficial reuse options study of LDP006 discharge water (refer appendix 2)
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	A works plan has been submitted to the EPA that detail actions WCS will undertake to manage LDP006 discharges including the development of a long term beneficial reuse options study of LDP006 discharge water (refer appendix 2)

Table 27 – WCS Summary of Reportable Incidents and Regulatory Actions

Compliance Type	Agency	Number	Response
Incidents	DPE	15	*Various*
Caution Notices		Nil	
Warning Letters	DRE	1	*None required. Warning related to works undertaken ten years ago*
Penalty Notices		Nil	
Prosecutions		Nil	

Note: This table includes actions taken by DPE, DRE and the EPA during the reporting period. Include a summary of actions taken to prevent recurrence of incidents and/or regulatory actions.

12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

The following activities are proposed for the next reporting period:

Operations

- There is no material change planned for the WCS operation during 2017.

Water

- Actions as detailed in Appendix 2 as part of the LDP006 Discharge Works plan.
- The WCS WMP will be incorporated into the Centennial Coal Western Region Management Plan at the completion of final review in 2017.
- The provision of submission for the final WMP as proposed in 2017 is dependent on the consultation timeframes and process Centennial will undertake with relevant stakeholders and regulatory agencies as required for activities as proposed for the Springvale Water Treatment Project.
- Where required, recommendations and findings from this consultation will be incorporated into the revised WMP to ensure alignment between all Centennial water management activities and consultation in the upper Cox's river catchment and ensure that additional appropriate and compliant management strategies are further developed and implemented as required.

Noise

- A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale/Wallerawang area remains a priority for Centennial in 2017.
- Noise mitigation at WCS will continue to receive attention at the highest level in Centennial, with the committed, experienced and resourced project team continuing to be engaged to drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on February 17 2017.
- The Work Plan sets out Centennial's current proposal for ensuring that its operations at WCS reduce their noise and achieve compliance with consented noise limits.

Rehabilitation and Mine Closure

- Preparation and submission of a capping design for the REA capping strategy
- Annual rehabilitation maintenance and monitoring
- Revision of the MOP and associated Rehabilitation Cost Estimates (RCE)
- Periodic and seasonal weed control programs targeting rehabilitation weed species
- Implementation of recommendations from 2016 Rehabilitation monitoring
- Progress area 4 closure planning.

Biodiversity

- Implement the biodiversity management plan and offset strategy for WCS (as part of broader regional management plan), pending approval.

Approvals

- Surrender former development consents.
- Provide input to WCS modifications related to Springvale Water Project and WCS SSD-5579 Modifications.

Heritage

- WCS heritage management is proposed to be included and managed in accordance with the Centennial Coal Western Region Historic Heritage Management Plan (HHMP) in 2017. The HHMP was approved in July 2016, to be resubmitted including WCS by 28 April 2017.
- WCS will implement all recommendations as identified in the Due Diligence Archaeological Survey for water diversion works survey report and additionally install temporary barricade fencing to prevent access to AHIMS #45-1-2723 during construction activity.

13. Appendix 1 – WCS Environmental Monitoring (Air Quality & Water) Sites Maps & Locations Map

LEGEND:

- Surface Water Monitoring
- Ground Water Monitoring
- Dust Monitoring Stations
- Regional Aquatic Monitoring

- SCSS Project Developement Area
- Developement Consent OL Conveyor
- AWS, Noise Compass,TEOM

NOTES:

DRAWN: Brett Haddon	DATE: 20 March 2017
PLAN No: SVY04261	INFORMATION SUPPLIED BY:
COMPUTER PATH: N:\Z_Western Coal Services\Plans\SCSS Monitoring Locations.dwg	
SCALE: AS SHOWN	A3H Sheet 1 of 1

SPRINGVALE MINE

TITLE:

SCSS

Environmental Monitoring

Water and Air Quality

SpringvaleCoal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

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DG 9
DG3
LDP007
Piper Flat Creek U/S
BFSR
LDP004
Triangle Dam
BFUS
MW 4
AWS & BAM
CR5
Dirty Water Dam
MW 7
MW 8
DG 7
MW 5
MW 1
DG 8
MW 3
MW 6
DG 6
DG 1
DG 10
Wang STP Monitoring Point
DG 11

Lithgow Locality

LEGEND:

- Surface Water Monitoring
- Ground Water Monitoring
- Dust Monitoring Stations
- Willow Control Areas
- Hyrocarbon Study Area
- Regional Aquatic Monitoring
- Operational Area
- EIS Study Area
- Weather Station and BAM Unit

NOTES:
LDP007and DG3 shown on this Plan are Monitored for Compliance under Western Coal Services Project.

DRAWN: Brett Haddon	DATE: 20 March 2017
PLAN No: SVY04259	INFORMATION SUPPLIED BY:
COMPUTER PATH: N:\Z_Western Coal Services\Plans\TLO facility and Locality.dwg	
SCALE: As Shown	A3V Sheet 1 of 1

SPRINGVALE MINE

TITLE:

Lidsdale Siding

Environmental Monitoring

Water and Air Quality

SpringvaleCoal
SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

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200000 220000 240000 260000

6300000

6280000

WINBURNDALE NATURE RESERVE

TURON STATE FOREST

Turon River

Castlereagh Highway

WOLGAN STATE FOREST

Wolgan River

GARDENS OF STONE NATIONAL PARK

GARDENS OF STONE NATIONAL PARK

WOLLEMI NATIONAL PARK

Cullen Bullen

BEN BULLEN STATE FOREST

SUNNY CORNER STATE FOREST

Portland

INSET (See 1A.1)

Blackmans Flat

BEN BULLEN STATE FOREST

Lidsdale

NEWNES STATE FOREST

WINBURNDALE NATURE RESERVE

Rivulet

SUNNY CORNER STATE FOREST

SUNNY CORNER STATE FOREST

FALNASH STATE FOREST

Wallerawang

Springvale

Meadow Flat

SUNNY CORNER STATE FOREST

Marrangaroo

BLUE MOUNTAINS NATIONAL PARK

BATHURST LOCAL GOVERNMENT AREA

Mount Lambie

LIDSDALE STATE FOREST

Bells Line Of Road

Wollangambe River

SUNNY CORNER STATE FOREST

Rydal

LITHGOW LOCAL GOVERNMENT AREA

Lithgow

Coxs River

Great Western Highway

EVANS CROWN NATURE RESERVE

Fish River

OBERON LOCAL GOVERNMENT AREA

BLUE MOUNTAINS LOCAL GOVERNMENT AREA

N MGA Zone 56

0 0.8 1.6 2.4 3.2 4.0 km

New South Wales
Tamworth
Dubbo
Muswellbrook
Singleton
Newcastle
Western Coal Services Site
Sydney
Canberra

LEGEND
- Project Boundary
- Main Roads
- Major Rivers and Creeks
- Railway
- Relevant Mining Lease Boundaries
- State Forest
- National Park and Reserves
- Local Governement Area Boundary

Prepared by: CEH SURVEY
CONSULTING LAND, ENVIRONMENTAL AND MINING SURVEYORS

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DATE	12.02.2016
DRAWN	D.MACKIE
SURVEYOR	G.MUIR
Data Source	D.I.L Mining Titles - March 2015 GSS Files - Centennial 2013
SCALE	1:150 000

WESTERN COAL SERVICES ANNUAL REVIEW
Project Locality

Centennial Coal
Western Coal Services
ABN No. 39 052 096 769

Plan **1A** A3

14. Appendix 2 – WCS LDP006 Discharge Works plan

No.	Action	Status	Date of Completion
A. GENERAL PROJECT ACTIONS **Team Leaders: Project Manager with General Manager Safety & Environment / Group Manager Approvals / Group Manager Environment / Manager SCS**			
1.	**Long-term Options Study** 1. Develop a long term beneficial reuse options study of LDP006 discharge water.	Commenced	Within 6 months of approval of the SWTS MOD (expected 30 June 2017).
2.	**Risk Assessment and Cost Benefit Analysis for Long-term Options** 1. Complete a risk assessment and cost benefit analysis for identified long-term beneficial reuse options identified in the Options Study.	To be completed	30-June-2018
B. OPERATIONAL MANAGEMENT ACTIONS **Team Leader: Site Manager SCS / Environment & Community Co-ordinator**			
1.	**Review and Submission of Water Management Plan** 1. All changes and commitments as proposed in SSD_5579 MOD 1, including; a. Updated site water and salt balances. b. Updated water modelling from proposed water separation activities and designs. c. Updated monitoring requirements. 2. Any other initiatives and modelling or monitoring outcomes identified. 3. Groundwater monitoring as per item (5) below.	Commenced	Within 3 months of approval of the SWTS MOD which is expected 30 June 2017.
2.	**Water Diversion Stage 1 – Clean (non-coal contact) and Dirty (coal contact) Water separation at Lamberts Gully** 1. Establishment of a pumping system for the transfer of tailings water from the A-Pit REA to Cooks Dam was completed in 2016. 2. Installation of the "head of catchment" separation works to divert the upstream clean water away from the Dirty Water stream located at the Northern base of Lamberts Gully Open cut rehabilitation area adjacent to REA Access Road and tail end of Overland Conveyor 3. 3. Commencement of modification to critical culverts, drains, spillways, separation bunds and the regrade of the Haul Road with a cross-grade to the dirty water diversion through Lamberts Gully according to design. 4. Targeted manual flow and quality monitoring.	Commenced	31-Dec-2017
3.	**Water Diversion Stage 2 - Clean (non-coal contact) and Dirty (coal contact) Water separation at Lamberts Gully** 1. Completion of modification to critical culverts, drains, spillways, and separation bunds. 2. Installation of automated flow and quality monitoring.	Commenced	31-Dec-2018
4.	**Huon Gully Interception Works and transfer of intercepted clean water from the Huon Gully to the Lamberts Gully Clean Water Diversion.** 1. Works to divert the upstream catchment of Huon Gully around the REA to enable clean water flows down Huon Gully were completed in 2016. 2. A review of options for the interception and transfer clean water runoff to clean catchment prior to entering surface voids at Huon Gully. 3. Automated flow and targeted manual water quality monitoring.	Commenced	30-June-2018
5.	**Ground water monitoring at strategic locations to capture and review data to inform the site water and salt balance and further inform the surface water and ground water interaction across site. Each of the groundwater bores will have continuous level logging and EC monitoring equipment installed at a time step of less than a day.** 1. Finalise a technical study for automated ground water monitoring options in accordance with WCS SSD-5579 MOD1 SoC.	Commenced	31-Dec-2017

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