

SSD-6038

Annual Review

Santos
We have the energy.

Energy NSW

Dewhurst Gas Exploration Pilot Expansion



Table of Contents

1.	Title Page.....	4
2.	Description of Development.....	5
2.1	Dewhurst 13-18H Pilot.....	5
2.2	Dewhurst 26-31 Pilot.....	5
3.	Review of monitoring results and complaints.....	8
3.1	Noise.....	8
3.2	Blasting.....	8
3.3	Air Quality.....	8
3.4	Biodiversity.....	10
3.5	Heritage.....	10
3.6	Complaints.....	11
3.7	Water and Waste Management.....	12
3.8	Rehabilitation.....	13
4.	Compliance Statement.....	18
4.1	Independent Audit.....	18
4.2	Incidents and non compliances.....	19
5.	Identification Trends.....	19
6.	Discrepancies between predicted and actual impacts.....	19
7.	Continuing or proposed measures to improve the environmental performance of the development.....	20

List of Figures

Aerial photograph of Dewhurst 26-31 Pilot.....	6
Santos Infrastructure Narrabri Gas Field.....	7
Dewhurst 28 – Balance tank.....	13
Dewhurst 26.....	15
Dewhurst 27.....	15
Dewhurst 28.....	16
Dewhurst 29.....	16
Dewhurst 30.....	17
Dewhurst 31.....	17

List of Tables


Long term criteria for particulate matter	9
Short term criteria for particulate matter	9
Long term criteria for deposited dust.....	9
For the year 1 January 2017to 31 December 2017	12

Title Page

This report has been drafted to address the requirements of Condition 4 of Schedule 5 of SSD-6038 – the Dewhurst Gas Exploration Pilot Expansion (the approval).

The Bibblewindi Gas Exploration Pilot Expansion (SSD-5934) was granted on the same day as SSD-6038. No works have been undertaken to commence that development. As such, the requirement to provide an Annual Review for the Bibblewindi Gas Exploration Pilot Expansion has not been triggered.

The report's format mirrors the sections of the approval, but also includes relevant information from the Annual Review Guideline *Post Approval Requirements for State Significant Mining Developments October 2015*.

Name of Operation	Dewhurst Gas Exploration Pilot Expansion
Name of Operator	Santos NSW (Eastern) Pty Ltd
Development consent / project approval#	SSD-6038
Name of holder of development consent	Santos NSW (Eastern) Pty Ltd
Petroleum Exploration Licence #	PEL238
Name of holder of Petroleum Exploration Licence	Santos NSW Pty Ltd (ACN 094 269 780) and Energy Australia Narrabri Gas Pty Ltd (ACN 147 609 729)
Water licence #	90AL832238
Name of holder of water licence	Santos NSW (Eastern) Pty Ltd
Annual Review start date	1 January 2017
Annual Review end date	31 December 2017
I, Todd Dunn, certify that this audit report is a true and accurate record of the compliance status of the Dewhurst Gas Exploration Pilot Expansion for the period 1 January 2017 to 31 December 2017 and that I am authorised to make this statement on behalf of Santos NSW (Eastern) Pty Ltd.	
Name and Title of authorised reporting officer	Todd Dunn, NSW Operations Manager
Signature and date	 28/03/2018

2. Description of Development

This section addresses the following requirements:

SSD approval: Schedule 5 Condition 4 (a): *describe the development (including any rehabilitation) that was carried out in the past calendar year and the development that is proposed to be carried over the coming year.*

Guidelines: Provides information sought under Sections 2 & 4 of the Guidelines

Contact details for key personnel responsible for environmental management of the operation: Ron Anderson, Principal Advisor Compliance. ron.anderson@santos.com 02 6792 9061

A Development Consent (DC) was issued by the Planning Assessment Commission on 18 July 2014 for the Dewhurst 13-18H Extension and the Dewhurst 30 and 31 Extension.

The development includes the operation of the Dewhurst 13-18H Pilot and the Dewhurst 26-29 Pilot, including the Dewhurst 13-18H Extension and Dewhurst 30 and 31 Extension. This approval was amended in 2017 to extend the period of operation of the Dewhurst 26-29 wells.

The Dewhurst 13-18H Extension involves the drilling and operation of an additional two horizontal wells at each of Dewhurst 16H, Dewhurst 17H and Dewhurst 18H pilot wells.

The Dewhurst 30 and 31 Extension involves the drilling and operation of two additional wells at the development, namely Dewhurst 30 and Dewhurst 31.

2.1 Dewhurst 13-18H Pilot

The Dewhurst 13-18 Pilot did not operate during the reporting period. The drilling of the additional two horizontal wells at each of the Dewhurst 16H, 17H and Dewhurst 18H has not occurred.

There was no land disturbance at any of the sites in the Pilot during 2017. No water was extracted from any of the wells.

The only activities at the Pilot was surveillance by Santos operator/maintainers undertaking their routine surveillance on the wells and Santos environmental staff taking water samples from the shallow aquifer monitoring bores at Dewhurst 14, and their routine inspections.

2.2 Dewhurst 26-31 Pilot

The Dewhurst 26-29 Pilot wells were drilled in 2014.

The drilling of the additional two wells in the Pilot (Dewhurst 30 & 31) has not yet been undertaken. The leases were cleared and prepared in 2014 as reported in the 2014 and subsequent Annual Reviews.

Partial rehabilitation of each of the sites was undertaken by spreading stockpiled topsoil and mulch over the bare earth prior to the well sites being commissioned.

The Dewhurst 26-29 Pilot (the Pilot) consists of two vertical wells at Dewhurst 26 and Dewhurst 28. Three horizontal wells originating each at Dewhurst 27 and Dewhurst 29, and drilled into three separate coal seams intersect with the Dewhurst 26 and Dewhurst 28 wells respectively. All gas produced in the Pilot is piped to the Dewhurst 28 well lease and flared. All water produced in the Pilot is piped to a fully

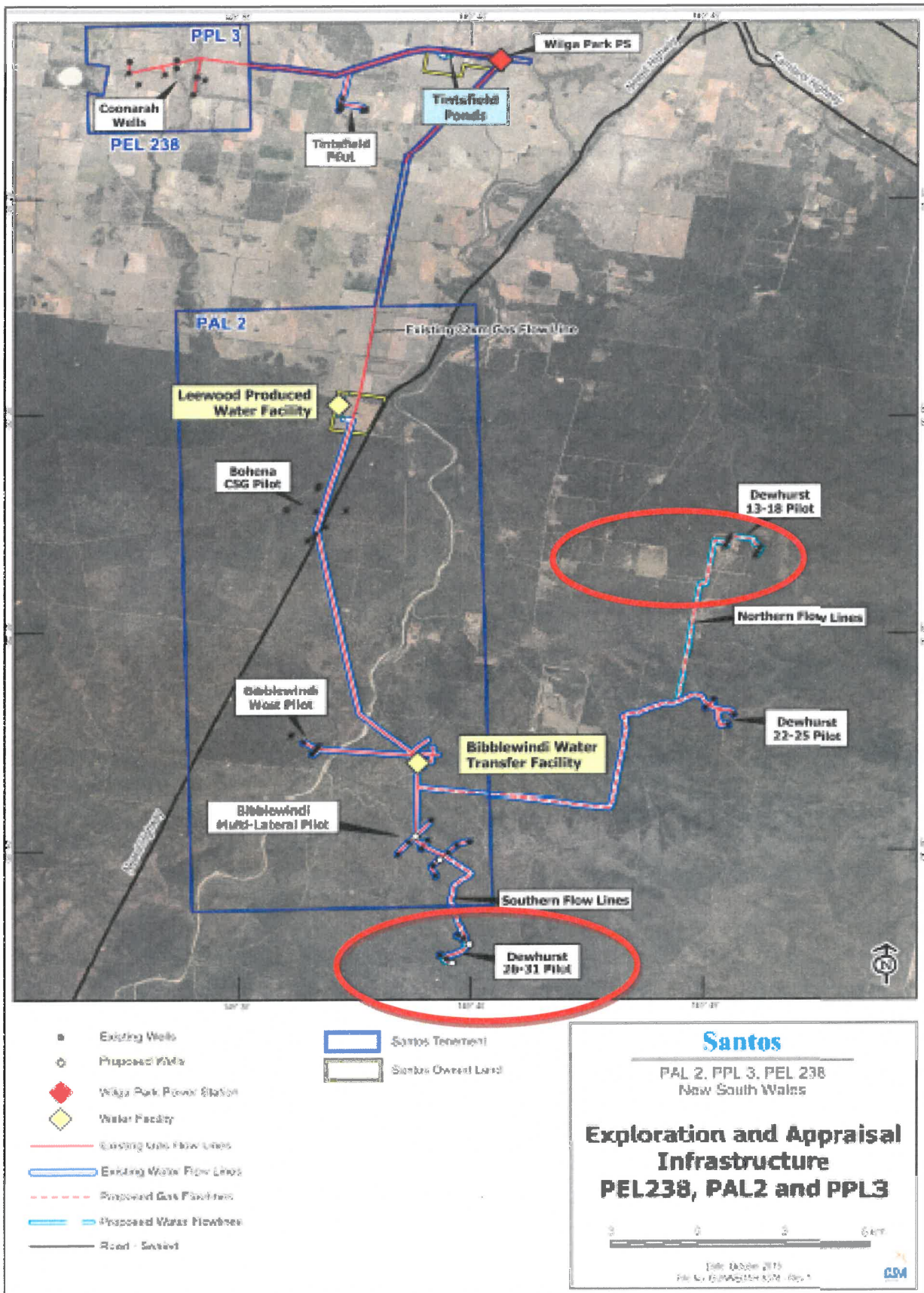
bunded balance tank at Dewhurst 28 before being pumped via the approved Southern flowline to a 5ML tank at Bibblewindi where it is mixed with water from other Pilots. From there the water is transferred via an underground flowline to the Leewood Water Management facility for storage prior to treatment. There is no release to waters from this facility, or from any section of the pipeline between the Dewhurst South Pilot and Leewood.

The Dewhurst 26-29 Pilot began operating for the first time on 19 January 2015, following completion of interference testing.

For the reporting year, the Pilot operated continuously without workovers.



Aerial photograph of Dewhurst 26-31 Pilot



Santos Infrastructure Narrabri Gas Field

3. Review of monitoring results and complaints

This section addresses the following requirements:

SSD approval: Schedule 5 Condition 4 (b)

- I. Include a comprehensive review of monitoring results and complaints records of the development over the past calendar year, which includes a comparison of these results against the: relevant statutory requirements, limits, or performance measures/ criteria*
- II. requirements of any plan or program required under this consent*
- III. monitoring results of previous years and*
- IV. relevant predictions in the EIS*

Guideline: Section 6 Environmental performance, Section 7 Water Management, and Section 8 Rehabilitation

3.1 Noise

No construction activities were undertaken in 2017, so the only applicable noise limits are those relating to operational noise.

The conditions of the SSD approval, PEL 238 and of EPL 20350 set noise limits at any residence or sensitive receiver of 35dB (A) for operational noise. The nearest sensitive receiver is over 10 km away from the site.

The approved Project Environmental Management Plan (PEMP) lists attended monitoring to undertaken at sensitive receivers in instances of noise complaints. Since no noise complaints have been received, no monitoring at any sensitive receiver has been required.

Santos operator/maintainers carry out daily inspections of sites as part of their routine duties. Environmental advisers undertake inspections of the sites to determine if any additional noise mitigation measures are required. These formal inspections are scheduled in the compliance database ComTrack for 6 monthly compliance checks. Additionally, environmental advisers are on site regularly, and deal with any environmental issues at the time of identification. No noise related matters have required attention.

The EIS predicted no impact at any sensitive receiver from the Dewhurst 26 - 29 pilot. As discussed in the introduction, the Dewhurst 13-18 Pilot did not operate during 2017.

3.2 Blasting

Not applicable

3.3 Air Quality

The EPL 20350 does not impose any air quality limits. It has three conditions relating to measures to be taken to prevent or minimise dust generation.

The PEL 238 approval does not include any air quality conditions, but has a general requirement to implement all reasonably practicable measures to prevent and/or minimise harm to the environment.

To avoid the generation of dust, all trafficable areas at the well sites have been covered with blue metal, and the sections of partial rehabilitation have had mulch applied across the surface.

The Dewhurst 30 and 31 sites have had a polymer spray applied across the bare surfaces of the site primarily for erosion and sediment control, but this product also binds the surface to prevent dust generation.

SSD 6038 sets long and short term criteria limits for particulate matter, as well as long term criteria for deposited dust. This approval sets the limits at any residence on privately owned land, the nearest of which is 10 km away. Monitoring is conducted at the Dewhurst 26 site, and as shown in the tables below, that even within an operational site, the monitoring results are significantly below the limits in the approval.

Long term criteria for particulate matter

Pollutant	Averaging period	Criterion	Average Result (full year)
Total Suspended particulate (TSP) matter	Annual	90 µg/m ³	16.017 µg/m ³
Particulate matter <10µm(PM ₁₀)	Annual	30 µg/m ³	8.34 µg/m ³

Short term criteria for particulate matter

Pollutant	Averaging period	Criterion	Maximum Result (full year)
Particulate matter <10µm(PM ₁₀)	24 hour	50 µg/m ³	18 µg/m ³

Long term criteria for deposited dust

Pollutant	Averaging period	Maximum increase in Total Deposited Dust level		Maximum Total Deposited Dust level	
		Criteria:	2017 Result:	Criteria:	2017 Result:
Deposited dust	Annual	Criteria:	2 g/m ² /month	Criteria:	4 g/m ² /month
		2017 Result:	1.7 g/m ² /month	2017 Result:	2.6 g/m ² /month

These results generally represent a slight reduction in the values listed in the Annual Review document submitted in 2017 for the 2016 calendar year.

The PEMP lists the monitoring frequency for the short and long term particulate matter standards to be conducted every six days. The 2017 full monitoring record is shown in Appendix 1. The measures as described in the 2017 Annual Review to improve the reliability of the monitoring equipment have led to improved alignment with the six day sampling regime. The changes included the purchase of two new high volume air samplers, and hard wiring the power source to the well. This negated the need for a portable generator to be used to provide power to the machines.

The data clearly shows the operation being managed in such a way as to be below the maximum particulate levels.

The PEMP also describes measures to be followed by Santos in order to mitigate against air quality deterioration. These include dust minimisation measures as well as greenhouse gas mitigation measures.

Santos undertakes a Leak Detection and Repair Program in accordance with its Leak Detection and Repair plan. This plan is part of the overall well integrity program for all wells operated by Santos' NSW operations. No reportable leaks were identified by the Santos program during 2017. Santos is required to report on the Leak Detection and Repair Program in its annual return for EPL 20350, which was submitted in June 2017.

3.4 Biodiversity

The EPL 20350 contains no biodiversity conditions.

The PEL 238 approval does not contain any specific biodiversity conditions.

SSD 6038 sets performance standards for groundwater dependent ecosystems (negligible environmental consequences) and threatened species, threatened populations, or endangered ecological communities (Minor environmental consequences). Santos engaged ecologists (EcoLogical Australia) to conduct autumn and spring surveys in 2017. who reported the same results as reported on in the 2016 Annual Review submitted in 2017.

EcoLogical Australia noted that there was no statistically significant difference in native cover in any structural layer between the 'impact' and 'control' sites, and no significant changes in native cover between years of monitoring. For vertebrate pests, they observed one feral pig near Dewhurst 31.

3.5 Heritage

Not applicable. There were no new ground disturbances in 2017.

Summary table for environmental aspects

Aspect	Approval criteria	Performance	Trend/ key management implications	Implemented/ proposed management actions
Noise	35dB (A) at noise sensitive location	Nearest residence 10km away – no impact	nil	Continued implementation of PEMP
Blasting	N/A	N/A	N/A	N/A
Air Quality	Refer to the tables in section 3.3	Well below maximum limits	Reduced dust levels indicated by monitoring results	Continued implementation of PEMP
Biodiversity	Negligible impact of GDE, and minor on threatened	No impact detected to date	Insufficient data for ecologist to	Continuation of autumn and spring

	populations		advise	surveys
Heritage	N/A no new disturbances	N/A no new disturbances	N/A no new disturbances	N/A no new disturbances

3.6 Complaints

There is a comprehensive Community Consultation Plan in place for PEL 238 inclusive of the Dewhurst Gas Exploration Pilot Expansion. Stakeholders have been identified; and a risk-based assessment undertaken on the level of impact or benefit that activities may potentially have on stakeholders and the community.

There are well established consultation tools in place and this is complementary to the mature relationship that Santos has with stakeholders in the licence area. This has provided opportunities for stakeholders and members of the community to learn about, provide input to, and raise concerns about activities that Santos is conducting, or planning to conduct.

During the reporting period, consultation activities have focussed on providing information to the community relating to the preparation and submission of the State Significant Development Application and associated Environmental Impact Statement (EIS) for the Narrabri Gas Project. The application was submitted to the NSW Department of Planning and Environment (DPE) on 1 February 2017.

Activities during the reporting period have focussed on consulting with relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups and affected landowners. Key outcomes of consultation and engagement have been:

- Raised awareness of the Project; that the Narrabri Gas Project EIS was submitted to Department of Planning and Environment in February 2017; and the various avenues for the community to view the document and make a submission during the public exhibition period
- Raised awareness of the information contained within the EIS document and provided access to technical specialists to assist in understanding and interpreting this information
- Strengthened relationships with stakeholders, decision makers, potential champions and opponents to the Project
- Implemented strategies to assist managing and minimising the risk of conflict, and resolved issues as they arose
- Provided timely, accurate and credible information to stakeholders and the broader community; and provided opportunities for interaction and feedback
- Facilitated positive Aboriginal cultural heritage outcomes by consulting with relevant parties and encouraging them to participate in decision making regarding the management of their cultural heritage

There has been a Narrabri Gas Project Community Consultative Committee (CCC) in place since December 2014 which is independently chaired by the NSW Land and Water Commissioner. The committee has representatives from key government, industry and community organisations including Narrabri Shire Council, NSW Land and Water Commission, Department of Premiers and Cabinet, Department of Planning and Environment, Environment Protection Authority, Narrabri Chamber of Commerce, Narrabri Local Aboriginal Land Council, Country Women's Association, People for the Plains, Namoi Water, NSW Farmers, North West Local Land Services, Lower Namoi Cotton Growers Association and Santos. During the reporting period, there were nine CCC meetings held.

Santos has Shopfronts in Narrabri and Gunnedah to enable the community to ask questions, provide feedback or source information on our activities in NSW. During the reporting period, approximately 750 people visited the Shopfronts and more than 1000 fact sheets and brochures were distributed.

Santos has a dedicated project website, a generic email address, a 1800 telephone number and Facebook and Twitter pages that provide information to the community and enable feedback and comment. A monthly activity newsletter is distributed to around 300 individuals and groups each month providing an update on activities that were undertaken in the PEL 238 licence area. An advertisement is placed in the local Narrabri newspaper monthly also providing an activity update.

Santos advertises monthly community site tours and hosts site tours for landholders and community groups on request. Approximately 45 site tours were conducted to Santos operation areas during the reporting period.

Santos provides sponsorship and support to local clubs, community groups and events in the local communities in which we operate. During the reporting period, Santos invested more than \$130,000 to the local community through this initiative.

There is a complaints register which is updated monthly and is publicly available on the Narrabri Gas Project website for the Dewhurst Gas Exploration Pilot Expansion Project. This register is maintained as a condition of approval for the project by the Planning and Assessment Commission. There were no complaints recorded for the reporting period. This is consistent with trends from previous reporting period as no complaints have been recorded for the Dewhurst Gas Exploration Pilot Expansion project since approval of the expansion was granted in July 2014.

3.7 Water and Waste Management

Santos extracts saline water from the coal seams in order to collect the gas entrained in the coal cleats. All water produced in the Pilot is piped to a bunded balance tank at Dewhurst 28 before being transferred via the approved Southern flowline to Bibblewindi and onto the Leewood Water Management facility. The bunded balance tank at Dewhurst 28 is on a compacted base, with a HDPE liner. Santos has a vacuum truck on 24 hour standby in the event of any spill. The tank levels are monitored by SCADA and the valves are equipped with high level and low level alarms to warn of abnormal tank levels. The trip system on the tank allows the wells to be shutdown automatically on high level and valves to operate automatically at pre-set levels to minimise risk of spills or overflow. These valves can also be operated manually by on site personnel.

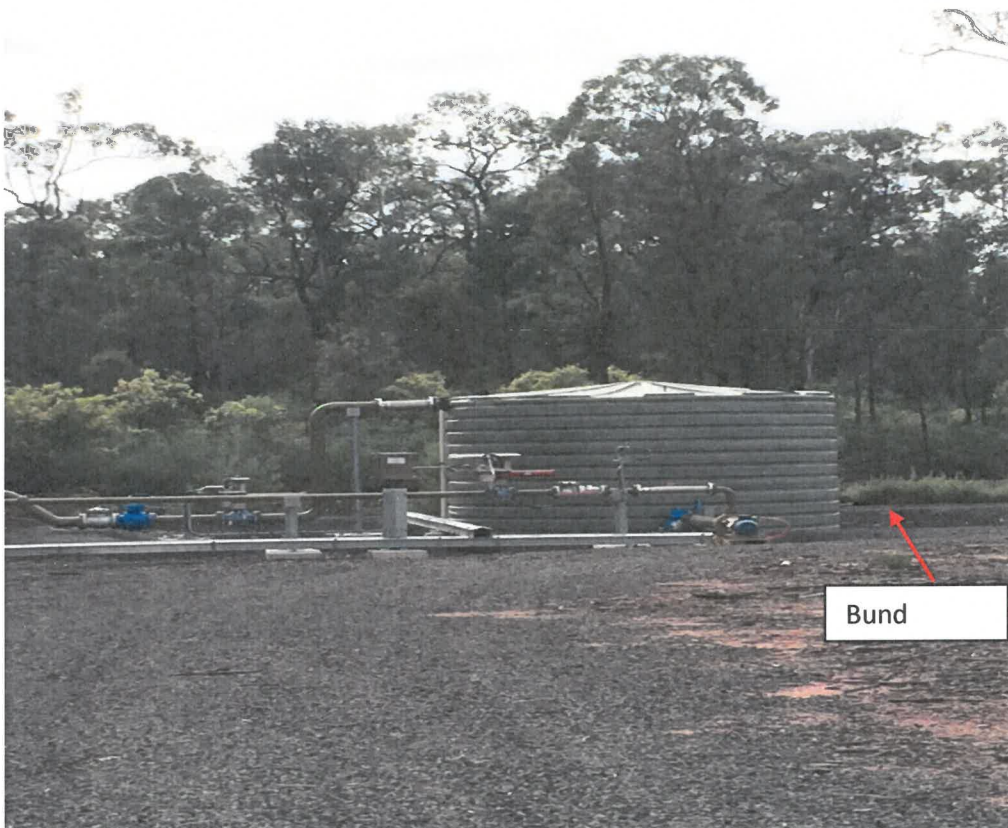
For the year 1 January 2017 to 31 December 2017

Water Licence #	Water Sharing Plan	Entitlement	Passive Take/inflows	Active pumping	TOTAL
90AL832238	NSW Murray Darling Basin Porous Rock Groundwater Sources	600ML	Nil	66.7 ML	66.7 ML

Condition 22 of Schedule 3 requires reporting on waste management and minimisation in the Annual Review. The only waste generated at the development is produced water. Given the gas extraction requires the de-watering of the wells, it is not possible to minimise the extraction of this water. However,

Santos has constructed a reverse osmosis water treatment plant at Leewood so that the produced water can be treated to a standard capable of being beneficially re-used. A court challenge to the validity of the planning approval prevented Santos from undertaking irrigation activities during the reporting period. An initial decision was granted in Santos' favour, which was subsequently appealed. In March 2017, the Court of Appeal dismissed that appeal, upholding the decision to grant approval. Under the conditions of the approval, Santos was required to provide an Irrigation Management Plan to Division of Resources for approval in consultation with the Environment Protection Authority and DPI Water. That plan was approved on 26 June 2017, and Santos commenced irrigating crops at Leewood on 15 August 2017. A summary report on irrigation activities was provided to the Division of Resources and Geosciences and the EPA on 16 March 2018 for the period 15 August 2017 to 31 December 2017. The beneficial re-uses approved under the Leewood Beneficial Reuse Project, and the Produced Water Management Plan include crop irrigation, dust suppression and firefighting.

No hazardous wastes were generated at the development for the reporting period.



Dewhurst 28 – Balance tank

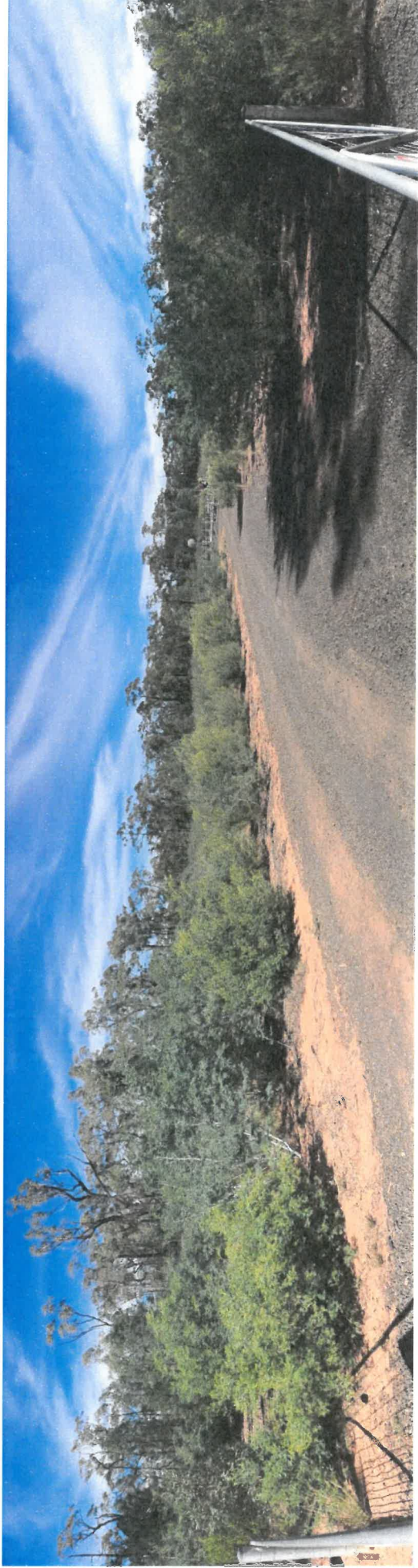
3.8 Rehabilitation

No additional rehabilitation was undertaken during 2017. The partial rehabilitation works described in the Annual Review submitted in 2017 were maintained, by Santos' weed management program and the site specific erosion and sediment control plans.

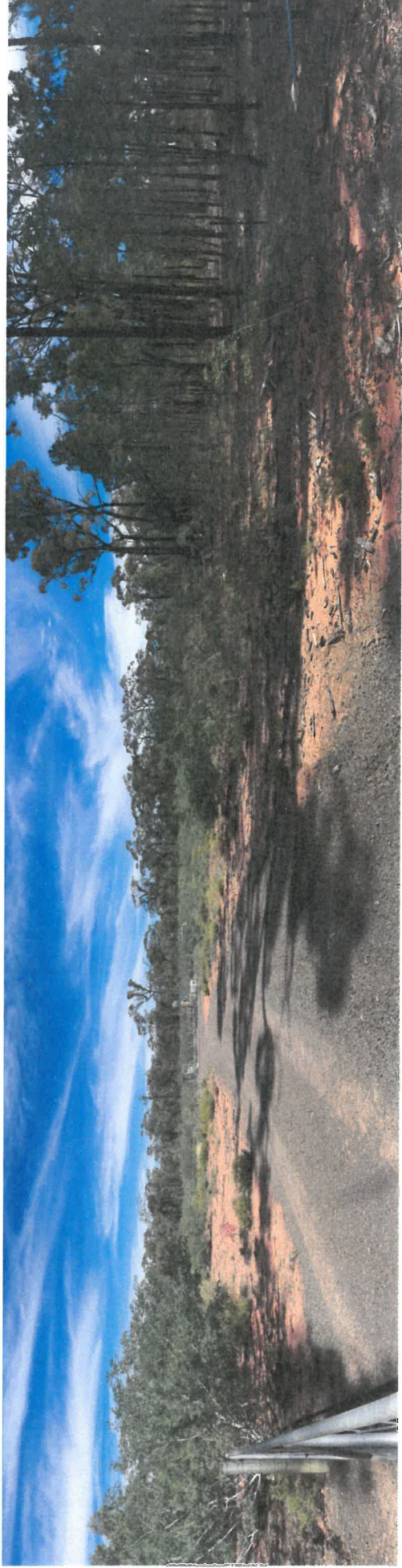
Each of the six sites are located within a fenced enclosure of 1 Ha in size, and the standard practice is that once the rig has left the site and surface infrastructure has been installed, partial rehabilitation occurs. A fenced area of approximately 30m x 30m is retained for the well site equipment. A blue metal access track

around the perimeter of this enclosure separates the rehabilitation from the well facilities. The revegetation occurs naturally from the seed bank in the removed topsoil.

The sites are monitored for weeds, and when necessary treated as per the weed management program. The only relevant performance criterion in table 4-13 of the EIS for the Development relates to weed management i.e. weeds to not dominate after disturbance or rainfall. The active weed management program in place restricts weed populations; however as seen by the photos, the dominant vegetation at all sites is as a result of natural regeneration with native species. All other performance criteria in Table 4-13 of the EIS are not triggered until after the sites are abandoned, or rehabilitation is completed. No wells have been abandoned, and although Santos has undertaken partial rehabilitation of the sites, the rehabilitation work has not been completed. It is sometimes necessary to re-clear partially rehabilitated areas for operational needs such as setting up for workover rigs.



Dewhurst 26



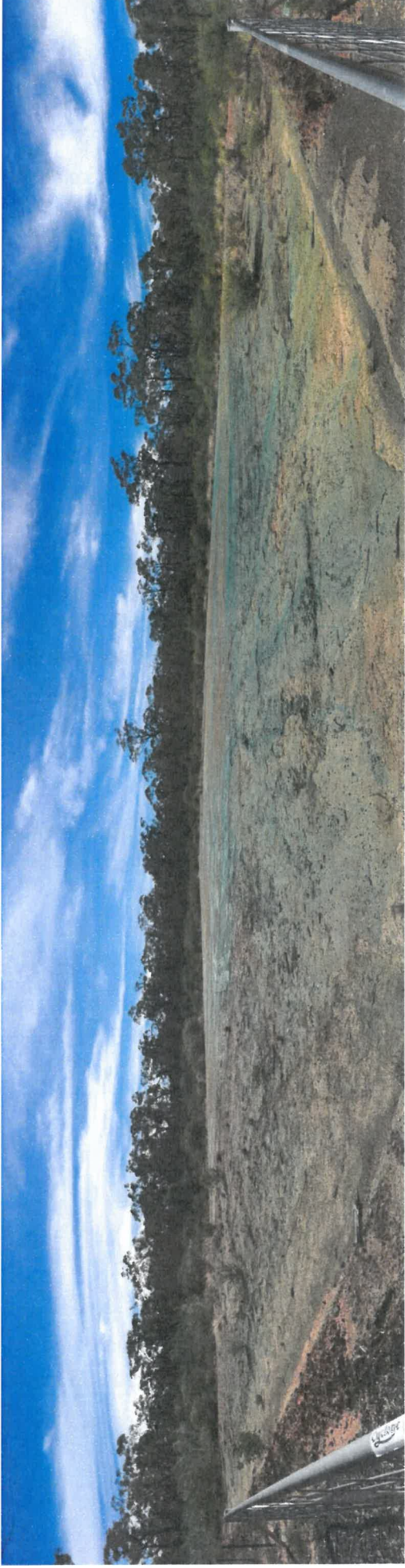
Dewhurst 27



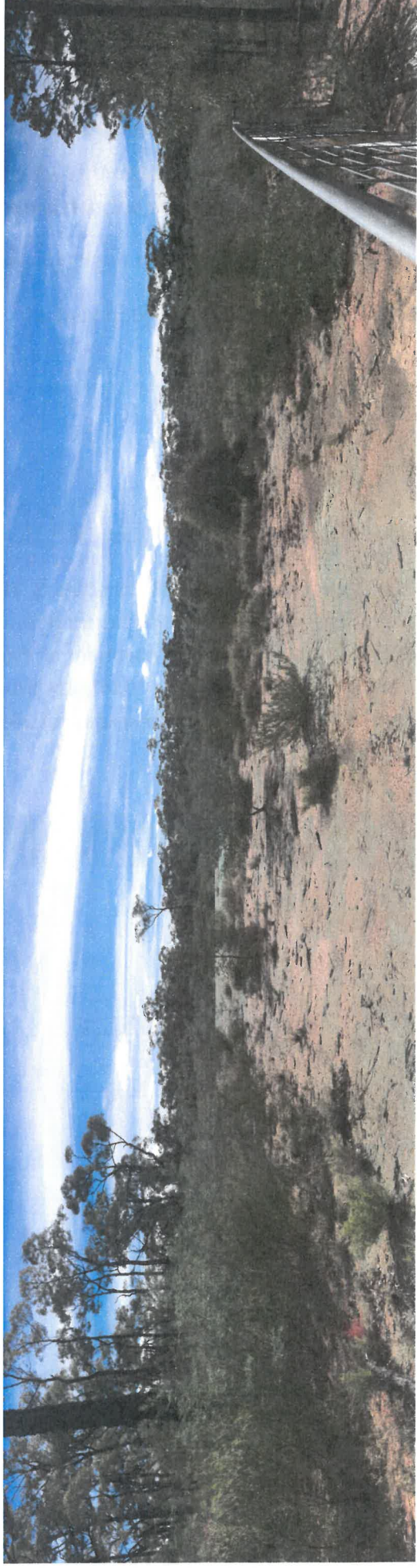
Dewhurst 28



Dewhurst 29



Dewhurst 30



Dewhurst 31

4. Compliance Statement

This section addresses the following requirements:

SSD approval: Schedule 5 Condition 4 (c) *Identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to address non compliances*

Guidelines: Section 10 Independent Audit and Section 11 Incidents and non-compliances.

The relevant approvals for the development are:

- SSD 6038 approval;
- PEL 238;
- EPL 20350;
- Approval Dewhurst 26-29 Pilot (DRE) 16 August 2013.

Under the approval of SSD 6038 Schedule 5, condition 8, Santos was required to engage an approved Independent Environmental Auditor to conduct a full audit of the development. Lodestone Environmental Services was approved by the Department of Planning and Environment (DPE) to undertake the audit, and did so for the period 4 November 2014 to 14 November 2015. That report was submitted to the Secretary and accepted. The next audit is scheduled for 2018.

Statement of Compliance

Were all conditions of the relevant approval complied with as they relate to the development in 2016	
SSD 6038	Yes
PEL 238	Yes
EPL 20350	Yes
Approval Dewhurst 26-29 Pilot	Yes
Water licences	Yes
S70 Exempt area approval	Yes

4.1 Independent Audit

Lodestone Environmental Services undertook an independent environmental audit for the period 4 November 2014 to 14 November 2015. The final report was submitted to DPE on 28 April 2016, and accepted on 21 June 2016.

Santos is currently implementing all four recommendations which in summary are:

Recommendation	Action
<p>Review existing environmental management plans, and consider developing field guides and fact sheets for staff and contractors in the field.</p>	<p>A local weed handbook has been developed to provide a ready reckoner for all field staff regarding weed management;</p> <p>Checklists have been developed for fortnightly proactive tasks in optimising environmental performance – for example spill prevention.</p>
<p>In future reviews of the PEMP, expand to include other environmental issues.</p>	<p>An additional sub-plan was added to the PEMP in 2016 – Weed Management. This was communicated to DPE on 28 July 2016.</p>
<p>Continue ongoing regular inspection program.</p>	<p>Santos has continued with the regular inspection program which is tracked through the compliance database ComTrack. Inspections are recorded in the database Audit and Inspection Manager (AIM)</p>
<p>Ensure there is a continued focus on administrative and reporting requirements.</p>	<p>All key dates are tracked through ComTrack.</p>

The next Independent Environmental Audit is scheduled in ComTrack to be completed by 4 November 2018. Santos will, in the near future, engage with DPE on the appointment of the Independent Environmental auditor.

4.2 Incidents and non compliances

There were no reportable environmental incidents for the development in 2017, nor were there any exceedances of any limits in any approval.

5. Identification Trends

All monitoring complies with the relevant approval limits. This is also discussed in the relevant sections of this report.

The EcoLogical Biodiversity Assessment did not identify any detrimental impacts from the development.

The Leak Detection and Repair Program conducted by Santos shows all equipment is operating in good condition.

6. Discrepancies between predicted and actual impacts

No discrepancies have been detected. The project area is very small, and is isolated from any sensitive receiver or ecological community.

7. Continuing or proposed measures to improve the environmental performance of the development

The Leewood water treatment facility converts saline water to water suitable for a range of uses such as agricultural irrigation, dust suppression and firefighting. The plant was commissioned during the reporting period, and beneficial re-use began on 15 August 2017. The water from the Dewhurst 26-29 Pilot is piped to Leewood, and is treated in this facility.

Santos will continue with its leak detection and repair program to minimise gas loss from its infrastructure. Through the use of the latest technology, and the detailed knowledge of operational infrastructure, Santos will ensure that gas leaks are minimised.

For completeness of this report, it should be noted that on 8 February 2018, Santos received a Section 193 notice, issued under the Protection of the Environment Operations Act 1997 for information and records in relation to a Water Use Approval at Leewood. Santos ceased irrigating at Leewood on 8 February 2018, with treated water from the Water Treatment Plant being recirculated back to the Leewood ponds, and mixed with produced water.

END OF REPORT

Appendix 1: HiVol Air Samplers – TSP and PM10

PM10 2017			TSP 2017			Comments
01/01/2017	14.5	µg/m3	01/01/2017	27.4	µg/m3	
07/01/2017	9.4	µg/m3	07/01/2017	17	µg/m3	
13/01/2017	18	µg/m3	13/01/2017	39.2	µg/m3	
19/01/2017	18	µg/m3	19/01/2017	28.4	µg/m3	
25/01/2017	15.4	µg/m3	25/01/2017	22	µg/m3	
31/01/2017	12.5	µg/m3	31/01/2017	31.9	µg/m3	
06/02/2017	14.1	µg/m3	06/02/2017	30.5	µg/m3	
12/02/2017						Units ran twice with the same filter paper 12 th and 18 th February– unable to collect due to bushfires within Forest
18/02/2017	19.4	µg/m3	18/02/2017	47.7	µg/m3	Units ran twice with the same filter paper 12 th and 18 th February– unable to collect due to bushfires within Forest
24/02/2017	18.6	µg/m3	24/02/2017	31.7	µg/m3	Bushfires within region. Result excluded from averaging.
02/03/2017	9	µg/m3	02/03/2017	17	µg/m3	Units ran twice 2 nd and 8 th March– unable to collect due to significant rainfall
08/03/2017			08/03/2017			Units ran twice 2 nd and 8 th March– unable to collect due to significant rainfall
14/03/2017	6.3	µg/m3	14/03/2017	11.3	µg/m3	
20/03/2017	8.8	µg/m3	20/03/2017	12.9	µg/m3	
26/03/2017	6.1	µg/m3	26/03/2017	11.6	µg/m3	
01/04/2017	7.5	µg/m3	01/04/2017	13.2	µg/m3	
07/04/2017	5.5	µg/m3	07/04/2017	8.8	µg/m3	
13/04/2017	6.2	µg/m3	13/04/2017	11.6	µg/m3	
19/04/2017	11.6	µg/m3	19/04/2017	20.3	µg/m3	
25/04/2017	8.2	µg/m3	25/04/2017	19.9	µg/m3	
01/05/2017	8	µg/m3	01/05/2017	12.1	µg/m3	
07/05/2017	6.9	µg/m3	07/05/2017	9.8	µg/m3	
13/05/2017	6.9	µg/m3	13/05/2017	9.2	µg/m3	
19/05/2017	2.8	µg/m3	19/05/2017	9.5	µg/m3	
25/05/2017			25/05/2017			Well providing power shut down. Unable to be reset until next sampling event.
31/05/2017			31/05/2017	3.5	µg/m3	Well providing power shut down. Time and date was not reset on the PM10 High Volume Sampler due to software issue
06/06/2017	6.2	µg/m3	06/06/2017	30.2	µg/m3	
12/06/2017	<0.1	µg/m3	12/06/2017	<0.1	µg/m3	
18/06/2017	4.6	µg/m3	18/06/2017	9.8	µg/m3	
24/06/2017			24/06/2017			Well providing power shut down.
30/06/2017	<0.1	µg/m3	30/06/2017	1.5	µg/m3	
06/07/2017	<0.1	µg/m3	06/07/2017	1.8	µg/m3	
12/07/2017	3.2	µg/m3	12/07/2017	9.3	µg/m3	
18/07/2017			18/07/2017			Well providing power was shut down for scheduled shutdown maintenance period
24/07/2017			24/07/2017			Well providing power was shut down for scheduled shutdown maintenance period
30/07/2017			30/07/2017			Well providing power was shut down for scheduled shutdown maintenance period
05/08/2017	0.5	µg/m3	05/08/2017	3	µg/m3	

11/08/2017	4.6	µg/m3	11/08/2017	9.2	µg/m3	
17/08/2017	3	µg/m3	17/08/2017	9.8	µg/m3	
23/08/2017			23/08/2017			Well providing power shut down.
29/08/2017	4.6	µg/m3	29/08/2017	13.3	µg/m3	Well providing power shut down during sampling period. Result not included in averaging.
04/09/2017	6	µg/m3	04/09/2017	20.7	µg/m3	
10/09/2017	1.4	µg/m3	10/09/2017	7.2	µg/m3	
16/09/2017	4	µg/m3	16/09/2017	9.8	µg/m3	
22/09/2017	12.6	µg/m3	22/09/2017	18.6	µg/m3	
28/09/2017	15	µg/m3	28/09/2017	42.1	µg/m3	
04/10/2017	6.6	µg/m3	04/10/2017	8.3	µg/m3	
10/10/2017	8.2	µg/m3	10/10/2017	11	µg/m3	
16/10/2017	9.6	µg/m3	16/10/2017	16.9	µg/m3	
22/10/2017	4.4	µg/m3	22/10/2017	10.7	µg/m3	
28/10/2017	5.7	µg/m3	28/10/2017	18.5	µg/m3	
03/11/2017	7	µg/m3	03/11/2017	20.4	µg/m3	
09/11/2017	6.7	µg/m3	09/11/2017	16.9	µg/m3	
15/11/2017	9.4	µg/m3	15/11/2017	24.3	µg/m3	
21/11/2017	6.5	µg/m3	21/11/2017	8.3	µg/m3	
28/11/2017	7.7	µg/m3	28/11/2017	13.3	µg/m3	
04/12/2017	5.2	µg/m3	04/12/2017	6.5	µg/m3	
09/12/2017	12.4	µg/m3	09/12/2017	19.4	µg/m3	
15/12/2017	16.7	µg/m3	15/12/2017	33	µg/m3	
21/12/2017	16.8	µg/m3	21/12/2017	24.9	µg/m3	
27/12/2017	10.9	µg/m3	27/12/2017	21.0	µg/m3	
AVERAGE	8.34	µg/m3	AVERAGE	16.017	µg/m3	
MAX (in 24hr)	18	µg/m3				

Appendix 1: Deposited Dust

Sample Date	Month	Total Deposited Dust Level (g/m ² /month)	Increase in Deposited Dust Level (g/m ² /month)	Field Notes
4/01/2017 to 02/02/2017	January	2.6	n/a	
02/02/2017 to 1/03/2017	February	0.9	1.7	
1/03/2017 to 03/04/2017	March	0.4	0.5	
3/04/2017 to 02/05/2017	April	0.6	0.2	
02/05/2017 to 1/06/2017	May	2.8	2.2	Bird faeces on funnel. Result excluded from averaging and increment calculations.
01/06/2017 to 5/07/2017	June	1.2	1.6	
5/07/2017 to 04/08/2017	July	1.6	0.4	
4/08/2017 to 05/09/2017	August	0.2	1.4	
05/09/2017 to 3/10/2017	September	1.6	1.4	
03/10/2017 to 2/11/2017	October	0.6	1	
02/11/2017 to 4/12/2017	November	1.5	0.9	
4/12/2017 to 05/01/2018	December	0.7	0.8	