

Sunnyside Coal Mine Community Consultative Committee Meeting #12

Environmental Monitoring Report September 2011 – November 2011

Noise Monitoring

The noise limits applicable to operations on the Sunnyside Coal Mine, as prescribed in the Project Approval and Environment Protection Licence, are as follows:-

Day/Evening LAeq(15 minute)	Land
35	Any residence on, or more than 25% of, any privately owned land, except "Lilydale". Impact Assessment Criteria dB(A).

Monitoring was undertaken on the 7th November 2011 with results outlined below:

SCM Noise Monitoring Results – 7 November 2011 (Day)				
Location	Time	dB(A),Leq (15 min)	Wind speed/ direction	Identified Noise Sources as dB(A) Leq (15 min)
Illili	4:00 pm	37	2m/s NW	Birds (37), SCM inaudible
Ferndale	4:38 pm	39	2.5m/s NW	Birds & insects (37), SCM inaudible
Plain View	3:43 pm	39	2m/s NW	Birds & insects (36), traffic (36), SCM (25)
Lilydale	3:25 pm	43	2m/s NW	Traffic (41), SCM (34) , birds & insects (33)

SCM Noise Monitoring Results – 7 November 2011 (Evening)				
Location	Time	dB(A),Leq	Wind speed/ direction	Identified Noise Sources
Illili	7:39 pm	44	0.5m/s NW	Birds & insects (44), SCM inaudible
Ferndale	7:21 pm	46	0.5m/s NW	Birds & sheep (46), SCM inaudible
Plain View	8:02 pm	45	0.5m/s NW	Birds & insects (45), SCM (25)
Lilydale	8:19 pm	41	0.5m/s NW	Birds & insects (39), traffic (38), SCM (30)

The results indicate compliance at all non-project related receivers. The highest reading was at the project related property "Lilydale" during the day monitoring.

Monitoring was also conducted at the "Glendower" residence on the 7th November 2011 to confirm if mine noise remained within compliance limits at that residence, with results confirming compliance as per the table below:

SCM Noise Monitoring Results – 7 November 2011 - Glendower				
Date	Time	dB(A),Leq (15 min)	Wind speed/ direction	Identified Noise Sources as dB(A) Leq (15 min)
7 November	4:17 pm	41	2m/s NW	Birds (41), traffic (31), SCM inaudible
7 November	8:47 pm	37	0.5m/s NW	Insects (37), SCM inaudible

Road noise monitoring was undertaken on Friday the 7th November 2011 for a one hour period from 5:00pm. A total of 6 heavy vehicles travelled along Torrens Lane during the monitoring period, consisting of 4 full and 1 empty coal haulage trucks entering and leaving the CHPP and one fuel truck leaving site. The measured Leq noise level from all vehicles on Torrens Lane was of 50.7 dB(A) Leq (1 hour). This is in compliance with the noise criterion for a local road of 55 dB(A) Leq (1 hour).

Air Quality Monitoring

Deposited Dust

Deposited dust levels for the site for the last 12 months are shown in the following table.

Sunnyside Mine – Deposited Dust

Month	SD1 Ferndale	SD3 Plainview	SD4 Lilydale	SD5 Ivanhoe	SD6 Illili	SD7 Innisvale	SD8 Woodlawn
December 2010	0.5	2.5	33.0	1.5	1.1	4.8	1.4
January 2011	7.1	-	18.6	3.5	2.0	6.1	1.0
February 2011	7.4	-	2.6	0.7	0.6	0.8	1.0
March 2011	2.7	0.8	1.1	0.6	0.8	0.7	0.5
April 2011	0.7	0.8	0.8	1.0	0.6	2.1	0.7
May 2011	0.5	0.7	1.1	5.5	0.6	0.7	1.5
June 2011	0.5	1.6	0.7	0.3	0.4	1.6	0.5
July 2011	0.5	1.0	0.2	0.5	0.5	0.7	0.3
August 2011	0.4	0.9	0.4	2.7	0.5	0.8	0.5
September 2011	0.9	0.6	0.3	0.7	0.3	0.6	0.3
October 2011	0.6	0.7	0.4	1.7	0.8	0.5	0.7
November 2011	3.7	0.7	1.9	2.6	1.4	1.2	0.9
Annual Average	2.1	1.0	5.1	1.8	0.8	1.7	0.8

Deposited dust rates over the last three months have generally been at very low levels. Annual average dust levels are continuing to decrease, with all sites below the 4g/m²/month criterion with the exception of project-related “Lilydale”. This monitoring location was affected by anomalous results in December 2010 and January 2011, with its annual average expected to continue to decrease in the coming months.

PM₁₀ Data

Compliance with the 24hr criterion of 50µg/m³ has been maintained during the reporting period.

PM₁₀ measurements taken for the “Illili” High Volume Air Sampler (HVAS) are returning a running annual average of 9.32µg/m³, which is well below the annual average limit of 30µg/m³.

PM₁₀ measurements taken for the “Lilydale” HVAS are returning an annual average of 7.23µg/m³, which is also well below the annual average limit of 30µg/m³.

Blast Monitoring

Since the first blast there have been 41 blasts. On the 25th of October 2011, during blast 38, a minor exceedance of the overpressure criteria (115.0dBL) was recorded at monitoring point “Plain View” (115.1dBL). An investigation into the cause of the overpressure exceedance was carried out by the blasting contractor Orica.

It was identified though the blast video that a series of cratering events (blow-outs) starting near the point of initiation was the root cause of the overpressure exceedance. These cratering events were caused by high energy, and low burden at the point of initiation. Some blast holes had inadequate stemming.

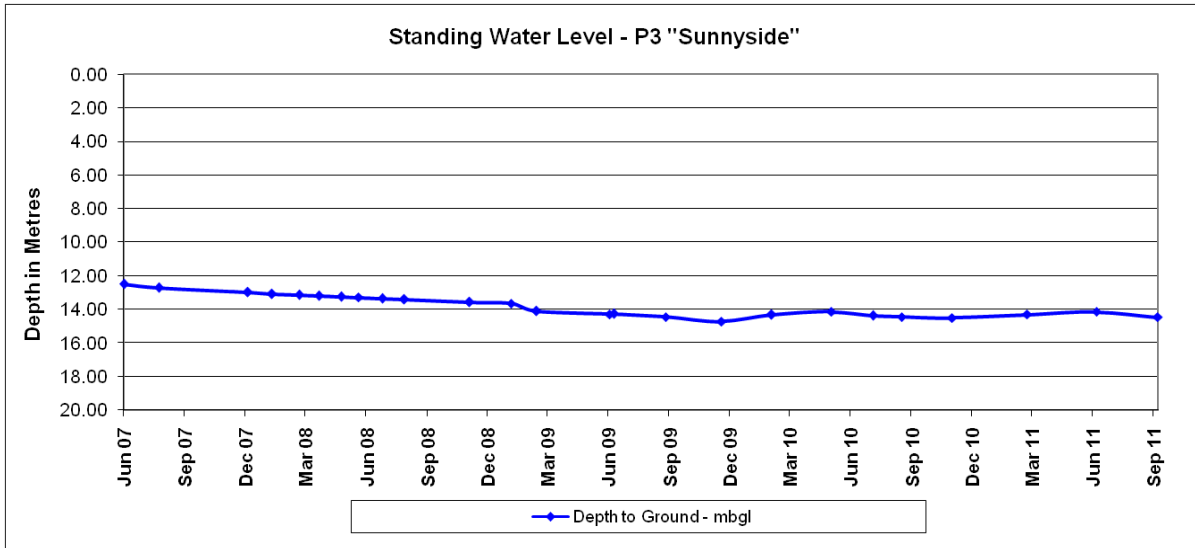
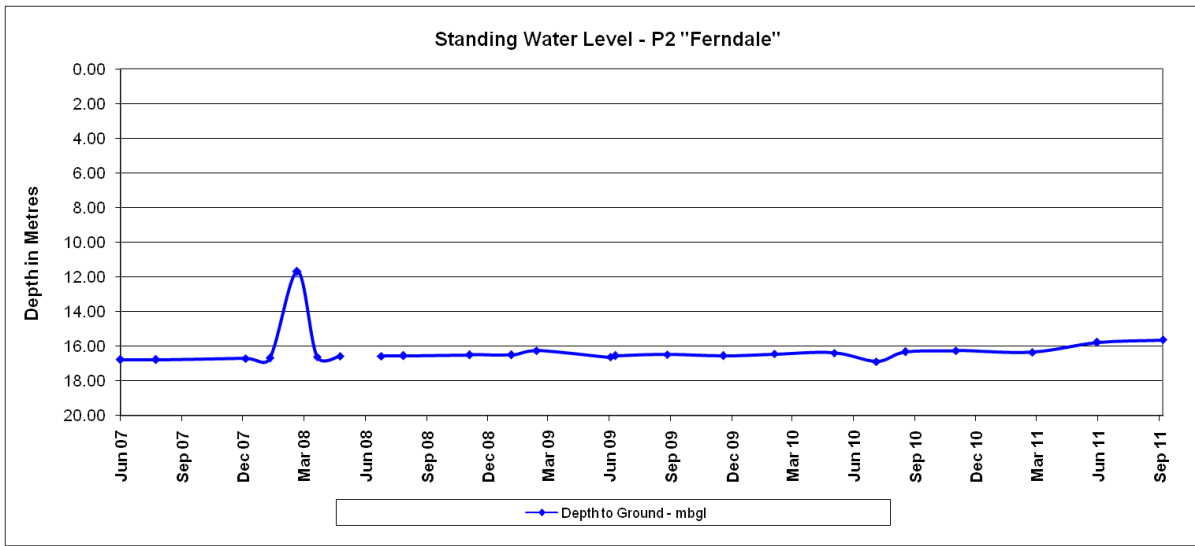
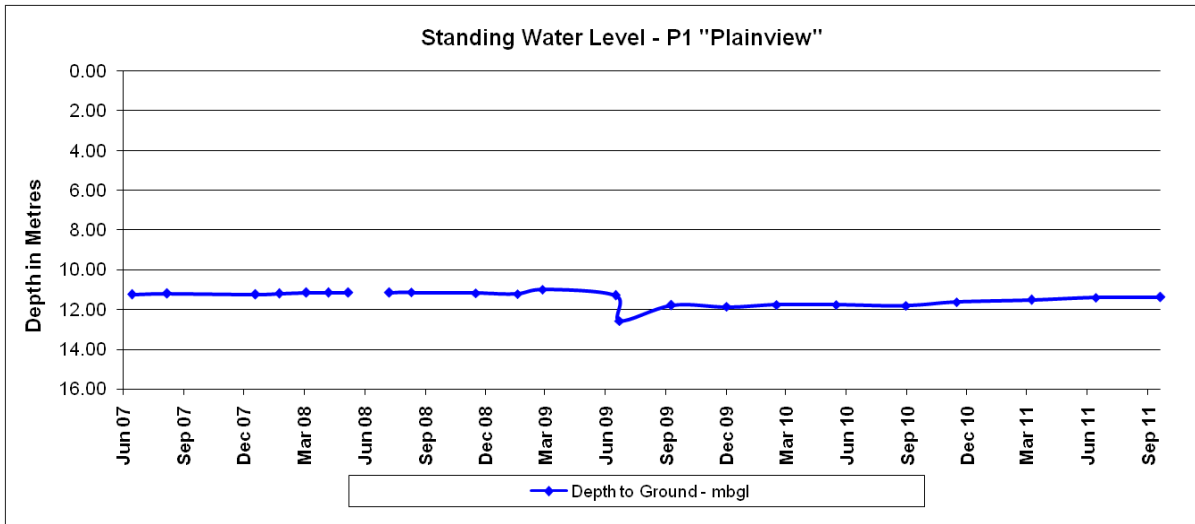
The following recommendations were made by Orica:

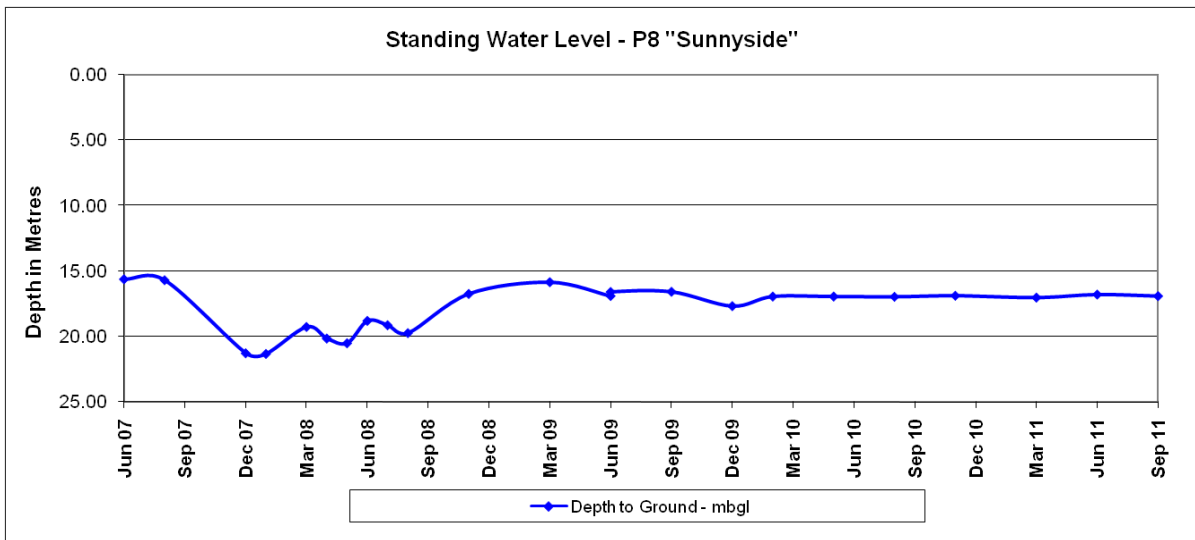
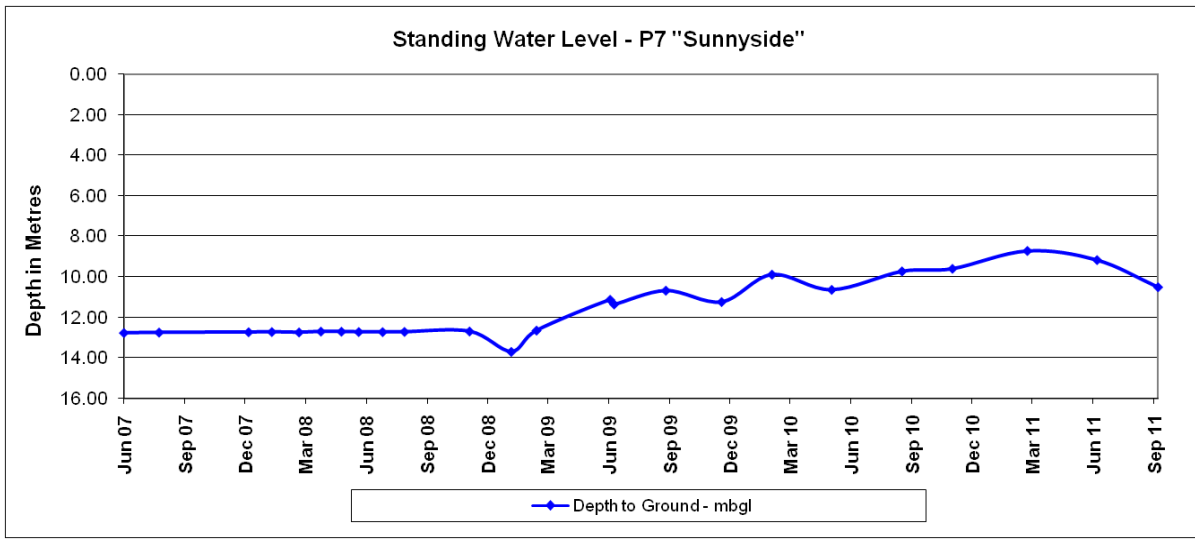
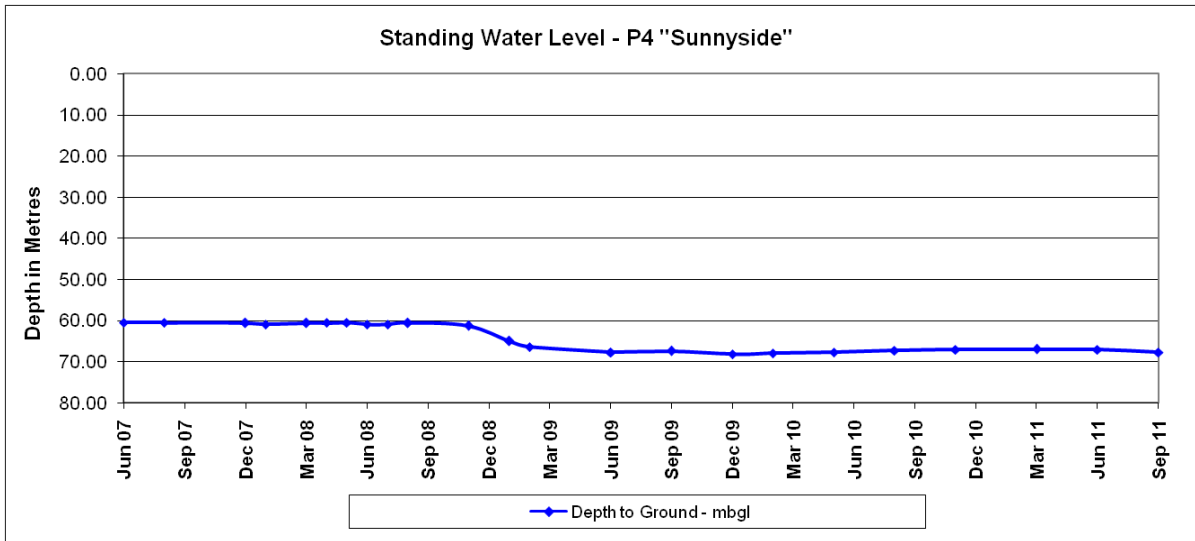
1. Train Technical Services Engineers in the use of the face profile and blasthole measurement holes as well as loading of face holes so that each blast is designed with appropriate charges to control overpressure.
2. Increase the stemming length in holes to 3.8m and ensure adequate burden is present, which should control the overpressure from ejection and cratering.
3. Use end blast initiation when blasting in circumstances (environmentally) where overpressure is likely to be a problem.

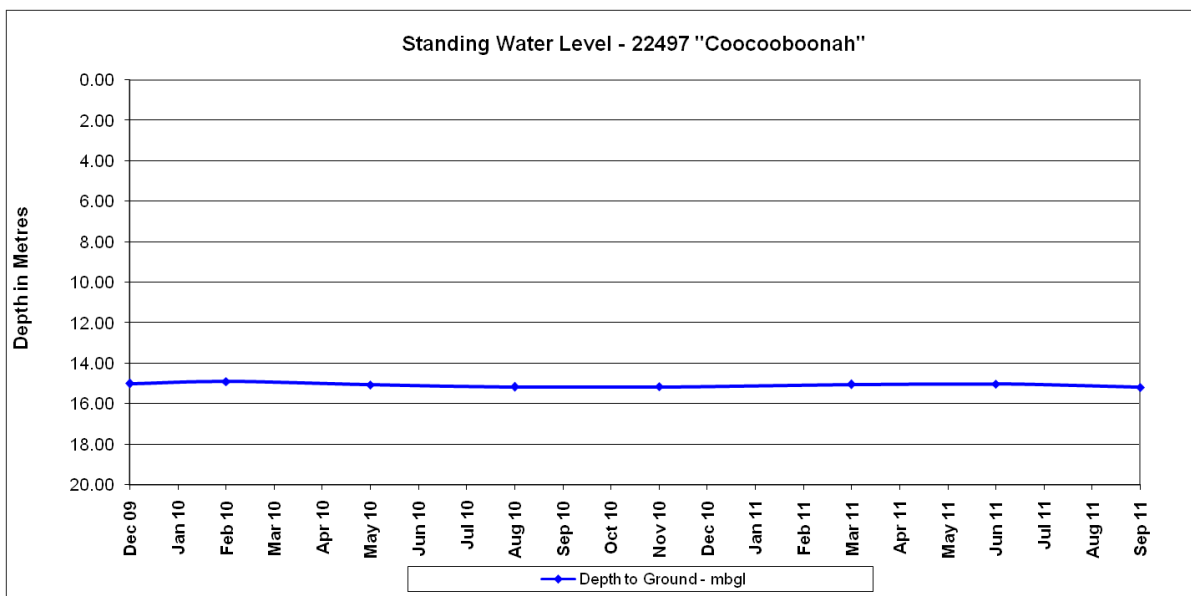
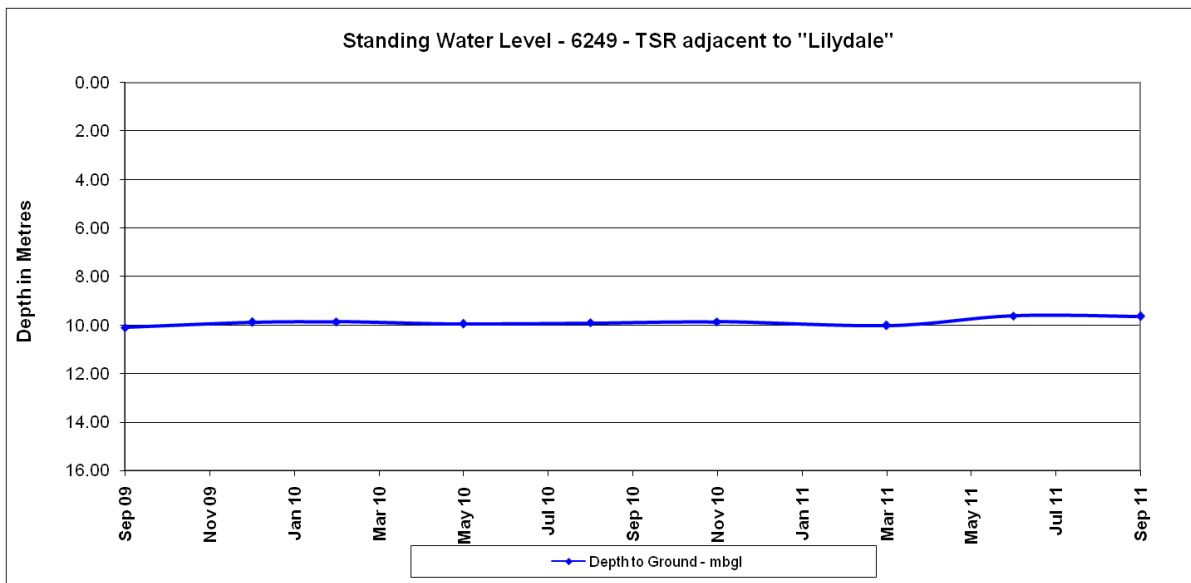
Since blasting commenced, the highest recorded overpressure was 128.8 dBL recorded at “Innisvale” on the 3rd May 2011. The highest ground vibration recorded is 2.39mm/s recorded at “Plain View” on the 17th April 2009.

Groundwater Monitoring

Groundwater monitoring is undertaken from a range of monitoring piezometers and water bores both within and surrounding the mine site. Standing Water Level (SWL) checks are undertaken on a quarterly basis, with full water quality sampling undertaken on a 6 monthly basis. Monitoring was undertaken on the 20th and 21st September 2011. Results for SWL are shown below with no significant impact/trend indicated from mining operations. These graphs represent water bores and piezometers which are currently accessible for monitoring. The next round of monitoring is expected to be conducted during December 2011.







Surface Water

Surface water sampling was carried out in November 2011. Results from the sampling were generally good with some elevated Total Suspended Solids detected in some of the site's sediment basins. However, these sediment basins will be utilised over the coming weeks for site dust suppression. This ensures these basins have sufficient capacity for further inflow and thus eliminates potential overflow into the final discharge dam. No wet weather discharge has occurred during the reporting period.

Complaints

No complaints were received during this reporting period.

Rehabilitation

Approximately 5 hectares of the north western corner of the emplacement area has had contour banks installed, to assist drainage and to prevent erosion. The area has also been seeded with pasture. This pasture consists of Bambatsi Panic, Japanese Millet, Premier Digit, Arrowleaf Clover and Green Panic at a rate of 25kg per hectare. The area was also fertilised with granular super Z at a rate of 50kg per hectare. Successful germination has occurred over the past weeks and the pasture is making good progress with recent rainfall. The area was also mounded with a specialised mounding implement. These mounds have two main purposes; to promote tree growth by providing a suitable earthen mound and to prevent erosion by capturing and slowing water runoff on the slope. This captured water inevitably waters the planted trees within the furrow, below the mound. Previous seeding in May 2011, on the north east area of the emplacement area has also made good progress due to rainfall over the past 3 months.

Additionally, to assist with the capture of sediment, a series of sediment traps have been installed between the eastern amenity bund and the north eastern emplacement. This area carries a large amount of dirty water during wet weather, which drains from the active emplacement and production areas. These traps have proved successful through their overflow system in reducing velocity of this water and capturing sediment which would usually drain directly into sediment basin 3 and cause erosion problems. These structures have been seeded and are showing a good germination rate to date. Vetiver reeds were also planted around the top water line of the primary sediment trap to assist with stability.

Over the past 3 months 1,000 trees have been planted at Sunnyside during 3 planting campaigns. The primary areas targeted were the north and north eastern emplacement areas. Mixes of Eucalypts, Ironbark, Kurrajong and a range of understory wattles were planted.



Established cover crop on rehabilitated waste emplacement



Cover crop on rehabilitated waste emplacement



Rehabilitation establishment