Appendix 7

Correspondence to EPA

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RECEIVED
25 MAR 2015
BY:.....

METROMIX

Regional Manager
Environmental Protection Authority
PO Box 488G
Newcastle
NSW
2300

1 February 2015.

Attention: Mr. Mark Hartwell

Re: EPL 536 - Request for Licence Variation

On the 28th of July 2014, I wrote to you formally requesting a licence variation to EPL 536 that will result in a licence to which Metromix can comply. To date we have not received any correspondence in relation to our request. The letter may simply have been misplaced or not even received.

I have attached a copy of the letter dated the 28th of July 2014.

Could you be kind enough to acknowledge receipt of this letter by emailing me on BillS@metromix.com.au.

Could you please review our request and should we need to visit and explain things in person, please feel free to do so by contacting me on 0418 479 087.

Yours Faithfully

W Sanderson
Manager Quarries

Metromix Pty Ltd
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Regional Manager - Hunter
Environment Protection Authority
PO Box 488G
NEWCASTLE. NSW, 2300

Attention: Mr Mark Hartwell

Re: EPL 536 – Request for Licence Variation

I am writing to formally request a licence variation to EPL 536 that will result in a licence to which our Company can readily comply. This request has been assembled following a detailed review of the recently updated licence issued following the receipt of Project Approval to extend the operational life of the Teralba Quarry.

INTRODUCTION

The information contained within this document and attachments has been compiled to provide the EPA with sufficient information to vary EPL 536. Metromix received Project Approval 10_0183 on 22 February 2013 to continue to undertake extraction and processing operations at the Teralba Quarry in accordance with activities outlined within the document entitled '*Environmental Assessment for the Teralba Quarry Extensions*' (RWC, 2011).

As part of various PA10_0183 conditions, Metromix's existing EPL for the Quarry required a variation to reflect the new approved activities. Meetings between Metromix and the EPA were undertaken throughout 2012 and 2013, resulting in EPL 536 being varied and subsequently issued on 2 July 2014.

Following a detailed review of the 2 July 2014 version of EPL 536, including the additional or varied conditions, Metromix respectfully requests that the following conditions are varied, based upon the provided justifications outlined within the following sections.

MAP OF MONITORING POINTS

In satisfaction of *Condition M4.3*, I have attached a copy of a plan entitled "Metromix Quarry Teralba Environmental Monitoring Points" updated on 9 May 2014 and referred to as "Revision D". A previous version of this figure (Revision C) was provided to the EPA on 14 April 2014, with Revision D now showing the location of the operating weather station. As a consequence of this document being submitted to the EPA, it is respectfully requested that *Condition M4.3* is removed.

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NOISE CONDITIONS

Condition L5.2

Condition L5.2 nominates that noise monitoring is to be undertaken at EPL Points 12 to 18 for a variety of parameters twice yearly. This measurement frequency is not aligned with that prescribed in *Condition M9.1* in which measurements are to be undertaken yearly (as a minimum frequency).

It is therefore requested that monitoring frequencies in *Condition L5.2* are aligned with *Condition M9.1*, by undertaking noise monitoring once yearly, unless a substantiated complaint is made by a resident in which noise monitoring would be undertaken twice yearly until either the EPA is satisfied that noise has been successfully mitigated.

Furthermore, it is also requested that *Condition L5.2* is modified to remove EPL noise monitoring Points 14 and 17. Metromix has acquired, as prescribed in the note associated with *Condition L5.2*, agreements with the landowners of EPL monitoring Points 14 and 17, with these signed agreements provided at Attachment 1 to this document.

It is therefore requested that EPL 536 is updated to include only the relevant EPL noise monitoring locations.

In light of the requested variation above, it would also be necessary to vary *Condition R4.2* by removing "the biannual noise monitoring" and replacing it with "each period of noise monitoring". This variation could then provide one or more monitoring events in one year.

SURFACE WATER CONDITIONS

Conditions M2.3, M2.4 and U1.1

Condition M2.4 and the note associated with *Condition U1.1* outlines that Conductivity, Oil and Grease, Total Suspended Solids and pH are required to be monitored at EPL Point 4 at a 'Special Frequency 1', i.e. in the event of a discharge, water must be collected "within 8 hours of commencing discharge and weekly thereafter during discharge". As outlined within RWC (2012) and within the approved *Teralba Quarry Water Management Plan*, EPL Point 4 is a dam that collects runoff from an unused mine adit that is continuously discharging water to the surface water system as the result of groundwater flowing from the underground Westside Colliery and Northern Colliery coal workings.

Metromix has little influence on the volume of water that discharges from the mine adit. Rather, the flow largely reflects the inflow of rainfall/seepage into the two collieries. Metromix's is only contribution to the flow from the mine adit is the limited seepage that occurs from the floor of the silt cells, i.e. in addition to the infiltration from the land surface within the Quarry Site (which would occur even without the quarry being present).

Based upon this, Metromix would be deemed to be non-compliant with *Condition U2.3, 2.4 and Condition U1.1* if water sampling was not undertaken weekly at EPL Point 4 as water is continuously flowing from the mine adit. Based upon the consolidated surface water quality information (see attached Interim Report – Attachment 2), it is requested that EPL Point 4 is removed from these conditions as the frequency for surface water monitoring proposed is considered excessive and inappropriate. Since data recording the quality of water from the mine adit has always been undertaken at monthly intervals and it is considered appropriate that this frequency of sampling continue.

Further to the above, it is also requested that 'Oil and Grease' specified within *Condition U1.1* is determined initially by a visual inspection at the time of water sampling. Should the presence of oil and/or grease be observed, then a sample is taken. This visual analysis would be conducted of both the water body in which the sample if being collected from and by collecting water using a glass beaker and viewing the side profile or the water column for any traces of oil and/or grease. If oil and grease is identified, the water sample would be sent to the laboratory for detailed analysis.

Condition U1.2

In satisfaction of *Condition U1.2*, I have attached a copy of a document entitled '*Initial Report for Condition U1.1 And U1.2 For Environment Protection Licence 536*' (the 'Initial Report') which provides the consolidated results of surface water monitoring undertaken at EPL Points 4 & 5 between September 2013 and June 2014. As a result of the commentary included in this report, it is respectfully requested that *Condition U1.2* be varied to remove the metal analytes identified within the attached Initial Report from the remaining 18 month detailed surface water monitoring program, as they have either not been detected or were consistently below detection limits/guideline levels at both EPL Points 4 and 5. We recognise that the monitoring of a range of more meaningful analytes should continue to be analysed for the remaining 18 months of the 24 month monitoring period proposed in *Condition U1.2*.

Condition L2.5

The requirement nominated in *Condition L2.5* is not practical. Such a design feature of these dams was never contemplated. It is our considered opinion that the reference to a 1 in 50 years ARI in this condition was mistakenly adopted by the EPA from the design notes in the Water Management Plan which notes 'all dams have spillways designed for at least 50 year average return interval'. This is a common feature in dam design whereby the spillway has a design criteria is much higher than that required for settlement of collected sediment. It is therefore, respectfully requested that *Condition L2.5* is removed in full. The removal of this condition would not compromise water quality as we are required to satisfy the limits set in *Condition L2.4*.

Condition L3.1

It is respectfully requested that *Condition L3.1* is varied to remove reference to EPL Point 4 (Mine Adit Dam) as is not Metromix's responsibility as outlined within the Initial Report. As previously advised in our discussions held on 16 July 2013 with EPA representatives Ms Gallagher and Mr Rutherford, and in our correspondence to the EPA on 20 February 2014, Metromix does not have any control on the total rate of discharge from the underground mine adit.

Further, it is also requested that *Condition L3.1* is varied for EPL Point 5 from 25 kilolitres per day to 25 megalitres per day. The unit of measure is incorrect. The correct unit of measure (megalitres per day) was included in the Site Water Balance in RWC 2011559

(replaced in Figure 7.5 of the Water Management Plan – see Initial Report – Page 1) and has been the unit of measure for EPL 3139 since 2000.

I trust the information provided in support of our request for the various variations is sufficiently clear to enable a varied licence to be issued which is practical and feasible for our Company to comply with.

Should you require any further information or wish to discuss any for the information supplied, please don't hesitate to contact either Rob Corkery (9985 8511) or myself on 4950 6640.

Yours Faithfully

W. Sanderson
Manager Quarries

28/7/14

Attachments

Attachment 1 – Signed Landowner Agreements
Attachment 2 – Interim Report

INITIAL REPORT FOR CONDITION U1.1 AND U1.2 FOR ENVIRONMENT PROTECTION LICENCE 536

INTRODUCTION

In accordance with *Conditions U1.1* and *U1.2* of Environment Protection Licence (EPL) 536 (updated 2 July 2014), the following information provides the consolidated results of surface water monitoring (**Tables A, B and C**) undertaken at EPL Points 4 & 5 (see **Figure 1)** for the Teralba Quarry between September 2013 and June 2014 (the "monitoring period")[1]. This information has been collated and presented to the EPA in accordance with *Condition U1.2*, to present the results of surface water monitoring (arising from the Mine Adit Dam within the Teralba Quarry) and ultimately provide an understanding of the local surface water environment and interactions with surface water quality as a result of activities within the Teralba Quarry.

The Teralba Quarry utilises water from the Mine Adit Dam as a water source for washing purposes and other related activities such as wheel washing and dust control. This extraction of this water is licenced by NOW (Licence No. 20BL173206) to extract a maximum of 1 407ML per year for dewatering and "Industrial – Sand and Gravel" uses. **Figure 7.5** reproduces the Site Water Balance that was originally included within the Environmental Assessment and also included (with minor modifications) within subsequent approved Water Management Plan.

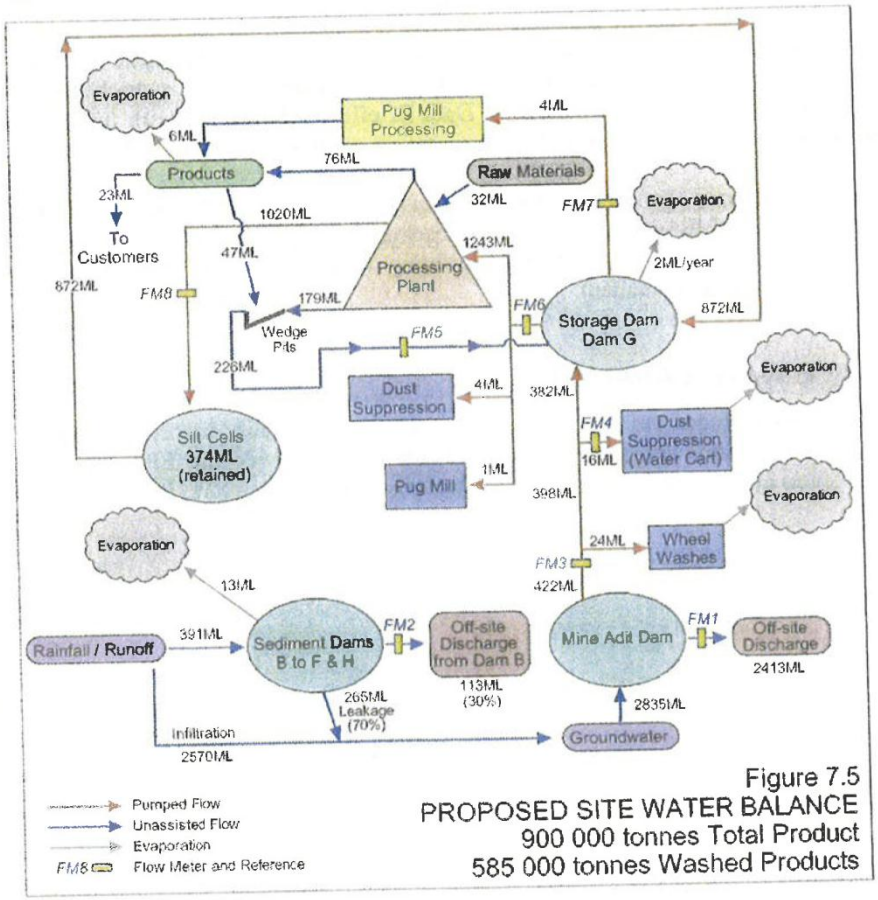

Figure 7.5
PROPOSED SITE WATER BALANCE
900 000 tonnes Total Product
585 000 tonnes Washed Products

[1] It is noted that *Condition U1* only requires 6 months of data for comparison purposes, however, 10 months of data has been provided due to periods of no discharges at EPL Point 5 and to account for omission of some analytes from the laboratory results.

Figure 7.5 highlights that of the total 2 835ML of water that flows into the Mine Adit Dam from the underground coal working per year, Metromix utilises in the order of 422ML per year.

SURFACE WATER MONITORING LOCATION CONTEXT

EPL Point 4 is located at a historic and flooded Mine Adit Dam that was originally associated with the Oceanic Coal's Westside Colliery (Teralba and Northern Extended Collieries) and Coal and Allied's Northern Colliery (formerly known as Rhondda Colliery) that targeted the Fassifern Seam and Great Northern Coal Seam. The Westside Colliery is in fact connected underground with other nearby mines such as Rhondda Colliery, the owners of which (Coal and Allied) hold an EPL 3139 requiring the monitoring of the discharge from the Mine Adit Dam until early 2013.

The Mine Adit Dam continuously discharges water from the underground voids (groundwater) to the at-surface Mine Adit Dam that flows eastwards approximately 40m along an unnamed watercourse from the eastern boundary of the Teralba Quarry towards Lake Macquarie. Groundwater from the underground coal workings is referred to as surface water once reaching the Mine Adit Dam. The water in the Mine Adit Dam is either pumped to Dam G for Metromix's use or allowed to flow off site.

EPL Point 5 is located at the end of a pipe from Dam B (see **Figure 1**) which the overflow point from the surface water management system on the southern side of Rhondda Road. No surface water from the Quarry is able to flow into the Mine Adit Dam although it is recognised that a very small proportion of the groundwater flow entering the Mine Adit Dam is seepage from the Southern Extraction Area and the current silt cells. All surface water within the southern quarry catchment is collected and directed through a series of on-site sediment dams (Dam F to Dam B) and is discharged into the unnamed drainage channel via an outlet pipe from Dam B, effectively mixing with the Mine Adit Dam water before flowing eastwards approximately 2km until its confluence with Lake Macquarie.

The *Teralba Quarry Extensions Environmental Assessment* and related *Teralba Quarry Water Management Plan* fully outline the context, background and interactions between the Teralba Quarry and Rhondda Colliery, along with their differing water catchments with no additional information provided further in this document.

SURFACE WATER ANALYTES

This document includes the analysis of the surface water quality monitoring results for the analytes identified in *Condition U1* (reproduced in **Table 1**), to provide the EPA with an understanding of baseline levels and the interaction of surface water quality between EPL Point 4 and EPL Point 5.

Table 1 EPL Point 4 & 5 Analytes Monitored

General Analytes				
• pH	• Total Suspended Solids (TSS)	• Electrical Conductivity		• Oil and Grease[2]
Metal Analytes				
• Aluminium[1]	• Antimony[1]	• Arsenic[1]	• Barium[1]	• Beryllium[1]
• Boron[1]	• Cadmium[1]	• Chromium[1]	• Cobalt[1]	• Copper[1]
• Iron[1]	• Lead[1]	• Magnesium[1]	• Mercury[1]	• Molybdenum[1]
• Nickel[1]	• Selenium[1]	• Silica[+] (Silicon as SIO_2	• Tin[1]	• Titanium[1]
• Vanadium[1]	• Zinc[1]	• Calcium	• Nitrogen (ammonia)[2]	• Phosphorus[2] (as P)
• Potassium[2]	• Sulphur[2] (Sulfate as SO^4)	• Lithium[2]	• Manganese[1]	• Silver[2]

[1] Indicates analytes monitored as 'total' (unfiltered) and 'dissolved' (filtered)

[2] Indicates that the nominated analytes were not initially tested within the monitoring period but will be included in all subsequent monitoring events.

For the purposes of the surface water analysis, key analytes that highlight the differences and/or similarities of surface water quality between the two EPL points have been chosen for the focus of this investigation and include the following.

- pH
- Electrical Conductivity
- Total Suspended Solid
- Aluminium
- Iron
- Manganese

The metal analytes have been chosen as they highlight the presence of clay/insoluble materials in the water column between the EPL Points 4 & 5. The remaining chemical analytes have not been analysed in detail as they either displayed similar monitoring results between EPL Points 4 & 5 or similar conclusions would be appropriate to the analysis of aluminium, iron and manganese.

SURFACE WATER ANALYSES

As outlined previously, the attached **Tables A, B and C** contain the complete records of consolidated surface water data for EPL Points 4 & 5, with focussed analysis undertaken on the seven (7) filtered and unfiltered analytes identified above within the monitoring period, chosen as they describe the similarities and differences between the two catchments, i.e. underground mine source and the section of the Teralba Quarry south of Rhondda Road.

pH

pH levels have been measured from unfiltered samples between November 2013 and December 2013, with pH only being measured following filtering for the remainder of the monitoring period (excluding no discharge periods).

It is evident that pH levels from EPL Point 4 are either the same or display slightly lower pH levels than those measured at EPL Point 5 (average of 7.5 and 7.8 respectively), indicating that pH levels are not impacted upon by quarrying operations. It should be noted that all pH levels monitored were within the limits nominated in *Condition L2.4* of EPL 536.

Electrical Conductivity (EC)

EC has been measured from unfiltered samples between November 2013 and February 2014, with EC only being measured following filtering for the remainder of the monitoring period being March 2014 – June 2014 (excluding no discharge periods).

The results indicate that EC levels are consistently higher at EPL Point 4 than those measured at EPL Point 5, indicating that the water drawn from the Mine Adit Dam for use in the quarry's operation is diluted with the surface water runoff within the section of the quarry south of Rhondda Road.

Minor exceedances of the *ANZECC Freshwater Guideline for 90% Protection 2000* (ANZECC, 2000) (2200 µS/cm) occurred in October 2013 (2410 µS/cm) and November 2013 (2210 µS/cm) at EPL Point 4. It is noted that these EC levels are noticeably lower than those recorded by Coal and Allied between 1998 and 2007 when EC levels averaged approximately 7700µS/cm.

Total Suspended Solids (TSS)

TSS has been measured on unfiltered samples between November 2013 and July 2014 (excluding no discharge periods).

The results indicate that TSS from EPL Point 4 displayed generally higher TSS levels than those measured at EPL Point 5, with the exception of April 2014, indicating that TSS levels are not negatively impacted upon as the result of the ongoing operation of the Teralba Quarry.

Aluminium and Iron

The presence of aluminium and iron indicates the likely presence of clays (as aluminium/iron silicates or aluminium/iron oxides or hydroxides) within the unfiltered monitoring samples. Conversely, the lack of aluminium or iron within the water samples following filtering confirms that the water column contains only small amounts of aluminium or iron itself due its presence within the clay. This has been confirmed with no filtered results displaying aluminium concentrations exceeding 0.01mg/L or over from both EPL Points and significantly lower concentrations of iron from filtered measurements then compared to unfiltered measurements.

The higher concentrations of aluminium within unfiltered EPL Point 5 results (November 2013, April 2014 and May 2014) indicate that relatively higher amounts of clay are recorded within the unfiltered water column, likely the result of ongoing quarry operations. It should be noted however, that all aluminium concentrations were below ANZECC (2000) guidelines.

The equal to or higher prevalence of iron within unfiltered EPL Point 5 results throughout the monitoring period, also supports the conclusion determined by the aluminium analysis. It should be noted that iron was recorded in excess of the criteria level of 0.3mg/L at both EPL Point 4 (December 2013 - February 2014, April 2014 and May 2014) and EPL Point 5 (November 2013 and April 2014). The presence of elevated iron levels at EPL Point 4 reflects that iron is present at elevated levels either naturally or from an up-stream presence (i.e. unrelated to quarrying activities).

Manganese

The higher concentrations of manganese from EPL Point 4 in both filtered and unfiltered results (November 2013, December 2013 and April 2014 - May 2014), with the exception of March 2014, indicates that the elevated levels of manganese are not caused by quarrying operations as EPL Point 5 monitoring results display significantly lower manganese concentrations.

The majority of manganese concentrations were higher than ANZECC (2000) guideline concentrations of 0.1mg/L, with EPL Point 4 averaging 0.20mg/L (unfiltered) and 0.17 (filtered). EPL Point 5 manganese concentrations averaged 0.41mg/L (unfiltered) and 0.43mg/L (unfiltered) but included the anomalous concentrations of 1.8mg/L (filtered) and 1.67mg/L (unfiltered) in March 2014. Overall, manganese consistently exceeded ANZECC (2000) guideline levels at both EPL Points with higher levels recorded in the unfiltered samples.

CONCLUSION

Overall, the extensive surface water monitoring program undertaken throughout the monitoring period and in accordance with EPL 526 *Condition U1*, has determined that surface water downstream of the quarry (EPL 5) is not significantly different to the water flowing from the mine adit (EPL 4) with elevated analytes identified as occurring naturally or derived from the water from the mine adit.

It is therefore respectfully requested that *Condition U1.2* be varied to remove the following metal analytes from the surface water monitoring program as they have not been detected or were consistently below detection limits/ ANZECC (2000) guideline levels at both EPL Points 4 and 5.

- Antimony
- Arsenic
- Barium
- Beryllium
- Boron
- Cadmium
- Calcium
- Cobalt
- Copper
- Lead
- Lithium
- Magnesium
- Mercury
- Molybdenum
- Nickel
- Phosphorous
- Potassium
- Silicon
- Silver
- Sulfate (as S)
- Tin
- Titanium
- Vanadium
- Zinc

Metromix would continue to monitor the following analytes at EPL Points 4 & 5 (total and dissolved where required) for a combined total of 24 months (concluding September 2015) as outlined in *Condition U1.3*.

- pH
- Electrical Conductivity
- Total Suspended Solids
- Aluminium
- Nitrogen (ammonia)
- Chromium
- Copper
- Iron
- Manganese
- Selenium
- Sulfur as SO_4

Whilst not defined within EPL 526 *Condition U1.1*, Metromix has been monitoring for Sulfur as both Sulfur (as S) and Sulfur (as SO_4) during the monitoring period. It is proposed that from July onwards, Sulfur would only be monitored for Sulfur (as SO_4), as Sulfate is the more meaningful analyte.
It is also proposed that laboratory monitoring for oil and grease would only be undertaken following the field identification of any visible oil and/or grease slicks within the water body at the time of collection.

I trust that the information presented is sufficient for EPA's review, however, should you have any questions, please don't hesitate to contact the undersigned.

Rob Corkery
Principal/Managing Director

Attached:

Figure 1 – EPA Surface Water Monitoring Locations
Table A – EPL Point 4 Monitoring Results
Table B – EPL Point 5 Monitoring Results
Table C – EPL Point 4 & 5 Monitoring Results Comparison

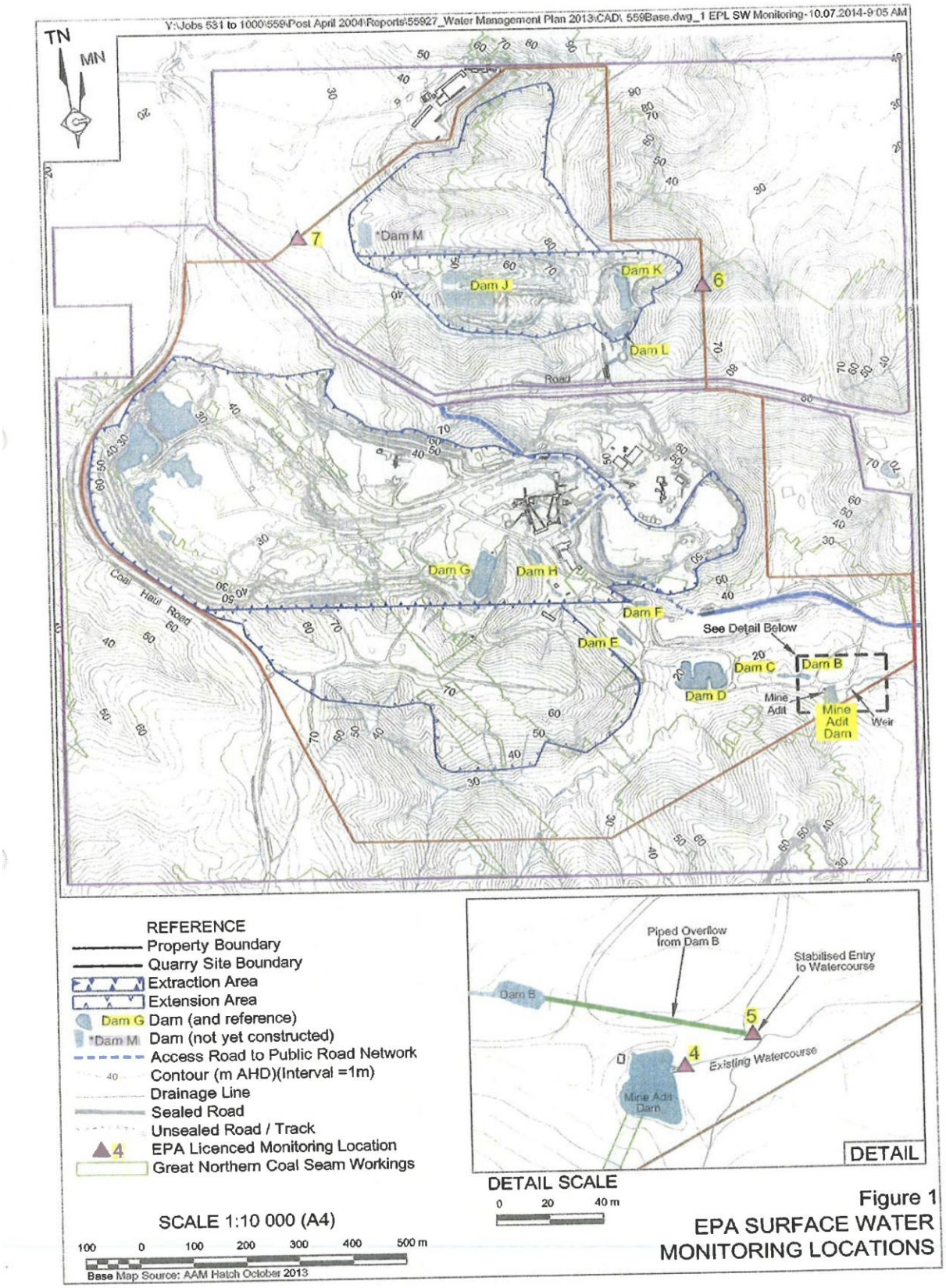

Figure 1
EPA SURFACE WATER MONITORING LOCATIONS

TABLE A
TERALBA QUARRY
September 2013 – June 2014 Surface Water Analysis – EPL 536 Monitoring Point 4 (Overflow from Mine Adit Dam)

			2013								2014											
			September 2013		October 2013		November 2013		December 2013		January 2014		February 2014		March 2014		April 2014		May 2014		June 2014	
Sample	Unit	Guidelines[a]	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)
pH	pH Unit	6.5 to 8.5 units	7.7	ND	7.8	ND	7.3	ND	7.1	ND	7.7	ND	7.48	ND	7.32	ND	7.34	ND	7.54	ND	7.79	ND
Conductivity	µS/cm	125 - 2200[b]	2180	ND	2410	ND	2210	ND	1890	ND	1940	ND	2170	ND	2100	ND	2010	ND	1850	ND	1860	ND
TSS	mg/L	<50	<5	<5	<5	<5	<5	<5	26	26	6	6	<5	<5	6	ND	<5	ND	10	ND	6	ND
Aluminium	mg/L	0.20	ND	ND	0.04	0.01	0.05	<0.01	0.11	<0.01	0.14	<0.01	0.04	<0.01	0.08	<0.01	0.07	<0.01	0.07	<0.01	0.07	<0.01
Ammonia as N	mg/L	0.01	0.03	0.03	ND	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	ND	<0.05	ND	ND	0.02	<0.01	ND
Antimony	mg/L	NA	ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/L	0.05	NO	ND	0.002	0.001	0.001	0.001	0.002	0.001	0.003	<0.001	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Barium	mg/L	1	ND	ND	0.025	0.024	0.029	0.030	0.030	0.029	0.031	0.028	0.029	0.029	0.027	0.029	0.028	0.026	0.032	0.026	0.028	0.026
Beryllium	mg/L	NA	ND	ND	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	1	ND	ND	0.21	0.22	0.23	0.18	0.17	0.17	0.18	0.17	0.22	0.18	0.19	0.23	0.2	0.18	0.17	0.15	0.14	0.13
Cadmium	mg/L	0.005	ND	ND	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1000[c]	52	55	60	60	56	53	43	43	47	46	48	46	45	45	46	46	44	41	40	41
Chromium	mg/L	0.05	ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	1[c]	ND	ND	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Copper	mg/L	1	ND	ND	0.003	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	<0.001	0.015	<0.001	<0.001	<0.001
Iron	mg/L	0.3	ND	ND	0.06	0.05	0.07	<0.05	0.45	0.14	0.55	<0.05	0.52	<0.05	0.49	<0.05	ND	<0.05	0.42	<0.05	0.28	<0.05
Lead	mg/L	0.05	ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium	mg/L	0.075[d]	ND	ND	0.044	0.037	0.042	0.039	0.048	0.045	0.038	0.037	0.042	0.044	0.036	0.056	0.04	0.036	0.039	0.038	0.035	<0.012
Magnesium	mg/L	NA	ND	ND	71	74	66	62	46	46	46	54	55	51	56	55	52	54	45	43	46	45
Manganese	mg/L	0.1	ND	ND	0.054	0.038	0.12	0.096	0.303	0.316	0.223	0.217	0.234	0.237	0.194	0.203	0.169	0.159	0.269	0.244	0.252	0.090
Mercury	mg/L	0.001	ND	ND	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/L	0.15[e]	ND	ND	0.003	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.003	0.002	0.002	0.002
Nickel	mg/L	0.1	0.006	0.005	0.005	0.004	0.004	0.005	0.004	0.004	0.005	0.005	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004
Phosphorous as P	mg/L	NA	<0.01	<0.01	ND	ND	<0.01	<0.01	<0.01	<0.01	0.02	0.02	ND	ND	<0.01	ND	0.02	ND	ND	<0.01	<0.01	ND
Potassium	mg/L	NA	9	9	11	9	10	8	7	6	8	9	9	8	10	9	9	11	8	7	7	7
Selenium	mg/L	0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silicon as SiO2	mg/L	NA	14.1	14.4	14.4	14.8	15.3	14.7	14.5	14.2	16.7	14.8	14.5	14.8	15	15.4	16	15	15.7	14.9	15	15.1
Silver	mg/L	0.05	<0.001	0.001	0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulfur as S	mg/L	NA	82	85	101	113	94	79	65	68	75	55	80	80	84	75	85	72	66	62	68	65
Sulfate as SO4 2-	mg/L	400	247	256	ND	ND	ND	ND	ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tin	mg/L	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	mg/L	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.006	0.009	0.005	<0.005	<0.005
Zinc	mg/L	5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005												

ND - Not Determined due to laboratory error

TABLE B
TERALBA QUARRY
September 2013 - June 2014 Surface Water Analysis - EPL 536 Monitoring Point 5 (Discharge from Dam B)

Sample	Unit	Guidelines	2013 September Total (Unfiltered)	September Dissolved (Filtered)	October Total (Unfiltered)	October Dissolved (Filtered)	November Total (Unfiltered)	November Dissolved (Filtered)	December Total (Unfiltered)	December Dissolved (Filtered)
pH	ph Unit	6.5 to 8.5 units					8.0	ND	7.7	ND
Conductivity	µS/cm	125 - 2200[b]	NO DISCHARGE		NO DISCHARGE		1600	ND	1660	ND
TSS	mg/L	<50					25	25	6	6
Aluminium	mg/L	0.2					0.67	0.02	0.10	<0.01
Ammonia as N	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
Antimony	mg/L	NA					0.002	0.002	0.001	0.002
Arsenic	mg/L	0.05					0.006	0.005	0.004	0.005
Barium	mg/L	1					0.027	0.023	0.034	0.032
Beryllium	mg/L	NA					<0.001	<0.001	<0.001	<0.001
Boron	mg/L	1					0.15	0.10	0.13	0.12
Cadmium	mg/L	0.005					<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1000[e]					33	27	35	34
Chromium	mg/L	0.05					<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	1000					0.001	<0.001	<0.001	<0.001
Copper	mg/L	1					0.002	<0.001	0.002	0.001
Iron	mg/L	0.3					0.76	<0.05	0.21	0.06
Lead	mg/L	0.05					<0.001	<0.001	<0.001	<0.001
Lithium	mg/L	0.075[d]					0.026	0.026	0.031	0.028
Magnesium	mg/L	NA					47	41	45	46
Manganese	mg/L	0.1					0.079	<0.001	0.184	0.151
Mercury	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.15[c]					0.009	0.009	0.006	0.006
Nickel	mg/L	0.1					0.008	0.006	0.004	0.004
Phosphorous as P	mg/L	NA					<0.01	<0.01	<0.01	<0.01
Potassium	mg/L	NA					10	10	8	7
Selenium	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
Silicon as SiO2	mg/L	NA					10.1	6.5	8.6	8.2
Silver	mg/L	0.05					<0.001	<0.001	<0.001	<0.001
Sulfur as S	mg/L	NA					76	71	60	68
Sulfate as SO4 2-	mg/L	400								
Tin	mg/L	NA					ND	ND	ND	ND
Titanium	mg/L	NA					<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	NA					0.01	<0.01	<0.01	<0.01
Zinc	mg/L	5					<0.01	<0.01	<0.01	<0.01

Sample	2014 January Total (Unfiltered)	January Dissolved (Filtered)	February Total (Unfiltered)	February Dissolved (Filtered)	March Total (Unfiltered)	March Dissolved (Filtered)	April Total (Unfiltered)	April Dissolved (Filtered)	May Total (Unfiltered)	May Dissolved (Filtered)	June Total (Unfiltered)	June Dissolved (Filtered)
pH					7.5	ND	7.9	ND	7.5	ND	8.01	ND
Conductivity	NO DISCHARGE		NO DISCHARGE		1490	ND	834	ND	1150	ND	1120	ND
TSS					<5	ND	19	ND	10	ND	<5	ND
Aluminium					<0.01	<0.01	0.86	0.01	0.48	<0.01	0.19	<0.01
Ammonia as N					<0.001	<0.001	<0.01	ND	0.02	ND	<0.01	ND
Antimony					ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic					0.002	0.002	0.003	0.002	0.001	<0.001	<0.001	<0.001
Barium					0.033	0.031	0.025	0.020	0.032	0.028	0.030	0.028
Beryllium					ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron					0.14	0.18	0.06	0.07	0.11	0.10	0.06	0.06
Cadmium					0.0001	0.0001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium					ND	ND	24	21	31	26	34	30
Chromium					<0.001	<0.001	0.004	<0.001	0.001	<0.001	0.001	<0.001
Cobalt					0.010	0.009	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Copper					0.001	0.001	0.002	0.001	0.002	<0.001	0.001	0.001
Iron					0.29	0.06	0.92	<0.05	0.78	<0.05	0.26	<0.05
Lead					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium					0.028	0.026	0.013	0.012	0.014	0.013	0.012	0.011
Magnesium					48	48	25	23	32	29	35	32
Manganese					1.80	1.67	0.051	0.024	0.255	0.231	0.097	0.090
Mercury					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum					0.003	0.002	0.006	0.005	0.002	0.002	0.002	0.002
Nickel					ND	ND	0.004	0.003	0.006	0.004	0.003	0.002
Phosphorous as P					ND	ND	0.05	ND	0.07	ND	0.03	ND
Potassium					ND	ND	6	7	6	6	6	6
Selenium					ND	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silicon as SiO2					ND	ND	11.4	7.4	18.5	15.2	11.4	15.2
Silver					ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulfur as S					ND	ND	49	39	54	47	50	46
Sulfate as SO4 2-												
Tin					ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Titanium					ND	ND	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Vanadium					ND	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc					ND	ND	0.006	<0.005	0.007	<0.005	<0.005	<0.005

ND - Not Determined due to laboratory error

TABLE C
TERALBA QUARRY
September 2013 – June 2014 Comparative Surface Water Analyses (EPA Routes 4 and 5)

Analytes	Unit	Guidelines	EPL Point 4 September 2013		EPL Point 5 September 2013		EPL Point 3 October 2013		EPL Point 4 October 2013		EPL Point 4 November 2013		EPL Point 5 November 2013	
			Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)
pH	ph Unit	6.5 to 8.5 units	7.7	ND	NO DISCHARGE		7.8	ND	NO DISCHARGE		7.3	ND	8.0	ND
Conductivity	µS/cm	125 - 2200[b]	2180	ND			2410	ND			2210	ND	1600	ND
TSS	mg/L	<50	<5	ND			<5	ND			<5	ND	25	ND
Aluminium	mg/L	0.2	ND	ND			0.04	0.01			0.05	<0.01	0.67	0.02
Ammonia as N	mg/L	0.01	0.03	0.03			ND	ND			<0.01	<0.01	<0.01	<0.01
Antimony	mg/L	NA	ND	ND			<0.001	<0.001			<0.001	<0.001	0.002	0.002
Arsenic	mg/L	0.05	ND	ND			0.002	0.001			0.001	0.001	0.006	0.005
Barium	mg/L	1	ND	ND			0.025	0.024			0.029	0.030	0.027	0.023
Beryllium	mg/L	NA	ND	ND			<0.001	0.001			<0.001	<0.001	<0.001	<0.001
Boron	mg/L	1	ND	ND			0.21	0.22			0.23	0.18	0.15	0.10
Cadmium	mg/L	0.005	ND	ND			<0.0001	<0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1000[c]	52	55			60	60			56	53	33	27
Chromium	mg/L	0.05	ND	ND			<0.001	<0.001			<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	1000	ND	ND			<0.001	<0.001			<0.001	<0.001	0.001	<0.001
Copper	mg/L	1	ND	ND			0.003	0.001			<0.001	<0.001	0.002	<0.001
Iron	mg/L	0.3	ND	ND			0.06	0.05			0.07	<0.05	0.76	<0.05
Lead	mg/L	0.05	ND	ND			<0.001	<0.001			<0.001	<0.001	<0.001	<0.001
Lithium	mg/L	0.075[d]	ND	ND			0.044	0.037			0.042	0.039	0.026	0.026
Magnesium	mg/L	NA	ND	ND			71	74			66	62	47	41
Manganese	mg/L	0.1	ND	ND			0.054	0.038			0.12	0.086	0.079	<0.001
Mercury	mg/L	0.001	ND	ND			<0.0001	<0.0001			<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.15[c]	ND	ND			0.003	0.002			0.002	0.002	0.009	0.009
Nickel	mg/L	0.1	0.006	0.006			0.005	0.004			0.004	0.005	0.008	0.006
Phosphorous as P	mg/L	NA	<0.01	<0.01			ND	ND			<0.01	<0.01	<0.01	<0.01
Potassium	mg/L	NA	9	9			11	9			10	8	10	10
Selenium	mg/L	0.01	<0.01	<0.01			0.02	0.01			<0.01	<0.01	<0.01	<0.01
Silicon as SiO2	mg/L	NA	14.1	14.3			14.4	14.8			15.3	14.7	10.1	6.5
Silver	mg/L	0.05	<0.001	0.001			0.001	0.001			<0.001	0.001	<0.001	<0.001
Sulfur as S	mg/L	NA	82	85			101	113			94	79	76	71
Sulfate as SO4 2-	mg/L	400	247	256			ND	ND			ND	ND	ND	ND
Tin	mg/L	NA	<0.001	<0.001			<0.001	<0.001			<0.001	<0.001	ND	ND
Titanium	mg/L	NA	<0.01	<0.01			<0.01	<0.01			<0.01	<0.01	<0.001	<0.001
Vanadium	mg/L	NA	<0.01	<0.01			<0.01	<0.01			<0.01	<0.01	0.01	<0.01
Zinc	mg/L	5	<0.005	<0.005			<0.005	<0.005			<0.005	<0.005	<0.01	<0.01

TABLE C (Cont'd)
TERALBA QUARRY
September 2013 – June 2014 Comparative Surface Water Analyses (EPA Routes 4 and 5)

Analytes	Unit	Guidelines	EPL Point 4 December 2013		EPL Point 5 December 2013		EPL Point 4 January 2014		EPL Point 5 January 2014		EPL Point 4 February 2014		EPL Point 5 February 2014	
			Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)
pH	ph Unit	6.5 to 8.5 units	7.1	ND	7.7	ND	7.7	ND	NO DISCHARGE		7.48	ND	NO DISCHARGE	
Conductivity	µS/cm	125 - 2200[b]	1890	ND	1660	ND	1940	ND			2170	ND		
TSS	mg/L	<50	26	ND	6	ND	6	ND			<5	<5		
Aluminium	mg/L	0.2	0.11	<0.01	0.10	<0.01	0.14	<0.01			0.04	<0.01		
Ammonia as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01		
Antimony	mg/L	NA	<0.001	<0.001	0.001	0.002	<0.001	<0.001			<0.001	<0.001		
Arsenic	mg/L	0.05	0.002	0.001	0.004	0.005	0.003	<0.001			0.002	0.001		
Barium	mg/L	1	0.030	0.029	0.034	0.032	0.031	0.028			0.029	0.029		
Beryllium	mg/L	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	<0.001		
Boron	mg/L	1	0.17	0.17	0.13	0.12	0.18	0.17			0.22	0.18		
Cadmium	mg/L	0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	<0.0001		
Calcium	mg/L	1000[c]	43	43	35	34	47	46			48	46		
Chromium	mg/L	0.05	<0.001	0.001	<0.001	<0.001	<0.001	<0.001			<0.001	<0.001		
Cobalt	mg/L	1000	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			0.001	<0.001		
Copper	mg/L	1	<0.001	<0.001	0.002	0.001	<0.001	0.001			0.001	<0.001		
Iron	mg/L	0.3	0.45	0.13	0.21	0.06	0.33	<0.05			0.32	<0.05		
Lead	mg/L	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	<0.001		
Lithium	mg/L	0.075[d]	0.048	0.045	0.031	0.028	0.038	0.037			0.042	0.044		
Magnesium	mg/L	NA	46	46	45	46	46	54			55	51		
Manganese	mg/L	0.1	0.303	0.316	0.184	0.151	0.223	0.217			0.234	0.237		
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001			<0.0001	<0.0001		
Molybdenum	mg/L	0.15[c]	0.003	0.003	0.006	0.006	0.002	0.002			0.002	0.002		
Nickel	mg/L	0.1	0.004	0.004	0.004	0.004	0.005	0.005			0.004	0.005		
Phosphorous as P	mg/L	NA	<0.01	<0.01	<0.01	<0.01	0.02	0.02			ND	ND		
Potassium	mg/L	NA	7	6	8	7	8	9			9	8		
Selenium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01		
Silicon as SiO2	mg/L	NA	14.5	14.2	8.6	8.2	16.7	14.8			14.5	14.8		
Silver	mg/L	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	<0.001		
Sulfur as S	mg/L	NA	65	68	60	68	75	85			80	80		
Sulfate as SO4 2-	mg/L	400	ND	ND	ND	ND	<0.001	<0.001			<0.001	<0.001		
Tin	mg/L	NA	<0.001	<0.001	ND	ND	<0.01	<0.01			<0.01	<0.01		
Titanium	mg/L	NA	0.01	<0.01	<0.001	<0.001	<0.01	<0.01			<0.01	<0.01		
Vanadium	mg/L	NA	<0.01	<0.01	<0.01	<0.01	0.006	<0.005			<0.005	<0.005		
Zinc	mg/L	5	<0.005	<0.005	<0.01	<0.01								

TABLE C (Cont'd)
TERALBA QUARRY
September 2013 – June 2014 Comparative Surface Water Analyses (EPA Routes 4 and 5)

Analytes	Unit	Guidelines	EPL Point 4 March 2014		EPL Point 5 March 2014		EPL Point 4 April 2014		EPL Point 5 April 2014		EPL Point 4 May 2014		EPL Point 5 May 2014	
			Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)
pH	ph Unit	6.5 to 8.5 units	7.32	ND	7.5	ND	7.34	ND	7.9	ND	7.54	ND	7.5	ND
Conductivity	µS/cm	125 - 2200[b]	2100	ND	1490	ND	2010	ND	834	ND	1850	ND	1150	ND
TSS	mg/L	<50	6	ND	<5	ND	<5	ND	19	ND	10	ND	10	ND
Aluminium	mg/L	0.2	0.08	<0.01	<0.01	<0.01	0.07	<0.01	0.86	0.01	0.07	<0.01	0.48	<0.01
Ammonia as N	mg/L	0.01	0.03	ND	<0.001	<0.001	<0.01	ND	<0.01	ND	ND	0.02	0.02	ND
Antimony	mg/L	NA	<0.001	<0.001	ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/L	0.05	0.001	0.001	0.002	0.002	<0.001	<0.001	0.003	0.002	<0.001	0.002	0.001	<0.001
Barium	mg/L	1	0.027	0.029	0.033	0.031	0.028	0.026	0.025	0.020	0.032	0.028	0.032	0.028
Beryllium	mg/L	NA	<0.001	<0.001	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	1	0.19	0.23	0.14	0.18	0.2	0.18	0.06	0.07	0.17	0.15	0.11	0.10
Cadmium	mg/L	0.005	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1000[c]	45	45	ND	ND	46	46	24	21	44	41	31	26
Chromium	mg/L	0.05	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	0.004	<0.001	<0.001	<0.001	0.001	<0.001
Cobalt	mg/L	1000	<0.001	<0.001	0.010	0.009	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	<0.001
Copper	mg/L	1	0.001	0.001	0.001	0.001	<0.001	<0.001	0.002	0.001	0.015	<0.001	0.002	<0.001
Iron	mg/L	0.3	0.29	<0.05	0.29	0.06	ND	<0.05	0.92	<0.05	0.42	<0.05	0.78	<0.05
Lead	mg/L	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium	mg/L	0.075[d]	0.036	0.036	0.028	0.026	0.04	0.036	0.013	0.012	0.039	0.038	0.014	0.013
Magnesium	mg/L	NA	56	55	48	48	52	54	25	23	45	43	32	29
Manganese	mg/L	0.1	0.194	0.203	1.80	1.67	0.161	0.159	0.051	0.024	0.269	0.244	0.255	0.231
Mercury	mg/L	0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/L	0.15[c]	0.002	0.002	0.003	0.002	0.003	0.002	0.006	0.005	0.003	0.002	0.002	0.002
Nickel	mg/L	0.1	0.005	0.005	ND	ND	0.005	0.005	0.004	0.003	0.005	0.005	0.006	0.004
Phosphorous as P	mg/L	NA	<0.01	ND	ND	ND	0.02	ND	0.05	ND	ND	<0.01	0.07	ND
Potassium	mg/L	NA	10	9	ND	ND	9	11	6	7	8	7	6	6
Selenium	mg/L	0.01	<0.01	<0.01	ND	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silicon as SiO2	mg/L	NA	15	15.4	ND	ND	16	15	11.4	7.4	15.7	14.9	18.5	15.2
Silver	mg/L	0.05	<0.001	<0.001	ND	ND	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulfur as S	mg/L	NA	84	75	ND	ND	85	72	49	39	66	62	54	47
Sulfate as SO4 2-	mg/L	400	<0.001	<0.001			<0.001	<0.001			<0.001	<0.001		
Tin	mg/L	NA	<0.01	<0.01	ND	ND	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01	<0.001	<0.001
Titanium	mg/L	NA	<0.01	<0.01	ND	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Vanadium	mg/L	NA	<0.005	<0.005	ND	ND	0.006	0.006	<0.01	<0.01	0.009	0.005	<0.01	<0.01
Zinc	mg/L	5			ND	ND			0.006	<0.005			0.007	<0.005

TABLE C (Cont'd)
TERALBA QUARRY
September 2013 – June 2014 Comparative Surface Water Analyses (EPA Routes 4 and 5)

Analytes	Unit	Guidelines	EPL Point 4 June 2014		EPL Point 5 June 2014	
			Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)
pH	ph Unit	6.5 to 8.5 units	7.79	ND	8.01	ND
Conductivity	µS/cm	125 - 2200[b]	1860	ND	1120	ND
TSS	mg/L	<50	6	ND	<5	ND
Aluminium	mg/L	0.2	0.07	<0.01	0.19	<0.01
Ammonia as N	mg/L	0.01	<0.01	ND	<0.01	ND
Antimony	mg/L	NA	<0.001	<0.001	<0.001	<0.001
Arsenic	mg/L	0.05	0.002	<0.001	<0.001	<0.001
Barium	mg/L	1	0.028	0.026	0.030	0.028
Beryllium	mg/L	NA	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	1	0.14	0.13	0.06	0.06
Cadmium	mg/L	0.005	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1000[c]	40	41	34	30
Chromium	mg/L	0.05	<0.001	<0.001	0.001	<0.001
Cobalt	mg/L	1000	<0.001	<0.001	<0.001	<0.001
Copper	mg/L	1	<0.001	<0.001	0.001	0.001
Iron	mg/L	0.3	0.26	<0.05	0.26	<0.05
Lead	mg/L	0.05	<0.001	<0.001	<0.001	<0.001
Lithium	mg/L	0.075[d]	0.035	<0.012	0.012	0.011
Magnesium	mg/L	NA	46	45	35	32
Manganese	mg/L	0.1	0.252	0.090	0.097	0.090
Mercury	mg/L	0.001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/L	0.15[c]	0.002	0.002	0.002	0.002
Nickel	mg/L	0.1	0.004	0.004	0.003	0.002
Phosphorous as P	mg/L	NA	<0.01	ND	0.03	ND
Potassium	mg/L	NA	7	7	6	6
Selenium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Silicon as SiO2	mg/L	NA	15	15.1	11.4	15.2
Silver	mg/L	0.05	<0.001	<0.001	<0.001	<0.001
Sulfur as S	mg/L	NA	68	65	50	46
Sulfate as SO4 2-	mg/L	400	<0.001	<0.001		
Tin	mg/L	NA	<0.01	<0.01	<0.001	<0.001
Titanium	mg/L	NA	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	NA	<0.005	<0.005	<0.01	<0.01
Zinc	mg/L	5			<0.005	<0.005

Mr B. Sanderson
Metromix Pty Ltd
Rhondda Road
TERALBA NSW 2284

8 Rhondda Road
Teralba NSW 2284

Dear Mr Sanderson

Re: Noise Monitoring for Teralba Quarry

I am writing to agree with your proposition that Metromix does not need to continue to monitor noise at our residence at 8 Rhondda Road. I do, however, reserve the right to request the re-instatement of noise monitoring in the event that I consider noise monitoring is required.

Yours sincerely

.....

Dated 25/07/2014

Gianpiero
Goniglio

63 Victoria Avenue
Teralba NSW 2284

Mr B. Sanderson
Metromix Pty Ltd
Rhondda Road
TERALBA NSW 2284

Dear Mr Sanderson

Re: Noise Monitoring for Teralba Quarry

I am writing to agree with your proposition that Metromix does not need to continue to monitor noise at our residence at 63 Victoria Avenue. I do, however, reserve the right to request the re-instatement of noise monitoring in the event that I consider noise monitoring is required.

Yours sincerely

...DAVE BLACK

Dated ....D Black..... 25/7/14