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Response to Agency and Public Submissions

for the

Dargues Gold Mine

Modification 2

September 2013

Prepared by:



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Response to Agency and Public Submissions

for the

Dargues Gold Mine Modification 2

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1. INTRODUCTION

Big Island Mining Pty Ltd (the Proponent) has made an application under Section 75W of the *Environmental Planning and Assessment Act 1979* to modify Project Approval MP10_0054 in order to regularise a range of changes to the layout of the Project that have been identified during the detailed design phase of the Project. The application was supported by a document prepared by RW Corkery & Co Pty Limited entitled *Environmental Assessment for the Dargues Gold Mine Modification 2* (referred to hereafter as RWC (2013)). That document was placed on public exhibition from 7 August 2013 for a period of three weeks. During the public exhibition, submissions were received from:

- six government agencies;
- four special interest groups; and
- twenty individuals.

Table 1 presents an overview of the submissions received.

Table 1
Submissions Received

Page 1 of 2

Identifier	Name	Address	Proforma?
Agency 1	Department of Primary Industries	Level 48, MLC Centre 19 Martin Place SYDNEY NSW 2000	No
Agency 2	Environment Protection Authority	PO Box 622 QUEANBEYAN NSW 2620	No
Agency 3	Eurobodalla Shire Council	89 Vulcan St MORUTA NSW 2537	No
Agency 4	Palerang Council	PO Box 348 BUNGENDORE 2621	No
Agency 5	Division of Resources and Energy	516 High St MAITLAND NSW 2323	No
Agency 6	Office of Environment and Heritage	11 Farrer Place QUEANBEYAN NSW 2620	No
Org 1	AVPPEC	"Karawa" 6181 Araluen Road ARALUEN NSW 2622	Proforma 1
Org 2	Braidwood Greens	Charleys Forest via Braidwood, NSW 2622	No
Org 3	South East Forest Rescue	PO Box 899 Moruya, NSW 2537	No
Org 4	Coastwatchers	PO Box 521 Batemans Bay NSW 2536	No
Ind 1	Steve Redden	Ross Street MAJORS CREEK NSW 2622	Proforma 2
Ind 1a	Steve Redden	Ross Street MAJORS CREEK NSW 2622	No
Ind 2	Sarah Wilden	66 Gordon Street MILTON NSW 2622	Proforma 2

Table 1 (Cont'd)
Submissions Received

Page 2 of 2

Identifier	Name	Address	Proforma?
Ind 3	Anon 1	Not provided	No
Ind 4	[REDACTED]	[REDACTED]	No
Ind 5	[REDACTED]	[REDACTED]	No
Ind 6	Anon 2	Not provided	Proforma 1
Ind 7	Sue deGennaro	37 Wallace Street BRUNSWICK WEST VIC 3055	Proforma 1
Ind 8	Anon 3	Not provided	Proforma 1
Ind 9	Jackie Mills	419/1 Phillip St PETERSHAM NSW 2049	Proforma 1
Ind 10	Jean Ogilvie	4/47 Thomson Street KIAMA NSW 2533	Proforma 1
Ind 11	Peter Cormick	1670 Araluen Road DEUA RIVER VALLEY NSW 2537	No
Ind 12	Susie Edmonds	PO Box 5 MAJORS CREEK NSW 2622	Proforma 1
Ind 13	Virginia Hooker	PO Box 72 BRAIDWOOD NSW 2622	Variation on Proforma 1
Ind 14	Noel Pratt	PO Box 2115 Kambah ACT 2902	No
Ind 15	Anon 4	Not provided	No
Ind 16	Anon 5	Not provided	Proforma 1
Ind 17	Robert H. Reece	15 Holland St Fremantle WA 6160	Proforma 1
Ind 18	James Royds	Not provided	No
Ind 19	Maureen McAuliffe/ Peter Gillespie	Not provided	No
Ind 20	Irene Gillespie	Not provided	No

This document provides clarification in relation to a number of matters identified following finalisation of the *Environmental Assessment*, as well as a response to each of the submissions received. In order to facilitate review of this document, text drawn from the submissions is presented as indented, *italicised* text. The Proponent's response is presented in non-italicised text.

Finally, it is noted that two different types of proforma submissions were received. Each type of proforma submission has been addressed as a group, with all other submissions addressed individually.

2. CLARIFICATION OF THE ENVIRONMENTAL ASSESSMENT

Following finalisation of RWC (2013), a minor error was identified in Section 4.3 of that document. Table 10 of that document presents the approved areas of disturbance and compares those with the proposed areas of disturbance. That table was based on information presented on Figure 4.17 of RWC (2010). However, during preparation of the Department of Planning and Infrastructure's assessment report for the original application in 2011, a revised version of Table 10 was prepared and included as Table 3 of the assessment report. As a result, that Table 10 of RWC (2013) is inconsistent with Table 3 of the assessment report, with the latter superseding the former.

In recognition of this, **Table 2** presents a revised version of the approved and proposed areas of disturbance that is consistent with Table 3 of the assessment report.

Table 2
Vegetation Communities – Approved and Proposed Areas of Disturbance – Revised

Vegetation Community	Area to be disturbed (ha)		Area within Project Site (ha)
	Approved Layout ¹	Proposed Layout ¹	
1 – Ribbon Gum - Snow Gum Grassy Open Forest	Nil	Nil	28.2
2 – Fragmented Ribbon Gum - Snow Gum Grassy Open Forest	Nil	0.1	7.1
3 – Woody Weeds Shrubland	0.4	0.4	30.1
4 – Regenerating Wattles	0.2	0.2	18.5
5 – Exotic Vegetation	0.2	0.2	5.6
6 – Native Grassland	0.2	0.2	0.2
7 – Native-dominated Pasture	24	25.3	280.1
8 – Exotic-dominated Pasture	Nil	0.3	2.5
9 – Largely Disturbed Land	2.3	2.3	23.1
10 – River Peppermint Open Forest	Nil	Nil	1.3
Total	27.3	29.0	396.7

Note 1: Includes areas between individual infrastructure items.

In addition, it was also recognised that the proposed location of the return air rise and emergency egress had been relocated during the detailed design phase of the Project. The adjusted locations are in areas of existing disturbance within areas identified as Fragmented Ribbon Gum Forest. **Figure 1** presents a detailed view of the proposed locations of the emergency egress and return air rise, as well as the proposed substation to service the return air rise. The Office of Environment and Heritage was consulted during preparation of RWC (2013) and indicated that their only concern was that in-ground infrastructure, namely the buried power line from the substation to the return air rise, should be a sufficient distance from the trunk of any trees. The Proponent has agreed to this request.

In light of the above, the Proponent has included a nominal area of disturbance of 0.1ha of Fragmented Ribbon Gum Forest in **Table 2** to account for any inadvertent disturbance of that community. In addition, the Proponent notes that the following modification to Commitment 5.1 will also be required. Additional text is underlined.

"Ensure that, with the exception of the Return Air Rise, Fresh Air Rise and associated infrastructure, no ground disturbing activities are undertaken within areas of identified Ribbon Gum Forest and Fragmented Ribbon Gum Forest.

3. GOVERNMENT AGENCY SUBMISSIONS

3.1 DEPARTMENT OF PRIMARY INDUSTRIES

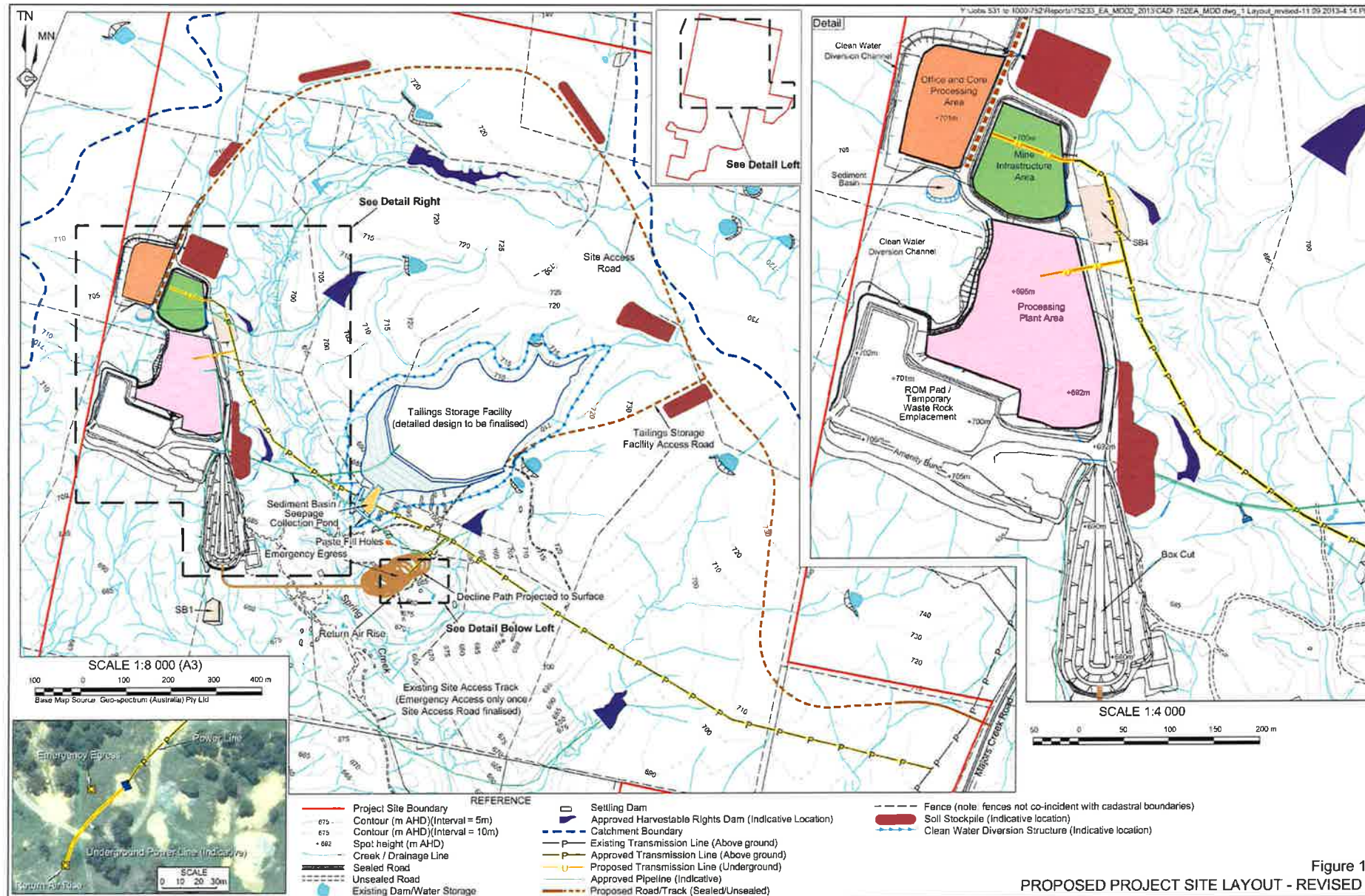
The Department advises that Fisheries NSW and Agriculture NSW have no comment or feedback on the proposed modification. The following comments have been provided by NSW Office of Water.

- i) *The modification proposal indicates the requirement to amend the surface water management system in terms of sediment basins and settlement dams. Clarification is requested as to the consistency of these amendments with the Maximum Harvestable Rights Dam Capacity. Of particular interest is the sediment basin at the base of the Tailing Storage Facility (TSF) which was previously the location of Dam F and is to capture water via the clean water diversion.*
- ii) *Clarification is requested on the interaction of water collection between the sediment basin at the base of the TSF and the seepage collection pond. Figure 5 in the Environmental Assessment (EA) shows no distinction between the two storages, hence uncertainty exists in the management of clean and contaminated water at this location.*

The Proponent acknowledges that Figure 5 of the *RWC (2013)* identifies that the dam located immediately below the base of the Tailings Storage Facility embankment and is labelled as a "Sediment Basin." The figure also shows clean water diversions discharging into the dam. This dam was previously identified on Figure 2.3 of the *Environmental Assessment* for the original application as "Harvestable Rights Dam F."

During the detailed design stage for the Project, the proximity of that dam to the Tailings Storage Facility, and the seepage collection structure located at the downstream toe, would severely restrict both the capture area of that dam and the area in which it could be constructed. As a result, the intended purpose of that dam has been adjusted as follows.

- During construction of the Tailings Storage Facility – the dam would be used as a sediment basin to ensure that potentially sediment-laden water is retained until sediment-concentrations can be reduced either through natural settling or flocculation to acceptable levels for irrigation to land.
- During operation of the Tailings Storage Facility – the dam would be modified for use as seepage collection pond for the facility.



In light of the above, the Proponent would ensure that commitments included in Section 2.7.2.2 of the *Environmental Assessment* for the original application would be implemented for the Sediment Basin/Leachate Collection Pond, namely:

- the dam, when used as a seepage collection pond for the facility, would be lined to achieve a permeability of 1×10^{-9} m/s over 900mm or equivalent;
- water collected during and following operation of the Tailings Storage Facility would be automatically pumped back to the facility; and
- surface water flows would be diverted around the dam.

In light of the above, **Figure 1** presents a revised version of Figure 5 of the RWC (2013) showing:

- the label for the dam adjusted to “Sediment Basin/Seepage Collection Pond”; and
- clean water diversions discharging below the dam.

The Sediment Basin/Seepage Collection Pond would not form a component of the harvestable right dam network within the Project Site and water collected within the dam would not be used for the compensatory flow program. In light of this, the volume of the remaining harvestable rights dams would be increased slightly to ensure that the Proponent’s full harvestable right may be utilised, thereby allowing for the maximum amount of water to be available for use as compensatory flow. **Table 3** presents the anticipated adjusted volumes for the remaining dams. Given that the differential between the original and adjusted volumes for each dam is less than 10%, the Proponent anticipates that the approved area for each dam is sufficient for the increased volume and that the original water balance modelling for the compensatory flow program remains valid.

Table 3
Revised Harvestable Rights Dam Volumes

Dam Identifier	Original Volume (ML)	Revised Volume (ML)
A	7.5	8.2
B	1.9	2.2
C	4.1	4.5
D	4.8	5.3
E	2.3	2.5
F	3.1	
G	2.2	2.4
H	8.6	9.4
Total	34.5	34.5
Note 1: Final volumes may vary depending on site conditions during construction of individual dams.		
Source: Big Island Mining Pty Ltd.		

- iii) *It is noted the drainage layout in the Water Management Plan (January 2013) indicates a different design for the clean water diversion than the approved or proposed site layout in Figures 3 and 5 of the EA. It is expected this would be one of the revisions required to the Water Management Plan.*

- iv) *The Office of Water requests a review of the Water Management Plan to address the proposed changes to the site layout and disturbance area.*
- v) *the modification application be approved the following condition is recommended:*
 - The Proponent shall review the Water Management Plan for the project. This Plan must be developed in consultation with the Office of Water and include:*
 - (a) details of water use, storage, monitoring and management on site,*
 - (b) detailed plans of water management on site, and*
 - (c) a Sediment and Erosion Control Plan.*

The Proponent acknowledges the request by NSW Office of Water that the *Water Management Plan* be reviewed and revised as appropriate in consultation with the NSW Office of Water following determination of the application. The Proponent notes that such a review and revision is a requirement of Conditions 3(26) to 3(31) of MP10_0054 and that the matters identified in item v) would be addressed during such a review and revision. That review is required under Condition 5(4) to be complete within three months of granting of approval for the proposed modification.

3.2 ENVIRONMENT PROTECTION AUTHORITY

3.2.1 Noise

It appears from the noise assessment undertaken by Spectrum Acoustics and detailed in their letter dated 11 July 2013 that the re-assessment of noise for the modification was based on the parameters and layout used in the 2010 noise modelling. The EPA understands from correspondence on 14 March 2013 from Unity that attended noise monitoring undertaken by SLR Consulting on behalf of Big Island Mining (BIM) indicated that exceedance of noise limits was recorded from three sensitive receivers, R27, R29 and R108.

Given that BIM were aware that actual noise levels were higher than those predicted by the original noise modelling, the EPA would expect that any new noise model run for this modification would have been calibrated against actual noise measurements. The EPA therefore recommend that noise modelling done in support of the proposed modification be calibrated using actual measurements recorded by BIM or its consultants as part of the noise monitoring for the premises. This will enable any potential noise issues to sensitive receivers to be identified and mitigation measures developed.

The Proponent engaged SLR Consulting Australia Pty Ltd, on a number of occasions from the commencement of site works in February 2013, to undertake attended noise monitoring in accordance with the requirements of the *Noise Management Plan*. To date four attended monitoring surveys have been undertaken at the monitoring locations identified in the *Noise Management Plan*. The dates of those monitoring programs were as follows.

- 4 and 5 February 2013.
- 12 and 13 March 2013.
- 27 March 2013.
- 15 August 2013.

All measurements were undertaken in accordance with the *EPA NSW Industrial Noise Policy* (INP) and *AS 1055.1-1997 Acoustics - Description and Measurement of Environmental Noise - General Procedures*. The following provides a necessarily brief overview of the results of each of those monitoring events.

4 and 5 February 2013

This survey was undertaken to measure baseline noise levels prior to the commencement of construction works. SLR found that sound levels are typical of rural environments, with noise generally associated with local traffic or from insects and birds.

12 and 13 March 2013

This survey was undertaken to measure noise emissions associated with the initial earthworks within the Project Site. SLR state that construction noise was not audible, barely audible or only intermittently audible at three of the monitored locations, namely R34, R81 and R20. Noise levels exceeded the LAeq 35dB criterion at three residences, namely R27, R29 and R108, with recorded noise from a scraper at R27 and R29 causing the exceedance and diesel engine noise causing the exceedance at R108. SLR notes that these monitoring locations are adjacent to the Project Site or within direct line of sight of the earthmoving activities.

In accordance with the procedures identified in Section 11 of the *Noise Management Plan*, the Company engaged SLR to return to the Project Site to confirm the monitoring results.

27 March 2013

SLR (2013b) stated that Project-related noise levels at each of the monitored locations were less than 35dBA at Residences R20, R29, R34, R81 and R108. Noise levels at residence R27 were between 35dB(A) to 42dB(A).

SLR (2013b) note that noise levels associated with construction activities at surrounding residences, including residence R27, are likely to be highly variable and influenced by

- atmospheric conditions, especially wind;
- type and location of equipment operating; and
- changes to the source/receiver path due to earthworks.

As a result SLR (2013b) recommended that further unattended monitoring be conducted at R27, R29 and R108 to confirm typical trends at these locations.

It was agreed at a meeting with DoPI, EPA and Palerang Council on 10 May 2013 that the second quarter noise monitoring would not be commenced until advice had been received from the EPA with regards to the exclusion of background noise from the monitoring results. At the time of preparation of this report that advice had not been received.

15 August 2013

In the absence of advice from the Environment Protection Authority, the Proponent, in recognition of its obligations to undertake quarterly attended noise monitoring, engaged SLR to complete the September quarter monitoring in accordance with the requirements of the *Noise*



Management Plan. SLR (2013c) states that Project-related noise levels at all monitored locations was audible at only two of the six monitoring locations, namely R27 and R34, and was “well below the operational noise limit of 35 dB(A) at all times.”

Discussion

The Proponent acknowledges the Environment Protection Authority’s comment that noise levels at three residences were higher than those originally predicted for residences R27, R29 and R108. However, the Proponent notes that the survey undertaken on 12 and 13 March was undertaken during the initial stages of construction operations, when no or limited noise shielding structures such as the ROM Pad amenity bund or development of the Boxcut below the surface profile had been completed.

In response to the results of the 12 and 13 March survey, the Proponent modified its construction activities to limit noise-related emissions to the greatest extent practicable. As a result of those measures, SLR (2013b) identified on 27 March, 14 days after the previous survey, that noise levels at two of the residences had been reduced below the criteria. Furthermore, following further construction of the noise shielding structures, by the time of the 15 August survey, noise levels had been reduced to “well below the operational noise limit of 35 dBA’ at all locations.

Finally, the Proponent notes that noise assessments, particularly for construction scenarios, are best estimates of activities that are likely to be undertaken at any particular time and that on-site operations are likely to vary from the modelled scenarios depending on the day-to-day activities on site.

In light of the above, the Proponent contends that the assumptions used in the original noise assessment remain valid and to require a remodelling of the construction noise levels, particularly in light of the Proponent’s actions in immediately taking measures to reduce noise emissions and the fact that the unattended noise monitoring did not indicate exceedances of the criteria would be unreasonable.

3.2.2 Increase in the On-site Storage of Hydrocarbon

The EPA notes that the proposed modification includes an increase in the volume of diesel that will be stored on the premises from 50 000 L to 68 000L. It is a requirement that this diesel is stored and dispensed in accordance with the relevant Australian Standard and fuel storage and refuelling areas are bunded appropriately.

The Proponent notes that RWC (2013) states at Section 2.8.5 that “[a]ll other aspects of hydrocarbon management would remain as described in Section 2.10.2.4 [of RWC (2010A)].” That Section references *AS 1940:2004 - The storage and handling of flammable and combustible liquids*. As a result, the Proponent contends that the requirements of the appropriate Australian Standard and hence the requirements of the Environment Protection Authority, would be met.

3.2.3 Sediment and Erosion Control

The EPA notes that one of the objectives of the proposed modification is to "enhance the sediment and erosion control capabilities of the Project."

The EPA has concerns regarding the adequacy of previous stormwater assessments, particularly as sediment-laden water has been discharged from the premises into Major's Creek on multiple occasions through the construction phase of the project without any approved water discharge points being included in the EPL.

Rather than "verify" assumptions used in the preparation of the Sediment and Erosion Control Plan, as stated in Section 4.5, page 48 of the EA, the EPA requires a complete review of the design capacity of existing erosion, sediment and stormwater management controls and their adequacy for capturing run-off generated on the site. Given the multiple times that sediment-laden water has discharged from the premises, the assumptions of the current stormwater management practices and sediment and erosion control plan appear inadequate and require testing against reasonable performance standards which could be expected at any discharge location to the environment. This recommendation is consistent with a recent Pollution Reduction Program (PRP) that was placed on the EPL.

As provided in previous correspondence to the Proponent this review needs to involve consideration of:

- i) The Average Recurrence Interval (ARI) of rainfall at the premises;*
- ii) Meteorological data relevant to the premises;*
- iii) The physical properties and behavioural characteristics of soils present at the premises;*
- iv) Appropriate basin design;*
- v) Appropriate drain capacity and design;*
- vi) An assessment of the capacity of sub-catchments within the premises to generate run-off;*
- vii) The provision of dedicated stormwater detention ponds with adequate storage capacity.*

No updated Sediment and Erosion Control Plan or Water Management Plan was included with the EA, so the EPA is unsure how the objective of enhanced sediment and erosion control capabilities will be demonstrated as being met through the modification. Therefore, rather than relying on Condition 5(4) of MP10_0054, as stated in the EA, the EPA recommends that should the Department of Planning and Infrastructure (DP&I) decide to grant consent for this modification, that a new consent condition be used to capture the sediment and erosion control enhancement requirements and how these are to be documented and implemented by the Proponent in conjunction with the modification approval.

The Proponent also notes that the Environment Protection Authority did not request preparation of a revised, or updated, *Sediment and Erosion Control Plan* and *Water Management Plan* for inclusion with RWC (2013). Rather, such a review and revision is a requirement of Condition 5(4) to be completed within three months of granting of approval for the proposed modification, assuming that it is granted.

In addition, a Pollution Reduction Program has been agreed to between the Proponent and the Environment Protection Authority and, as noted, was incorporated into the Environment Protection Licence held for the Project (EPL20095) on 18 July 2013, six days prior to the Authority issuing its requirements for the proposed modification. That program requires the following by the identified dates.

- 26 July 2013 – The Proponent must engage a suitably qualified independent expert in the field of erosion and sediment control to prepare the following report. This action has been completed with Cardno South Coast (Cardno SC) appointed on 25 July 2013.
- 15 September 2013 – The Proponent is to submit a report addressing the following, prepared by Cardno SC.
 - A short-term program for the repair, maintenance and upgrading of sediment and erosion control structures within the Project Site.
 - A review of the design capacity of the sediment and erosion control structures, taking into account matters i) to vii) above.
 - The treatment of road surfaces and drains to prevent suspension of colloidal material into water.

As at the date of compiling this submission, the Proponent is in the final stages of preparing the required documentation, including implementing the interim recommendations, and contends that the recommendations of the Pollution Reduction Program would be included in any revised *Sediment and Erosion Control Program* and *Water Management Plan* should the proposed modification be granted

3.3 EUROBODALLA SHIRE COUNCIL

In the report the Proponent notes that “the proposed modification does not include any additional infrastructure, merely modification of the location of infrastructure that has already been approved”. Council agrees that the proposed changes to the site layout are not in conflict with the intent of the Project Approval and has no objection.

Acknowledged.

I note that Condition 2(6)(d) instructs that “the Proponent shall not use any cyanide or mercury on site to process or extract gold from the project”. Whilst the proposed modification does not make reference to any such proposed on-site processing, to make our position absolutely clear, Council maintains that this is an essential condition for the protection of the local and wider environment, in particular the Deua River and its tributaries, being the primary source of the Eurobodalla Shire’s water supply.

Acknowledged.

Processing of gold concentrate using cyanide or mercury, within the Project Site has never been contemplated in any applications made for the Project, nor does it form a component of the proposed modification.

The Water Management Plan will need to be updated to reflect the amended site layout and to address previous inadequacies. Attention is drawn to Condition 3(26) which requires the Proponent to consult a number of stakeholders in the preparation of the Water Management Plan, including Eurobodalla Shire Council.

As noted above, Section 4.5 of RWC (2013) notes that a revised *Water Management Plan* would be required should the proposed modification be granted. The Proponent acknowledges the requirement to consult with government agencies identified in Condition 3(26) of MP10_0054, which includes Eurobodalla Shire Council.

The Proponent has also proposed a range of amendments to the conditions of the Project Approval "to further clarify the intent of the conditions". While most of the proposed amendments do provide clarification, the proposed amendment to Condition 2(2) - "the Proponent shall carry out the project generally in accordance the EA, Statement of Commitments and Conditions of this Approval" does not provide clarification, and is inconsistent with the stated objectives of the modification. Council is also of the opinion that the proposed amendment to Condition 2(2) would be contrary to the decision of the Land and Environment Court which ordered that approval is granted "subject to the conditions in Schedules 2 to 5".

This proposed amendment reduces the certainty that the conditions of approval will be complied with. Council therefore strongly objects to this proposed amendment.

As stated previously, Council does not object to site layout changes that are not in conflict with the intent of the Project Approval. If the intent of this proposed amendment is to allow further minor modifications to the site layout as the mine develops, I suggest that an exception clause be inserted into the Project Approval to accommodate this requirement.

The Proponent notes Eurobodalla Shire Council's concerns and similar concerns expressed by other respondents. However, the Proponent also notes that the proposed wording is the standard form of words used in Project Approvals for similar projects in NSW. The proposed amendment to Condition 3(2) of the Project Approval will achieve consistency with such other Project Approvals.

The proposed amendment will not derogate from the Proponent's obligation to comply with the terms of the conditions of the Project Approval. Rather, the intent of the proposed modification is to permit some flexibility in the carrying out of the Project in accordance with the description of the Project in its original (and any subsequent) environmental assessment documents. There is nothing unusual or inappropriate about the retention of a degree of flexibility in planning approvals. The Proponent is advised by its legal advisors, Ashurst, that this is particularly appropriate as the Chief Justice of the Land and Environment Court observed in *Ulan Coal Mines Ltd v Minister for Planning and Moolarben Coal Mines Pty Ltd* [2008] NSWLEC 185 at [75], for "the scale of projects subject to approval under Part 3A, which are often complex, extensive and multi-stage projects".

Contrary to Council's submission that *the proposed amendment is inconsistent with the objectives of this modification application*, it is in fact considered to be entirely consistent with those objectives, given that this modification application is directed at site layout changes that are either already within the ambit of the Project's approval or are simply further adjustments to the site layout as a consequence of the detailed design phase of the Project.

The Proponent notes that the proposed form of words has a long history of use and contends that the scope of flexibility that the wording permits is well understood based on how the Department of Planning and Infrastructure administers the EP&A Act in respect of Project Approvals which contain the proposed form of words, and given that the proposed form of words has been the subject of extensive judicial consideration by the Land and Environment Court in the context of planning approvals. Therefore, contrary to Council's submission, this proposed modification should increase the level of certainty from a compliance perspective.

3.4 PALERANG COUNCIL

Council has no particular concerns regarding the proposed modification.

Acknowledged.

3.5 DIVISION OF RESOURCES AND ENERGY

The proposed modifications are not expected to significantly increase the overall environmental impact of the project. There will be no increase of the total disturbance area of the mine. The rehabilitation outcomes and methods appear to be broadly similar to the approved development and existing requirements are satisfactory.

Acknowledged.

Within one month of the determination of Modification 2, the titleholder must submit for approval by the DRE, an Amended Mining Operations Plan for the Dargues Gold Mine.

The Proponent acknowledges its obligations to review and revise as appropriate, the Management Plans that govern environmental management of the Project, including, amongst others, the *Mining Operations Plan*. An amended plan will be prepared within the required timeframe should the proposed modification be granted.

3.6 OFFICE OF ENVIRONMENT AND HERITAGE

Aboriginal Heritage

OEH still has concerns in relation to the adequacy of the 2010 Aboriginal Heritage Assessment as it is not clear as to which areas were assessed during the original survey nor is it clear as to the extent of the recorded Aboriginal sites. Given the scale of some of the maps and figures within the Environmental Assessment and Archaeological Assessment Report; it is difficult to determine the exact locations of the two Aboriginal

sites (GT OS2 and GT OS4) that are mapped on, or close to, the modified transmission line route within the revised project footprint, hence OEH's concerns regarding ensuring Aboriginal objects within these sites are not harmed during the construction of the proposed transmission line. Office of Environment and Heritage recommends that these sites and any other sites (such as GT OS1) located within close proximity to Project activities be re-located in the field to ensure the proposed exclusion fencing is adequately erected to avoid any potential impacts.

The Proponent notes the concerns of the Office of Environment and Heritage and notes that the co-ordinates for each of the sites identified are included in Table 2 of the *Aboriginal Heritage Management Plan*. In accordance with the requirements of Section 3.4.1 of that plan, the Proponent has previously established exclusion zones surrounding each of the six identified sites. To ensure that these exclusion zones were appropriately located, the Proponent engaged Artefact Heritage Services to relocate each site in the field. **Plate 1** presents a photograph of a typical exclusion zone established at Aboriginal heritage site GT OS1. All exclusion zones are sign posted prohibiting unauthorised access.

Plate 1 Exclusion Zone Surrounding Aboriginal Site GT OS1



OEH suggests that monitoring of all recorded Aboriginal sites, at regular periods, be included within the Statement of Commitments and Aboriginal Heritage Management Plan (AHMP) to ensure the sites remain adequately fenced and are not being indirectly impacted by Project activities.

In relation to the AHMP; OEH advises that it has not previously seen with a copy of the final AHMP (dated February 2012) for input into the Aboriginal Heritage Information Management System (AHIMS). OEH has subsequently obtained a copy from [Dargues Reef Website] so as to adequately consider the proposed modification in relation the archaeological background.

Following a review of the AHMP; OEH recommends the Aboriginal Heritage Management Plan: Dargues Reef Gold Project, Braidwood (dated February 2012) be updated to include the additional site GT-IS06 recorded in 2011 within Figure 1 on page 6, Tables 2 and 3 on page 8, the Induction text on page 28 and Figure 4 on page 29.

The Proponent acknowledges Office of Environment and Heritage's comments and will ensure that the *Aboriginal Heritage Management Plan* is amended as noted in accordance with the requirements of Condition 5(4) of MP10_0054 and that a copy of the revised document is provided to the Office of Environment and Heritage.

Biodiversity

OEH notes that the Proponent has considered the advice provided on 18 July 2013 in relation to ensuring activities are undertaken in accordance with the 'AS4970-2009 Protection of trees on development sites' to avoid affecting the health of the any trees and has committed to revising the Statement of Commitments.

OEH has reviewed the remainder of the modified footprint and is of the view that there will be no additional impacts on biodiversity other than those addressed in the original approval.

Acknowledged.

4. SPECIAL INTEREST GROUP SUBMISSIONS

4.1 AVPPEC SUBMISSION

4.1.1 Introduction

AVPPEC provided a primary submission and a supplementary submission. These submissions are addressed separately below.

4.1.2 Primary Submission

In the six months since the Dargues Reef project began in February 2013, the EPA has reported five breaches, comprising four sediment overflows and an unapproved flocculation discharge that severely affected vulnerable, endangered and critically endangered fish and frogs in the 1-4 area downstream.

The sediment overflows occurred within rain events that were not extraordinary and any cursory investigation of rainfall records would have provided the Proponents with sufficient information to ensure efficient management of autumn/winter rains.

Event 1. 24.2.13 -54mm rain in 24 hr period,

Event 2. 1.3.13-40mm rain.

Event 3. 20.4.13 161mm rain a10day period.

Event 4. 24.6.13 30mm rain

Event 5. The fifth event appears to be in early July, 2013, however it was not noted by the EPA until a routine inspection on Thursday 8 August showed that the company was discharging into a gully leading to Major's Creek, despite having no license to do so.

Investigations into the extent of any harm from that event, if any, are still ongoing. What is of deep concern, however, is the company's refusal to obey an EPA directive to warn downstream users of the potential danger of the chemical discharge. Even if the investigations show that no lasting damage occurred, the precautionary principle, and respect for the EPA, should have led to the company warning downstream users of potential problems.

Unfortunately the EPA did not know of the discharge into the gully leading to Major's Creek until three weeks after the discharge. Although traces of the flocculent were found, it was too late to ascertain the extent of possible repercussions downstream. However the initial EPA survey found no fish or amphibian life in the two test sites where these species had been abundant two months before.

The above extract from the AVPPEC submission raises three issues, namely:

- discharge of sediment-laden water;
- discharge of water containing flocculants; and
- failure to notify downstream residents.

Each of these issues are addressed separately below.

Release of sediment-laden water

Since commencement of bulk earthmoving activities within the Project Site on 11 February 2013, there have been four periods of release of untreated, sediment-laden water as follows.

- Incident 1 – Shortly after commencement of land preparation activities on 11 February 2013, a total of 97.2 mm of rainfall was recorded by the Project's automated weather station on 22, 23 and 24 February, including 48mm on 23 February. This is well above the identified design capacity for sediment basins in the original approved and the revised *Sediment and Erosion Control Plans* of 18mm and 25.8mm in five days respectively. This rainfall followed several days of drizzle and occasional showers that had already left the ground fully saturated.

On 24 February 2013, it was noted that the sediment basins had reached their designed capacity and had begun to release water and that loss of containment of one area of the Project Site had occurred due to the failure of a diversion drain. No heavy machinery could immediately be used to assist with efforts to control water leaving the Project Site due to safety concerns.
- Incident 2 - On 27 February 2013 further rainfall of 27.4 mm was received. As all sediment basins were full following heavy rainfall in the preceding days it required only a small amount of rain to cause a temporary sediment basin near the Boxcut to overtop and result in release of sediment-laden water.

- Incident 3 - On 20 April 2013, a further release occurred following a rainfall event of 30.6mm over 24 hours. It is noted that all sediment and erosion control structures had been upgraded prior to this event in accordance with the requirements of the revised *Sediment and Erosion Control Plan* and that all structures performed as designed. However, due to the fact that the amount of rainfall received exceeded the design rainfall limit of 25.8mm, the sediment basins released water as designed.
- Incident 4 - between 24 and 26 June 2013 more than 167mm of rainfall was recorded. This amount of rainfall was well above the design capacity of the sediment basins and resulted in release of water as designed. It is noted that, all sediment and erosion control measures performed as designed and that other water courses outside the Project's influence were similarly affected.

The Proponent notes that during Incidents 3 and 4, the sediment and erosion control structures within the Project Site operated as designed and that those structures were designed in accordance with the requirements of Landcom (2004) and constructed in accordance with the approved revised *Sediment and Erosion Control Plan*. As a result, the releases associated with those incidents are not "breaches" of the Project's Environment Protection Licence.

In addition, the Proponent notes that Incidents 1 to 4 are the subject of an investigation by the Environment Protection Authority and that the Proponent has provided the Authority with all requested information and that an agreed Pollution Reduction Program has been put into place.

Release of water containing flocculants

AVPPEC allege an unlicensed discharge of water containing flocculent to a "gully leading to Majors Creek." The relevant facts associated with this issue are as follows.

- The Proponent has prepared a revised *Sediment and Erosion Control Plan* as described previously. That plan, as well as the original plan that preceded it, identifies that flocculation may be required to facilitate settlement of sediment within sediment basins. Once the sediment has settled, the plan identifies that the treated water may be released.
- The Proponent has used a number of commercially available flocculation in an effort to improve water management. Previously, typical flocculants such as gypsum had been used with mixed success.
- The Proponent identified and commenced use of two commercially available flocculation products, namely HaloKlear DBP-2100 FS and HaloKlear Gel-Floc MB.
- As of 30 July 2013, the Proponent has treated and released approximately 9.1ML of water using the above products at the dosage rates recommended by the manufacturers, requiring approximately 8.3kg of DBP-2100 FS and 9.0kg of Gel-Floc MB respectively. That water was released to pasture, not to any gully or tributary leading to Spring Creek as alleged by AVPPEC.

The Environment Protection Authority, during an inspection of the Project Site on 24 July 2013, raised the issue of the use of the flocculants. As a result, the Proponent engaged GHD to complete an assessment of the products. The resulting report is presented in full as **Appendix 1** and is referred to as GHD (2013). The principal findings of that assessment are as follows.

- The active ingredients of the two products are xanthan gum and chitosan.
 - Chitosan is derived from chitin sourced from crustaceans. It is a naturally occurring chain of glucose molecules structurally related to cellulose. GHD (2013) state that at a concentration of 22ppm, Chitosan did not result in any toxicity, with 100% survival for all organisms exposed used during the test.
 - Xanthan Gum is a polysaccharide that is commonly used in the food industry. Toxicity testing using water fleas and freshwater fish has shown that these species are not sensitive to the product at concentration of several hundred parts per million.
- When used in accordance with the manufactures directions, the concentrations of the above active ingredients is less than 1ppm.
- During flocculation, the above active ingredients bind to the clay particles suspended in sediment and settle with the sediment to the floor of the sediment basin, reducing the concentration of the ingredients in the water.

In light of the above, GHD (2013) conclude that the concentrations of xanthan gum and chitosan in water released from the sediment basins is several orders of magnitude less than concentrations known to cause toxicity. As a result, the Proponent contends that use of these products in the manner indicated by the manufacturers of the products would not result in adverse environmental impacts. Furthermore, the Proponent contends that it is permitted to release water into waterways providing any such release is “non-polluting”. The Proponent contends that that is the case in this case.

Failure to notify downstream residents

Prior to notification of downstream water users, government agencies and other stakeholders of any event within the Project Site, the Proponent undertakes an assessment of the potential for adverse impacts on the environment and human health associated with that event. This assessment is conservatively applied and where the Proponent determines that there is reasonable potential for adverse impacts on the environment or human health, the Proponent seeks to notify all relevant stakeholders as soon as possible.

In relation to release of sediment-laden water, the Proponent notes that downstream water users who had registered with the Proponent were notified on the following dates.

- Incident 1 – 25 February 2013.
- Incident 2 – not notified because discharge from Incident 1 continuing.
- Incident 3 – 20 April 2013.
- Incident 4 – 24 June 2013.

The Proponent contends that, with the exception of notification for Incident 1, the notification provided was reasonable and commensurate with the risk of adverse impacts to such users. The Proponent does, however, acknowledge that notification of downstream users in relation to Incident 1 was inadequate and has implemented measures to prevent a recurrence of that failure. These measures have been widely discussed with the community and further disseminated through the DRCCC.

In relation to the release of treated water, the Proponent notes that the flocculent used to treat the sediment-laden water prior to release is sold for that purpose and, when used in the manner indicated by the manufacture, has been determined by GHD (2013) to be highly unlikely to result in any adverse environmental impacts or risk to human health. As a result, the Proponent contends that its original decision not to notify downstream water users based on the risk to such water users was reasonable.

The following conditions laid down by the Land and Environment Court have not been met.

1. *[Commitment] 5.10 states "prepare a biodiversity Management Plan in consultation with the relevant government agencies, which would include a program to determine the condition of the Araluen Scarp Grassy Forest EEC adjacent to Major's Creek within the Major's Creek Conservation Area, including ongoing monitoring".*

The Proponent notes that a *Biodiversity Management Plan* has been prepared in accordance with the requirements of Condition 3(35) and Commitment 5.10 of MP10_0054, and done so in consultation with the Office of Environment and Heritage. That plan was approved by the Department of Planning and Infrastructure on 16 May 2012. As a result, the Proponent contends that the requirement of Commitment 5.10 has been met.

2. *[Commitment] 15.12 states "a requirement to undertake monthly surface water monitoring at a range of locations downstream of the Major's Creek Conservation Area prior to and during the life of the project".*
3. *[Condition 29(b)] states "stream health assessment criteria that includes representative baseline survey of aquatic life of Major's creek upstream and downstream (to the confluence with Araluen Creek) prior to commencement of construction and annually thereafter".*

The Proponent notes that a *Water Management Plan* has been prepared in accordance with the requirements of Conditions 3(26) to 3(31) of MP10_0054. Revision 3 of that document was approved by the Department of Planning and Infrastructure on 16 May 2012. The plan identifies both:

- monthly monitoring of water quality at a range of locations within and downstream of the Project Site; and
- six monthly aquatic ecology monitoring.

The Proponent has implemented the plan as approved. The results of the above monitoring programs are to be presented in the *Annual Environmental Management Report*. Details of the results of these assessments are provided, as is required, on the Proponent's website.

Consequently, the Proponent objects to the accusation that the conditions have not been met and contends that the requirements of Commitment 15.12 and Condition 29(b) have been achieved.

Approval to be delayed until the following issues are resolved:

1. *EPA sponsored Pollution Reduction Plan in place. The history of this company non-compliant behaviour in its approach to surface water management and its responsibilities to the downstream environment and water users, it is requested that approval be delayed until the EPA Pollution Reduction Plan is agreed. In addition a close supervisory role by the EPA is also agreed to ensure an improved performance in the future.*

The issue of the agreed Pollution Reduction Plan is fully addressed in Section 3.2.3.

2. *The company has responded to the repeated requests from downstream users to test their household water taken from the creek during the sediment events, or to survey the thick layer of sediment left by the four discharge, leaving more than a metre of sediment in the deep pools that are the only safe source of water for wildlife in dry periods for more than about twenty kilometres. This corridor is a vital migration corridor for birds as well as habitat for vulnerable species like the quolls, rock wallabies, green and gold bell frogs and 19 other vulnerable,*

Prior to the commencement of the Project, and to ensure that baseline monitoring data was available, the Proponent engaged Cardno Ecology Labs (Cardno EL) to undertake an aquatic ecology assessment at a range of sites within Spring Creek and Majors Creeks, including the Spring Creek and Majors Creek above and below the Project Site. Those surveys were undertaken on:

- 28 to 30 September 2011;
- 19 to 21 June in 2012;
- 23 and 24 October 2012; and
- in late March 2013.

The initial three surveys predated the commencement of bulk earthworks within the Project Site, while the fourth post-dated Incidents 1 and 2 described previously.

The condition of the aquatic habitat at each site was assessed using a modified version of the Riparian, Channel and Environmental (RCE) inventory method. This assessment involves evaluation and scoring of the characteristics of the adjacent land, the condition of riverbanks, channel and bed of the watercourse, including sediment load and condition, and degree of disturbance evident at each site. Habitat data, including a visual estimate of substratum composition, was also collected as part of the AUSRIVAS sampling protocol.



The resulting assessments were provided to downstream water users, relevant government department and other interested stakeholders, as well as being made publicly available on the Proponent's website.

The results of the March 2013 survey may be summarised as follows.

- No major changes to the in-stream habitat or substratum were observed at the sites visited on Majors Creek downstream of Spring Creek. Some changes in the proportion and distribution of sand and silt were evident as well as changes to the bank and bed erosion. However these changes are not likely to have been directly related to mine construction as the mobilisation of particulate matter in the flowing aquatic environment is a normal physical process that occurs in catchments in response to rainfall and elevated flow rates. It was noted by Cardno EL that evidence of a collapse of the bank of Spring Creek, unrelated to the Project, would have added significant sediment load to the stream.
- Water quality data showed turbidity to be higher at the Spring Creek sites in March 2013 compared with previous sampling in October 2012, though lower than that recorded in June 2012. Cardno EL assessed that this was due to rainfall closer to the sample date in June 2012 causing elevated results.
- Biological indicators do not indicate any major change in the aquatic ecosystem.
 - Macroinvertebrate taxa diversity, taxa sensitivity scores and observed to expected taxa ratios were comparable for data collected in previous surveys. Mean macroinvertebrate taxa richness was greater in autumn 2013 than in autumn 2012 at all locations and for both edge and riffle habitats.
 - A slight reduction in SIGNAL2 scores was evident for edge habitats while mean SIGNAL2 scores for riffle habitats fluctuated over the period of the surveys.
 - Mean AUSRIVAS OE50 taxa scores for edge habitats were comparable between spring 2012 and autumn 2013 site groups.
 - All site groups fell within Band A of the AUSRIVAS OE50 band boundaries in autumn 2013 indicating that they were consistent with the 'Reference Condition', that being the original surveys of the site.
 - There was also no decline in fish abundance or diversity. One new fish species (Common Galaxias) was recorded in March 2013 compared with previous monitoring data.

In conclusion, data collected in March 2013 does not show a major change in the aquatic habitats or the aquatic ecosystem compared with baseline data. In fact, an additional fish species was identified in the latter survey. The Proponent proposes to continue the six-monthly assessment of aquatic ecology, acknowledging seasonal effects on biological life in the waterways, with the next survey due during the Spring survey period between 15 September and 15 December 2013.

In light of the above, the Proponent contends that it has tested the environment downstream of the Project Site and that further testing, outside that intended, is not required.

In relation to the request for testing of water within water user's tanks, the Proponent notes that a request to sample water has been received, from [REDACTED] and [REDACTED] only (see Section 5.5), and that an offer was made by the Managing Director and CEO of the Proponent, Mr Andrew McIlwain, to undertake sampling. That offer was refused.

3. *All conditions laid down by the NSW land and Environment Court are fulfilled, especially those that were set down to establish baseline conditions before commencement of the project. These are vital if impacts are to be measured.*

The Proponent contends that it is compliant with all relevant conditions of MP10_0054 and all other relevant licences and approvals, including those related to establishment of baseline environmental conditions.

4. *The investigations and possible prosecutions by the EPA are completed*

This is a matter for the Environment Protection Authority, not AVPPEC. Any potential prosecution of the Proponent by the EPA is a matter of mere supposition by the respondent and has no relevance in this submission. The Proponent notes that the Environment Protection Authority provided a submission in relation to the proposed modification (see Section 3.2) and that the Authority did not identify ongoing matters as barriers to granting approval for the proposed modification.

5. *That the company agree to test all water or soil where there is reasonable doubt that it may have been contaminated by work at the project.*

The Proponent contends that this requirement is embodied in Section 12 of the *Water Management Plan*.

4.1.3 Supplementary Submission

There appears to be within this modification proposal and as exhibited by the company's behaviour to date a disregard for the consent provisions. (see previous submissions which highlights provisions to date not complied with) The picking and choosing of which provision the company will comply with and which can be reduced, disregarded or ignored is totally unacceptable.

Therefore we strongly and clearly state that "we object to any modification that allows the company to do less than fully comply with all the consent provisions."

The Proponent draws attention to its obligations as a publically listed entity on the Australian Stock Exchange. It holds its history and character, particularly in regard to social and environmental performance, in the highest regard. The suggestion that it would conduct its business in such a cavalier manner is strongly rejected.

That said, the Proponent notes that it is obliged to comply with all conditions and requirements prescribed for all approvals and licences and that it does not have the liberty to “pick and choose” which requirements to comply with. The Proponent further notes that the proposed modification seeks to provide clarification of the Project’s approval conditions, so as to assist both the Proponent and regulators, in ensuring that the Project’s approval conditions are fully met. At no point does the proposed modification seek to allow ‘the company to do less than fully comply with all the consent provisions’. The Proponent also notes that responsibility for enforcing the relevant requirements lies with the relevant government agencies, not AVPPEC.

4.2 BRAIDWOOD GREENS SUBMISSION

Thank you for the opportunity to respond to the proposed modifications to the Dargues Reef Gold Project. Thanks too for the extensive and valuable website that continues to be maintained for the mining operation, and for the clear intention of the Proponent to deliver excellence in environmental and social outcomes.

Acknowledged. The Proponent notes that maintenance of a comprehensive database of information in relation to the Project is a commitment that was made to the community and one that will continue to be implemented. Furthermore, the Proponent is currently in the process of updating the Project’s website to further enhance the provision of information to all stakeholders.

It is noted that the development and maintenance of the website is seen as a key communication mechanism for all Project stakeholders.

Through this submission, we seek to enhance the environmental and social outcomes from the mining operations. We consider that this is consistent with the following Objectives of the Modification (Environmental Assessment p.13):

- b) to reduce, to the maximum extent practicable, the overall environmental impact of the Project, and*
- c) to reduce, to the maximum extent practicable, the impact on the local community and other stakeholders.*

Acknowledged.

Our proposal is in response to several breaches of conditions that have occurred in the short eight months since approvals and works have commenced. Those breaches have included two sedimentation events, and one release of un-approved contaminant (flocculent) into the downstream creek system. Each of these events had associated media coverage and caused considerable distress and concern to the local community and other stakeholders. We consider that these events run counter to the Proponent’s stated objectives of reducing both the environmental and the social impact of the mine operations.

The issue of discharge of sediment-laden water and flocculent and the associated environmental impacts associated with the alleged events is discussed in Section 4.1.2. Further, it is appropriate to note that there is no requirement for the Proponent to seek "authorisation" for the use of products on site as suggested.

To address environmental and community concerns and to achieve the Modification Objectives we suggest the following additional conditions:

1. *That the role of the Community Reference Group be enhanced so that:*
 - a) *The Proponent undertakes reasonable requests by the Group for additional monitoring and testing. This would include testing of the impact of pollution events on private properties, and could include testing of ecosystem sites (e.g. particular reaches of the creek), and also sedimentation or other water quality issues within water tanks that have been filled during rain events.*

The Proponent contends that the role of the Dargues Reef Community Consultative Committee (DRCCC) is to provide a means of open communication between the Proponent and the community. Issues related to monitoring have been, and are, extensively discussed with the committee by the Proponent and any feedback from the committee has been taken into account when revising the monitoring programs. The Proponent contends that any reasonable requests made by the committee are already acted on by the Proponent and that further refinement of the committee's role is not required in order to achieve an improved outcome. In addition, the Proponent contends that the terms of reference for the committee as identified in Section 1 of the document *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* dated June 2007 and published by the then Department of Planning are sufficiently broad to address the above issue.

- b) *The Proponent accepts and considers public submissions that support the establishment of baseline conditions. These may not conform to standard scientific methods, but could include photographic or written, or other records, so long as those can be validated to a practical extent. For instance, if a landowner reports never having witnessed a sediment layer at a particular section of a downstream creek, and this memory is corroborated by other reliable witnesses, then this feature can be recognised as a baseline condition.*

The Proponent acknowledges the extensive local knowledge and history that some residents have in relation to the environment surrounding the Project Site and the limitations of baseline monitoring over a period of a few years prior to the commencement of any Project. However, the Proponent also notes that baseline monitoring needs to be both quantitative and subjective to enable accurate assessment of environmental impacts and their causes. To that end, the Proponent would be pleased to receive, and would consider all subjective information, including photographs. However, the Proponent contends that verbal information or information that does not rely on documentation can, even with the best of intentions, be subject to significant error. It is also unfortunate that already, some individual have attempted to use "personal recollections" in a manner that is not consistent with qualitative data or information. As a result, while the Proponent would be pleased to receive such information, the weight that could reasonably be applied to it would be limited.

- c) *Responses are required to established changes to baseline conditions. For example, an increased sediment layer associated with a mine-related sedimentation event may require additional monitoring at the site, until such a time as the sedimentation is observed to have been removed by subsequent rain events. Alternatively, if sediment continues to build up, then the Department and any relevant experts could be called on to provide advice about possible solutions.*

The Proponent notes that the *Water Management Plan* includes a requirement for aquatic ecology surveys to be undertaken initially six monthly at a range of locations within the upper, mid and lower reaches of Spring Creek and within Majors Creek within the Project Site, as well as above and below the Araluen Valley escarpment. The identified assessment methodology includes an assessment of the condition of the bank and bed of the watercourse, including noting changes since the last survey. As a result, the Proponent contends that the existing methodology is sufficiently robust to detect changes in stream morphology and sediment load associated with the Project.

Finally, the Proponent notes that Section 10.7 of the *Water Management Plan* identifies a trigger for further investigation and action in the event of significant adverse changes to aquatic ecology or stream morphology of “non-negligible Project-related reduction in stream health.” The Proponent contends that this trigger is reasonable and addresses the concerns expressed by the Braidwood Greens.

- d) *The Community Reference Group can make these and other submissions ‘out of session’, for example through email exchanges and other means. Such an email exchange could be initiated by any Community Reference Group member, and will be recognised as a formal contribution to mining community concerns.*

The Proponent notes that procedures for “out of session” communication between the community representatives on the DRCCC and the Proponent have been established to ensure that all members are aware of all communication and responses, and that this procedure is frequently used. That procedure requires communication to be addressed via the independent Chair who, where appropriate, would forward the correspondence to the Proponent. The Proponent would then prepare a response to be returned in the same manner. These communications would then be discussed at the next committee meeting.

2. *That the potential input of other community stakeholders be further supported. We have been approached by downstream water users at Moruya and elsewhere with concerns about long-term water quality and supply issues. These people do not have access to the community group directly. The environmental outcomes from mining will be strengthened, and community concerns mitigated through additional channels for formal engagement with the mining operations. We propose:*
- a) *That submissions made through the Dargues Reef Mine website be published on the website, in the form of a ‘blog’ or other mechanism. This could have some moderation, but at the very least, all submissions should be made*

available to all Community Reference Group members, and if a majority of the Community Reference Group agrees that the submission should be made public, then the submission should be posted on the website, along with relevant responses from the Proponent and/or Reference Group.

The Proponent works hard to maintain open communication with the community and to ensure that information regarding the Project is widely available. Currently the Proponent maintains the following avenues for community interaction.

- The DRCCC – One of the principal aims of the committee is ‘to act as a communication link between the Company, the community, interest groups and stakeholders in general’.
- The Project Information Line – Operates 24-hours a day seven days a week and provides interested stakeholders with an avenue to request information or make a complaint, either by phone or email.
- Websites – Including the Project website (www.darguesreef.com.au) and the DRCCC website (www.darguesreefccc.com.au), both of which provide extensive information on the Project and the DRCCC.
- Downstream Water Users Register – Is used to ensure that users of water downstream of the Project Site are kept informed about activities and notified of any incidents which may adversely impact on the environment or human health.
- Community Meetings – Regular meetings are held in Majors Creek and are open to all interested stakeholders. These meeting are generally advertised on the Projects website and in the local newspaper.
- Monthly Project Newsletter – Provides information on upcoming activities at the Project and information on the mining and processing operations.

Given the above, the Proponent contends that there is adequate means by which interested stakeholders can contact the Proponent or alternatively obtain information about the Project and that further avenues of communication are not required.

3. *We also consider that in light of the repeated breaches of environmental conditions, additional, long-term monitoring and evaluation of the impacts of mining in relation to surface water, groundwater and ecology. For all three we recommend:*
 - a) *Additional best practice monitoring and modelling that is,*
 - b) *peer reviewed by independent specialists, in addition to the monitoring recommended by the consultants to the Proponent and that*
 - c) *the results of these peer reviews and monitoring outcomes should be made public on the Dargues Reef Mine website.*

The Proponent contends that, as discussed in detail above, existing commitments in relation to environmental monitoring for the Project are, taking into account the scale of the Project and nature of approved operations, adequate for identifying any adverse environmental impacts before they become significant. In addition and as previously noted by this submitter, the

Proponent publishes the results of all environmental monitoring on its website, including the results of surface water, groundwater and ecology monitoring. As a result, the Proponent contends that to require an independent peer review of monitoring results would be unreasonable.

4.3 SOUTH EAST FOREST RESCUE

South East Forest Rescue strongly objected to the proposed mine at Dargues Reef. We maintain our disapproval of this mining activity. The operations to date have proven that the objectives of the plan are not being met.

Satisfy sustainable development principles

All conditions laid down on operations of the mine by the NSW Land and Environment Court still need to be fulfilled, especially those that were set down to establish baseline conditions before commencement of the project. These are vital if impacts are to be measured, and are in contempt of the court being unmet. The mine objectives to safely mine have not been met.

The Proponent contends that it is compliant with all relevant conditions of MP10_0054 and all other relevant licences and approvals, including those related to establishment of baseline environmental conditions.

Risks greatest extent practicable

*No studies have been done for the Environmental Assessment on the mine's effect on the land beyond the actual mine site. The mine is situated close to Majors Creek Araluen National Parks Reserve, Monga and Deua National Parks. Threatened, endangered and critically endangered species in the gorge below the proposed mine site, ranging from the Powerful Owl to the critically endangered *Eucalyptus kartzoffina*. Poisoning a waterway is not meeting this objective.*

The Proponent notes the following studies that have addressed offsite impacts associated with the Project.

- The *Environmental Assessment* prepared for the original application. It is noted that the studies prepared to support that application extended to the maximum extent that impacts associated with the Project could be expected.
- *Response to Request for Further Information in relation to the Dargues Reef Gold Project - EPBC Act Reference: 2010/5770* prepared by RWC and dated April 2011. That report undertook a detailed assessment of potential impacts on *Eucalyptus kartzoffina*, as well as a further 27 *Environment Protection and Biodiversity Act 1999* – listed species and 2 ecological communities, including in the Araluen Valley.

- Aquatic ecology surveys prepared by Cardno EL based on surveys on the following dates. It is noted that these surveys include sampling locations within the Project Site, as well as within Majors Creek both above and below the Araluen Valley escarpment.
 - Spring - 28 to 30 September 2011.
 - Autumn - 19 to 21 June in 2012.
 - Spring - 23 and 24 October 2012.
 - Autumn - late March 2013.

The Proponent refutes the statement made by the respondent that the Proponent has “poisoned a waterway”. No evidence is provided by the respondent to justify this statement.

Negligible adverse impact on environment

In the six months since the Dargues Reef project began in February 2013, the EPA has reported five breaches, comprising four sediment overflows and an unapproved flocculation discharge that severely affected vulnerable, endangered and critically endangered fish and frogs in the 1-4 area downstream.

The sediment overflows occurred within rain events that were not extraordinary and any cursory investigation of rainfall records would have provided the Proponents with sufficient information to ensure efficient management of autumn/winter rains.

The fifth event in early July 2013 was not noted by the EPA until a routine inspection on Thursday 8 August showed that the company was discharging into a gully leading to Major's Creek, despite having no license to do so. The EPA did not know of the discharge into the gully leading to Major's Creek until three weeks after the discharge. Although traces of the flocculent were found, it was too late to ascertain the extent of possible repercussions downstream. However the initial EPA survey found no fish or amphibian life in the two test sites where these species had been abundant two months before. Was it Magnafloc (MF351 Flocculant) that was discharged into the waterway? If it was we strongly object to this ecocide event.

This issue is addressed in Section 3.2.3.

4.4 COASTWATCHERS

The Coastwatchers Association broadly supports the objectives of the modification in this application, in particular –

- *To reduce, to the maximum extent practicable, the overall environmental impact of the Project.*
- *To minimise, to the maximum extent practicable, the impact on the local community and other stakeholders.*
- *To enhance the sediment and erosion control capabilities of the Project.*

The modification appears to have two elements affecting the manner of activities regarding how the project is implemented.

Firstly, the changes to the construction of on-site infrastructure appear to be straight forward but it is concerning and raises objection from this Association that an additional two hectares of the vegetation community No. 7 Native-dominated Pasture is listed as an area marked for disturbance.

Clarification in relation to areas to be disturbed is provided in Section 2.2.

The Proponent notes that the Native-dominated Pasture is a highly disturbed vegetation community that has very limited to negligible ecological value.

Secondly, and of far more significant concern, we note on page 17 of the Environmental Assessment report for the Dargues Gold Mine July 2013 in the report section 2.1.3 Modifications Required Condition 2(2) that at the first point on the page the word 'generally' is marked for inclusion as part of modification 2. Our Association finds this absolutely unacceptable. This proposed modification contradicts the Proponents statement of objection for this project and challenges the rigor of the monitoring schedule conditioned by the Land and Environment Court. The Coastwatchers Association ask that in respect of amendment for Condition 2(2) that the wording remain unaltered, i.e. 'The Proponent shall carry out the project in accordance with the:'

This issue is addressed in Section 3.3.

5. GENERAL PUBLIC SUBMISSIONS

5.1 INTRODUCTION

As indicated in Section 1 and **Table 1**, 20 submissions were received from members of the general public, including 2 proforma submissions. This Section provides a response to each of submission. In the interests of avoiding repetition, the proforma submissions are addressed together.

5.2 PROFORMA 1

The following members of the general public provided submissions that were identical or consistent with the submission provided by AVPPEC. That submission has been addressed above in Section 4.1.

- Anon 2.
- Ms Sue deGennaro.
- Anon 3.
- Ms Jackie Mills.
- Ms Jean Ogilvie.

- Ms Susie Edmonds.
- Ms Virginia Hooker.
- Anon 5.
- Mr Robert H. Reece.

5.3 STEVE REDDEN AND PROFORMA 2

Mr Steve Redden and Ms Sarah Wilden provided identical submissions. Mr Redden subsequently provided a supplementary submission. This Section addresses both submissions.

I strongly object to the proposed modification to the Dargues Reef Gold Project. The proposed changes appear significant enough to warrant the undertaking of a new, independent EIS along with further effective and open community consultation that is inclusive of all stakeholders in this massive development including the Shoalhaven and Eurobodalla Shires whose water security is threatened by the present mining activities. A more transparent and comprehensive submissions and consultation process is a priority if this undertaking is to proceed in a sustainable and safe manner.

The Proponent notes that RWC (2013) was prepared to accompany the application for modification and that that document, in the Proponent's opinion, adequately addresses the Director-General's Requirements and requirements of other government agencies.

Furthermore, Sections 3.2.2 and 3.2.3 of RWC (2013) identify consultation that was undertaken with the Dargues Reef Community Consultative Committee and the general public during preparation of that document.

The Proponent notes that the proposed modification is not a "massive development". Rather, the modification is intended to merely align the Project Approval with the detailed design of the Project. No approval is being sought for additional infrastructure or changes in magnitude of, or to the rate of production, or life of the Project.

Finally, the Proponent notes that water-related impacts associated with the modified Project would be unchanged from the approved Project.

In the matter of access to the information. Notification was extremely poor and more than easily missed as most in the community were totally unaware.

Mr Redden is not clear in relation to what aspect of the notification of the modification was inadequate. Notification of the community meeting on 19 July is described in Section 3.2.3 of RWC (2013) and included:

- notices in the Braidwood Times, the community newsletter and on the Project Website;
- written notification on the Majors Creek "notice board"; and
- emails to individuals on the Company's distribution list.

Approximately 20 people attended the meeting, indicating that a significant proportion of the Majors Creek community was aware that the meeting was to be held.

The Proponent contends that notification of the fact that RWC (2013) was publicly available was undertaken in accordance with Departmental guidelines and that the Proponent implemented additional measures above and beyond those implemented by the Department to ensure that the community was notified.

As an adjoining neighbour of Big Island Mining and due to the fact that my property is in clear line of sight and due to the lay of the land [it] receives above the amount of noise from the mine site that is determined in the paper, on a quiet day with the wind blowing the noise away.

The Proponent notes that Mr Redden's residence, namely Residence R24, was considered in the noise assessment for the original application. The residence was not included as a monitoring location for the attended noise monitoring program, nor was it considered in the subsequent noise assessment prepared by Spectrum Acoustics for the current Application because an adjacent residence, namely Residence R27, was determined to receive up to 3dB(A) more noise than Mr Redden's residence. As a result, that residence was used for the noise assessment.

In addition, the Proponent notes that Mr Jones advised Mr Redden that there was no record of his previous requests, or the assurances he claims have been made by the Proponent to install permanent noise monitoring at his residence. Mr Jones advised Mr Redden to make his requests in writing so that they may be formally considered and responded to.

As this is the case Unity management and environmental staff have given me assurances that permanent sound dust and water monitoring would be placed on my property. The submission states that no more sound monitor sites will be established. I was told directly by the mine manager a Mr Jones that as they only gave me verbal and not written commitments they are not required to honour those commitments.

The Proponent notes that numerous discussions have been held with Mr Redden regarding monitoring at his property over a number of years and that Mr Redden has requested specific guarantees, regarding impacts to his property, to be provided in writing. These guarantees were not considered to be reasonable nor appropriate by the Proponent. As a result, no further monitoring has been undertaken on Mr Redden's property.

Today at aprox. 2.40 pm Mr Jones returned with a sound meter and an environment officer. He noted that it was quiet. Readings were taken in front of my house. The noise levels went from 35.2 dB to spikes in the mid 40 dB's one in the 50,s when a car entered the equation.

The Proponent notes that the noise levels described by Mr Redden are consistent with background noise levels observed by SLR during the attended noise assessments, described previously. Further, it was noted at the time that noise levels recorded during the survey at Mr

Redden's residence were not as a result of activities at the Project Site and that there were contributing noise sources from Majors Creek Village, including the car described by Mr Redden.

The Proponent has previously noted that noise modelling for the Project indicates that there are residences that are more likely to be impacted by the Project than Mr Redden's residence, namely Residence R27. The Proponent notes that Residence R27 is a noise monitoring location, as described in the *Noise Management Plan*, and contends that the current monitoring program is adequate for determining compliance given that this residence would likely be impacted to a greater extent than Mr Redden's residence and consequently more appropriate to be monitored. Further, the Proponent notes that Mr Redden has previously denied the Proponent access to his property to undertake an inspection, despite the fact that he requested the inspection.

The paper does not identify my property as one of more affected despite the fact that we are more so than most and the mining has not yet even begun. There are many problems with this assessment modification. Notification being a big one. How do we respond when we do not know. Inaccurate facts. There is a need to properly assess the facts through proper consultation and a new independent EIS.

These issues have been addressed previously.

5.4 ANON 1

I would like to make a submission here that the changes sought in this application should be the subject of a Section 96 application to Palerang as they include changes to built structures, roads, and may have a negative effect upon the local community. These changes may affect privacy, and the existing amenity of locals.

The Proponent notes that as a transitional Part 3A project, modifications may be sought under Section 75W of the *Environmental Planning and Assessment Act 1979*. Section 96 does not apply to such Projects. Further, the Proponent notes that Palerang Council are aware of the proposed modification and have not provided any comment with regards to the application process for the proposed modifications.

I would suggest that any change to the approved tailings dam should be the subject of an independent Environmental Impact Assessment, I am an architect living 1.7kms from the mine and am extremely concerned that changes could possibly be made to the existing approval concerning the mine site that may be not in accordance with the intent of the original approval and subsequent conditions of approval therewith.

The proposed modification does not seek to modify the approved Tailings Storage Facility.

I would ask at this point who will be held accountable if any damage is caused to the environment or to the amenity of local residents?. If the department of planning is putting its hand up to take this responsibility then I think we should be informed of such through the proper channels.

The Proponent notes that responsibility for overseeing activities within the Project Site lies with a range of government authorities and that the Proponent is obliged to comply with all Project Approval and other licence, lease and approval conditions.

The idea that a submission could be made to reduce the size of a tailings dam at such a facility without an independent Environmental Assessment is ludicrous.

The proposed modification does not seek to modify the approved Tailings Storage Facility.

5.5

[REDACTED]

In the six months since the Dargues Reef project began I have been unable to use the creek water for household or farming purposes five times, due to mining accidents upstream.

This issue is addressed in Section 4.1.2.

Unity employees have refused on each of the events to test water here or to discuss remediation or compensation for damage and loss due to the contamination of my tanks, water system and equipment.

The Proponent notes that on a personal visit to [REDACTED] home, an offer to sample the water within the water tanks and replace the water in those tanks was made by Mr Andrew McIlwain, the Managing Director and CEO of the Proponent and that that offer was declined. Further, the Proponent notes that [REDACTED] requested a confidential compensation offer to be made by the Proponent. The terms and nature of this offer were not considered to be appropriate by the Proponent and hence no offer was made.

Up until his abrupt resignation, soon after the last meeting of the CCC, I discussed how to implement the conditions imposed on the project by the NSW Land and Environment Court with Matthew Grey, Environmental Officer of Unity Mining Ltd, the developers of Dargues Reef mine. Matthew Grey had agreed to do the survey of Eucalyptus kartzoffiana (a local rare and endangered species), the testing of species in the pools to the confluence with Araluen Creek and the other conditions that were meant to have been fulfilled before the project began, so that adequate baseline data could be available to determine any effects of the Project and to address the other conditions that were meant to been fulfilled before the project began in order to establish adequate baseline data to determine which environmental effects were a result of upstream mining and processing.

The Proponent notes the following.

- A survey for *Eucalyptus kartzoffiana* was previously undertaken in April 2011 (see Section 4.3) and the Proponent is not aware of any commitment or requirement for a further survey. [REDACTED] and Mr Gray may have been confusing this survey with a commitment to undertake an assessment to determine the condition of Araluen Scarp Grassy Forest EEC adjacent to Majors Creek within the Majors Creek State Conservation Area within 12 months of the commencement of construction embodied in Commitment 5.10.
- Aquatic ecology testing within Spring and Majors Creeks from the upper sections of the Project Site to a location downstream of [REDACTED] residence is described in Section 8 of the *Water Management Plan*. To date, four aquatic ecology surveys have been undertaken, with the results described in detail in Section 4.1.2.
- That adequate baseline monitoring has been undertaken in accordance with the requirements of the approved management plans.

Matthew Grey stated at the CCC meeting that while 'mistakes had been made in the past, every effort would be made to make sure they didn't happen in the future.' It appears that the company no longer endorses that statement.

The Proponent acknowledges that the releases of sediment-laden water associated with Incidents 1 and 2 was the results of a failure to adequately implement the approved *Sediment and Erosion Control Plan*. However, the Proponent contends that its commitment to resolving this issue is evidenced by the significant expenditure and effort that it has implemented to ensure that this and other issues are appropriately managed. The Proponent and its Board of Directors states that it considers both the Company's environmental and operation reputation as critically important. Furthermore, the Proponent has published its Environment Policy on the company's website and this is endorsed and supported by the Board of Directors.

Unity appears to have chosen test sites where pollution is least likely to be detected, where water runs swiftly or is diluted with other tributary flows, rather than the deep pools where sediment and pollution collect, especially in the slow-moving pollution events of four of the five events that have occurred in the last six months.

The Proponent engaged recognised experts in the field of aquatic ecology assessment, namely Cardno EL, who selected appropriate sampling locations based on the requirements of the sampling methodology. These locations are included in the approved *Water Management Plan* and have been in use since 2011. The Proponent rejects the assertion by [REDACTED] that the sampling locations were chosen to determine the outcome of the monitoring program.

The EPA have, however, done a baseline survey of fish, amphibians and stygofauna (groundwater fauna) at two locations on our property. Two months ago fish and amphibians were in profusion, with several species detected. On their last survey, after

the release of a flocculent known to be toxic to fish and frogs, although not to humans in dilute amounts, no fish, frogs or tadpoles were found. This has remained the case. We are still awaiting test results of the sediment washed down in the fourth pollution event, to see if the creek at these locations is capable of supporting fish and frog life.

The Proponent is aware that the Environment Protection Authority undertook a limited sampling program, however, to date, has not been made aware of the results of that program. As a result, no comment can be made in relation to [REDACTED] statement. However, the Proponent notes that Cardno EL have undertaken four aquatic ecology surveys within Spring and Majors Creeks. Those surveys were undertaken in accordance with recognised, quantitative assessment methodologies by experts in the field. The results of those surveys are summarised in Section 4.1.2.

Even without this, more than one metre of sediment has been deposited in the deep pools of the Majors Creek gorge. These are the pools that never dry up in droughts, and the only water available in dry times to the species in the State Conservation Area. This sediment build-up means that there may now be no water available for these species, including a population of endangered rock wallabies. The Conservation Area and our property contain twenty-two surveyed endangered, critically endangered or vulnerable species, as well as those listed in the Araluen Scarp Grass Forest.

The Proponent cannot comment on sediment build up within pools on [REDACTED] property as access has not been provided. However, the Proponent notes that the amount of sediment suggested by [REDACTED] is very significant and if deposition of that sediment were indeed the result of a limited number of Project-related events, then sedimentation elsewhere in Majors Creek, including closer to the Project Site, would be very obvious and would have been detected by Cardno EL at sites AE3 and AE4, located immediately downstream of the Project Site in the March 2013 survey. No build up of silt was observed at those sites. In addition, informal feedback from others, including the EPA, does not support the suggestion of build up of such substantial silt loads.

Since Mr Gray's abrupt resignation, I have been informed that Unity Mining Ltd sees no need to fulfil those conditions and that the Environmental Protection Agency (EPA) will now monitor the species. The EPA denies that they have agreed to this role with Unity Mining.

The Proponent contends that this is not an accurate statement and that it remains committed to implementing all conditional and other requirements for the Project

Unity Mining has also informed me that their management plans override the conditions placed on them by the NSW Land and Environment Court. Legal advice indicates that this is not the case.

The Proponent also contends that this is not an accurate statement and notes that Condition 2(2) of MP10_0054 states that the conditions of the approval prevail over the *Environmental Assessment* and Statement of Commitments and, by implication, approved management plans.

I request that no approval for modifications be given until:

- *Big Island Mining Pty. Ltd., a wholly owned subsidiary of Unity Mining Ltd., complies fully with all conditions imposed on the Dargues Reef project by the NSW Land and Environment Court;*

The Proponent contends that it is in compliance with all relevant conditions of the Project Approval.

- *Big Island Mining Pty. Ltd. complies with all the conditions set down by the EPA;*

The Proponent contends that it is in compliance with all conditions of its Environment Protection Licence. Further, the Proponent notes that it is working with the Environment Protection Authority to implement the agreed Pollution reduction Program and that the Authority has not objected to granting of the proposed modification

- *a written agreement is made to test all water and soil that might reasonably be held to have been contaminated by the Dargues Reef mining project;*
- *a remediation process is determined and agreed to for those downstream residents and businesses affected by the project; and*

The Proponent contends that the procedures identified in the *Water Management Plan*, including in Section 12 of that document, adequately address these matters.

- *the company gives a written undertaking that ore will not be processed at the Majors Creek site, now that their plans for processing elsewhere seem to be in doubt. This undertaking should include a penalty if the undertaking is broken and if Unity Mining Ltd applies for a new modification in a few months time requesting permission for on-site processing.*

The Proponent notes that the proposed modification does not seek to modify the approved processing operations.

5.6

BRIAN SULTMAN

My property is directly downstream from the Dargues Reef gold mine project. My household water has been contaminated five times in the past six months the mine has operated, four times by heavy sediment, the most recent of which left large amounts of sand and gravel behind, and once from possible flocculent pollution.

Unity Mining Ltd has refused my requests during and after each incident to test the creek water on my property or in my water tanks. Neither has the company notified me of the pollution until well after my water tanks and water systems have been filled with sediment

and been rendered unusable. This has resulted in loss of time, income, and over \$22,000 being spent on new tanks and pumps, as a direct result of the contamination of what was once a pristine stream according to the regular tests we had made of water quality over the preceding decades.

[REDACTED] submission raises two issues, namely, the reasonableness of replacing his water tanks and pumps as alleged and the pristine nature of Majors Creek in the vicinity of his property. These issues are addressed separately below.

Replacement of water tanks and pumps

Issues associated with discharge of sediment-laden and flocculent-laden water from the Project Site and notification of such incidents have been addressed in Section 4.1.2. Issues associated with deposition of sediment downstream of the Project Site are addressed in Section 5.5.

In relation to water tanks becoming filled with sediment and being rendered unusable, the Proponent conservatively estimates that a relatively minor amount of sediment may have accumulated within water tanks had they been filled from empty during release of sediment-laden water within the Project Site. However, the Proponent also notes that each event occurred during rainfall events when flows within Majors Creek were high and naturally occurring suspended sediment would be expected. In addition, the Proponent notes that Mr Andrew McIlwain, Managing Director and CEO of the Proponent offered, following Incident 1, to have [REDACTED] tanks cleaned. Mr McIlwain was advised that the tanks had already been cleaned and that further cleaning was not required.

Pristine nature of Majors Creek

The Proponent notes that [REDACTED] indicates that testing of water within Major Creek over a number of decades indicated that the water was of high quality. As a result, [REDACTED] contends that Majors Creek was in "pristine condition." However, the Proponent notes that past alluvial mining practices have very extensively disturbed Majors Creek upstream of [REDACTED] property and that active gully erosion was occurring within the Project Site and on surrounding land over much of the past few decades. As a result, it would appear that elevated suspended sediment concentrations at that time in the headwaters of Majors Creek did not adversely impact on water quality within [REDACTED] property.

In addition, in March 2007, prior to the commencement of the Project, [REDACTED] noted in a blog [REDACTED] that an intense rainfall event resulted in "flash flood down the gorge, all mud and logs and froth, a wall of water higher than I am and a roar like 1,000 helicopters." As a result, the Proponent notes that suspended sediment-related issues in Majors Creek pre-date the Project and that any watercourse that flowed in a manner described by [REDACTED] would be expected to have elevated suspended sediment concentrations. The Proponent has reviewed rainfall records for both Majors Creek and Araluen Lower Bureau of Meteorology stations and notes that a three day rainfall event with a cumulative total of 80.6mm and 104.4mm respectively was recorded between 11 and 13 February 2007. This compares with 97.2 mm over three days for Incident 1 (see Section 4.2.1).

In addition, the following conditions from the NSW Land and Environment Court decision of February 2012 (Application no 10_0054) have not been met. No work should proceed nor modifications be considered until these basic conditions, and those of the EPA, are met.

The numbers below refer to the numbering on the Court's Conditions of Approval.

21. A maximum of 50 milligrams of suspended solids in any discharge of water from sediment collection ponds.

Note: This has not been met at least four times in five months operation.

The Proponent notes that during Incidents 3 and 4 above, all sediment and erosion control structures operated as designed and that such structures are designed to release water in a controlled manner when the designed rainfall depth has been achieved.

23. The Proponent shall provide a compensatory water supply to any landowner of privately-owned land whose water entitlement is adversely affected. An equivalent water supply must be provided (at last on an interim basis) within 24 hours of the loss or contamination being identified. If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Director-General.

Note: Downstream residents have repeatedly requested that their water be tested and remediation made, but have had no response. Copies of these requests can be provided.

The Proponent is not aware of any requests to monitor water downstream of the Project Site other than those made individually and collectively by [REDACTED] or [REDACTED]. Those requests have been previously discussed in Section 5.5.

29b. Establish stream health assessment criteria that include baseline surveys of aquatic life in Majors Creek, upstream and downstream from the confluence of Majors Creek and Araluen Creek prior to the commencement of construction, and annually thereafter until all mining and rehabilitation activities are completed.

Note: This includes a large stretch of creek on my property. The company has refused all requests to survey aquatic species. Given the devastating loss of species in the past three months, a meaningful baseline survey cannot be carried out until the area naturally rehabilitates.

The issue of aquatic ecology surveys is addressed in Section 4.1.2.

30d. A program to monitor impacts on springs or groundwater-dependent ecosystems.

Note: These include the rock pools downstream from the project where the water appears to seep into them from the Majors Creek fault adjacent to the project site. Although agreement was reached with Mr Matthew Grey, the former Dargues Environmental officer, to test these pools, the company's most recent response has been to say that the Environment Protection Authority has accepted responsibility to do this testing. The EPA has denied that they have made this agreement.

This program is identified in Section 9.4 of the *Water Management Plan*.

31. Measures to mitigate or compensate potentially affected landowners in accordance with the compensatory water supply requirements in condition 23 above.

Note: We have repeatedly requested that our contaminated water be replaced and potable water provided during the times during which sediment or other substances in the water make it unfit to use as a direct result of the pollution events from the site. It should also be noted that we have diary, witness, water and sediment testing and photographic evidence that these sediment events came from the Dargues Reef site, and from no other entry point between our property and the site.

This issue has been previously addressed in Section 5.5.

35. Assessment of the ground water impacts on the Araluen Grassy Scarp Forest.

*A large part of this forest is on my property. The company has refused all requests to survey the health and viability of the forest here, nor do they appear to have surveyed the areas of the Majors Creek State Conservation Area that are only easily reached through my property but that contain naturally occurring stands of *Eucalyptus kartzoffiana*. The surveyed forest areas appear to be only those along the roadsides, where the trees have been planted by landowners and Landcare groups and are not naturally occurring.*

The Proponent notes that the identified survey is to be undertaken within the Majors Creek State Conservation Area, not on [REDACTED] property and that the survey must be undertaken within 12 months of the commencement of construction operations, namely by 11 February 2014.

In relation to stands of *Eucalyptus kartzoffiana* referred to by [REDACTED] that species was identified as occurring "less frequently" within the Araluen Scarp Grassy Forest EEC than other species. In addition, the survey referred to by [REDACTED] was undertaken by Dr Steve Douglas and included areas of very substantial sized *E. kartzoffiana* that are highly unlikely to have been planted in the last few decades.

37. Aboriginal Heritage Plan

Note: The company was informed after the third sediment overflow that downstream sites of major indigenous significance may have been affected. The company refused requests to appoint a suitable archaeologist to investigate.

Commercial-in-Confidence

This information has been provided to the relevant regulatory agencies to address these matters

Schedule 5.

1. Resolve any disputes that may arise during the course of the Project.

Note: The company's response is either to ignore requests, or to refuse to answer complaints using the web site. When an accident occurred during test drilling on our property, with sudden and extreme noise causing my wife's ear drum to burst, the company refused to provide the details of the noise levels requested by medical personnel, nor did they request any details of her injury. They simply marked the case as 'investigated' and 'did not happen.' The company has shown a similar disregard for other complaints from the public, dismissing them as unfounded without investigation how they were substantiated.

The Proponent contends that this incident was dealt with consistent with the Proponents complaints handling and dispute resolution procedure, described in Section 9 of the *Environmental Management Strategy* for the Project. Further, this complaint was investigated by the Department of Planning and Infrastructure and no further action has been taken.

2. Community Consultative Committee

Despite the orders of the Court, this does not include members of recognised environmental groups, including Coastwatchers, despite requests to the department.

This is a matter for the Department of Planning and Infrastructure. However, the Proponent notes that it is not aware of any ruling of the Land and Environment Court stipulating the composition of the committee. Further, the Proponent notes that this issue has not been raised with the Dargues Reef Community Consultative Committee.

3. Appendix 5.

4.8 Undertake attended noise monitoring at the residences most likely to be affected by noise generated by the project.

Note: Despite an agreement that noise would be monitored, monitoring was not done during test drilling on our property.

The Proponent notes that [REDACTED] residence is highly unlikely to experience any operational noise-related impacts from the Project Site. The noise impacts referred to by [REDACTED] are from during the drilling of two monitoring bores that were requested to be installed in close proximity to [REDACTED] residence. Attended noise monitoring was conducted at regular intervals during the installation of these bores and those results were included in the subsequent incident report, a copy of which was provided to [REDACTED]

7.21 Ensure that all water with the potential to contain processing reagents... is contained within a bounded Contaminated Water Management Area.

Note: The company has failed to do this with the flocculent used after the fourth sediment overflow.

The Proponent notes that the flocculent used is not a reagent used during the processing of ore at the Project Site. Use of this product is addressed in Section 4.2.1.

7.5 Ensure that sediment basins have a minimum of 0.6 metre of freeboard and a spillway that is sized and lined for stability in a 100-year annual recurrence interval (ARI) rain event.

Note: The sediment basins overflow after 31 mm of rain in a 24-hour period, and are far from capable of withstanding the 255 mm in an afternoon received on January 7, 2010.

Commitment 7.5 has been superseded by subsequently approved *Sediment and Erosion Control Plans*. Issues associated with release of sediment laden water are addressed in Section 4.2.1.

Ensure that surface water flows are directed away from disturbed areas.

Note: The company has demonstrably failed to do this four times within a five-month period.

Issues associated with release of sediment laden water are addressed in Section 4.2.1.

Socio-economic aspects

14.2. Direct the company to proactively and regularly consult with those residents most likely to be affected by the Project, particularly those in the Majors Creek and Araluen communities.

Note: The company has refused to discuss financial or other impacts with residents downstream from the mine site.

The Proponent contends that this statement is not accurate. As previously discussed in Section 4.2 the Proponent provides many avenues by which stakeholders can contact the Proponent or obtain further information. Further, the Proponent notes that the issue of financial restitution has previously been discussed in Section 5.5.

Surface water monitoring.

15.12. The Court directed that monthly surface water monitoring be taken '... at a range of locations downstream of the Majors Creek State Conservation Area.'

Note: The only site in Araluen that has been tested for sediment is one where the majority of flow is from other streams between that site and the Project. Despite requests, no sampling has been done on the approximately one kilometre stretch of creek on my property. (As the creek is not a straight line, it's length exceeds the length of my property). Mr Matthew Grey was negotiating to access the major's Creek Conservation Area through our property, as this is the only easy access. Since his abrupt departure, the company stated that no further sampling is necessary, and have refused to discuss the matter further.

The Water Management Plan identifies a range of surface water monitoring locations within Spring and Majors Creeks within the Project Site, downstream of the Project Site above the Araluen Escarpment and downstream of [REDACTED] property. The Proponent contends that these locations are sufficient to identify changes in surface water quality that may potentially occur as a result of the Project, including changes within [REDACTED] property. Testing for suspended sediment concentration at each site is identified in Table 11 of that document as a requirement for each site within those creeks.

The company only takes samples where the water is considerably diluted. The areas where the sediment pollution, and possibly other pollution, gathers are the deep pools on my property and in the Conservation Area. The company refuses to sample these pools, instead sampling only in areas where polluted water will either quickly pass, or is greatly diluted downstream.

I am increasingly concerned that the company repeatedly refuses to view or take samples when there is sufficient reason to believe that pollution and damage have occurred i.e. when the EPA have directed that a sediment overflow has occurred, and when their water sampling indicates that the pollution originated at the Project site. The company has taken no responsibility to either test the impact of their spills, or even the view the results, nor will they reply to requests to discuss remediation.

The issue has previously been addressed in Section 5.5.

I am also concerned that investigation of complaints is left to the company, with no independent assessment. I request that independent assessment of complaints is made a condition of any future approvals.

The Proponent notes that Section 9 of the *Environmental Management Strategy* identifies the Project's complaints handling procedure. The Proponent also notes that should a complainant not be satisfied with the results of the resulting investigation that avenues exist to have the complaint addressed by the relevant government agency. As a result, the Proponent contends that adequate complaint management measures exist already and that further measures are not required.



I further request that no modifications be approved until the company demonstrably meets the initial conditions of approval, and the EPA directives, as well as assessing and if necessary remediating the effects downstream of the four sediment episodes.

The Proponent contends that this is a matter for the Environment Protection Authority and that the Authority has not objected to the granting of approval for the modification.

I also request that measures be put in place to enforce the initial conditions of approval, and measures to ensure a representative water sampling regime.

The Proponent contends that adequate measures are already in place to ensure compliance with all conditional requirements, including a requirement to review and revise the *Water Management Plan* following the granting of any modification to the approval.

5.7 PETER CORMICK

At page 17, the Proponent is proposing that the conditions set out in the Project Approval be only "generally" complied with. I object strongly to this diminution of the conditions of the project. And I am quite sure that had that amendment been put to the Land and Environment Court at the time of the appeal in early 2012, it would not have approved it. I contend that the qualification of "generally" is counter to the intention of the LEC as expressed in the Project Approval of 7 February 2012 and should therefore not be allowed.

This issue has been addressed in Section 3.3.

I also support the EPA's request that the proposed modification incorporates the outcomes of the Pollution Reduction Program.

Acknowledged. The Proponent proposes to continue to work with the Environment Protection Authority to implement the agreed Pollution Reduction Program.

5.8 NOEL PRATT

I have considerable concerns in relation to the development application referred to above which seeks changes to the existing approval for works on the Dargues Reef Mine in Majors Creek New South Wales. Consequently I submit that no approval should be agreed to until the matters listed below have been rectified.

The underlying reason for my submission is that although the mine has only been in operation for some six months it is my understanding that there have been a number of events that have resulted in spills into Majors Creek, the latest of which involved the EPA advising downstream residents not to use the creek water for a time. At the point of

writing it appears that frog and fish life has not returned to the creek following the most recent spills from the mine. I therefore submit that no approval should be given until the following matters have been resolved. That:

Issues associated with releases of water from the Project Site have been addressed previously.

- 1. There is proven confirmation that the mine operators are complying with all conditions set on their operations by the NSW Land and Environment Court and the Planning Assessment Commission and with any requests made to them by the EPA including evidence that an EPA sponsored Pollution Reduction Plan has been agreed to and set in place.*

The Proponent contends that it is complying with all relevant conditional requirements of MP10_0054 and that it has promptly and fully complied with all requests from the Environment Protection Authority and other government agencies. The Proponent also notes that it is working with the Environment Protection Authority to ensure that the agreed Pollution Reduction Program is fully implemented.

- 2. A system of monitoring has been set in place that enables the EPA to ensure on an ongoing basis that all conditions are being complied with and that the mine authorities are responding promptly to EPA requests. This especially relates to halting work while water quality and other environmental tests take place and that mine authorities are providing prompt advice to residents of any events likely to affect water quality.*

The Proponent notes that the *Water Management Plan* identifies a range of surface water monitoring locations within and downstream of the Project Site and that that plan has been prepared in consultation with the Environment Protection Authority and other relevant government agencies. In addition, the Proponent anticipates that the *Water Management Plan* will be revised in consultation with those agencies following granting of approval for the proposed modification, assuming it is granted, and that further refinements may be required at that time.

- 3. That the mining company has assured the EPA that it will act promptly and fully implement requests made by the EPA and that there is some assurance from the government that the EPA will be provided with appropriate resources to monitor this project.*

The Proponent contends that it has promptly and fully responded to all Environment Protection Authority requests and will continue to do so.

4. *All current investigations and possible prosecutions by the EPA have been completed.*

This is a matter for the Environment Protection Authority, however, the Proponent notes that the Authority has not objected to granting of the proposed modification

5. *The company has agreed to implement an open and transparent system of testing all water and soil quality in the case of any potential contamination resulting from work on the project site.*

The Proponent contends that the procedures identified in the *Water Management Plan* adequately address this issue.

6. *The precise nature of the requested changes to the current approval and the reason for them is clarified and made public and the company has made clear where it is proposing to process ore and has confirmed that no processing will take place at Majors Creek.*

Section 2.1.3 of RWC (2013) identifies all modifications sought, with additional information provided in Sections 2.2 to 2.11 of that document. In addition, no modification to the approved processing arrangements is sought.

7. *It has been made clear to the company that any new approvals given will not lead to on-going modifications which could lead to eventual approval of a far more extensive project than that to which original approval was given.*

The Proponent notes its rights under Section 75W of the *Environmental Planning and Assessment Act 1979* and anticipates that all applications for modification will be assessed on their merits.

5.9 ANON 4

I feel that Big Island Mining Pty Ltd should be obliged to comply with all the conditions that both the EPA and the NSW Land and Environment court have already imposed on the project before they are granted a new and modified DA.

The Proponent acknowledges its obligations to comply with all conditional requirements of MP10_0054 and EPL20095.

Surveys should have been done before the commencement of mining activity to establish baseline environmental data so that any downstream effects can be recognised as being the result of the mining activity at Dargues Reef.

The Proponent notes that in addition to baseline environmental studies prepared to support RWC (2010), the following baseline environmental surveys have been completed and that further ongoing monitoring will be implemented.

- Surface water quality and flow – regular and *ad hoc* monitoring as per the procedures identified in the *Water Management Plan*.
- Groundwater quality and levels - regular monitoring as per the procedures identified in the *Water Management Plan*.
- Aquatic ecology – four surveys as described in Section 4.1.2.
- Stygofauna – An initial survey was undertaken on 20 and 21 June 2012, with a subsequent survey on 23 October and 18 and 19 December 2012.
- Fauna – a monitoring survey was undertaken on 11 to 14 February 2013.

In addition, further surveys, as well as continued routine monitoring, is proposed during the coming months.

There have already been five water contamination events in the last six months and the company appears to be uninterested in complying with the court's requests and in addressing the concerns of downstream users and farmers.

Issues associated with the release of sediment-laden water and water that had been treated with flocculent is addressed in Section 4.2.1.

No modifications of their existing DA should be processed until such time as the company has complied with existing orders and the establishment of baseline ecological data is paramount to any honest and reasonable assessment of the Project's impact on the downstream ecosystems.

In light of the above, the Proponent contends that it has complied with existing orders and has adequately established baseline environmental conditions.

5.10 JAMES ROYDS

I am writing to point to an error in the company's application. In section 3.2.4 I am listed together with my wife as a neighbouring landholder who has been consulted on the application. My wife is a member of the Community Consultative Committee and has been made aware of the application and proposed changes through this involvement, but at no stage have she or I been consulted as neighbouring landholders. I am not sure what action I need to take or how this error on the companies part reflects on the integrity of the rest of their application. I hope this email will be taken into account by the department in any decision on the application.

On 19 July, the Proponent and RWC were advised by a then employee of the Proponent that a range of surrounding landholders had been contacted in relation to the proposed modification. That information was used to prepare Section 3.2.4 of RWC (2013). On becoming aware of Mr Royds' submission and the fact that the information provided may not have been accurate, the Proponent contacted all those identified, with the exception of Mr and Mrs McCarron who could not be contacted.

The Proponent met with Mr and Mrs Royds on 3 September 2013 to discuss the proposed modification. A copy of RWC (2013) was provided and any questions regarding the proposed modification were answered by Mr Scott Jones – General Manager, Mr David Snape – Health Safety Environment and Community Manager and Mr James Dorman – Project Engineer.

The Proponent notes that this follow up was well received and that no issues or concerns were raised by those contacted.

5.11 MAUREEN MCAULIFFE/PETER GILLESPIE

We understand the tailings dam is to be smaller

No modification to the approved Tailings Storage Facility is proposed.

There will be no sound monitoring or monitoring of water quality.

The Proponent notes that the noise and water monitoring identified in the *Noise Management Plan* and the *Water Management Plan* respectively is currently being undertaken and will continue to the undertaken.

Our property has a spring that feeds into Majors Creek and will be affected by any lowering of the water table.

As indicated in Section 4.4 of RWC (2013), the proposed modification would not result in changes to the approved levels of groundwater drawdown.

We are also concerned that the proper process of applying for changes the D.A. has not been followed.

This is a matter for the Department of Planning and Infrastructure, however, the Proponent contends all relevant procedures have been followed.

5.12 IRENE GILLESPIE

I have recently learnt that there have been changes proposed to the D.A. for the Dargues Reef Gold mine. As a resident of Majors Creek I find this concerning, given that there has not been adequate community consultation for these changes, nor, most worryingly, have the correct procedures been followed for applying for changes to a D.A.

Consultation measures implemented for the proposed modification are identified in Section 3.2 of RWC (2013). The Proponent contends that these measures were adequate and reasonable. Further, the Proponent contends that it has followed the correct procedure with regards to the modification application under Section 75W of the *Environmental, Planning and Assessment Act 1979*.

I understand that the tailings dam is to be shortened and that there will be reduced sound monitoring and monitoring of water quality.

No modification to the approved Tailings Storage Facility is proposed. The Proponent notes that the noise and water monitoring identified in the *Noise Management Plan* and the *Water Management Plan* respectively is currently being undertaken and will continue to the undertaken.

6. REFERENCES

- GHD (2013) – *Letter Report in Relation to use of Flocculant, August 2013*, prepared by GHD Pty Ltd for Unity Mining Limited
- RWC (2010) – *Environmental Assessment for the Dargues Reef Gold Project, September 2010*, prepared by R. W. Corkery & Co. Pty Limited for Big Island Mining Pty Ltd
- RWC (2013) – *Environmental Assessment for the Dargues Gold Mine Modification 2, July 2013*, prepared by R. W. Corkery & Co. Pty Limited for Unity Mining Limited

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Appendix 1

Letter Report in Relation to use of Flocculant

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16 August 2013

James Doman
Project Engineer
Unity Mining

Our ref: 32/16960
Your ref: 20995

Dear James

Flocculant Spill Investigation

GHD understands that the NSW EPA has concerns on the potential environmental impacts of treated water discharges from Dargues Gold Mine from sediment basins SB1 and SB2. GHD has conducted a literature search on peer reviewed literature on the toxicity of the flocculants used by Dargues Gold Mine and a review of the MSDSs for each product to obtain information to inform the assessment of environmental impacts of the treated water.

The treated water was released to pasture within the boundary of the premises and was not directly discharged into a surface water body. Water in the sediment basins had been treated with flocculants:

- HaloKlear DBP-2100 FS; and
- HaloKlear Gel-Floc MB.

Flocculants and coagulants neutralise the electrostatic charge of particles suspended in the water column to facilitate the agglomeration of the particles creating colloids forming a floc. The particles increase in size over time and will eventually become too large to remain in suspension and will, therefore, drop out of the water column to the bottom of the sediment pond (Harford *et al.* 2011). Therefore, provided the flocculants are dosed at the correct level, all the flocculant should ultimately reside in the sediment, bound to colloidal particles.

The two phase flocculant system used by Dargues Gold Mine uses xanthan gum and chitosan, 2-hydroxypropanoate (salt) as the active ingredients.

Chitosan is derived from chitin sourced from crustaceans. It is a naturally occurring chain of glucose molecules structurally related to cellulose (US EPA 2008). Chitosan is a cationic polymer which acts as the coagulant in the HaloKlear product. The chitosan is used in conjunction with the xanthan gum, an anionic biopolymer to create more stable and shear resistant particles. The addition of xanthan gum will also aid in neutralising any ecotoxicological impacts of the process chemicals.

The US EPA (2008) has approved chitosan for environmental use due to the ubiquity of chitosan in the natural environment and its low toxicity. ProTech (2004) has conducted toxicity tests on the impacts of chitosan in the aquatic environment. The results show that no toxicity was observed in water fleas or two species of freshwater fish at optimum working concentrations (11 ppm). Further, the research also showed that overdosing the system by 100% (22 ppm) did not result in any toxicity, with 100% survival

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for all exposed organisms. The report concluded that chitosan could be safely used in stormwater treatment systems.

Xanthan Gum is a polysaccharide that has the ability to increase the binding properties and stability of particles. It is commonly used in the food industry but the properties of xanthan gum are utilised in many industrial processes. Toxicity testing using freshwater aquatic species has shown that water fleas and freshwater fish are not sensitive to the product with toxicity data of:

Water fleas 48 hour LC50 980 ppm; and

Rainbow trout 96 hour LC50 420 ppm.

Dargues Gold Mine Usage

Dargues Gold Mine treated and released approximately 9.1 ML between 9th July and 28th July 2013. Approximately 8.3 kg of HaloKlear DBP-2100 FS and approximately 9.0 kg HaloKlear Gel-Floc MB was used for treating the water in SB1 and SB2. The manufacturers recommended dose rates were used, the final dose rates are shown in Table 1.

Concentrations of xanthan gum and chitosan in the discharge water are shown in Table 1. Calculations used the assumption that each chemical made up 100% of the product.

Table 1 Concentration of Products in Dargues Gold Mine Sediment Ponds

Product	Concentration
Chitosan	0.989 ppm
Xanthan Gum	0.912 ppm

Environmental Impacts of Concentrations Used

The concentrations of chitosan and xanthan used to treat the sediment ponds are several orders of magnitude less than the concentrations shown to cause toxicity to exposed organism. Further, as the treated water was discharged for dust suppression and released to pasture and not discharged directly to a waterway, there would be no adverse environmental impacts for treated water from the sediment ponds. In addition, the active ingredients, chitosan and xanthan gum would be contained within the sediments and not bioavailable, therefore, eliminating the risk of aquatic organism exposure to the constituents of the flocculants.

Conclusion

The active ingredients of the flocculants used at the Dargues Gold Mine in SB1 and SB2 were not present in concentrations sufficient to cause adverse environmental impacts to aquatic organisms in Majors Creek. This statement is supported by the following:

- Concentrations of the active ingredients are orders of magnitude below concentrations known to cause toxicity.
- The active ingredients will be integrated with sediments in the ponds where they will biodegrade.

- The sediment pond waters were used for dust suppression and irrigation and not directly discharged to waterways (Majors Creek).

Please do not hesitate to contact me if you require further information.

Regards



Dr Jill Woodworth

Principal Environmental Scientist
03 63325532

References

Harford A.J., Hogan A.C., Jones D.R. and van Dam R.A. 2011. Ecotoxicological assessment of a polyelectrolyte flocculant. *Water Research* 45:6393-6402.

ProTech (2004). Technical Report: TR01.1. Polymer coagulants and flocculants for stormwater applications. July 2004.

US EPA (2008). Chitin and Chitosan Final Registration Review Decision Case 6063. Document Number EPA-HQ-2007-0566: Chitin Case 6063. Biopesticides and Pollution Prevention Division.

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