

**From:** Robert Carreau  
**To:** "Harout Bronozian / Return to Armenia"  
**Cc:** Howard.Stevenson; dbrignall@wardell-armstrong.com; mbender@samuelengineering.com; dkeller@amcconsultants.com; LBreckenridge@global-resource-eng.com; gdlitouche@golder.com; Joseph.Oughourlian@amercapital.com; Ruben.Vardanian@sberbank-cib.ru; nafeyan@mit.edu; Berge.Setrakian@dlapiper.com; talin@yplawfirm.net; avetik\_chalabyan@mckinsey.com; Artsvik.Minasyan; erik.grigoryan@mnp.am; areg.gharabegyan@mnp.am; "min\_ecology"; "Bach\_Erica"; "EBRD.Civil.Society"; "Stevan.Jackson"; skaram@ifc.org; aazizyan@worldbank.org; "Namrata.Thapar"; "Vincent.Darcy"; Hayk.Aloyan; gorova\_a@ukr.net; office@awhhe.am; "Osvaldo.Luis.Gratacos"; "Daniel.Adler"; CAO@WORLDBANKGROUP.ORG; vache.gabrielyan@gov.am; John.Harker (hjohnharker@gmail.com); a.avakian@dfa.am; a.khachaturyan@reforms.am; L.jrbashyan@ameriagroup.am; Armen.Stepanyan; hakobyankhachik@gmail.com; ecocentr@sci.am; Anna.Saghabalyan; WalkerS@ebrd.com  
**Subject:** RE: Response to Lydian review of Bronozian-commissioned reports regarding the Amulsar Gold Mine Project in Armenia.  
**Date:** November-01-17 1:21:00 PM  
**Attachments:** [0051 Further details of Lydian's approach to adaptive management of ARD \(abridged - no Annexes\) \(1\).pdf](#)  
[image001.png](#)

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Dear Mr. Bronozian (Harry):

**Subject: Further details of Lydian's approach to adaptive management of ARD**

In response to your email (dated 7 October 2017 and entitled *Response to Lydian review of Bronozian-commissioned reports regarding the Amulsar Gold Mine Project in Armenia*), our consultants have prepared technical comments to address each of the issues raised therein and we have compiled these into the attached report: "*Further details of Lydian's approach to adaptive management of ARD*".

As a general comment, and with all due respect, we believe there is a general misunderstanding in your submissions on some fundamentals of acid rock geochemistry and the proactive approach that Lydian is taking to mitigate ARD risk at Amulsar. For this reason we have extended an offer to meet with you and your consultants during the week of January 15, 2018 in Yerevan (thus providing appropriate notice for all technical authors to manage their work and travel schedules). We understand that this invitation has been extended to you personally by Government of RA and we have re-iterated this welcome in our attachments (for the record). We believe this workshop/technical meeting will provide an opportunity for you to understand the specifics of the adaptive management plan for ARD at Amulsar and hopefully allay your concerns.

In the interim, I am also providing the following link to a larger version of the attached report, which includes a number of annexes that contain further technical information which may assist you. This larger document (680 pages) contains reports which you may have had trouble locating on our website. Admittedly, the ESIA itself is several thousand pages long with the supporting documentation being several thousand more.

[0051 Further details of Lydian's approach to adaptive management of ARD](#)

Finally, I am providing a link to the figures (241 figures in digital format) that accompanied our ESIA:

[ESIA, 2016 - Figures](#)

Please advise if you have any difficulty opening the links.

I am hopeful this additional information will be helpful to you and your consultants Harry, and if you have any questions or comments in advance of our meeting, please feel free to contact me directly.

Best regards,  
Bob.

**ROBERT (BOB) CARREAU**  
Vice President Sustainability



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**From:** Harout Bronozian / Return to Armenia [<mailto:info@returntoarmenia.com>]

**Sent:** October-07-17 10:05 PM

**To:** Robert Carreau <[Robert.Carreau@lydianinternational.co.uk](mailto:Robert.Carreau@lydianinternational.co.uk)>

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**Subject:** Response to Lydian review of Bronozian-commissioned reports regarding the Amulsar Gold Mine Project in Armenia.

**To:** Mr. Robert Carreau, Vice President Sustainability, Lydian Armenia

**Re:** Response to (1) the press release by Lydian entitled, "Lydian publishes independent reviews of recent reports by Blue Minerals Consultancy, Clear Coast Consulting and Buka Environmental of Amulsar's Environmental Plans" and (2) the review of the Bronozian-commissioned reports by Wardell Armstrong International, Global Resource Engineering (GRE) and Golder Associates, received on 20 August

2017.

Dear Mr. Carreau:

Thank you for your email of 20 August 2017 that included Lydian's press release and the review of the Bronozian-commissioned reports regarding the Amulsar gold mine project in Armenia. The attached document responds to the review by Lydian's consultants and the press release.

The main points addressed in Lydian's press release and the consultants' review, were that our reports did not:

- consider Lydian's environmental management documentation, studies in progress, and independent reviews
- acknowledge the growing role of passive treatment as an industry-standard method for controlling ARD, or
- acknowledge, that independent studies show that the ARD risks at Amulsar are very low.

Each of these points is addressed in detail in the attached document, Response to Lydian Review of Bronozian-Commissioned Reports. As noted in their response, our consultants would welcome the opportunity to discuss these issues in an open forum with Lydian and its consultants, representatives of the Armenian government, and international stakeholders.

The most important unaddressed technical issues discussed in our response document include:

- Additional geochemical testing needs to be properly representative and sufficient in terms of the number of samples, the duration of the tests (for long-term leach tests), and the liquid:solid ratio (for short-term leach tests); the results should be used to model and plan for the time scale of acid generation and contaminant leaching.
- An adaptive management plan to address changes in water quality, stream and spring flows, and groundwater elevations should be in place before mining begins.
- The basis for not needing treatment until Year 4 of operations or later is not substantiated. Given the high potential to develop acid drainage, the acknowledged uncertainties in the site water balance, and the close proximity to water resources, an active treatment system should be installed before mining begins that is capable of treating large volumes of mine-influenced waters.

**Our key recommendation is that Lydian must strengthen their ARD Management Plan immediately and that the Government of Armenia insist on receiving such a plan before allowing mining to proceed. At a minimum, this plan should include improved separation and handling of potentially acid generating materials and development of a water treatment plant that treats all the contaminated waters produced at the mine. Both measures should be implemented before pit dewatering and mining operations begin.**

Best regards and waiting for your response,

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