

Sent To: *B Goreing*  
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Government of South Australia

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Mr Bob Goreing  
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*Bob*  
Dear Mr Goreing

This letter follows up the site visit to Hillgrove Resources mine at Kanmantoo and the meeting we had on Friday 25<sup>th</sup> July. Since the meeting I have received confirmation of the intended actions of the local council in relation to Proctor Road. It appeared to me from reading the various reports the mine provided that there are likely to be many sources of dust, with the unsealed portion of Proctor Road appearing to be one source that had the potential to contribute significantly.

Although sealing the entire road is probably not economically achievable, sealing beyond the current point for a short distance (the 200 m suggested by the council seems reasonable) should reduce 'drag out dust'. From my experience using suitable polymer or lignosulphonate product to stabilise the unsealed section, or at least a portion of it, has great potential in significantly reducing dust emissions. In this regard the mine's experience would be valuable for the council especially in regard the preferred polymer and maintenance schedule. I note that this method has been successfully used elsewhere on haul roads, so appears to cope with heavy vehicles.

The various reports on dust are encouraging in that I have found thus far no indication that urgent action is required due to the chemistry of the dust.

I mistakenly suggested to you that mineralogy assays had not been done, but I found that some work has been done using XRD. However, these appear to be from samples taken on or near the mine and the results are unremarkable. Further analysis using XRD could be considered if differentiation of the various dust sources that impinge the town is required. However, since some effort is being proposed to reduce road derived dust this latter work is unlikely necessary at this stage.

The elemental make-up of the dust that has been collected and analysed is not surprising and in and of itself should pose little risk noting that dust (or particulate matter) certainly can exacerbate pre-existing disease, especially respiratory illnesses in susceptible people.

The dust levels such as observed using a continuous monitoring device in the summer of 2013 appears to be typical of such locations and better than say Port Pirie and not much worse than at the EPA monitoring site at Netley for the same period in 2013.

Various meteorological conditions clearly exacerbate dust levels impacting both emission rate (although I suspect that even after heavy rain, Proctor Road would soon dry to a state where dust would be erodible under heavy vehicle load) and dust sources.

I have no sense of what contribution the agricultural land makes to the dust impinging the town. There is clearly broad-acre cropping along with pastoral activities. The current trend of minimal/no-till cropping should reduce to some extent local dust, however, given the low rainfall I suspect that a portion of the dust is from surrounding land along with seasonal pollen and other wind-swept organic matter.

Overall, efforts to reduce dust emissions at the mine and from roads are very worthwhile given that particulate matter (irrespective of its chemistry) can affect susceptible individuals as well as impact wellbeing.

The proposed network of dust-in-air monitors the mine is considering, if implemented, should bring to bear the ability to effect real-time actions based on potential or real dust levels. Having a clearer understanding of the impact of various meteorological conditions on dust emissions (often from local experience) is also an asset that can be brought to bear. I would encourage the collection of local wind data, at least, which can be matched to dust-in-air monitoring data along with visual observations (the mine has just confirmed each dust monitor will have its own meteorological station). This information can be useful in the future for forecasting potential problem days.

Further monitoring in the town, perhaps at the same locations as shown in the report, may be needed to indicate success or otherwise of work done on Proctor Road which needs to be complemented with meteorological data from the town. Although not a meteorologist I suspect that the topography adds a number of complex factors to temperature gradients, wind direction and speed in the town which may not be predictable from within the mine precinct.

Should you or the committee wish to highlight anything I have missed or have not fully considered, I am more than happy to discuss or review. Furthermore, as indicated I am willing to attend working group or committee meetings to discuss what I have found, or other pertinent information.

I trust this preliminary review is useful for the committee.

Yours sincerely



**Dr David Simon**

Director, Scientific Services Branch

13 Aug 2014