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Submission on the Donald Mineral Sands Project Environment Effects Statement

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Summary

Water must not be supplied from the Grampians-Wimmera- Mallee water supply system. This supply would be at the expense to the environment and other users. Options for ground water must be pursued if this proposal goes ahead, but must be properly assessed.

The impacts of ground water usage are yet to be determined. Approval for this project should not be given until this is resolved.

We are concerned about the loss of many large trees, as is happening with other existing and proposed sand mines in the region. It is important that all offsets be realized in practice to help counter the continuing vegetation decline in the region. The offsets must be secure, be 'like for like' to replace the actual vegetation removed and be put in place prior to vegetation removal. It is also important that the areas currently proposed to be set aside and not mined be securely reserved and that they not be mined in the future.

Water Supply

The mine proposes to use 4 GL/year (according to Supporting Studies no 11 and 12 of the EES) . The VNPA is most concerned about the suggestion that this water be supplied from the Grampians-Wimmera- Mallee water supply system. This system is extremely depleted and any further extraction will reduce the possibility of providing environmental flows to the highly stressed Wimmera and Glenelg Rivers. Large sections of both these rivers have been gazetted under the Heritage Rivers Act because of their natural values. The purpose of this Act is to "protect significant nature conservation, recreation, scenic or cultural heritage attributes". These values are now under grave threat, especially those of the Wimmera River and its terminal lakes.

Environmental flows required

The Wimmera River is a closed catchment system which flows into Lake Hindmarsh, Lake Albacutya and the terminal lakes in Wyperfeld National Park. The extent to which the water flows down this system depends on rainfall but has been severely affected by water extraction for the Mallee-Wimmera Stock and Domestic supply system. Since its development last century, the amount of water travelling to Lake Hindmarsh and beyond has greatly diminished. The lakes in Wyperfeld, which once flooded about once every 20 years, may now flood only every 100 years – and possibly never with the addition of climate change.

The importance of this lake system, including Ramsar-listed Lake Albacutya, and the impacts of water extraction, are clearly acknowledged in every report, management plan and strategy written about this region. The changed water regime in Wyperfeld and Albacutya parks is severely affecting:

- Black Box woodland and River Red Gum forest, including (ironically) a particularly drought-resistant red gum provenance at Lake Albacutya
- native fish and terrestrial species more dependent on water
- various threatened plant communities and species
- waterbird breeding areas and migratory bird habitat
- Regent Parrot habitat
- water quality including salinity levels.

Water flows are now so low (largely lacking) that they are also severely affecting this heritage listed river before these lakes. Environmental flows, which used to be sporadically supplied to the Wimmera River at low levels, were last provided in the summer of 2004/5 when 4898ML was released (Christie (2007)). This was the first (and last) allocation made under the Wimmera-Glenelg Bulk Entitlement. The Bulk Entitlement process was intended to give the environment a clearly defined and legal entitlement to a share of the available water resources of the region. This has proved not to be the case due to a combination of low water availability and competition with other users including the Iluka sand mine at Douglas. This mine has been given priority over the environment in spite of assurances before it was approved that this would not occur (see further below).

Although the Wimmera River is naturally ephemeral, varying from a series of dry years to a series of wet years in natural conditions, nonetheless the extreme lack of water due to the drought combined with water extractions for more than a decade has exceeded natural variation. This has resulted in severe reductions in water quality, drying up of pools which were drought refuges for aquatic flora and fauna, saline intrusions from ground water, regular algal blooms and severe stress on riparian vegetation including large stands of River Red Gums (Christie (2007)) and Black Box woodland, includes significant deaths even in drought resistant provenances.

In fact to maintain the basic health of the Wimmera River a minimum of 65.5 GL per year on average is required for the Wimmera (Sinclair Knight Mertz 2002) and a minimum of 46 GL/year for the Glenelg (Sinclair Knight Mertz 2003) - a total of 111.5 GL/yr. This is a far cry from the less than 5 GL environmental allocation released in 2004.

These estimates are for the requirements of the main river channels only and in the case of the Wimmera apply only up to Lake Hindmarsh. Far greater flows (640 GL over 2 years) are required to flood Lake Hindmarsh, Lake Albacutya and the terminal lakes. For this to occur it will be necessary to have substantial volumes of water in reserve to bolster the natural flows in wet years. The last few thousand megalitres that may be available in a wet year when Lake Albacutya finally overflows, may make all the difference as to how far the flow will then penetrate into Wyperfeld National Park and the terminal lake system within it. Thus while the 4 GL allocation to the mine may seem insignificant compared with the over all amount needed, the extraction of this volume may prevent the watering of the most water-stressed parts of the whole system in wet years and will also severely detract from the health of the river in dry years .

Will pipelining make the water available?

The Environment Effects Statement for the Douglas Mine did not examine the possible effects of the proposed water allocation on the regional water needs including the environment. Instead a preliminary agreement for 7 GL was drawn up between the mining company (then Basin Minerals) and Wimmera-Mallee Water in March 2002 before the EES panel hearing. The EES panel subsequently declined to consider the water issue deeming it to be the realm of Wimmera-Mallee Water. All this was before the 2002-3 studies were done on the environmental flow requirements of the rivers in preparation for the Bulk Entitlement Process.

The logic for providing the water for the Douglas sand mine in 2002 was the same as is now being put forward; i.e. that pipelining of the multitude of open channels will provide 'water savings' representing water that is currently lost in the open dams and channels. Pipelining completed a couple of years ago to provide northern mallee farms and townships with water direct from the Murray, instead of from the Grampians via channel, was predicted to save 50-60 GL with 30-35 GL of this to be for the environment. The southern Wimmera- Mallee pipeline, currently part constructed has been portrayed as saving up to 120 GL with over 80 GL supposedly for the environment (Sinclair-Knight Mertz 2001). Included in the projected 'savings' is 20 GL of water supposedly available for new industry from which Iluka Douglas Mine was purportedly supplied. However, as noted by Christie (2007) these volumes "*are highly dependant on the assumption that historical inflows are applicable. Factors such as climate change have the potential to significantly impact on the future volumes available*".

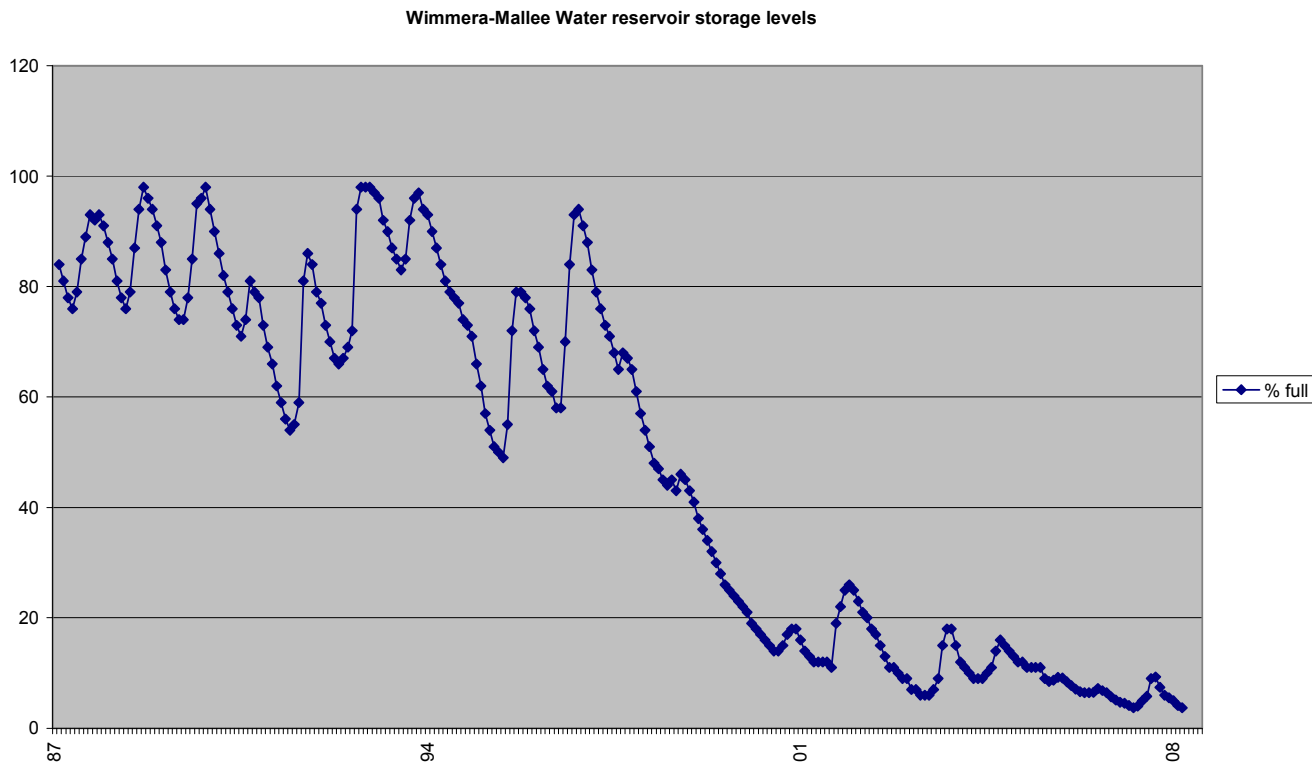
Put simply – for water savings to be made – first it must fall from the sky. If there is insufficient in the reservoirs to make a 'channel run' for dams supplied by the channels, then there will be no 'savings' made simply by using a pipeline. The water supply will be more reliable for the users on the pipeline, as less will need to be in the reservoirs before deciding to make a delivery. However 'savings' for the environment will not be realized except in wetter years. If anything the pipeline will favour users over the environment especially in drier years. The February 2007 GMW press "Water Savings being delivered" (now removed from the GMW web site) which is referenced in Supporting Studies no 11 and 12 of this EES, makes a quite fanciful claim that various volumes totalling 34 GL are currently being 'saved' annually by the recently constructed pipelines. In fact this volume is greater than the amount of water currently in the reservoirs (and for much of 2007).

While Christie (2007) considers that the pipelining of the system will eventually lead to improved availability of water for the environment, we are most pessimistic as to whether this will be sufficient even for the environment, let alone adding new users, because of the impacts of climate change on the amount of 'water savings' that will ultimately result (see discussion of a recent CSIRO study of climate change and the Wimmera water supply below). Continued additional demands such as this one will further exacerbate the problem.

The Heritage River Act (see attachment to this submission) requires that that "*the managing authority of a heritage river area must take all reasonable steps to ensure that the significant nature conservation, recreation, scenic or cultural heritage attributes of the area are protected*" (section 7). The Act also requires that for the Wimmera River "*an adequate proportion of such water savings (from pipelining) is to be allocated to environmental water requirements for the Wimmera River upstream of Lake Hindmarsh*" and "*on completion of studies of the means of providing environmental water requirements along the Wimmera River and Outlet Creek to the terminal lakes, an adequate proportion of water savings is to be allocated to these requirements*" (section 11 of Act and schedule 4). Note that the Act expressly provides that it overrides other Acts (section 15) thus actions counter to it are illegal.

With a significant proportion of the predicted savings likely to be reduced by climate change (see comments under CSIRO predictions below) and the sizable amount of environmental water determined to be needed by various studies (see above) it is likely that most if not all of the savings will now be required to provide an “adequate proportion” to the environment, especially as some has already been assigned to new industry such as the Douglas mine

The graph below has been compiled from volumes of storages put on GMW’s web site each week. This website includes past storage levels for that week for 15 years and we have collected this data since 2002.



Because of very low storage levels and resulting political pressures from other users (including the Douglas Mine) no environmental flows have been provided for the rivers since 2004/5. This breach of the Bulk Entitlement provisions resulted from direct intervention by the Minister for Water in 2006 so that “*this water be held as a reserve for emergency water supplies for basic human needs*”. In the same year urban centres were on the highest possible restrictions, there was water carting with no ‘channel run’ to supply dams and zero allocation to irrigators (Christie (2007)). And yet the Iluka Douglas Sand Mine has been supplied enough water for its production that started in mid 2006 at a rate of 55,000 tonnes of heavy mineral concentrate per quarter, a level of production that would require about 2 GL/y and which continues to this time. Although some of this water more recently has been supplied from ground-water, the majority appears to have been supplied from Rocklands Dam (now 1.1% full). Effectively the environmental flows, and some other users have been totally cut off in favour of this mine since 2006.

Now it is suggested that an additional 4 GL can be supplied to a new mine. A simple look at the above graph, and the current level of 3.7% full, or 28GL left for all the region, suggests this is currently impossible and unlikely for many years even if good rainfall occurs¹.

¹ The maximum increase in the reservoir system since 1987 (from 1 Jan to 1 Jan), even in very wet years, was 20%, suggesting that 5 consecutive very wet years would be needed to fill the system under present demands.

The allocation of 4 GL would also be in conflict with provision of environmental flows to the Wimmera and Glenelg Rivers by reducing the amount of environmental water available at all times including at the two extremes:

- in high rainfall years when large amounts may be needed to boost flows to achieve filling and overflow of the Lakes, and subsequent flooding of the lakes in Wyperfeld,
- in times of drought (as at present) when supply of environmental flows will be severely competing with other users who will also be under stress.

Predictions of CSIRO

All of the above is backed up by a recent study of water availability in the Wimmera by the CSIRO. The full report and a summary is available on <http://www.csiro.au/org/Wimmera.html>. This study concludes:

“There is a very high level of surface water diversion in the Wimmera and large losses in the distribution system. This has caused major changes to the water regimes of the terminal lakes. Climate change is likely to result in substantial reductions in the volumes of surface water available – the best estimate is that water availability will reduce by about one-fifth. This would reduce the reliability of non-urban water supply and would impact further on the terminal lakes.

- *Current average surface water availability is 206 GL/year and 59 percent of this is diverted for use. Actual use is much lower as system losses are high. Groundwater use is low and does not impact on streamflow.*
- *If the recent climate (1997 to 2006) were to continue for the long-term both average surface water availability and use would decline by about 50 percent.*
- *The best estimate of climate change by 2030 is less severe than the recent past: average surface water availability would be 163 GL/year. There is however, a wide range in the potential impacts of climate change: from 6 percent reduction in average surface water availability to conditions similar to the last ten years.”*
(p 4 of report summary)

An important conclusion of this study is that average surface water availability would be reduced by 21 percent or about 43 GL/year under the ‘best estimate’ of 2030 climate (see p 5 of report summary). This means that the available ‘savings’ by pipelining are effectively reduced by more than twice the amount (20GL) nominally assigned for new industry. Therefore allocations for the environment and other users will be reduced by 40 GL if the industry water is assigned, or by 20 GL even if the new industry water is not assigned.

As noted in the quote from the CSIRO report above, should the current climate of the last ten years continue, then average surface water availability would be reduced by 50% percent. This will be 103 GL/year, removing a very large proportion of the pipeline ‘savings’. Given the lack of rain in central and western Victoria in spite of the recent La Nina event that has seen flooding in most of eastern Australia, the possibility that future climate will be more like the last 10 years than CSIRO’s ‘best estimate’ of 2030 climate is very real and worrying indeed.

For all of the above reasons we urge that this mine not be supplied with surface water.

Use of Ground Water

The 2007 CSIRO report indicates that this is not a heavily used resource in the region and there is therefore potential for this to be used for the mine. Because of the above severe limitations on surface water supply this more expensive option must be considered. However the EES states that supply of this is still under investigation “which is outside the scope of the EES”, including possible environmental effects.

As noted by the EES and supporting study no 11 “The scale of this impact will be better understood once pump testing has been completed, which will give an indication of the aquifer properties and drawdown response to extraction. Groundwater extraction licence applications (required for pump testing and operations) will consider the potential affect that the drawdown may have on ecosystems reliant on the affected discharge features e.g., Lake Buloke and the paperbark population at Barnett’s Lakes. These investigations will include drilling and the installation of monitoring bores to determine the interconnectivity between the Avon Deep Lead and surrounding aquifers There are uncertainties about the nature and extent of the residual risk that can only be resolved by pump testing Only a sustained pumping test can establish the sustainable yield of the aquifer and provide an indication of the likely long term effects on water levels, both locally and regionally.”.

We consider it unfortunate that all this is “outside the scope of the EES” as water supply and its impact is key to the whole project. At least it appears likely (as briefly mentioned the EES but not clearly enunciated) that the draw-down of the saline water may actually benefit Lake Buloke and its aquatic fauna. The EES should have examined the potential effects of ground water on this and the various other lakes but failed to do so.

For the reasons outlined above, the supply of surface water is highly problematic and controversial and also likely to be highly unreliable with the present climate. While a later consent is required for the extraction of ground water, it is not clear what documentation, assessment and public input will be involved. Therefore any consent for the mining operation as a whole must be conditional on the supply of groundwater being fully assessed and proved to be both feasible and environmentally acceptable.

Flora and Fauna

It is a feature of this, and other current and proposed sand mines in Western Victoria, that a large number of centuries old trees are being removed. In this case 657 large old trees will be lost. This is of concern and represents a cumulative loss in the region of a resource that obviously cannot be readily replaced in the near future. We note that this is a significant reduction from the number of trees that would have been removed from the ‘superseded project area’ nonetheless we urge that the number be further reduced if at all possible.

We commend the reduction in the project area and hence the reduction in impact on remnant flora and fauna. We urge that the areas identified as being of national significance (areas 2, 3, 4, 5, 11, 16 and 21) by the flora and fauna survey and net gain analysis (supporting studies 3 and 4) be excluded from the current mining proposal as proposed. These must be permanently protected by conservation covenants or by purchasing for permanent reserves and not be left vulnerable to future decisions based on economic considerations.

Because of the poor and steadily declining native vegetation coverage in this region, it is also important that the offsets for the remaining clearing, as identified in supporting study no 4

and outlined in section 6.3.4 of the EES, be realized in practice. These offsets must be secure in the long-term, be 'like for like' to replace the actual vegetation removed. These and other important principles of 'net gain' are expressed in section 3.8 of supporting study no 4 and must be followed. It is also important these offsets are put in place prior to vegetation removal. This means the areas of vegetation to be retained and managed as offsets are identified in a detailed offset strategy and permanently reserved before commencement with vegetation management and replantings also initiated prior to commencement.

Conclusion

This mine must not be supplied from the highly depleted and over-allocated Grampians-Wimmera- Mallee water supply system. 'Savings' from current and future pipelining will be much less than originally predicted because of climate change and will not make up sufficient water to allow supply of new users. Any supply would be at the expense to the environment and options for ground water must be pursued if this proposal goes ahead.

However, the impacts of ground water usage are yet to be determined and approval must be absolutely dependant on a satisfactory environmental outcome for this source of supply. Approval for this project should not be given until this is fully assessed and resolved.

We are pleased that the over all impact due to clearing has been reduced through a reduced footprint. However the vegetation loss, especially of large old trees, is not insignificant considering the generally depleted vegetation in the region. It is important that all offsets be realized in practice by being secure in the long-term, 'like for like' and in place prior to vegetation removal. The areas proposed to be set aside and not mined must be securely reserved. They must not be left vulnerable to being mined in the future in order to extend the life of the mine.

References

Christie H. (2007) "Real life management of an environmental water reserve – a Wimmera Perspective" in Proceedings of the 5th Australian Management Conference – Australian Rivers making a difference: Charles Sturt University Thugoon NSW

CSIRO (2007) "Water Availability in the Wimmera - A report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project", October 2007

Panel Report (May 2002) Douglas Heavy Minerals Project Stage 1 Environment Effects Statement

Sinclair Knight Merz (September 2002) "Wimmera Bulk Entitlement Conversion - Environmental Flow Study Final Report"

Sinclair-Knight Mertz (2001) "Piping the System – A sustainable water management strategy for the Wimmera-Mallee Region"

Sinclair Knight Merz (April 2003) "Stressed Rivers Project - Environmental Flow Study-Glenelg River System"

**Extracts from the Heritage Rivers Act 1992
(Act No. 36/1992)**

3. Definitions

"water diversion" means the taking of water under a bulk entitlement, licence to take and use water or agreement under the **Water Act 1989** or any other Act and any works associated with that taking;

7. Powers and duties of managing authorities

- (1) A managing authority of a heritage river area must, in so far as it is consistent with the authority's duty to manage the area responsibly--
- (a) take all reasonable steps to ensure that the significant nature conservation, recreation, scenic or cultural heritage attributes of the area are protected; and
 - (b) subject to paragraph (a), take all reasonable steps to provide opportunities for other recreational activities, landscape appreciation and education within the area; and
 - (c) take all reasonable steps to ensure that that part of the river which is in the area is maintained without further interference with its free flowing state except as otherwise provided in this Act.
- (2) A managing authority of a natural catchment area must, in so far as it is consistent with the authority's duty to manage the area responsibly, take all reasonable steps to ensure that the area is maintained in an essentially natural condition.
- (3) A managing authority has the power to do everything that is necessary or convenient for it to do to give effect to this Act.

11. Specific land and water uses for particular heritage river areas

A heritage river area set out in Column 1 of Schedule 4 must be managed in accordance with the recommendation of the Land Conservation Council made under the **Land Conservation Act 1970** set out opposite that area in Column 2 of Schedule 4.

15. Act to prevail over inconsistent provisions

- (1) Nothing in section 7 of this Act or in any other Act or in any instrument made, granted or issued under another Act is to be taken to authorise the carrying out of activities in a heritage river area or natural catchment area to the extent that the activities are prohibited, or the manner of carrying out the activities is regulated by or under--
- (a) this Act; or
 - (b) an approved management plan; or
 - (c) a Land Conservation Council recommendation referred to in Schedule 4 or 5.

SCHEDULE 4

SPECIFIC LAND AND WATER USES FOR PARTICULAR HERITAGE RIVER AREAS

Column 1 <i>Natural Catchment Areas</i>	Column 2 <i>Land Conservation Council recommendations</i>
Wimmera River Heritage Area--	A6(m)(i) transfers between existing water users take place where appropriate, but no additional diversion of surface water shall be made in the Wimmera Basin
	(ii) increased allocations only be made where they can be achieved from water savings through schemes that improve water distribution efficiency, such as the piping of parts of the Wimmera-Mallee Stock and Domestic Supply System
	(iii) an adequate proportion of such water savings is to be allocated to environmental water requirements for the Wimmera River upstream of Lake Hindmarsh
	(iv) on completion of studies of the means of providing environmental water requirements along the Wimmera River and Outlet Creek to the terminal lakes, an adequate proportion of water savings is to be allocated to these requirements.