

PUBLIC



MINISTER FOR ENVIRONMENT; WATER

Our Ref: 42-06692

Hon Brian Ellis MLC
Chairman
Standing Committee of Environment & Public Affairs
Parliament House
PERTH WA 6000

Dear Mr Ellis

PETITION NO 104 WATER LICENCE BEING APPLIED FOR BY KARARA MINING LTD IN THE PARMELIA LEEDERVILLE AQUIFER OF THE MINGENEW SUBAREA

Thank you for your letter dated 14 April 2011 regarding the above petition. Responses to your questions are provided below.

Anticipated timeframe for assessment process:

The Department of Water (DoW) expects a final decision on the application for the licence to abstract groundwater to be made by 30 June 2011. This timeframe is dependent upon Karara Mining Limited (KML) providing additional information required to complete the assessment. The additional information sought from KML includes:

- identification of groundwater dependent ecosystems (GDE);
- the values associated with the GDE; and
- hydrochemical analyses and further hydrogeological modelling information.

Current progress of assessment:

The assessment of the application is under way. The potential impacts of the proposed groundwater abstraction and how these could be managed are still being assessed.

Accounting for issues raised in the petition and submissions:

The issues listed on the petition and comments made by the community during the submission period will be considered in the assessment process. The DoW produced an interim response to submissions and met with the community in Mingenew on 19 April 2011 to provide the answers available at this time. A final response addressing all issues will be provided to the community when a final decision has been made. A copy of the interim response is enclosed for your information.

I trust this addresses the Committee's questions about the assessment process for KML's licence application. Should you require any further information please contact Mr Adam Maskew, A/Regional Manager for the DoW Midwest Gascoyne Region on 9941 6100.

Yours sincerely

**HON BILL MARMION MLA
MINISTER FOR ENVIRONMENT; WATER**

Att **16 MAY 2011**
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Department of Water
Interim Statement of Response
to
Submissions regarding Karara Mining Limited
Groundwater License Application

This statement is the Department of Water's (DoW) interim response to submissions received during the public comment period regarding the application made by Karara Mining Limited to abstract 5.3 gegalitres of water from the Leederville - Parmelia Aquifer in the Mingenew subarea for the Karara Iron Ore Project.

A final decision on the application is yet to be made.

Executive summary

An invitation to comment on the application was advertised in The West Australian and The Geraldton Guardian on 11 October 2010. To supplement advertising, an information session was presented at the Mingenew Town Hall on 18 October 2010. This was followed by a second community meeting held 26 October 2010. The closing date for submissions was 31 January 2011.

A total of 27 submissions were received from various groups listed below,

- 20 Community members
- Two Industry groups
- Two non government organisations
- One Member of Parliament
- Two government organisation

From the 27 submissions received a total of 324 comments, questions and proposed actions were recorded. All of the comments from the submissions will be considered in the assessment of the application.

Similar issues have been grouped together in the tables below. General comments about the issue appear first and a response from the Department of Water is provided. Specific questions and actions to overcome objections are then listed if a further response is required.

Due to the large number of comments received, comments have been collated and summarised where the same issue was raised a number of times. Therefore specific comments from individuals may not appear exactly as they were presented in their submissions.

In addition to the submissions the DoW has been working across government to obtain advice and information as required to assist with the assessment of the application. This has included advice from agencies such as Department of Environment and Geological Survey of Western Australia.

Summary of groupings:

Table	Main category	Sub-categories
Table 1 (Page 3)	<i>Impacts to the Community</i>	Farm bores Public drinking water supply Future development & benefits to community.
Table 2 (Page 6)	<i>Licence Management</i>	Impacts of drawdown Monitoring Licence conditions
Table 3 (Page 9)	<i>Other Considerations</i>	Community consultation Comments of support Decision
Table 4 (Page 12)	<i>Hydrogeological & Groundwater Dependent Ecosystems (GDE) information</i>	Regional hydrogeological knowledge KML's hydrogeological investigation Urella fault Recharge Groundwater dependent ecosystems
Table 5 (Page 18)	<i>Legislation & Policy</i>	RiWI Act Role of other Government agencies Allocation limits Allocation of water Planning Alternative water supply Trading water Payment for water Compensation Devaluing land

The following abbreviations have been used:

KML	Karara Mining Limited
DoW	Department of Water
DEC	Department of Environment
EPA	Environmental Protection Authority
PDWS	Public Drinking Water Supply
GDE	Groundwater Dependent Ecosystem
RiWI Act	<i>Rights in Water & Irrigation Act 1914</i>
kL	Kilolitres (one thousand litres)
GL	Gigalitres (one billion litres or one million kilolitres)

Table 1: Impacts to the community

Farm bores	
<p>Potential impacts to farm water supply raised a number of issues:</p> <ul style="list-style-type: none"> - impact the operations of existing users, - bore levels may drop, - higher pumping costs, - no proof the Yandanooka water reserve will not be affected, - KML should be required to provide a bond should water supplies be affected. 	<p>Water requirements for small scale stock and domestic agricultural activities typical of the area have been accounted for in the allocation limit for the Leederville – Parmelia aquifer. In addition, DoW must consider the potential impacts on existing water users when assessing applications for new water entitlements.</p> <p>Water levels will change in response to pumping. The level of change will depend on the location of the individual bore. Monitoring of groundwater levels will provide early warning of unexpected changes. Contingency plans will also be required should users be adversely impacted.</p> <p>There are no provisions for DoW to request bonds from applicants should existing water users be affected.</p>
<p>Specific questions:</p> <ol style="list-style-type: none"> 1. Who is responsible if surrounding landholders water supplies are affected? 2. Is DoW or KML responsible for making good affected water supplies? 3. What is the time frame for making good the water supply? 4. If KML are responsible, is it not illegal for them to supply water from the licence to a second party? 	<ol style="list-style-type: none"> 1. It is the responsibility of DoW to determine if KML's abstraction has an adverse impact to water supplies and to decide the response required. 2. KML would be responsible for making good the water supply if their abstraction was found to be the cause. 3. Early warning provided by monitoring would be expected to provide sufficient time to address impacts to supply. Should DoW direct KML to make good the supply, they would be required to do so in the shortest time possible. 4. It will not be illegal for KML to provide water under the circumstance of 'making good supply' as it is a short term measure. Only those companies that provide water services as a commercial business need to be licensed by the Economic Regulation Authority to do so legally.
<p>Recommended actions:</p> <ol style="list-style-type: none"> 1. It was suggested a register of all 	<ol style="list-style-type: none"> 1. The monitoring that KML will be required to

<p>local bores, wells and soaks be compiled for landholders wanting their water sources monitored. KML would be required to monitor these as part of licence conditions.</p> <p>2. More monitoring bores to determine where Yandanooka water is fed from.</p>	<p>undertake is yet to be finalised. Further information will be provided in the final response.</p> <p>2. The assessment of potential impacts to Yandanooka well and the monitoring that may be required is yet to be finalised. Further information will be provided in the final response.</p>
<p>Public drinking water supply</p>	
<p>a) The Leederville - Parmelia Aquifer is the same source for Mingenew, Morawa, Perenjori and Three Springs. There was concern this would impact these towns water supply.</p> <p>b) There were concerns relating to the costs and efficiency of the public water supply and the perception that industry operates under different conditions.</p> <p>c) It was suggested that current PDWS reserves for the Midwest will not meet demand and the Leederville - Parmelia Aquifer could be used to meet Geraldton's future needs.</p>	<p>a) DoW recognises that public drinking water supply (PDWS) is the highest priority use of water. The Water Corporation were consulted during the development of the Arrowsmith groundwater allocation plan, and 2 GL has been reserved from the Leederville - Parmelia Aquifer in the Mingenew subarea for future PDWS.</p> <p>Groundwater modelling predicts that KML's proposed abstraction will not impact the existing or reserve town water supplies from either the Mingenew or Arrowsmith schemes. Groundwater monitoring will ensure that the model predictions match observed groundwater drawdowns.</p> <p>b) It is correct that currently there are no fees charged for water licences. However, drilling, bore construction, consultancy, monitoring and pumping are some of the costs involved for accessing groundwater.</p> <p>Users of public water services pay for the provision of these services. All water users from private households to industry are encouraged to make efficient use of water. KML would need to comply with a water conservation and efficiency plan.</p> <p>c) Water Corporation estimated public water supply requirements to 2040. These quantities have been reserved from appropriate aquifers in the Arrowsmith groundwater area. Geraldton's needs have been accounted for in this process and will be met through abstraction from the Yarragadee Aquifer.</p>

Future development & benefits to community

a) Many respondents were concerned with impacts to future development of agricultural businesses. It was also considered that people living above the aquifer should have priority over its usage.

b) It was considered more benefits would result for the community if agricultural industries developed locally compared with the benefits of mining.

Specific questions:

1. Will guarantees be put in place that protects our communities for the foreseeable future?

a) Developments requiring water will always be restricted as water resources are limited. There are other groundwater sources within the Shire of Mingenew that can be accessed for new projects to develop.

It is acknowledged that people living in an area will have feelings of ownership and responsibility for its natural resources. However, the state's water resources are a public asset and individuals do not have priority over usage.

b) Different industries will bring varied benefits. These can be difficult to gauge, and may not always result in direct benefits for the local community. Water resources are made available for use, to support any type of development. More benefits are likely to occur if the resource is in use.

1. DoW reserves water to meet future public drinking water requirements to ensure our towns and cities have sufficient water to expand. Water for other purposes can be accessed from the same water resource up to the allocation limit of that resource.

Table 2: Licence Management

Comment	Department of Water response
Impacts of drawdown	
<p>a) It was noted that KML's hydrogeological report made no comment about the drawdown effects on farm bores.</p> <p>b) It was considered the closeness of KML's production bores combined with the high proportion of the aquifer's allocation limit would concentrate impacts.</p>	<p>a) It is correct that no specific comments were made in relation to drawdown effects on bores. The location of the private bore in relation to the bore field will determine to what extent water levels may be impacted.</p> <p>b) To minimise the effects of abstraction, bore placement needs to consider the nature of the aquifer and the location of other users and GDEs. KML's production bores have been placed where the aquifer is very deep, and at the greatest distance possible from many of the existing licensed users and GDEs. The application of 5.3 GL represents 65% of the total sustainable allocation limit for the aquifer (8.2 GL). The assessment of potential impacts and how these could be managed is still being considered.</p>
Monitoring	
<p>Concerns were raised about the water resource becoming depleted or contaminated and that there are an inadequate number of monitoring bores in place.</p> <p>Recommended actions:</p> <p>1. Adequate monitoring should be undertaken stringent trigger levels put in place. It was suggested that DoW or an independent body be responsible for conducting monitoring.</p>	<p>Monitoring would be required to ensure the abstraction remains sustainable. The aquifer will not become contaminated as a result of KML's activities.</p> <p>Assessment of potential impacts and what monitoring would required is yet to be complete. Further information will be provided in the final response.</p> <p>1. Monitoring would be required and trigger levels put in place where appropriate. If a licence is granted to KML, then the company will be responsible for collecting the data. It is KML's decision who would be appointed to conduct the monitoring. The DoW will conduct routine audits and inspections to ensure the validity of the data supplied.</p>
Licence conditions	
Lack of compliance with licence	KML require a sustainable water source to

<p>conditions was considered a potential issue and penalties were thought to be insufficient to act as a deterrent.</p>	<p>ensure the mine continues to operate. It is not in their interest to provide unreliable monitoring data. DoW will continue to monitor the regional bore network and other aquifer information. DoW officers can also undertake site inspections at any time.</p> <p>The penalties for breaching licence conditions under the RiWI Act are \$10,000 and a daily penalty of \$1000 while the offence continues. While these may not be considered an incentive for compliance, if convicted of an offence under the RiWI Act, the offender may not be eligible to hold a licence in the future. DoW may also suspend or cancel a licence if conditions are not complied with.</p>
<p>Specific questions:</p> <ol style="list-style-type: none"> 1. What is the process DoW will have in place to ensure monitoring occurs as per licence conditions? 2. What procedures does DoW have in place to ensure this process continues when staff change? 	<ol style="list-style-type: none"> 1. All licences that include monitoring conditions require the licensee to submit data by a specified date. If the data is not received by the required date the licensee may be in breach of a licence condition and is contacted. Once received, data is checked for compliance with conditions and for any unexpected aquifer trends. 2. An automated reminder system alerts staff that monitoring data is due and a standard process for checking data is followed.
<p>Recommended actions:</p> <ol style="list-style-type: none"> 1. If trigger points are breached and need to be reset the licence is to be reduced by 10%. 2. If 5.3GL is not taken in one year it cannot compound so more water can be taken the following year. 3. If more water is taken than the licence permits the licence should be reduced: <ul style="list-style-type: none"> - First breach 10% - Second breach 50% - Third breach cancels licence 	<ol style="list-style-type: none"> 1. Should trigger levels be breached, the cause will need to be investigated. Depending upon the outcome management changes may be required. For example altering the operation of the bore field or reducing abstraction. <p>The licence will not be reduced unless necessary.</p> 2. Agreed. The annual water entitlement is the maximum amount that can be abstracted within a specified 12 month period. If the full entitlement is not taken it cannot be accrued for future use. 3. It is a condition of any licence that abstraction does not exceed the licensed entitlement. If licence conditions are breached only legislated penalties can apply.

<p>4. Meters are to be installed. If the meter malfunctions water is not to be pumped.</p> <p>5. Close monitoring is maintained and the results widely distributed. It was suggested that trigger values, annual abstraction and GDE monitoring were all made publically available. There were also suggestions for the frequency of reporting these results and establishing a mailing list for those who would wish to receive the data directly.</p> <p>6. If triggers are breached this is to be made public & public consultation is to occur.</p>	<p>4. According to <i>Strategic Policy 5.03 – Metering the taking of Water</i>, it will be a requirement of the licence that meters are installed and maintained. Should a meter malfunction occur KML would need to inform DoW. Depending on the circumstance, abstraction may be allowed to continue while the meter is repaired or replaced. Under the <i>Rights in Water and Irrigation Regulations 2000</i>, there are provisions relating to damage or interference of a water meter.</p> <p>5. Monitoring and reporting conditions for the licence are yet to be finalised. Further information will be provided in the final response.</p> <p>6. Reporting conditions for the licence are yet to be finalised. Depending upon the nature of the breach consultation may not be necessary. Further information will be provided in the final response.</p>
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Table 3: Other considerations

Community consultation	
<p>Many respondents raised concerns with the public submissions process including:</p> <ul style="list-style-type: none"> - the timing of the meetings, - closing date for the public comment period, - independent review of the reports, - KML's involvement in the process, - the level of consultation, - the process for addressing submissions, and - DoW staff's lack of awareness of local wetlands at the meeting. 	<p>We acknowledge that it was a busy time for the local community and the release of the reports was delayed. We also acknowledge that not everyone could attend the meetings, however it is difficult to find a time suitable for everyone.</p> <p>Your submissions are an important part of the assessment process. The closing date was selected to accommodate: the community; progression of the assessment; and preparation of an interim response before seeding.</p> <p>It is the responsibility of DoW to independently assess the reports & other information provided by applicants. The reports were provided to help inform submissions. The community are not expected to assess the reports.</p> <p>Aside from the usual advertising requirements, the process of public consultation is new to both DoW and applicants. DoW will be working to improve this process for all stakeholders.</p> <p>Submissions will be addressed initially through this interim response. As a final decision has not been made there may be some answers that cannot be provided at this time. The timing of the final decision will depend on the completion of the assessment process. DoW staff are available to answer your questions. If additional comments or questions are received they will be added to the final statement of response if appropriate.</p> <p>DoW staff that attended the meeting were not fully aware of the wetlands being discussed. However, the assessment was in its early stages and consultation with DoW staff in the Environmental Water Branch and the mapping of GDEs was ongoing. The public consultation process assists DoW by providing local knowledge and the values placed on them.</p>
<p>Specific questions:</p> <ol style="list-style-type: none"> 1. The reports to be used in the assessment were not available from DoW and in accessing KML's 	<ol style="list-style-type: none"> 1. We acknowledge that this process caused concern for a number of individuals. DoW does not own the information provided by

<p>website personal details had to be given. Please explain how this process was allowed to occur.</p> <p>2. Who made the decision not to extend the public submissions period to March 2011?</p> <p>Recommended actions:</p> <p>1. If submitters suggestions for addressing objections are not accepted, the name of the person who made the decision should be supplied.</p>	<p>applicants and usually it is only available to the public through a Freedom of Information request. KML agreed to provide the information to the community to assist submissions. DoW will discuss with future applicants the methods by which they intend to make information available.</p> <p>2. The decision not to extend the public submissions period was not made by one person. It was a collective decision made by DoW.</p> <p>1. Decisions within DoW are made in a consultative manner and are guided by current legislation and policy.</p>
<p>Comments of support</p>	
<p>a) It was commented that the Mingenew community supports mining and KML's project would create opportunities for the Midwest and the state.</p> <p>b) There was support for the position of the borefield in maximising the distance from GDEs, and that abstraction would provide important information about the aquifer.</p>	<p>a) DoW acknowledges that there is support for KML's project.</p> <p>b) While potential impacts to GDEs are still being assessed, monitoring an aquifer's response to abstraction does provide information about the system.</p>
<p>Decision process</p>	
<p>a) Concerns were raised that KML had commenced laying the pipeline before obtaining a water licence.</p> <p>b) It was thought that the assessment</p>	<p>a) The Karara Iron Ore Project has been in development for several years. KML initially sought; and were to be granted, a licence from the Yarragadee Aquifer north of Mingenew. Much of the pipeline route was not affected by the change in the location of the water source. KML have undertaken construction of the pipeline at their own risk to meet operational timelines.</p> <p>b) The DoW aims to make determinations on</p>

<p>of KML's application was being expedited by DoW.</p> <p>c) Many respondents thought that the application should be rejected.</p> <p>Specific questions:</p> <p>1. Is political pressure affecting the decision making in DoW?</p>	<p>all licence applications within reasonable timeframes to ensure applicants are not disadvantaged. To assist in achieving this goal, licence applicants are expected to provide the information required by the DoW to make a decision on their licence application in a timely manner.</p> <p>c) The assessment of licence applications follows a set process based on the RiWI Act, current policies and plans. Applicants aggrieved by a decision can apply to the State Administrative Tribunal (SAT) for a review which will consider the assessment process. Without sufficient grounds to refuse an application, a review by SAT would result in a licence being granted.</p> <p>This application is still being assessed and the decision to grant has not been made.</p> <p>1. As described above, DoW has a process to follow when assessing licence applications, and an obligation to make decisions within a reasonable timeframe.</p>
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Table 4: Hydrogeological & Groundwater Dependent Ecosystems (GDE) Information

Comment	Department of Water response
Regional hydrogeological knowledge	
<p>a) Concerns were raised about DoW's regional bore monitoring network including: the number of bores and their extent; limited data collection; and the inability of the network to indicate the effects of abstraction on the Leederville – Parmelia Aquifer.</p> <p>b) <i>'Groundwater yields in south-west Western Australia- A report to their Australian Government from the CSIRO South-West Western Australia Sustainable Yields Project'</i> (reference below) places very low confidence in current levels of understanding about the hydrogeology of the Northern Perth Basin of which the Mingenew sub area is part. The report also recommended a groundwater model be developed for the area.</p> <p>Specific questions:</p> <p>1. KML suggested water from Twin Hills sub area was too salty. How could DoW not have known this if monitoring of the area is accurate?</p>	<p>a) The purpose of the DoW bore network is to investigate and monitor aquifers on a broad regional scale. Applicants seeking a licence are required to conduct their own hydrogeological investigations to determine the potential impacts of abstraction at the local level.</p> <p>b) The CSIRO report investigated potential changes to groundwater under various climate change scenarios. The accuracy of the forecasted changes was limited by hydrogeological information & groundwater data available for an area. As there was no groundwater model specific to the Northern Perth Basin, the report placed a low level of confidence in its forecasted changes to groundwater.</p> <p>KML were required to conduct their own hydrogeological investigation to improve understanding of the aquifer and determine the potential impacts of abstraction. DoW is evaluating this investigation as part of the assessment process.</p> <p>A groundwater model for the Northern Perth Basin has been developed since the CSIRO report was released.</p> <p>1. The nearest DoW monitoring bore is 16km west of the Twin Hills site previously targeted by KML. The role of the DoW bore network is to investigate and monitor aquifers on a broad regional scale. The bores are not currently sampled for water quality. Applicants are required to undertake their own investigations to provide accurate information.</p>
KML's Hydrogeological investigation	
<p>a) Concerns were raised that existing knowledge of the Leederville -</p>	<p>a) There are many areas state - wide where knowledge of aquifer systems is limited.</p>

<p>Parmelia aquifer is limited, and the Soil Water Consultants report recommended additional work to be undertaken to establish groundwater systems in the area.</p> <p>b) Pump testing of KMLs bores was considered not representative as pumping would be required 365 days a year, 24 hours a day, and data from the third production bore was not available for inclusion in the hydrogeological report.</p> <p>c) The Rockwater report for the Twin Hills groundwater licence application stated <i>"The Parmelia and Yarragadee form major aquifers, but north of the Dongara borehole line the Parmelia formation is too thin (or is absent?) to yield large groundwater supplies. The only suitable aquifer is the Yarragadee formation"</i>. This statement caused confusion given KML are now seeking to use the Leederville - Parmelia Aquifer.</p> <p>Specific questions:</p> <p>1. DoW stated that test pumping the bores at 60L/s would stress the aquifer. If 5.3GL is granted, 3 production bores would need to be pumped at 56L/s; please explain.</p>	<p>Applicants requesting large volumes of water must undertake their own hydrogeological investigations to provide the information needed to assess the application. This information is being assessed by DoW.</p> <p>b) Test pumping provides information relating to the nature of the aquifer system. These basic characteristics together with a numerical groundwater model estimate the long term effects of abstraction.</p> <p>Pump test data was not required from the third production bore to be included in the model as data was already available from KML's original bore constructed at the location. The modelling presented in KML's report accounted for the effect of abstraction from all 3 production bores. As modelling can only provide an estimation of the effects, continued monitoring is required to ensure the aquifer reacts as predicted and can sustain the abstraction.</p> <p>c) This sentence from the Rockwater report was describing the area north of the Dongara bore line with reference to the Twin Hills site. It was a broad description of the hydrogeology of an area spanning 20km. One of KMLs production bores is a few hundred metres north of the Dongara bore line, the other two are to the south. Groundwater investigation of the Leederville - Parmelia Aquifer has indicated that it is capable of yielding large groundwater supplies in the area of the bore field.</p> <p>1. 'Stressing' the aquifer in this case meant pumping at a high rate over an extended period of time, so that drawdown did occur and could be measured in both the pumped and monitoring bores. Drawdown and recovery rates provide information about aquifer characteristics. The fact that the bores may be pumped at a similar rate as was applied during pump testing is not of concern. The operating strategy for the bore field is yet to be finalised, so pumping rates and the total number of bores has not been finalised.</p>
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<p>2. What deviation from the model will be acceptable before KML have to stop pumping?</p> <p>3. In relation to the quote from the Twin Hills report given above: As the aquifer thins to the north, will the abstraction deplete reserves of the north more quickly than the deeper regions south?</p> <p>Recommended actions:</p> <p>1. DoW should provide all data and research used to justify granting the licence.</p>	<p>2. The hydrogeological information is still being assessed. Further information will be provided in the final response.</p> <p>3. The issue will be considered when reviewing the hydrogeological information and will be taken into consideration as part of the assessment / decision making process</p> <p>1. Data and information from many sources will be used in the assessment of this application. Much of this information is not DoW's to provide. However, it is understood that the community will have questions about the potential impacts of abstraction such that DoW will provide more answers in the final response.</p>
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Urella fault

<p>a) DoW needs to undertake further studies of the Urella fault after not being able to advise a licensee whether they were in the Leederville - Parmelia or Yarragadee Aquifer.</p> <p>b) The potential of the Urella fault acting as a barrier to water movement was questioned in relation to the Yandanooka water reserve and GDE located to the east of the fault.</p> <p>Specific questions:</p> <p>1. Is there a relationship between the Urella fault and the seepages to the east?</p> <p>2. Why are seepages to the east of the Urella fault fresh water when water in the area is usually saline? Could there be discharge from the Parmelia aquifer to the east of the</p>	<p>a) The error made with an existing licensee and the confusion surrounding which aquifer was being accessed was not due to the location of the Urella fault. It was a combination of lack of hydrogeological.</p> <p>b) The Urella Fault as a hydraulic boundary has been evaluated in the past and is reported as a groundwater barrier in the Northern Perth Basin Groundwater Bulletin (in press). This issue will be considered when reviewing the hydrogeological information and will be taken into consideration as part of the assessment / decision making process.</p> <p>1. This issue will be considered when reviewing the hydrogeological information and will be taken into consideration as part of the assessment / decision making process.</p> <p>2. This issue will be considered when reviewing the hydrogeological information and will be taken into consideration as part of the assessment / decision making process.</p>
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<p>fault?</p> <p>3. Why is there a strip of sandy soils in an area that is largely characterised by clayey soils?</p> <p>Recommended actions:</p> <p>1. A number of respondents suggested determining the exact location of the Urella fault to:</p> <ul style="list-style-type: none"> - determine whether wetland at Mills property will be affected, - remove any doubt that leakage occurs through the fault, - to determine why fresh water occurs to the east of the fault. 	<p>3. It is assumed this question relates to the position of the Urella fault and the soils found on either side. Weathering processes have obscured the location of the fault at the ground surface. Surface sediments, formed through colluvial or aeolian processes can be deposited away from the original parent material.</p> <p>1. The mapped location of the Urella fault is based on the best information available from the Geological Survey of Western Australia (GSWA). State experts from the GSWA have confirmed that the location of the Urella Fault, as mapped in this area, is very accurate due to the presence of bedrock outcrop and geomorphological features, combined with geophysical information.</p> <p>Hydrochemical information is being sought from KML to improve our understanding of this area.</p>
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Recharge

<p>Several issues about recharge were raised including: the inability to predict recharge, that rainfall events >20mm have been reducing, and groundwater levels in some areas appear to have stabilised or are falling.</p> <p>Specific questions:</p> <p>1. The report states "if recharge continues at the current rate" - what is the current rate?</p> <p>2. Explanation of statement that rainfall events over 25mm are increasing - this is supposition and the model would need to be recalibrated.</p>	<p>The rate of recharge for the Leederville - Parmelia Aquifer has not been directly measured. However it has been estimated using a number of techniques (CSIRO Technical Report 10/03 – full reference given below). Recharge is important and current groundwater trends may change, however, in the absence of direct measurements, estimates are used. Continued monitoring of the aquifer is the best method to ensure abstraction remains sustainable.</p> <p>1. The current rate is not known in terms of a number value. This sentence was referring to groundwater levels continuing to rise as a result of recharge remaining unchanged; or at the 'current rate'.</p> <p>2. The statement that more high intensity rainfall events could be increasing was offered as one explanation for the model underestimating groundwater levels from 2000 when annual rainfall was below average. The issue again comes back to</p>
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<p>3. It was discussed at one of the meetings that water was to be carbon dated for age. What was the outcome of this testing & what depth was the water taken from the surface?</p> <p>4. The drawdown that results from a recharge rate of zero should be modelled & provided to the community. KML should justify using a recharge rate greater than zero.</p> <p>5. Water level rise has reduced. With recharge approaching pre-clearing levels, the drawdown contours in the report will be incorrect. Please comment.</p>	<p>recharge which is difficult to estimate accurately. Monitoring will measure real life effects against modelled predictions.</p> <p>3. The carbon dating tests would have taken up to 6 months to be completed. DoW requested a Deuterium analysis of the water instead. The results of this testing indicated that the Leederville - Parmelia Aquifer is recharged by rainfall with little evaporation effects.</p> <p>4. This issue will be considered when reviewing the hydrogeological information and will be taken into consideration as part of the assessment / decision making process.</p> <p>5. This issue will be considered when reviewing the hydrogeological information and will be taken into consideration as part of the assessment / decision making process.</p>
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Groundwater dependent ecosystems (GDE)

<p>There is concern for the potential impact to springs and wetlands (GDE) in the area. Including those to the north and east that were not identified in the GDE report. Specific sites were mentioned including GDE site 20, the Yandanooka Springs and Erregulla spring.</p> <p>Specific questions:</p> <p>1. What restrictions will be placed on abstraction to guarantee that wetlands will not be affected?</p> <p>Recommended actions:</p> <p>1. A number of suggestions related to obtaining more information about various GDEs and for consultation with other agencies.</p>	<p>This issue will be considered when reviewing the GDE information and will be taken into consideration as part of the assessment / decision making process.</p> <p>1. Assessment of the GDE is yet to be finalised. However, it is expected that monitoring of selected sites will be required. Further information will be provided in the final response.</p> <p>1. This issue will be considered when reviewing the GDE information and will be taken into consideration as part of the assessment / decision making process.</p> <p>DEC have provided advice in relation to the GDEs and will be consulted further as</p>
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<p>2. A number of respondents sought the establishment of additional monitoring bores to observe impacts to specific GDEs. It was suggested to consult other agencies and establish trigger points & contingencies plans before pumping was to begin.</p> <p>3. Should abstraction affect any wetland or spring, abstraction should be decreased or stopped for further investigation.</p>	<p>monitoring requirements are finalised.</p> <p>2. It is agreed that additional monitoring bores will be required at specific sites. DAFWA will be consulted for the location of monitoring bores they may have in the area and DEC may also provide suggested monitoring locations.</p> <p>Trigger levels for GDE monitoring bores may be set in the future when sufficient data becomes available.</p> <p>The monitoring that KML will be required to undertake is yet to be finalised. Further information in relation to all of these issues will be provided in the final response.</p> <p>3. The monitoring program will include appropriate contingency action should agreed trigger levels be reached., the monitoring data groundwater model will be recalibrated and rerun to evaluate impacts. This may result in a reduction to the pumping rate or changes to the pumping regime.</p>
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Table 5: Legislation and Policy

Comment	Department of Water response
Assessment under the RiWI Act	
<p>The RiWI Act was thought to be outdated and unable to deal with large applications in areas of competing uses for water. It was also thought the KML application would not satisfy schedule 1, Division 2, clause 7 of the RiWI Act.</p>	<p>DoW has developed several policies that support the RiWI Act and provide further explanation of how licences are managed: The Arrowsmith groundwater allocation plan was developed to clarify local rules and provide guidance for those seeking a groundwater licence.</p> <p>Preparation of new water legislation has been under consideration for some time however, the RiWI Act, supported by policy, guidelines and plans, is sufficient to manage such applications. Licensing is used to manage similar types of abstraction in many parts of the state.</p> <p>All of the elements of Schedule 1, Division 2, clause 7(2) of the RiWI Act will be assessed in line with current policies, the Arrowsmith groundwater allocation plan and all other relevant information.</p>
Role of other government agencies	
<p>a) It was recognised that the Karara Iron Ore Project (KIOP) was assessed by the Environmental Protection Authority (EPA), but did not include an assessment of abstraction from Leederville - Parmelia Aquifer. It was thought DoW should refer the application to the EPA for consideration of the social and environmental impacts.</p> <p>b) A 'change of proposal' to statement No 805 through section 45C or 38 of EP Act has not been approved.</p> <p>c) It was considered that the Department of Environment and Conservation (DEC) should be consulted and satisfied that GDEs would not be affected.</p>	<p>a) The EPA did assess the KIOP and were satisfied that the groundwater licence would be assessed by DoW in accordance with our licensing process. DoW must consider the social and environmental impacts of an application. DoW will not be referring KML's application to the EPA.</p> <p>b) KML are seeking advice from the EPA as to whether a section 45C application is required for the change from the Twin Hills/ Yarragadee to the Mingenew/ Leederville - Parmelia resource.</p> <p>c) DEC has been consulted to provide advice in relation to the floristic and faunal communities that may be impacted by abstraction. As the assessment is yet to be complete, final consultation with DEC has</p>

<p>d) A petition was presented to the WA Legislative Council expressing concerns about the environmental impact & consultation period. It was thought DoW should suspend the application until the petition had been considered.</p> <p>Specific questions:</p> <p>1. With respect to the environmental approval process, how can it be that DoW are the Decision Making Authority in this matter, and what consultation has been conducted with DEC and the EPA?</p>	<p>not yet taken place.</p> <p>d) The points raised in the petition to the Legislative Council will be taken into account through the assessment process. DoW is also presenting this interim response to the community to answer some of their questions where possible before a final decision is made.</p> <p>1. DoW regulate the <i>Rights in Waters and Irrigation Act 1914</i> and DEC and EPA regulate the <i>Environmental Protection Act 1986</i>.</p> <p>DoW provided comments and advice to the Office of EPA regarding the environmental approval process. The public environmental review only considered the water use at the mine site. In addition since Office of EPA recommended to the Minister of the Environment the project received environmental approval with conditions the source of water Karara is now requesting changed.</p> <p>The DEC have provided comments and advice in relation to potential impacts of abstraction, operational and monitoring processes. Consultation with the EPA is not necessary for this application.</p>
<p>Allocation limits</p>	
<p>a) Some respondents were concerned the request for 5.3GL/a of water is unsustainable and the resource is non-renewable.</p> <p>b) The issue of existing water use for</p>	<p>a) The 5.3GL/a is within the allocation limit set for the Leederville - Parmelia Aquifer in the Mingenew sub area. The allocation limit for the Leederville - Parmelia Aquifer in the Mingenew sub area was set through the Arrowsmith groundwater allocation planning process and is explained in the <i>'Arrowsmith groundwater allocation plan, August 2010'</i>. Making sure the resource is 'renewable' was the most important consideration in setting the allocation limit. The total amount of water that can be taken on an annual basis must not exceed the allocation limit. Once the total amount of water taken reaches the allocation limit no additional water must be taken.</p> <p>b) Water required for exempt purposes (non-</p>

<p>agricultural activities not being taken into account was also raised</p> <p>Recommended actions:</p> <p>1. It was suggested that in fully allocated aquifers, abstraction above the allocation limit could be considered either when existing projects are ending or to allow the development of agriculture.</p>	<p>intensive stock, domestic & fire fighting needs) was taken into account in setting all of the allocation limits in the '<i>Arrowsmith groundwater allocation plan, August 2010</i>', and appear in Table 1 of the plan.</p> <p>1. Over-allocating an aquifer is not supported. Allocation limits protect the sustainability (or renewability) of the water resource, the environment that depend on groundwater and the rights of other users. Licences are only granted up to the allocation limit.</p> <p>The issue of water coming back into the licensing system at the end of the project life will be taken into consideration as part of the assessment / decision making process.</p>
<p>Allocation of water</p>	
<p>a) Several issues about the allocation of water were raised including:</p> <ul style="list-style-type: none"> - licensing 86% of available water to one user, - setting a precedent for other aquifers in the state, - moving water 120km from the source, and - first in - first served policy. <p>b) Concerns were also raised about fit for purpose use of water and that good quality water be retained for agriculture and drinking purposes only. KML were considered to be seeking the</p>	<p>a) The volume of water an applicant can apply for is not limited, as this type of restriction may affect the viability a project and prevent development.</p> <p>Licensing that has occurred in other aquifers, or the proportions allocated to different industries does not affect the assessment or decision making process. Each application is assessed on its merits.</p> <p>Water resources will not always be available where they are needed, and this is true for Western Australia. Piping water outside of the area in which it occurs is not uncommon. DoW policy allows for water to be transported out of a subarea.</p> <p>The first in - first served policy is simple to understand, used by various government agencies and is considered in conjunction with other policies. As part of developing the new Water Resources Management Bill, DoW will review this policy. Until the review is complete licensing will continue as per current policy.</p> <p>b) DoW supports fit for purpose use of water. Normally mining operations source fit for purpose water on-site. KML require good quality water to process the magnetite ore, which is not available at the mine.</p>

<p>cheapest method of obtaining good water with no thought of future needs.</p> <p>c) It was considered that the Arrowsmith groundwater allocation plan does not provide a clear direction for licensing an aquifer when it becomes more than 70% allocated.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1. Respondents suggested no more than 10%, 20% or 40% of available water be granted to KML. 2. There were some specific suggestions relating to granting temporary access to the full 5.3 GL. This was based on KML's need to find other water sources to support future expansion of the mine. 3. Water should only be allocated to proponents that can demonstrate sustainable use beyond 150 years. 	<p>Water is reserved for future public potable water supplies where there is scope to do so. It is not government policy to reserve water for specific industries as this may restrict development.</p> <p>DoW is responsible for managing the state's water resources. The water is available for licensing and KML have made a valid application. The DoW has negotiated with KML using fit for purpose use of water principles as they initially approached the department requesting water for a non return slurry pipeline.</p> <p>c) The plan provides DoW with a number of options for allocating the remaining water. A single process was not defined in the plan as it would not account for the differences between water resources and the circumstances by which 70% allocation was reached.</p> <ol style="list-style-type: none"> 1. To limit the licence entitlement based on an arbitrary figure is difficult to justify. This type of restriction is not supported by the Arrowsmith groundwater allocation plan. Determining an appropriate water entitlement is part of the licence assessment process. 2. The DoW has received an application for a water licence from KML covering the mine's long term water requirements and has to make a determination on that application. As KML has invested significant funds into the project they will want to be certain water requirements for the project have been secured. <p>Once the assessment is completed the DoW can make the decision to either grant the a licence for the volume requested, grant a licence with an amended volume or refuse the application.</p> <ol style="list-style-type: none"> 3. Licence assessment considers viability of projects. Should a licence no longer be required, the water will become available for other users
<p>Planning</p>	
<p>a) The issue of long term water planning was raised with respect</p>	<p>a) The Arrowsmith groundwater allocation plan is an operational plan to update and</p>

<p>to the preparation of the Arrowsmith groundwater allocation plan and the assessment of the application itself.</p> <p>b) Concerns were also raised about future mining projects proposed in the Midwest and our limited water resources.</p> <p>Specific questions:</p> <ol style="list-style-type: none"> 1. The Midwest mining industry is predicted to require more than 100GL of water. How is water to be retained for other users with such demands from mining? <p>Recommended action:</p> <ol style="list-style-type: none"> 1. It was recommended that DoW develop a statewide policy on moving water from a management area that includes a position on what happens when the water is no longer required. 2. Further consultation in the development of allocation plans was recommended to assist the community's understanding of water licensing. 	<p>explain the way the DoW will manage water use in the area. The plan is implemented through licensing decisions. Long term strategic planning for land and water or industry development was not within the scope of the plan.</p> <p>The assessment process for the licence deals with whether there is water available and how any impacts on the water resource will be managed. It is not intended to provide a forum for the discussion of broader development issues.</p> <p>b) There are a number of mining projects planned in the Midwest region. Only two of these have applied to take water from the Arrowsmith groundwater area. The remaining projects, will be targeting resources close to the mine sites and from deeper aquifers in the Gascoyne groundwater area.</p> <ol style="list-style-type: none"> 1. Many mining projects will continue to source water near their mine sites. Other water resources being targeted for magnetite processing occur in the Gascoyne groundwater area and overlap with pastoral leases. Competition with other water users is not expected in these areas. 1. New policies are developed as required. Applications that involve moving water outside management areas require a full assessment by DoW. These licences are subject to the same legislation and policies as those using water 'in-situ'; throughout the life of the licence. 2. Industry and public consultation was undertaken in developing the Arrowsmith groundwater allocation plan. It is recognised that water is an important community issue, and consultation is required for large applications such as KML's.
<p>Alternative water supply</p>	
<p>Several respondents questioned why KML were not being asked to use desalination, suggesting the costs would not make the project unviable.</p>	<p>As part of a licence assessment process, DoW requires applicants to consider other sources of water.</p> <p>In this case KML have applied for water which</p>

	is available for licensing within the allocation limit.
Trading water	
<p>Issues around trading included: that the licence could be sold to another party, use of the water could remain outside of the subarea, and that KML would be paid for the water when it was obtained for free.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1. It was suggested at the end of mining operations the licence should revert back to the state and restrictions placed moving the water outside of the Mingenew area. 	<p>At the end of mine the way in which the water returns to the system is still being considered. Further information in relation to all of these issues will be provided in the final response. further information will be provided.</p> <ol style="list-style-type: none"> 1. Given the mine could be in operation for up to 40 years, provisions cannot be made to recoup the water when mining ceases or restrict its reallocation this far into the future.
Payment for water	
<p>Comments were made about the value of water and the need for its use to attract fees to discourage industry obtaining a valuable resource for free.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1. KML should have to pay something for the water. Local farmers are paying \$1.20/kL. 2. The Economic Regulation Authority's model (for charging water licensing fees) proposes increasing the cost to licensees as the level of aquifer allocation reaches 100%. KML's application 	<p>Administrative and annual fees for licences are the subject of a current review by the Economic Regulation Authority.</p> <p>Most mining is in remote areas where the industry is required to investigate and develop water resources at their own cost.</p> <ol style="list-style-type: none"> 1. The DoW understands this relates to the Water Corporation's farm supply scheme. Farmers are charged the cost of providing the service (i.e. bores, pipes, power). KML does not use the Water Corporation's service, sourcing water through its own bores (similar to many farmers in the region). 2. The ERA model for licensing fees reflects the total costs that the DOW incurs managing the state's water resources. <p>The government has instructed the ERA to hold an inquiry into water resource management charges; administrative and annual fees for licences. KLM would be expected to be subject to such charges if they are introduced.</p> <p>The structure of any fees that might be introduced is a matter of Government policy,</p>

may increase future costs of other applicants. Future resource management charges should be calculated to account for this.	and has not yet been determined. The Government has committed to take full account of the ERA's recommendations, and to consult with peak stakeholder organisations in finalising that policy.
Compensation	
There was concern DoW could be liable for compensation should abstraction need to be reduced or cease altogether.	DoW can amend or cancel licences under certain circumstances, such as where the licensee has not abided by the terms or conditions of their licence or has consistently not used their water entitlement. Compensation under these circumstances is not payable.
Devaluing land	
It was considered that the potential to develop water based enterprises added value to properties and the licence could devalue land.	DoW acknowledges the value water has to the agricultural community. However, as water is a limited resource, the RiWI Act allows for water to be transferred between licensees. The value of a lot of land should therefore not be linked to whether there is a water licence on that lot.

References

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