105 Public Submissions

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Hoping that my thoughts are beneficial

Stephen Batty
Operations Manager
Challenger Geological Services

Phone (08) 8277 6777
Mobile 0413 00 5253

13-17 Weaver Street
Edwardstown SA 5031

admin@challengergeological.com.au
www.challengergeological.com.au

25th January 2016

Id: #269325
CEIP ONLINE SUBMISSION

Mr Stephen BATTY

SA 5039

admin@challengergeological.com.au

61882776777

25th January 2016

5th Australian Development Application (EIS)

0 - I understand that my submission, including my personal contact details, will be published on the government website and provided to the applicant; OR

Although currently, the economic climate for the demand of iron ore, is depressed, this climate will improve. Bearing in mind, development and approval-financing requirements will take time, we as South Australian’s need to get behind, projects such as this one, for the good of the State and country.

Stephen Batty 25th January 2016

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Proposed Iron road Central Eyre Peninsula

Magnetite mine, transport corridor and Port facility

Challenger Geological Services, is an Adelaide based Company, servicing the Mineral and Petroleum exploration companies of Australia.

We have been in operation, since the early 1980’s and seen many changes in our industry and our state, since that time.
Challenger, was involved in the first phase of drilling for Iron road, at its Warramboon tenements so we feel an attachment, through our prior evolvement, to this and other major projects that have made it into production.

With that said, on a project such as this all government guidelines, all environmental, all land access, and local community negotiations, need to be completed to a satisfactory standard in order to minimise any potential issues, which could arise.

Iron road's Executive Summary, seems to cover these issues successfully.

Whilst iron ore's current value, is disappointing, when trying to create a project such as this, but with the commodity, sure to rise in upcoming years, and with innovative production/handling techniques, which Iron-road are planning to introduce, this should create a financially viable project.

It is also pleasing, to see that Iron road, will have a policy of employing local's first, as on the Eyre Peninsula, the need for non agricultural jobs, should always be promoted.

Rail transport on the Eyre peninsula, has always been an issue due to the limited capabilities of the current mostly grain carrying 3'6" lines originating out of Pt Lincoln, and travelling to destinations north of Pt Lincoln.

A new dedicated line for transporting, the mines ore to the coast, will not only be efficient for the Warramboon project, but also give an opportunity for other users to move their commodities along this transport corridor.
It may also encourage the gauge conversions of some lines that interface with this rail corridor.

A deep sea port in South Australia, has been in great demand for many years, as witnessed by Aurrium, needing to double handle, iron ore ex Whyalla onto a barge, for deeper draught loading to Panamax sized vessels.

The proposed port at Cape Hardy, will enable these Panamax sized vessels, to berth safely and be loaded/unloaded, just ashore, via a short jetty.

The ability to despatch, bulk goods with a minimum of transport time and handling/offloading, must be a winner not only for Iron road but for any other company, wishing to utilise this infrastructure, and to the state through, through port charges and tariff’s.

In conclusion.

The Proposed Iron road Central Eyre Peninsula Magnetite mine, transport corridor and port facility, could prove to be a cornerstone development in the history of South Australia.

Where local’s from Eyre peninsula, can be involved in the construction and operation of not only a major iron ore deposit, with a 25 year plus mine life, but a rail corridor which can be utilised by external clients, all feeding to a world class port suitable for Panamax sized vessels, of which we currently don’t have in South Australia.
25th January 2016

CEIP Submissions
Mining Regulation
Attn: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

Regarding: Assessment of the CEIP by the South Australian Government

To Whom It May Concern,

Submission:
I submit that the CEIP project is a very significant project with excellent technical credentials. The project has been developed over time with the utmost probity and concern for achieving positive impacts for all stakeholders. I strongly support the approval of the project by the South Australian Government.

Capacity and Potential Conflict of Interest:
I have direct knowledge of the project geological and geotechnical development based on work as a consultant from 2009 to 2013. I have not had any involvement in the project since that time. I am entirely independent of Iron Road Limited.

Yours sincerely,

John V. Smith
PhD, FIEAust CPEng
Associate Professor
School of Engineering
RMIT University
Melbourne 3001

Id: #269278
077 - NIELD, PAUL

CEIP ONLINE SUBMISSION

Mr Paul Nield
SA 5042
pmnield@gmail.com
487202032
29/01/2016

Sth Australian Development Application (EIS)

0 - I understand that my submission, including my personal contact details, will be published on the government website and provided to the applicant; OR

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33 Burbank Ave,
BEDFORD PARK SA 5042
January 27th, 2016

To the Minister for Planning and the Minister for Mineral Resources,

We are writing to you with a deep concern about the proposed mineral lease and corridor in the Central Eyre Iron Project. We strongly disagree with this development and some of our reasons are stated below. We are also concerned about the lack of communication and the process that they have taken as we feel we have no real idea of what is going on.

1. We strongly disagree with this Proposal taking good farming land as the agricultural industry is the backbone of the nation. Once this land has been mined, it will no longer be able to produce quality, if any, food for the future, and with growing world populations, this is a huge concern.
2. Iron Road has had several meetings both publicly and personally, however each time we come out with no clear indication of how things are going to work and they can’t seem to give us any straight answers, and details differ each time.

There are some things that we fear will directly negatively impact our farming enterprise:

3. The crossings on both the roads and in the paddocks. Moving sheep from paddock to paddock will become more of a challenge with Iron Road indicating they will put tunnels for the sheep to move through. Sheep don’t go into dark places and how do we stop these tunnels filling up with
water? They also said the machinery will go through these tunnels, however the size of the tunnels indicated by Iron Road engineers is clearly not big enough to fit our machinery through. Iron Road also mentioned that there may be boom gates on the main road, which close for 5 minutes before the train goes past and won't open until 5 minutes after the train has been past. With the time the train takes to also cross the crossing, you could be sitting there for 15 minutes every hour. This will severely interfere with not only the farming enterprise, but life in general. It could also be a concern in a time of emergency such as hospital trip or fire.

4. Another concern is the effect this will have on our crops. We have heard that we may be penalised in our payments if our crops are within a specific distance from the rail line due to potential dust from the Iron Ore. This could also be said for houses etc close to the proposed track.

5. It could also cause the value of our land to decrease as has happened elsewhere when a project such as this has been developed. This is our livelihood and we want to see it keep flourishing.

6. We have had no indication what will happen to Phelps Road. This is an issue for me as I use it all the time to get to my other property. It is a main transport route for us.

7. We are also concerned about the impact the salt will have on our current land as well as the future impact it may have as it spreads.

8. Seeing as Iron Road proposes to ‘buy’ some of our land, we are concerned that we will only be compensated for the current value of the land, however we are losing all future income off that land as well, which will naturally affect our future earning potential.

9. A list of all other bits that will require consideration that I won’t elaborate on, but it will have a negative impact on in the future for us and our children:
   a. Fencing
   b. Weeds
   c. Noise
   d. Dust
   e. Any traffic crossing the train line
   f. How to cross the line with sheep
   g. How to cross the line with machinery
   h. Loss of income now and in the future
   i. What compensation will be offered
   j. Value of land decreased
   k. Inconvenience (time sitting at the crossing)
   l. Safety risk
   m. Salt risk
   n. Will other mines then use the track hence increasing train traffic
   o. Selling off more assets to foreign investors

We are also concerned that at no point have Iron Road given us any indication of compensation in writing. We don’t know whether they plan to pay hardship costs, what value they put on the land, future
loss of income earning potential etc. The lack of transparency makes us very cautious of the whole process and not very trusting.

There is a final concern of mine in regards to assets of Australia. If a mine like this has to go ahead, which as I have mentioned I believe is not the best idea due to losing valuable agricultural land, then I believe Australia should try and keep it and mine it themselves rather than sell it off to overseas investors. It would be a lot more beneficial to receive more income from it, rather than it all be exported. We could either keep the income or certainly tax them higher, so our great country is making more out of its natural resources. Through owning the mines ourselves, Australia could create more jobs and keep our valuable assets for ourselves and our future generations, rather than sell everything off and have no asset base for long term wealth. No company would survive without assets, the Government is no different, unless it plans to keep charging its own people more and more.

So in summary, we are not happy with the proposed train line and mine due to the many reasons outlined above. We feel we have not been fully informed in writing as to how this will affect us and our farming enterprise now and in the future, as well as no written plan of compensation.

Thanks for the opportunity to speak our point of view.

Regards,

Paul and Mandy Nield (owners of land along the corridor)

Id: #269661
We do not want mining and its associated infrastructure in or on agricultural land therefore we are totally opposed to any part of the CEIP on our land. We were strongly encouraged to freehold our land at considerable cost. What, if any, benefit has this provided us in this situation where an infrastructure corridor can be forced upon us?

Consultation: There has been a complete lack of consultation since first contact with a consulting company acting for Iron Road on 20/08/13. We have continually asked for hard copy information relating specifically to the impact on our business. None has been supplied. We have nothing.

Some of the issues concerning us are:

Alignment: The proposed corridor goes through the middle of our property. This is totally unacceptable. Modern farming practices include satellite technology to steer machinery in straight lines. The proposed corridor would prevent this happening which makes our business costly and inefficient. It also causes more cost/inefficiencies with fencing, stock management, machinery shifting, stock water infrastructure, and access for fire/emergency services.

If this corridor is forced upon us, we believe Option B (page 3-10 CEIP Environmental Impact Statement Vol. 1) is possible. Our reasons being the magnetite deposit, that being Centrex Carrow deposit, was explored in the 1950’s and found to be non-viable. Centrex spent considerable time there in recent years and have now sold the property and moved on (non-viable). Why should we suffer the impost of this corridor through the middle of our property when re-aligning it to follow Wills Road is far more sensible and has minimum impact on not only our farm but two southern neighbours who we have consulted with and are both totally agreeable to the corridor following Wills Road and passing through where their boundary fence joins (again, minimum impact on their farming business). Quote obtained from page 5-20 CEIP Environmental Impact Statement Vol. 1 “The route for the proposed infrastructure corridor has been selected where possible and practical to follow property boundaries to avoid excising large parcels from the balance of the land and to minimise the overall impact on land intended for primary production purposes.”

On-farm crossings: No specific information has been supplied regarding the number, type or size of any farm crossings (under, over or level). We need a crossing in every paddock the corridor passes through to effectively conduct our business. Crossings need to accommodate large agricultural machinery and allow for larger in the future. Stock crossing capability is of major concern. Mobs of 500 to 1000 sheep take some time to shift and with a train every two hours and possibly with a third party even more often, more labour may be required to accomplish these tasks safely. An over/underpass should be provided so there are no restrictions to the timing of farm activities.

Dust: We are concerned about possible dust contamination issues arising from the corridor i.e. leaking ore dust contaminating grain, wool and stock feed. Has the CEIP provided any insurance against any contamination claims?

Noise and vibration: Is an invasion upon our lifestyle and livelihood.

Weeds, snails and vermin: An infrastructure corridor will facilitate the movement of weeds, snails and vermin, imposing huge cost to our business for control. Who will control these pests within the corridor and to what standard? Our ability to effectively control these pests will be reduced by the corridor.
Fire and emergencies: We have major concerns given the lack of information as to the ability of emergency services accessing an emergency on our property. This highlights the need for 24 hour access in the form of an under or overpass on property. Farmers adhere to a voluntary harvest code of practice whereby conditions are assessed and harvesting may be suspended for some time on days of fire risk. Will an ore train with steel wheels on steel tracks be stopped on fire ban days and, if not, why not?

Water: How will farm water pipe networks be accommodated now and in to the future when changes may need to be made to the layout?

Stock: We have concerns regarding trains frightening stock causing mismothering of lambs (lambs valued at approximately $100 each) and stock crashing fences causing fence damage and stock injury.

Fencing: Who supplies and erects the corridor fencing? Is it made to our satisfaction/standard? Who is responsible for repairs and maintenance and will repairs and maintenance be done in a timely manner? Whose responsibility is wandering stock due to sub-standard fencing of the corridor? Who determines when the corridor fencing is no longer serviceable and who pays to replace it?

Contractors: We will incur costs where contractors are engaged by us and are held up by trains or corridor related activities. Will we be compensated?

Salinity/compaction: The rail line will potentially cause salinity brought on by compaction under the line. Compaction restricts natural underground flow of water, causing the water table to rise and creating surface scald patches, rendering these areas useless for agriculture. Should this happen, will we be compensated?

Construction phase: We are concerned about erosion (wind and water) caused by heavy machinery during construction. We have very light, sandy soils very prone to wind erosion. What planning is in place to stop erosion escaping the corridor and damaging our property? Severe wind erosion can take many, many years to bring under control at significant cost. Some ballast/rubble will be required. We have not been told where this will be sourced from. Should a heavy rain event happen during construction, the potential for run off on to our property causing gutters/washout is very real. Who will pay to reinstate our land?

Corridor access: Will adjacent landowners have unlimited corridor access? If stock manage to get into the corridor, we need unlimited access to get them out. The corridor will bring problems relating to unauthorised access i.e. motorbike riders, spotlighting, shooting, fires, fence damage, weeds, camping, rubbish, etc.

Farm value: We are concerned about the loss of value to our land. A farm with a rail corridor through the middle will not attract a fair price should we want to sell in the future.

Local travel: All trips for whatever reason will have to factor in possible waiting time for trains crossing. This inconvenience includes school bus, emergency services, private trips to sport, meetings, etc.
Flora and fauna: Our district lacks remnant vegetation and therefore habitat for native fauna. We are concerned about and against any native vegetation clearance on our farm or in our district.

Right to farm: We do not want this corridor on our land due to the invasion of our lifestyle, business, farming practices and stress caused. We see potential for loss of income caused by the many ongoing and future costs involved for a farming enterprise to cope with management around an impost such as the CEIP rail corridor. We have farmed this land for five generations, sustainably growing “clean green” produce and resent the way we have been so arrogantly treated by Iron Road.

We met with DPTI (Rob Kleeman) and DSD (Diona and Andrew Querzoli) on 08/12/15 at the Port Neill Hall and put forward our concerns and discussed the CEIP “Option B” alignment with them. We also discussed the Centrex Carrow deposit. We were told that they would investigate exploration tenures with regard to our suggested corridor realignment adjacent to Wills Road and provide feedback in time to use in this submission. At the time of writing (31/01/16) none has been forthcoming.
Submission Re Iron Road Development for Iron Ore Mining on Central Eyre Peninsula.

Firstly I would like to state that as a resident and farmer of 57 years I am keen to see this project proceed. Our District has a declining population and towns of Cleve, Lock, Wudinna and Port Neill would benefit greatly. (Hospital, Doctors, Educational Etc. Facilities that are struggling to be maintained to expected standards at present) It would also support Businesses of the District as an extra 760 people (projected Employment number when Mine is up and running) would mean extra turnover for Grocery shops, Cafes Garages etc. as well as Boosting numbers for local Sporting Clubs and teams that are now struggling to survive. In short it would be a “shot in the arm.” For the long-term prosperity of our Districts. For the above reasons I strongly Support Iron Roads Proposal for this Mining Venture.

However I would like to proposed an alternate route for part of the proposed Rail Corridor. At Present the proposal is to traverse a complete New Route all through Farming Land bringing with it many problems for the Farming Community with the movement of large machinery and livestock, also paddock Sub Division as many paddocks would require Re planning and division as Required by todays large machinery (Boom sprays up to 46 meters and Cultivation Machines up to 24.5 Meters and 600 Hp. Tractors with Auto Steer.) It is my belief that the Rail Corridor Should be routed from behind (400 meters approx.) the Darke Peak Silo’s and then adjacent to current Rail corridor to Verran where it would branch off to the current Iron Road Proposal. In doing so, would need to skirt Rudall town ship on the southern side to reduce noise impact on the town ship. This could be achieved by purchasing the required land adjacent to the current Rail Line from Darke Peak to Rudall (Approx. 100 meters out from the current Railway Corridor fence line causing little
disruption to land owners. From Rudall to Taragoro I propose the rail corridor to traverse the western side of the road to Taragoro and then the proposed Route to Verran and on to Cape Hardy. This Proposal would impact on one House, which would need removal and replacement. However this was the case with Iron Roads other proposal through farm land. Most of the required railway crossings are already in place and would only need widening to accommodate two railway tracks instead of one. Lessening the risk of level crossing accidents.

A vehicle overpass on the Rudall Lock Road is also a must when looking at Traffic densities during the months of Harvest.

The Rudall silo is now the third largest receival point for grain on Eyre Peninsula. Much of this grain is now carted by road trains from farm to silo, these weigh between 75 tones to 100 tones, and some of them have three trailers which are slow to stop and slow to move from standing, another reason for reducing Rail crossing and accidents. During harvest a Road train travels the Kilroo- Kielpa Road every ten minutes, also cars and farm machinery. I believe the above proposal would be less disruptive to the Farmers involved (Not cutting across paddocks).

I am sure that with goodwill and an appositive attitude this could become reality and be less disruptive to vehicular traffic as well.

As well as the above there is another aspect that needs to be thought about as well, that of the grain industry of Eyre Peninsula.

Port Lincoln as an exporting Port has only approximately twenty years of use before becoming obsolete for the shipping of grain for export.
It also has the problem of large numbers of road trains delivering grain traveling along Liverpool Street, (Port Lincolns Main Street) which is unsustainable into the future. It is just not viable to build a new Port for 2.2-2.3 million tones of grain for export. It is there fore vital for the long-term future of our grain industry that its needs are incorporated into the railway and Port facility proposed by Iron Road.

It needs a holistic approach by all stakeholders to accommodate the long-term future of grain and minerals on Eyre Peninsula.

We as farmers on Eyre Peninsula grow approx. 2.2-2.3 million tones of grain per year, which is about 1/3 of states grain, all of which is exported (approx. 690 million Dollars of export income).

It should also be born in mind, that should this Railway be connected to Whyalla to transport ore from northern South Australia and the rail net work of the state. This Railway could be busy with many trains daily.

Please give this submission your due consideration

Regards
J.R. Elleway

P.S Please feel free contact me if you wish.
Please note: THIS ROUTE MAY BE ACTUALLY SHORTER.

There are no dwellings in Kielpa.
31st January 2016

CEIP Submissions
Mining Regulation
Attention: Business Support Officer
Department of State Development
GPO Box 320
ADELAIDE SA 5001

To whom it may concern

I am an electrical contractor based in Wudinna, servicing the local area. I was born and raised here, and after living in Adelaide and obtaining my contractor’s license I returned in 2009 and established my own business, currently employing two apprentices. I have a young family and we are heavily involved in local sporting and community groups.

If the Central Eyre Iron Project goes ahead I would like to see local businesses & services utilised wherever possible to ensure the local economy & community benefits from this project.

I look forward to the opportunity of working with you in the future.

Yours sincerely

Regan Petty

R & C Petty PTY LTD
ABN: 45104967856
Electrical License: PGE173703
Refrigeration Authorisation Trading License: AU 23174
31 January 2016

CEIP Submissions
Mining Regulation
Attention: Business Support Officer
Department of State Development
GPO Box 320
ADELAIDE SA 5001

To whom it may concern

We are a successful owner operated butcher/slaughterhouse business in Wudinna, servicing both the local and surrounding districts. We have owned and operated our business since taking ownership in 1977. We currently employ 5 staff and pride ourselves on providing a range of high quality products with friendly and efficient service. All livestock is sourced locally and processed in our slaughterhouse.

If the Central Eyre Iron Project goes ahead we would hope that all local businesses and services be utilized to service the venture. This would strengthen our local economy and ensure the long term viability of our community.

We look forward to the opportunity to provide services to you in the future.

Yours sincerely

Leon Petty
1 February 2016

CEIP Submissions
Mining Regulation
Attn: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

To whom it may concern,

RE: Central Eyre Iron Project

I am writing in response to the call for submissions regarding Iron Road Limited’s proposed Central Eyre Iron Project (CEIP).

I work within the environment and community sector of the mining industry and have seen firsthand the positive impacts mining in rural south Australia can have on local communities, when managed appropriately. For this reason, I have compiled a list of the potential positive and negative impacts of the CEIP on the local community of Warramboo and its associated regional communities.

Mining projects in regional South Australia are in the unique position to give the communities in which they operate substantial economic, social and infrastructure benefits, as well as environmental, which may otherwise be denied to rural populations.

Economic, Social and Infrastructure

- The CEIP has the potential to enhance and diversify the regional and state economy, giving South Australia a critical boost at a time when most needed. This is especially significant given the sudden decline in the manufacturing industry in South Australia.
- Direct and flow on employment in the local area will be increased and diversified, supporting industries that can continue to be regionally based. This is especially significant for school-leavers, and gives the opportunity for those who have had to leave the area in search of employment to return.
• The Eyre Peninsula population will be increased, and subsequently assist in reversing the current trend of an ageing population. This will result in increased numbers in local schools, and sporting clubs, and increased local services and support the local healthcare system. This includes support for the remaining regional hospitals, which are currently under threat of being closed.

• Iron Road has the opportunity to become a valued contributor to the local community, through substantial community grants, and sporting and educational sponsorship.

• The mine emergency response team would be available for bushfires and other local emergency situations, supplementing the current declining trend of CFS volunteers.

• The proposed deep sea port at Cape Hardy and associated railway line will provide primary producers with the opportunity to export their products directly from the Eyre Peninsula, thus reducing the costs associated with time and transport that come with the need to utilise other ports further afield. The railway and port would thus provide primary producers with the opportunity to leverage greater export capital, and thus contribute to the wider economy. For example, NT cattle stations would be able to be export cattle from the port and Eyre Peninsula primary producers would benefit from the increased competition an independently managed port would provide.

Environmental

• Dryland salinity is a significant environmental and agricultural concern on the Eyre Peninsula. In 1999, lost agricultural production caused by dryland salinity in Australia was estimated at $130 million a year and increasing, while damage to infrastructure Australia-wide was estimated at $100 million. Fast forward 17 years, and dryland salinity is estimated to cost Australians approximately $3.5 billion a year and rising (Qld Government). The mine dewatering process will create a ‘cone of depression’ in the area of the project footprint, alleviating dryland salinity issues in the direct area.

• As a community initiative, the CIEP should consider providing desalinated water for stock use for all farms within a 10km radius of the proposed Mining Lease, reducing the water use pressure further on the over exploited Eyre Peninsula freshwater basins and the Murray Darling supply.

• The CEIP will be regulated by the government Significant Environmental Benefit land clearing scheme, as well as internal revegetation policies. 87% of the proposed mine site is cleared agricultural land. Any clearance of native vegetation must be offset by the SEB scheme, resulting in substantial revegetation of native endemic species in an area largely cleared by agricultural activities over the previous century, providing sustainable land use in all areas outside of the mine footprint.

• Mining leases typically are intensively scrutinised by the EPA and other government departments, this additional scrutiny could result in a general improvement of environment practices within the surrounding community, resulting in improved long term environmental outcomes.

Appreciatively, I understand that all large developments, including mining projects can cause communities angst and have associated issues regarding their lifespan, risk and potential to cause damage to the community and environment if they are not managed appropriately. For this reason, I have also included issues which may cause concern and which Iron Road must address before construction.

• Climate change pollutant contribution. The CEIP should use wind and solar energy production wherever possible in order to reduce greenhouse gas contributions.
• The financial viability of the project must be significantly considered, given the low commodity prices and high capital and operating inputs required to beneficiate magnetite when compared to hematite.
• The impact of increased traffic upon the structural integrity of the local highway, particularly between Warrenboo and Wudinna.
• Consideration must be given to shift work on weekends and how it may impact player availability for the local sporting clubs, as these sporting clubs often form the backbone of regional communities.
• Effective community engagement must be utilised to minimise the stress caused to the local farming community and landholders during the MLP and PEPR pre-mining phases, in order to ensure the process is well understood, as the mining approval process is often unfamiliar, long and arduous for landholders.

Overall, I believe the CEIP has the opportunity to create positive, lasting relationships with the regional Central Eyre Peninsula community with economic, social and environmental benefits which far outweigh the potential negative impacts.

Regards,

Katy Fechner
Section C: Your Submission

Points to consider when making your submission:

- Provide information on any aspect of the existing environment that either has not been included in the MP and/or EIS; or that you consider has been inadequately described
- Are there any environmental, social or economic impacts or benefits associated with the MP and/or EIS that have not been identified?
- If applicable, are the proposed environmental, social or economic outcomes acceptable? If not, try and describe what outcome you would find acceptable?

<table>
<thead>
<tr>
<th>Issue</th>
<th>Reference and Page No (if known)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater example</td>
<td>MP 7.1.3 p53</td>
<td>Example</td>
</tr>
<tr>
<td>Infrastructure example</td>
<td>EIS 6.3.2 p103</td>
<td>Example</td>
</tr>
<tr>
<td>Local Jobs</td>
<td></td>
<td>The mine and associated infrastructure would be beneficial for local employment and the general business community providing the mine sets MEASURABLE TARGETS that they can reflect if they are actually employing locals or just saying they are going to. It would be nice to see a local/non local employment ratio or percentage for both full time employees and local businesses that the locals residents and government feel is fair. Local farmers who have had their livelihoods affected by the proposal should have first preferences.</td>
</tr>
<tr>
<td>Community Support</td>
<td></td>
<td>More work means a healthier community with new trade opportunities and experiences. Mines generate income into the community and sporting groups benefit from increasing numbers. It would be good to see this happen around Warramboo and surrounding areas. I think this can happen if guidelines are set and documented prior to the approvals and set for the life of the project. Local business will benefit providing they are utilized and should be looked to first, this should be addressed prior to the approvals and MEASURABLE TARGETS documented</td>
</tr>
<tr>
<td>Infrastructure and environmental impacts</td>
<td></td>
<td>It sounds like a project of this scale would potentially offer a lot of benefits to locals and the Eyre Peninsula in general. Water, power, rail and port facilities. The port would offer a lot of good opportunities providing the environmental impact is regulated, monitored and checked. Our power networks are on the decline and could do with certain upgrades. We lack water on the EP and additional sources could have a lot of benefits. In saying this I think no natural resource should be tapped without fully understanding the consequences for us and our future generations.</td>
</tr>
</tbody>
</table>
If approvals are to be made on natural reserves of water it would be good to see it very tightly monitored and regulated.

It sounds like the mine has a lot of good and innovative ideas on reducing dust and diesel emissions and exposure to the surrounding communities. We hope that the project has in place a plan to reduce and monitor the risk of exposure to dust for their mine employees as well.

As mentioned, there are a lot of community benefits and business opportunities associated with a proposal of this size, provided the environmental impact is controlled and monitored with no work undertaken without fully understanding the consequences for our future generations and natural resources. Rehabilitation programs also generate work, providing they are followed through.

We would like to see those locals that have to move from their farms well compensated as well as SUPPORTED INTO THEIR NEXT JOB TRANSITION as they currently may not have the skills needed to gain future employment.
Once completed, return your submission by 2 February 2016:

By mail to:
CEIP Submissions
Mining Regulation
Attn: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

By email to:
dsd.ceipconsultation@sa.gov.au

On line submission:
www.ceipconsultation.sa.gov.au

Upload a pdf or word document at:
www.ceipconsultation.sa.gov.au
Iron Road's Central Eyre Iron Project (CEIP) is a proposed iron ore mining and infrastructure project located on Eyre Peninsula. The scope of the proposed project includes an iron ore mine (MP) to be located east of Warramboo near Wudinna and associated rail, power, water, port and accommodation infrastructure developments to be located between the proposed mine and proposed site of a new deep sea port near Port Neill (EIS).

The Government has received applications for these developments in accordance with the requirements of the Mining Act 1971 (for the mine), the Development Act 1993 (for the associated infrastructure) including actions that trigger the Environment Protection and Biodiversity Conservation Act (1999)(EPBC).

Written submissions are invited from members of the public on these applications.

Making a Submission

We value the community’s input, information provided in submissions is vital to the assessment processes.

Please follow the steps below to make an effective submission.

1. Review Iron Road's applications for the CEIP, available at www.ceipconsultation.sa.gov.au

2. Decide whether or not to include personal information in your submission

When you make a written submission, that submission becomes a public record. Your written submission will be provided to the applicant and will be published on the government CEIP consultation website. This includes:

- the content of your submission and any attachments - including any personal information about you which you have chosen to include in those documents.

If you wish for your personal information to be withheld, you must:

- request that your name and contact details be withheld from publishing by ticking the relevant box in the form below; and
- not include personal or identifying information in your submission or attachments.

We will not accept offensive, threatening, defamatory or other inappropriate material.

3. Make a submission

To make a written submission, please use this cover sheet to accompany your written submission. Your submission can be provided in any written form, including a letter or email.

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Cover Sheet

Section A: Contact Details

Please complete the following information. Your contact details will be used by the South Australian Government to acknowledge your submission. Those marked with an asterisk ‘*’ are mandatory. Anonymous submissions will not be accepted.

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<thead>
<tr>
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<th>MR</th>
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<tbody>
<tr>
<td>*Name</td>
<td>Stephen</td>
</tr>
<tr>
<td>*Surname</td>
<td>Whillas</td>
</tr>
<tr>
<td>Organisation</td>
<td>Primary producer, Eyre Peninsula Business Owner</td>
</tr>
<tr>
<td>*Street / PO Box</td>
<td>Carrow tce /POBox 2071</td>
</tr>
<tr>
<td>*Town / Suburb</td>
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<tr>
<td>*Postcode</td>
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</tr>
<tr>
<td>*Email Address (Mandatory for electronic submissions)</td>
<td><a href="mailto:Willo1@skymesh.com.au">Willo1@skymesh.com.au</a></td>
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<tr>
<td>Telephone</td>
<td>0458852268</td>
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<td>Submission Date</td>
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</table>

Please indicate below which of the applications your submission relates to:

- [ ] S.A. Mining Application (MP)
- [ ] S.A. Development Application (EIS)
- [ ] Commonwealth EPBC Act (EIS)

Select those (one or more) which apply to your submission

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Section B: Privacy

Please select one of the following options:

☑️ I understand that my submission, including my personal contact details, will be published on the government website and provided to the applicant.

OR

☐ I understand that my submission will be published on the government website and provided to the applicant, but I require that the government **withholds my name and contact details**. I understand that it is my responsibility to ensure personal information is not included in the body of my submission, any footers or headers or any attachments.

☑️ I have attached my written submission
To The Government of SA

I find the process of the application by Iron Road for its Central Eyre Iron Project (CEIP) Joint Mining & Infrastructure quite flawed and in my opinion incomplete.

I attended a public meeting in Port Neill with questions needing answers on December 8th 2015 with only a few other interested parties or stakeholders. The timing did not allow the Primary Production Sector, who were finalising their 15/16 harvest and their income, to attend. A date dictated by Iron Road’s own application.

(6) I have my first issue with “stakeholder engagement”

Iron Road quotes that it has identified, engaged and consulted with a range of stakeholders. I am in the business of Primary Production on lower Eyre Peninsula, I also own a residential home in Port Neill and I own 50% of an Agriculture reliant business based in Kimba. I can and will be affected in some form. I will endeavour to explain I fit in the categories A & B group table (6.1)

(6.3) Iron Road quotes to “maximize opportunity to communicate and engage with community and stakeholders” and to “liaise effective regularity bodies and advisory agencies”.

(Table 6.2) Category A. Stakeholder group under Industry and Business is where I sit. Iron Road has failed to engage or consult the main association that represents business in SA in the grain production sector post farm gate GIASA. This association represents International/National grain buyers, stock feed manufacturers, brokers and various businesses tied to shipping. To put two volumes together of such detail and not at least approach the very industry that could be impacted is unexplainable. There are serious questions that need addressing from the buyers and grower perspective. EP is almost totally reliant on the export dollars in grain, wool and majority of livestock. I have further questions about dust, co-mingling of grain, contamination, wary international markets, derailments, limited domestic use of contaminated grain, grower compensation if any advents occur. I have asked Iron Road at Port Neill for a meeting and was only phoned last week by Iron Road to organise a meeting for this week coincidently after submissions will be closed.

Section 10 Air Quality 10.3.2 I have concerns based around Sensitive Receivers, this section covers where people live or work, buildings, business premises, public recreational areas, environmental receivers flora and fauna and marine environment. There is no mention of an agricultural crop or livestock operation immediately adjoining the proposed Infrastructure; this is also a work site or area. It is stated (Table 10.3 the dust disposition on an annual basis could get to 4g/m²/month therefore a high quality, high value crop could receive up to approximately 10-12 gram/m² for the plants that are out in head. With flowering and morning dew and frosts has modelling been done to recognise any mining dust contamination issues.

Iron Road has failed to negotiate with all affected Ag businesses on the Eyre Peninsula; we will be directly affected by the 7050 hectare permanently lost to Agriculture for the entire life of the mine and corridor. I have had experience with multiple grain train derailments and the clean up process, I’ve also worked with covered conveyors and dust extractions plant through my time with ABB, Viterra while I do agree with Iron Road it should all be low level risk but temperature, human error and mechanical failure can change operations very quickly.

Until there is more detail around market approval, buyer approval, contamination and co-mingling, Potential Compensation fund and detailed dust measurement along the whole process. We the grower, Ag Industry and EP businesses need more from Tim Scholze and Iron Road and not communicated with at the end of the process or if at all.

Regards
Stephen Whillas
To Whom It May Concern,

We wish to raise the following issues in regard to the railway corridor affecting our properties.

**Property Overview:**
We operate three adjoining properties (See appendix 1) shown as Property 1, Property 2 and Property 3. Currently properties are easily accessed with large gates through adjoining fence lines. The railway corridor will divide Property 1 and Property 2 and the Property 3 will be split in two leaving a small strip of land between the corridor and boundary.

There are houses on two properties; Property 1 and Property 2 and the railway corridor will restrict access to road only.

Property 2 is the base for the sheep operation with stock yards, shearing shed and loading facilities.

Property 1 is the base for the cropping operation with the main machinery shed and workshops. It is also the base for the spraying operations with water access and chemical storage.

Property 1 is also the base for our sheep feedlot facility.

We are constantly moving between properties for daily farm operations and to access each other’s private homes.

**Issues of concern:**

**Lack of or conflicting information**
At all private and public meetings to date we have received conflicting information about specific issues that we have raised. In our opinion none of the issues have been satisfactorily resolved for our specific properties.

In a copy of notes from meetings with an Iron Road representative (provided by Iron Road representative) on our property (Feb 2014) the following was written ‘It is not as easy as it looks and although they don’t appear to be as affected as some they are quite dramatically affected’ and ‘I am not satisfied with how they can farm each side comfortably and refer to the map for reference’.

Even at our last meeting with an Iron Road representative it was our understanding that even though the Central Eyre Iron Road Project EIS indicates that there will be a rail over road bridge, this is not confirmed and we may have a passive crossing. Consequently we are still not sure what we are dealing with.

**Machinery Movement:**
During seeding, spraying and harvest operations, large machinery is currently moved between properties via large access gates between paddocks. Seeding equipment is currently 7 metres in width and 5m in height and harvesting equipment is 11 metres in width and 5m in height. Machinery is only going to get larger in to the future.

We have raised this issue with Iron Road staff on three separate occasions at meetings on our property (Aug 2013, Feb 2014, Dec 2015) and at several different public meetings, as access for machinery between our properties is fundamental to us being able to operate our business. Each time we have raised this issue we have received conflicting information and no definitive answer as to how we are going to be able to move large machinery between our properties.

**According to the Central Eyre Iron Project EIS and a map provided to us by Iron Road the only access we will have between properties is a proposed stock crossing which will be large enough for stock and a utility and a**
rail over road grade separation with a clearance envelope of 5.9m high and 5.0m wide. Neither of these options will allow us to move machinery between properties which makes our farming operation unworkable.

Our movement between properties through boundary gates is currently legal but if restricted to road only we will have to change current practices.

a) Currently we do not have to remove header fronts to transport between properties.
- If restricted to road access fronts will have to be removed, transported and re attached with each move between properties. With two headers this will add 1.5 hours per move plus require additional staff for road escorts.
- It is not practicable to reap crops on one property and then move on to the next property as crops are harvested as they ripen and this is dependent on variety and sowing date so frequent moves are necessary.

b) Currently approximately half of our seeding and one third of our harvesting occurs after daylight hours.
- Legal movement of this machinery at night via the road is not possible. If movement is restricted to daylight hours this will impact the timeliness of sowing and the flexibility of our operations.

We currently sow by variety so are constantly moving between properties.
- Sowing one property and then moving to the next is not a feasible option.

d) Currently we can operate headers on different properties with a chaser-bin working between them via boundary gates to accumulate grain at an easy access point for trucks or to blend grain.
- This practise would not be possible if restricted to road access only.
- Not having the flexibility to move grain easily with the chaser bin may impact our ability to manipulate grain quality and consequently price achieved.
- This may cause problems for trucking as some paddocks do not have suitable areas for truck access without getting bogged. Currently we use the chaser bin to move grain between farms to an area of easy access for trucks.

e) We use contract grain carters.
- If there is a passive crossing there will be delays which will be difficult to manage for contract carters.
- If there is a bridge across the corridor this will not be an issue. We have been given conflicting information from Iron Road regarding the type of crossing planned.

f) During seeding and spraying season the boomspray will move across the corridor up to eight times a day. We currently have easy access through all properties via large access gates. Having to go around by road and/or wait for trains will affect efficiency.
- We spray at night which presents the problem of legal movement of machinery after dark.

A pass wide enough to take large machinery is the only workable option.

Stock movement:
Sheep are moved on a regular basis between farms as there are currently only stock yards and facilities on one of the three properties (Property 2). We also have feedlot facilities on another property (Property 1). One property (Property 3) will only have road access.

No workable proposal has been presented by Iron Road as how these livestock movements across the corridor will occur.

Ideas put forward by Iron Road have included:

a) Tunnel under the line between Property 1 and Property 2.
- The map we have been provided by Iron Road indicates one stock crossing. If paddocks either side of this tunnel are in crop we would need a raceway along either side of the corridor to access the tunnel to prevent the sheep from getting into our crops. This will take out further land from production which impacts profit every year.
- Who is responsible for the cost of constructing a raceway and measures to prevent drift caused by stock moving across sandy soils?
- The size of the tunnel proposed is only big enough for a utility and livestock so not suitable for machinery access.
- This would be difficult to use with sheep who haven’t used it before.

b) Passive crossing at the road
- We have not had any concrete answers as to how we stop the sheep moving down the railway corridor when crossing the corridor.
- Sheep do get out - what will be the process if livestock do access the corridor?
- Who manages compensation claims if livestock access the corridor and are killed?
c) Bridge over the line
- This would separate stock movement and the line completely – this is a workable option for the sheep.

We have expressed these concerns to Iron Road staff at three different meetings (Aug 2013, Feb 2014, Dec 2015) on our property and at public meetings and received conflicting ideas each time as to how we are going to manage this issue.

According to the Central Eyre Iron Project EIS a rail over road grade separation with a clearance envelope of 5.9m high and 5.0 metres wide is proposed for the only road access we will have. This will be suitable for stock but is not an option for moving large machinery.

**Loss of income:**
According to the latest map provided by Iron Road we are left with a small strip of land between the railway corridor and the farm boundary on Property 3 (see map). It has been suggested by Iron Road staff that we may have to sell this strip of land. Even though this land will be isolated and more difficult to manage this is not an option that we are keen on.

a) The area of the corridor and the strip of land is 51.7Ha (according to information provided by Iron Road) which equates to a considerable loss of profit per year for our farm operations
b) There will be no access to water on this strip of land so it will be unsuitable for stock.
c) We will only have road access which presents movement issues as already discussed.

**Devaluation of farm:**
Currently our properties present as an attractive parcel of three properties in one block with easy access between blocks. We believe a railway corridor for all the reasons stated will have an adverse affect on property value. This will be regardless of whether the corridor goes ahead in the near or distant future.

**Construction phase:**
During the construction phase we are concerned as to how are going to operate the farm.

a) We have been given no indication of how this process will be managed or how long the process will take.
b) As indicated by Iron Road representatives our properties will require major cut and fill earth works so disruption to our farming practices through the construction phase is a major concern.
c) Stock management during the construction phase is an issue.
d) No definitive information has been given in regards to management of soil disturbance and erosion during this phase. With major cut and fill earth works proposed this could have an impact on land adjacent to the corridor. We have concerns on how drift may impact our land adjacent to the corridor and the implications it may have for our farming operations.
e) The impact of weed contamination during his phase:
   - The movement of trucks and machinery transporting foreign seeds
   - The possibility of the importation of other soils containing weed seeds.
f) Fencing construction – with 12 fences that will have to join up to the corridor there will be the expense of time and materials to be considered. There has been no information regarding this issue.

**Ongoing maintenance:**
**Fencing:**
After initial construction who will have responsibility for repairs and maintenance in the short and long term.

**Weeds:**
Who will have responsibility for weed control along the corridor?
Social invasion:
Visual impact:
Currently we have an unobstructed view but the corridor will be easily seen from our homes as the alignment is going directly along a ridge.

Inconvenience:
Because of the way we operate our properties and the fact that we have homes on either side of the corridor we travel along the road frequently; if the crossing is a passive crossing this will definitely have an impact on efficiency.

Noise:
Currently we live in a very quiet environment, frequent train passings, night and day will obviously have an impact.

Safety concerns:
Fire and catastrophic weather conditions:
Currently we have to cease farming operations during catastrophic weather conditions because of the risk of sparks causing fires
- what implications does this have for trains travelling in these conditions?

Access in emergency situations:
According to information in the CEIP EIS we have 2 road crossings south of our road and four roads north of us as passive crossings. It indicates that our road will have a steel arch culvert but Iron Road staff led us to believe that this is not finalised. Emergency access could be compromised in this area if all roads in the vicinity are passive crossings.

In Summary:
Conflicting information from various Iron Road representatives has made it difficult to know what we are actually dealing with and the full impacts it will have on our farming operation.
This has also made it difficult to write this submission.

If as presented in the Central Eyre Iron Road Project Environmental Impact Statement the options for crossing the corridor between our properties are by a stock crossing and a rail over road bridge (5.9m high and 5.0m wide), our farming operation is completely unworkable.

Machinery movement requires an overpass over the corridor wide enough to take machinery currently in use and allowing for inevitable increase in size in the future.
Stock movement through a tunnel is only feasible if a raceway is built on both sides of the corridor so that stock can be moved from all paddocks without having to walk through crop to access the one point.

Management issues during the construction phase, the issue of ongoing maintenance, loss of income, devaluation of property, social invasion and safety concerns are all issues that we feel have not been adequately addressed.

Regards,

Concerned property owners affected by the railway corridor.
To whom it may concern,

Re: Iron Road’s Central Eyre Iron Project (CEIP)

I am writing in response to the call for submissions regarding Iron Road Limited’s proposed Central Eyre Iron Project (CEIP) to provide my support for the project. To start off I provide the words of the 16th President of the United States:

“Tell the miners from me that I shall promote their interests to the utmost of my ability, because their prosperity is the prosperity of the nation.”

Abraham Lincoln 1865

I present this submission as a past Eyre Peninsula resident born and bred in the farming community at Cleve. My family remain on Eyre Peninsular where my older brother is now running the family farm. I am old enough to remember clearing of remnant scrubland to establish cropping and grazing land and the significant impact that farming had on the indigenous vegetation of the area. During my time growing up on Eyre Peninsula I witnessed a change in the community due to farming business getting tighter, droughts and improvements in technology. The impact of these things resulted in farms needing to get bigger and more efficient to succeed. The efficiencies now required in farming has impacted on the level of employment in the region and the sustainable population that farming can support. I have seen football teams merge and merge again and witnessed the rural communities shrink through people searching for employment outside the region. In 1988 I left Eyre Peninsula, a time where drought was devastating cereal production and many were leaving their farms under financial duress. I pursued a career in mining and have been involved with the many positive impacts of mining throughout Australia since that time. Recently I have operated the Angas Zinc Mine at Strathalbyn, close to agricultural production similar to that of Wudinna region and within the tourist region of Hauer Peninsula. As with any business, the operations, community engagement and environmental impacts need to be well managed and if done so can provide the benefits of community strengthening, improved financial welfare and diversity of resources that a farming community on its own will never be able to enjoy. Having a mining project in regional South Australia will provide the community in which it is developed substantial economic, social and infrastructure benefits, which would otherwise be denied. In support of CEIP I make the following points:

- If the economic parameters used for the project are sound, CEIP has the potential to enhance the regional and state economy at a time when South Australia is in need of a critical boost in a way that Agriculture will not be able to do in many generations.
- While construction jobs are not long-term positions the benefit for businesses to build skills through training and apprenticeships will have long term benefits for the state. Additionally the economic multiplier associated with the employment of 700 workers for 25 years is significant and will allow for employment opportunities outside the agriculture sector.
- The demand of services and support businesses in the region by CEIP will attract companies to the region. Having a wider range of services will provide assistance for other business in the region.
- Increased employment opportunities will support Eyre Peninsula’s ability to maintain population and subsequently assist in reversing the current trend of an ageing population. This will result in increased numbers in local schools, sporting clubs, using local services and supporting the local healthcare system.
- A project the size and scale of CEIP that can bring in required upgrades to the electrical infrastructure, roads and communication on the Eyre Peninsula. This will provide opportunities for other smaller projects to piggyback off the upgrades, delivering potential economic benefits required for their start-up.
- Construction of an additional independent port facility available for third parties to use is a much needed part of infrastructure that will provide benefits to the Agricultural industry on Eyre Peninsula including some much needed competition regarding exporting, importing and reducing domestic transport costs.

I understand that there are risks associated with CEIP due to the recent drop in commodity prices affecting the financial viability of the project, environmental impacts due to the mining process, additional vehicles that will be utilising the road and the complication of mine worker remuneration compared to farming wages to name a few. Having worked with the Department for State Development and their mining regulators within the structure of South Australia’s law to protect communities, businesses and the environment, I am confident that the risks will be identified and managed to ensure that the benefits of CEIP can be safely acquired to the benefit of the majority. These risks are all manageable and provided that CEIP is managed well, the benefits of the project for the region and the state will far outweigh the negatives.

Regards
Public Submission

Mining Proposal (MP) and Environmental Impact Statement (EIS)

CENTRAL EYRE IRON PROJECT BY IRD MINING OPERATIONS PTY LTD AND IRON ROAD LIMITED.

USE THIS FORM TO: Provide a written submission to the SA Government regarding the MP or EIS

Iron Road’s Central Eyre Iron Project (CEIP) is a proposed iron ore mining and infrastructure project located on Eyre Peninsula. The scope of the proposed project includes an iron ore mine (MP) to be located east of Warramboo near Wudinna and associated rail, power, water, port and accommodation infrastructure developments to be located between the proposed mine and proposed site of a new deep sea port near Port Neill (EIS).

The Government has received applications for these developments in accordance with the requirements of the Mining Act 1971 (for the mine), the Development Act 1993 (for the associated infrastructure) including actions that trigger the Environment Protection and Biodiversity Conservation Act (1999)(EPBC).

Written submissions are invited from members of the public on these applications.

Making a Submission

We value your input and look forward to reading your submission. Please follow the steps below to make an effective submission.

1. Review Iron Road’s applications for the CEIP, available at www.ceipconsultation.sa.gov.au

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<tr>
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<tr>
<td><em>Name</em></td>
<td>Sallyann &amp; Richard</td>
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<td><em>Surname</em></td>
<td>Hill</td>
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<td><em>Email Address</em></td>
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Please indicate below which of the applications your submission relates to:

- S.A. Mining Application (MP)
- S.A. Development Application (EIS)
- Commonwealth EPBC Act (EIS)

Select those (one or more) which apply to your submission

Section B: Privacy

Please select one of the following options:

- I understand that my submission, including my personal contact details, will be published on the government website and provided to the applicant.

  - ✓

  OR

- I understand that my submission will be published on the government website and provided to the applicant, but I require that the government **withholds my name and contact details**. I understand that it is my responsibility to ensure personal information is not included in the body of my submission, any footers or headers or any attachments.

  - ✓
### Section C: Your Submission

Points to consider when making your submission:

- Provide information on any aspect of the existing environment that either has not been included in the MP and/or EIS; or that you consider has been inadequately described
- Are there any environmental, social or economic impacts or benefits associated with the MP and/or EIS that have not been identified?
- If applicable, are the proposed environmental, social or economic outcomes acceptable? If not, try and describe what outcome you would find acceptable?

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<td>Infrastructure example</td>
<td>EIS 6.3.2 p103</td>
<td>Example</td>
</tr>
<tr>
<td>NOISE</td>
<td>12</td>
<td>Our 3.54 ha block, Lot 2 Deposited Plan 60630 CT Vol Folio 453, has the proposed port at our front doorstep. To live next door to a major mining port goes very much against the values we purchased the land under 14 years ago, the current peace and tranquility will be no more!!! Looking through the window of our proposed holiday home with a 1400 m Long Jetty and wharf into a deep sea port, was not in our plan.</td>
</tr>
<tr>
<td>NOISE/INFRASTRUCTURE</td>
<td></td>
<td>As one of the owners of the nine coastal blocks along this land we were required to sign a land management agreement on purchase. The proposed port will break many rules outlined in the agreement. Noise being only one of them. Infrastructure not blending with the environment being another! Another part of the agreement that would be challenged would be using the land for low intensity rural living.</td>
</tr>
<tr>
<td>DEVALUATION OF LAND</td>
<td></td>
<td>The opportunity for us to try and sell our once pristine coastal block to anyone will now not be available. Only the mining company could use our block and they are not interested in it. I am sure as a landholder next to a mega port infrastructure we will not be allowed to sit back and take it all in. A movie titled &quot;The Castle&quot; - comes to my mind. We will not be able to coexist next to this mass infrastructure production. So therefore our original plan of establishing a family beach house on this pristine land to look at the untouched ocean has now been halted. Our family will no longer be able to relax on our block as we had planned 14 years ago. Time away as a family is precious to us. The operation and running of two small businesses, travelling to a bus stop with three children who go to a school 50 km away, employing four people to assist us while maintaining the necessary OHS and accounting frameworks is not for the faint hearted. Time Away for the health and wellbeing of our family is vital, this now is in jeopardy. We had also planned for our children to benefit from this special piece of land but that too is now unclear.</td>
</tr>
<tr>
<td>DIRT /DUST</td>
<td></td>
<td>With this amount of infrastructure being developed, there will be large amounts of dirt and dust flying around large amounts during the construction stages.</td>
</tr>
<tr>
<td>UNCLEAR BOUNDARY LINES</td>
<td></td>
<td>In a lot of the information we have seen and read online about the project, has our block with in the boundary lines? We own the block and are open to negation but don’t like seeing our block within the boundaries when we own it and it is not part of the project.</td>
</tr>
<tr>
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</table>
Back in 2002 when we purchased our block at an Auction, the Land Management Agreement attached to each of the blocks of land made our decision to purchase. We are sure the proposed major port will not be able to adhere to the Land Management Agreement that covers all the nine blocks along the coastline.

We are small fish in a big sea and we have battled along for many years, our work, social and personal relationship throughout the last 14 years has been put through a great deal of strain as we address each issue as it arose.

We are not against development for the betterment of the community and the region, however we do believe that people directly affected should be adequately compensated.

Over the past 14 years we have had to jump through major government (Local and State hoops), to ensure we could keep our block of land and have the ability to build on it. We fought hard and spent countless hours and too much money fighting government decisions such as where a coastal conservation zone should go. Now we have a deep sea port proposal, where will it end!!
Once completed, return your submission by 2 February 2016:

By mail to:
CEIP Submissions
Mining Regulation
Attn: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

By email to:
dsd.ceipconsultation@sa.gov.au

On line submission:
www.ceipconsultation.sa.gov.au

Upload a pdf or word document at:
www.ceipconsultation.sa.gov.au
TO WHOM IT MAY CONCERN

I represent water treatment company that has been asked to help out with some of the preliminary work for the Central Eyre Iron Project.

We see great potentially in this project for us. Should the project go ahead and we win the relevant contacts, we anticipate a great opportunity to our business to expand our operations in South Australia.

There will be many employment opportunities created. As well as great deal of work allocated for local manufacturers of chemicals and plant. All of these benefits will have a positive impact on the South Australian economy.

We look forward to the opportunities this project brings to South Australia and our organisation. We eagerly await its approval.
Central Eyre Iron Project by IRD Mining Operations Pty Ltd and Iron Road Limited.

USE THIS FORM AS: A cover sheet to accompany a written submission

Iron Road's Central Eyre Iron Project (CEIP) is a proposed iron ore mining and infrastructure project located on Eyre Peninsula. The scope of the proposed project includes an iron ore mine (MP) to be located east of Warramboo near Wudinna and associated rail, power, water, port and accommodation infrastructure developments to be located between the proposed mine and proposed site of a new deep sea port near Port Neill (EIS).

The Government has received applications for these developments in accordance with the requirements of the Mining Act 1971 (for the mine), the Development Act 1993 (for the associated infrastructure) including actions that trigger the Environment Protection and Biodiversity Conservation Act (1999)(EPBC).

Written submissions are invited from members of the public on these applications.

Making a Submission

We value the community's input, information provided in submissions is vital to the assessment processes.

Please follow the steps below to make an effective submission.

1. Review Iron Road's applications for the CEIP, available at www.ceipconsultation.sa.gov.au

2. Decide whether or not to include personal information in your submission


When you make a written submission, that submission becomes a public record. Your written submission will be provided to the applicant and will be published on the government CEIP consultation website. This includes:

- the content of your submission and any attachments - including any personal information about you which you have chosen to include in those documents.

If you wish for your personal information to be withheld, you must:

- request that your name and contact details be withheld from publishing by ticking the relevant box in the form below; and
- not include personal or identifying information in your submission or attachments.

We will not accept offensive, threatening, defamatory or other inappropriate material.

3. Make a submission

To make a written submission, please use this cover sheet to accompany your written submission. Your submission can be provided in any written form, including a letter or email.

Alternatively, make an online submission by accessing the government CEIP consultation website (www.ceipconsultation.sa.gov.au) and following the instructions.

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www.ceipconsultation.sa.gov.au
2 February 2016

CEiP Submissions
Mining Regulation
Attn: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

To whom it may concern,

re: ElectraNet submission on proposed Central Eyre Iron Project

ElectraNet is supportive of major projects that drive growth on the Eyre Peninsula, such as Iron Road’s Central Eyre Iron Project (CEIP), for their role in triggering augmentation of the state’s high-voltage electricity transmission network and the resultant benefits this will provide to the region and South Australia.

As the principal transmission network service provider in South Australia, we can attest to the benefits of this type of project: improving the long-term security of high-voltage electricity supply to the Eyre Peninsula; increasing the feasibility of other projects on the Eyre Peninsula, and helping South Australia reach its low-carbon emission goals.

From our engagement with Iron Road, we understand the potential electricity load associated with the CEIP to be greater than 300 MW. To accommodate this demand through a connection to the existing regulated transmission network, Electranet would need to build a new 275 kV transmission line between Cullana and Yandarrie, and a new 275/132 kV substation at Yandarrie. The investment for these new assets is estimated at approximately $300 million and as a major project in its own right, would bring significant economic benefit to the region.

The Australian Energy Regulator has provided an approval for our Lower Eyre Peninsula reinforcement project, which includes these new assets, contingent on the commitment of a 50 MW or more, step load increase. The CEIP would provide this increase and trigger our network augmentation project.

To be ready to meet the electricity needs of the CEIP and the wider Eyre Peninsula community and economy, ElectraNet has performed significant preparatory work on this project, including successfully securing easement options for the full length of the proposed line route between Cullana and Yandarrie.

As well as facilitating the CEIP, augmentation of the Eyre Peninsula transmission network will secure supply for the wider region for the long-term. The existing 132 kV transmission line which services the Eyre
Peninsula is over 50 years old and nearing the end of its functional life. Replacing this line with a new, higher-capacity line will secure the Peninsula's electricity requirements for the next 50 years.

Reinforcing the Eyre Peninsula transmission network will also improve the commercial viability of other major projects that require available capacity to either draw power from the network, or feed it back in, but are currently constrained by the network's limitations.

It is widely recognised that the Eyre Peninsula region possesses significant untapped renewable energy resources. New wind or solar generation developments in the region would become more feasible with the increased transmission capacity.

In addition to the economic stimulus derived from projects of this nature, supporting new renewable generation opportunities on the Eyre Peninsula will help achieve the South Australian Government's goals of having 50 per cent of electricity production to be generated by renewables by 2025, and zero net emissions by 2050.

With such wide-ranging benefits for the regional and state economies, ElectraNet is supportive of a major development, such as the CEIP, that will trigger the reinforcement of the Eyre Peninsula high voltage transmission network and enable wider growth and productivity.

If you would like further information about ElectraNet's plans to reinforce the Eyre Peninsula transmission network, or any aspect of this submission, please feel free to contact me.
Iron Road’s Central Eyre Iron Project (CEIP) is a proposed iron ore mining and infrastructure project located on Eyre Peninsula. The scope of the proposed project includes an iron ore mine (MP) to be located east of Warramboo near Wudinna and associated rail, power, water, port and accommodation infrastructure developments to be located between the proposed mine and proposed site of a new deep sea port near Port Neill (EIS).

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Written submissions are invited from members of the public on these applications.

Making a Submission

We value your input and look forward to reading your submission. Please follow the steps below to make an effective submission.

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Upload a pdf or word document at:
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Public Submission

Section A: Contact Details

Please complete the following information. Your contact details will be used by the South Australian Government to acknowledge your submission. Those marked with an asterix ‘*’ are mandatory. Anonymous submissions will not be accepted.

<table>
<thead>
<tr>
<th>Title</th>
<th>Business Development Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Name</td>
<td>Allan</td>
</tr>
<tr>
<td>*Surname</td>
<td>Frederick</td>
</tr>
<tr>
<td>Organisation</td>
<td>Clarke Energy (Australia) Pty Ltd</td>
</tr>
<tr>
<td>*Street / PO Box</td>
<td>2 – 4 Stirling Street</td>
</tr>
<tr>
<td>*Town / Suburb</td>
<td>Thebarton</td>
</tr>
<tr>
<td>State</td>
<td>South Australia</td>
</tr>
<tr>
<td>Postcode</td>
<td>5031</td>
</tr>
<tr>
<td>*Email Address (Mandatory for electronic submissions)</td>
<td><a href="mailto:allan.frederick@clarke-energy.com">allan.frederick@clarke-energy.com</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>+61 (0)8 8290 2100</td>
</tr>
<tr>
<td>Submission Date</td>
<td>2nd February, 2016</td>
</tr>
</tbody>
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Please indicate below which of the applications your submission relates to:

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Select those (one or more) which apply to your submission

Section B: Privacy

Please select one of the following options:

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<td>Example</td>
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<td>This Submission is presented by Clarke-Energy (Australia) Pty Ltd in the support of the Benefits of the Central Eyre Iron Project (CEIP)</td>
<td>Iron Road Limited’s 36 Page “Executive Summary” relating to the Mine Lease Proposal (MLP) and the Environmental Impact Study (EIS). Whilst it is understood the Executive Summary is for Information Only and does not form a part of Iron Road’s Application for a Mining Lease (ML); we believe it is important to make comment to many of the items contained within the document, as seen by an outsider and another proud SA company.</td>
<td>The State of South Australia and its Population have enjoyed and prospered from the benefits of organizations such as Iron Road Limited’s commitment and risky investment to explore for and develop a resource based business from the ground up – such as that being proposed in this instance.</td>
</tr>
<tr>
<td>Preface – Executive Summary intent</td>
<td>The following “Issues, Reference and Comments” offered by Clarke Energy, will expand on specific subjects contained within the 36 page Executive Summary Document presented by Iron Road Limited as an integral part of their Application for Approval for the development of the Central Eyre Iron Project.</td>
<td>State Governments and we as the people of South Australia, have been indebted to organizations such as Iron Road (and many before them) for their foresight and perseverance; resulting in the provision of jobs, business opportunities, skills and economic benefits to Regional South Australian Communities and the State in general. For these reasons above, Iron Road Limited must be encouraged and supported by State Government and the Business Community in general, for its initiatives and the thorough way it has and will continue to go about the process of engaging with all Stake Holders and Regional Communities; to alleviate any fears of Iron Road not acting in the best interests of all concerned – both People and the Land.</td>
</tr>
<tr>
<td>Introduction</td>
<td>About Iron Road/Page 3.</td>
<td>Whilst this Submission recognises the Executive Summary is for Information Only and does not form a part of Iron Road’s Application for a Mining Lease (ML), under the Mining Act 1971 &amp; the Environmental Impact Statement (EIS) under the Development Act 1993; we believe it is important to make comment to many of the items contained within the document, as seen by an outsider and another proud SA company.</td>
</tr>
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</table>

Having already set up and committed to its Head Office in Adelaide, by the way of 7 years existence and the expenditure of $120mill on those activities to date, Iron Road Limited has learnt the right to continue to be encouraged by the State Government, the business community and population in general - to develop this major project, as well as continuing to receive support throughout the whole life of the mine and the ongoing site rehabilitation period.
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<td>Introduction Cont.</td>
<td>What is the CEIP/Page 3.</td>
<td>Following the CEIP being awarded Major Project Facilitator status, and the fact that this is the only project in South Australia to hold this status out of a total of 18 projects across Australia; is more reason to ensure the project is not dis-regarded and not approved by the respective communities and organizations in general.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>CEIP Mine/Page 3.</td>
<td>Iron Road Limited (and others following this path), needs to be recognized for pursuing this development which is of strategic significance to not only South Australia, but Australia too.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>CEIP Infrastructure/Page 4.</td>
<td>Australia and South Australia in particular, needs these organizations that are prepared to develop resource projects that add to the Economic Growth, Exports, Employment and Infrastructure Development - to continue to make Australia and South Australia to be a place of choice to live in and attract business.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Applications for Approvals/Page 4.</td>
<td>Iron Road Limited has made public, its commitment under both the MLP and EIS, to the Processing on site of the Magnetite Concentrate. Too often we see Resource organizations mine and ship raw materials out of country, only to see processing carried out overseas – denying States and Australia of income, as denying Australians jobs and prosperity.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Access to Land – CEIP Mine and Infrastructure/Page 5.</td>
<td>This commitment to produce a Magnetite Concentrate, adding value to the country’s economy and employment opportunities; must be encouraged.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Feasibility and Optimization Studies/Page 6.</td>
<td>The 6 proposed Mining Lease (ML) Activities presented are proof of a thorough evaluation of best practices and careful consideration of extracting the best value for South Australia and its people, whilst maintaining a high level of commitment to respect and look after the land during and at the end of the life of the mine.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Engagement Activities and Relationships/Page 7.</td>
<td>It’s been 7 years in the making, and our submission supports and encourages the “powers to be”- to grant the necessary approvals as and when Iron Road completes and satisfies each phase of the development approval process - to allow this most significant mine to proceed to construction.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>Increases in Electrical Power, Water Supplies, and Port Facilities etc. can only provide opportunities and the impudence for new business activities across the Eyre Peninsula.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>We congratulate Iron Road for its thoroughness in following the State and Commonwealth approval procedures so diligently. This is evident by their preparedness to openly document their commitment to follow process.</td>
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<td>Introduction Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
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<td>Introduction Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>It is evident that Iron Road accepts all Government Acts associated with MLP and EIS, as it commits to open and transparent discussion with the land owners; further indication it will follow correct approval process.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>We congratulate Iron Road for its thoroughness in following the State and Commonwealth approval procedures so diligently. This is evident by their preparedness to openly document their commitment to follow process.</td>
</tr>
<tr>
<td>Introduction Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>The contents of these clauses sets out all the basic results of the studies, and whilst it can be taken as read; Iron Road will no doubt be prepared to be challenged by third parties to prove the results of the studies are accurate and beyond doubt as to the viability of the project.</td>
</tr>
<tr>
<td>Stakeholder Engagement and Consultation.</td>
<td>Engagement Activities and Relationships/Page 7.</td>
<td>Iron Road has openly committed to the 3 Key Commitments listed in the document. We expect Iron Road will adhere to these commitments, and we as the owner of this submission; expects Iron Road will deliver on these commitments and that there will be open and transparent auditing of each commitment by District Council, State Government and the proposed “Community Consultation Council” (CCC).</td>
</tr>
<tr>
<td>Stakeholder Engagement and Consultation Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>We are confident and have no doubts that Iron Road will continue regular consultation throughout the life of the mine and beyond into the rehabilitation phases.</td>
</tr>
<tr>
<td>Stakeholder Engagement and Consultation Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>Again and as per for the above clause, the single Key Commitment to the Barngarla people, must be audited similarly.</td>
</tr>
<tr>
<td>Stakeholder Engagement and Consultation Cont.</td>
<td>Engagement with Traditional Owners/Page 8.</td>
<td>At the time of this submission, it is worth reporting that the Indigenous Land Use Agreement (ILUA) has now been signed by all parties, paving the way for its imminent lodgment with the National Native Title Tribunal for registration under the Native Title Act over the next few weeks. We congratulate Iron Road for persevering with the difficulties attached to tracking down of all signatories to achieve this milestone.</td>
</tr>
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</tr>
<tr>
<td>CEIP Mine.</td>
<td>Proposed Mine Summary Table/Page 9.</td>
<td>This submission comments on the “Project” Characteristics and Descriptions of each major activity. This submission does not set out to comment on each specific activity; however we do make reference to a) the Mine Life, and b) Workforce. With regard to the Mine Life, it is of the utmost importance that Iron Road is clear on their commitment to the noted 25 year minimum period. An enormous commitment and many important decisions by business organizations, individuals and families outside of the Projects Management; will be made based on this time period, and we expect that the organizations related to the approval process and Iron Road themselves – will carefully consider and make certain guarantees that will provide confidence to businesses, individuals and families to commit to setting up in the region. Regarding the Workforce and the impressive numbers quoted for employment both on site and at head office in Adelaide; again – this is an important issue that the work program is managed by Iron Road to maintain a workforce as close as possible to these numbers because of the financial commitment people will make to relocate and set up in the region of the project. Iron Road fully understands these issues, and we are confident they will manage this and it will result in “win win” for all parties.</td>
</tr>
<tr>
<td>CEIP Mine Cont.</td>
<td>Mining Operations /Page 11.</td>
<td>Iron Road appear to be adopting new mining processes that will be the most economic and environmentally friendly, and we congratulate them on taking the time to invest in best practices for this type of mine.</td>
</tr>
<tr>
<td>CEIP Mine Cont.</td>
<td>Processing /Page11.</td>
<td>Again as for Mining above, best practices and latest technological processing for this product appears to have been adopted; especially at the back end of the process relating to the management of tailings – which is always a contentious point on most mining projects. Iron Road appears to have carefully considered these aspects. As mentioned above, Tailings and the handling of Waste Rock are major issues at any similar mine site. The commitment to investigating and adopting innovative techniques as set out in the Executive Summary to manage the IWL, appears to be sound; and the fact that progressive rehabilitation to the land commences at the start of operations is a positive move and no doubt will be a consideration to be adopted by others in the future. Well done Iron Road.</td>
</tr>
<tr>
<td>CEIP Mine Cont.</td>
<td>Integrated Waste Landform (IWL) /Page 11.</td>
<td>Always a critical issue with any open cut mine, the rehabilitation of the land and the mine pit itself is of absolute importance to future generations and for the safe and productive use of the land for many years to come. The details and processes that Iron Road have set out and are committed to follow, shows us that this important issue will be handled with due care. Again, well done Iron Road. Only time will tell how effective alternative land use options will be, and it is important for all parties – the Wudinna District Council, State Government, local landowners and the other key stakeholders, not wait till the latter stages of the mine closure to investigate alternative for land use or re-use. Iron Road must commit to delivering their Key Commitments to this issue at a stage as early as possible.</td>
</tr>
<tr>
<td>CEIP Mine Cont.</td>
<td>Mine Closure /Page 12.</td>
<td>The main comment we have towards the Components of the CEIP Infrastructure is associated with maximizing of the various components such as Railways, Power Supplies, Water usage and the Port site. Iron Road and “ALL” other stakeholders must commence open consultation, and encourage the State and Local Government to consider realistic usage of these components at an early stage. It will be too late if this is left until the mine closure stage.</td>
</tr>
<tr>
<td>CEIP Mine Cont.</td>
<td>Land Use Options Post Mine Closure /Page 13.</td>
<td>From experience, the subject of housing mine staff either within a purpose built village or within the township can present issues for all concerned. Careful consideration of the employment terms are required to attempt to avoid staff purchasing houses without a carefully managed plan and consultation between the mine owner/operator and the District Council. There have been many similar situations where a short term housing boom in a township gets out of control and cannot be sustained and at the end of the life of the mine, causing property vacancies and devaluation. We would encourage Iron Road to consult regularly with the District Council to not let this issue get out of hand. This specific subject is further discussed and commented on below under the heading of Social Impacts of the CEIP – Impact on Communities/Page20.</td>
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<tr>
<td>CEIP Infrastructure Required Infrastructure Summary Table /Page 15.</td>
<td>The main comment we have towards the Components of the CEIP Infrastructure is associated with maximizing of the various components such as Railways, Power Supplies, Water usage and the Port site. Iron Road and “ALL” other stakeholders must commence open consultation, and encourage the State and Local Government to consider realistic usage of these components at an early stage. It will be too late if this is left until the mine closure stage.</td>
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<td>CEIP Infrastructure Cont.</td>
<td>Long Term Employee Village /Page 15.</td>
<td>Certainly a sensible option and a necessity for these types of infrastructure items, however it’s what happens at the end of the mine life that cannot be ignored. As spoken about previously in this submission; all stakeholders need to consider and encourage future use and benefits of the components of this infrastructure way before the mine is complete. We can only raise this point so that stakeholders do take seriously; how the long term benefits an infrastructure such as this can attract future opportunity if considered as an important feature for investment and regional growth.</td>
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<tr>
<td>CEIP Infrastructure Cont.</td>
<td>Infrastructure Corridor/Page 17.</td>
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<td>Social Impacts of the CEIP.</td>
<td>Social Changes and Loss of Agricultural Land/Page 19.</td>
<td>No doubt, this is a major change to the communities and people in the surrounding region, with land management being a key issue. The Executive Summary outlines many of the social impact points, and our comment can only be to encourage Iron Road to work with the communities to deliver on those points it seeks to minimize impact; specifically with the loss of agricultural land impacts. Those negative impacts need to be reversed and we are confident that the maturity and awareness of the community and Iron Road will work towards delivering an amicable outcome for all.</td>
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<td>Social Impacts of the CEIP Cont.</td>
<td>Impact on Communities/Page 20.</td>
<td>Again the Executive Summary identifies this subject as a major concern for the residents of Wudinna and surrounding communities. The 8 Key Commitments identified by Iron Road are of the utmost importance to be met during the next 25 years. Whilst this period may seem a life time away, experience tells us that regional townships require sustainable and calculated controls over items such as housing demand, housing prices, potential agricultural growth, and community based activities and infrastructure. Our recommendation has to be that the District Council of Wudinna, State Government and Iron Road need to work diligently towards the controlling of the townships growth so that at the end of the life of the mine, the townships obvious expansion can be managed without a financial loss to those who have come and gone and left behind - especially those who are natives of Wudinna and the region generally.</td>
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<td>Multiple Land Use.</td>
<td>Multiple Land Use/Page 22.</td>
<td>Multiple use of land under the State Governments recent framework draft; needs complying with, and it is encouraging to see Iron Road openly state it is committed to supporting this framework. There is no doubt, that approval to proceed with the development of the CEIP will bring a major boost to the economic development for all in the region and to the State and Australia in general. Projects of this size and long term operational life always will. The Executive Statement outlines this (with examples) as does other parts of the overall submissions by Iron Road Limited. This is all a positive; however of major concern for the existing local workforce and others throughout South Australia, and to a lesser extent those from interstate; will be the provision of providing fair opportunity to these local contractors, suppliers and manufacturers. This is always a contentious point on major Australian projects, particularly during the construction phase, and it is both encouraging and critical; that the 3 Key Commitments (particularly the first 2) nominated by Iron Road in the Executive Summary are delivered on this project as a major priority. We support the intent of Iron Road's Industry Participation Plan and strongly encourage the SA Branch of the ICN to work aggressively with Iron Road and the local suppliers, contractors and manufacturers to make this concern disappear.</td>
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<td>Economic Benefits.</td>
<td>Economic Benefits/Page 23 &amp; 24.</td>
<td>Having read and digested all the statements contained within the Environmental Impacts section of the Executive Summary document; we are convinced that Iron Road fully understands the concerns of the community and that the Dust and Air Quality, Water, Traffic, and Noise pollutions will be managed adequately. All associated Key Commitments listed in the document can be delivered adequately, and it is up to various regulators to manage Iron Road, to alleviate the concerns of the locals by regular auditing and astute management.</td>
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Section D: Any other comments

Comment

As mentioned above in our first comment on Page 3, the Clarke Energy Public Submission has limited its responses to the Iron Road Limited Executive Summary document.

The Executive Summary document covers many of the detailed and significant points included in the Mining Lease Proposal (MLP), and the Environmental Impact Study (EIS).

With that in mind, and as the MLP and EIS documents contain more specific points, statements and calculations etc. related to the Mining and Magnetite Concentrate Processing; we believe these are best commented on by the experienced technocrats. This includes the many associated infrastructure components.

We as Clarke Energy therefore chose to make comment on the more generalized and appropriate items contained within the Executive Summary.

Company Disclosure: Clarke Energy (Australia) Pty Ltd hereby states it has no formal links to Iron Road Limited, and has no opportunity to benefit financially from project and this Public Submission herewith.

Clarke Energy as stated below is an Authorized Distributor and Service Provider in Australia and New Zealand for the GE range of reciprocating gas and diesel generator sets, generally supplied as a power station to remote Mining and Industrial Processing Facilities.

The Iron Road Central Eyre Iron Project will be connected to the States main electrical grid via a dedicated overhead power transmission line, and as such; no gas or diesel power generation for the mine and process plant is required.

Clarke Energy has chosen to support this Projects Approval Application by a South Australian founded Company, to build the Central Eyre Iron Project; because we as another proud South Australian Company understand the difficulties “startup” organizations have in making things happen.

In addition, we also understand the Mining Industry, and the fact that South Australia needs organizations like Iron Road Limited to invest in a project such as the CEIP, as well as contributing to the to the Employment Prospects, Economic Development and Financial position of the State of South Australia.

About Clarke Energy (Australia) Pty Ltd: and its “Growth in South Australia.”

Clarke Energy, a UK family company, first established in the UK in 1989 as an engine service company.

Following a successful entry into the UK market, the company was appointed in 1995 as a distributor in the UK for the sales and servicing the Austrian developed GE Jenbacher gas reciprocating engines in 1995.

Jim Clarke (founder) then took the decision to expand Clarke Energy overseas into Australia and New Zealand to commence building a similar business selling and servicing the GE Jenbacher gas engine range against brands that had enjoyed “market leader” status for 50+ years.

The business originally set up in Victoria and against all the odds, had minimal success until taking the decision to relocate to Thebarton, South Australia in 2006. This move, whilst occurring with minimal support from State and Federal Governments at that time, proved to be a defining business decision.

Centrally located in Australia, and employing locally skilled South Australian staff, the business targeted the developing natural gas, waste coal mine gas and coal seam gas power generation opportunities available at the time. Success was achieved from taking the decision to offer the market, a “one stop approach” to providing a total turnkey delivery of complete power generation facilities as distinct from just engine sales.

A lower cost engineering, manufacturing and project management resources available in the state, allowed the company to compete and develop a market share against the more recognised brands, to the point where Clarke Energy, some 20 years later; now enjoys “market leader” status within the fields it operates in.

From a zero engine sales base in 1995, Clarke Energy now has an installed base of 282 GE Jenbacher gas engines (ranging from 300kW to 3MW), operating across Australia and New Zealand, with a total generating capacity of 530MW.
Throughout its time in South Australia, the company has won projects with various State Government agencies including SA Water (formally the Engineering and Water Supply Dept.), providing a “green energy” solution utilising a bio gas produced at a number of the state’s domestic waste water treatment plants.

The Clarke Energy business model not only includes the sales and servicing of the GE Jenbacher gas engines, but has extended to providing clients with a full Operations and Maintenance capability, to the point where nearly 20 sites are under full responsibility for Clarke Energy to maintain a reliable electricity supply to both individual industrial installations and many of the countries electrical distribution networks.

Current staff numbers involved in providing this Australia wide power generation service all engaged and managed from head office in Thebarton, South Australia; have exceeded 150, and the business now has an annual turnover of AUD $100mill.

Again, we as a proud and successful South Australian business, are extremely pleased to be able to offer our support for Iron Road Limited’s quest to build a multi-billion dollar Mine and Process facility in our state, that will benefit all South Australians with employment, business opportunities, as well as contribute to our State Governments Finances - for many years to come.

**Congratulations Iron Road Limited:** for not only seizing on an opportunity to explore South Australia’s remote regions for resource products, but to continue throughout a 7 year period to commit the funds necessary to carry out the due diligence, listing of the company on the ASX, carrying out the necessary studies to prove up the reserves, and carrying out the required community consultative processes in accordance with the requirements of the respective Mining and Environmental Impact Acts.

We look forward to eventually hearing of your successful approvals to proceed with this important South Australian Resource Project.
Once completed, return your submission by 2 February 2016:

By mail to:  
CEIP Submissions

By email to:  
dsd.ceipconsultation@sa.gov.au
### Section D: Any other comments

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<td>My company, Groundwater Science has provided services to the CEIP project for the last three years. In that time up to four employees have been engaged on the project and it has provided a significant economic benefit to these people.</td>
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<td>I see this project as critical for the economic wellbeing of the state. It is of a scale that can offset some of the economic decline in the past three years, and can assist in retaining some of the skills and expertise in mining within South Australia, rather than losing these skill to other states and other industries.</td>
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<td>From a groundwater perspective the CEIP project is ideally located. It is within an unused saline groundwater system. The mine and borefield are sufficiently distant from the valuable fresh usable groundwater that no impact on these resources is predicted.</td>
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<td>The mine will provide an economic benefit to a large number of people throughout the state and will contribute to state revenue. It will provide a resource which is essential in a modern and developing world. The significant impacts of the mine are limited to the immediate footprint of the mine itself and hence impact on the smallest number of people possible. The Mining Act provides for these impacts.</td>
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<td>This project has my full support provided the mine and impacts are managed as described in the EIS and MLP.</td>
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Once completed, return your submission by 2 February 2016:

**By mail to:**
CEIP Submissions

**By email to:**
dsd.ceipconsultation@sa.gov.au
31st January 2015

CEIP Submissions
Mining Regulation
Attention: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

email dsd.ceipconsultation@sa.gov.au
www.ceipconsultation.sa.gov.au

I require that the government withholds my name and contact details.

Dear Sir/Madam

CENTRAL EYRE IRON PROJECT

I write in response to the proposed Central Eyre Iron Ore Mine (MP) and associated Infrastructure Proposal (EIS). The following issues are of extremely grave concern and do not appear to be adequately addressed in the application. Any benefits must be definable and distinguishable. These do not appear to have been addressed at all. Mining destroys food producing land. Only 4.2% of land in South Australia is suitable for Agriculture. Agriculture can cure hunger and this land has been producing food and export income for South Australia for over 100 years. We need to have this resource recognised and protected, not destroyed or be made unproductive.

1.1 Iron Road Company Profile states that it is an Adelaide based resource company. Yet on Page 5-4 it is stated that Iron Road is a Foreign Owned Entity and subject to Commonwealth Government legislation. All land within the CEIP footprint is rural land; Iron Road is considered a Foreign Owned Entity and must comply with the Act and Policy. Why has this information only been made available to stakeholders at the very end of time before public submissions close. Iron Road has a Disclaimer on every section of the Documentation. WHY? Surely with this type of project they and any consultants they employ have a responsibility to ensure accuracy and completeness? Otherwise how can DSD or DIPTI make an informed decision?

1.2 History of the CEIP acquired Exploration Licence (EL4849 in June 2008, covering an approx. area of 663 square Kilometres on the central Eyre Peninsula. Namely Murphy South, Rob Roy, Boo Loo and Dolphin approx 66,400 Hectares of Agricultural Land to be held by a Foreign Owned Entity. The most recent drilling programme results were announced on 27th February 2015.

Why is so much of the data used by Iron Road years out of date in comparism?
At Cleve on 9th December 2015, an Iron Road person stated that Eyre Peninsula was in decline. On what does he base his opinion? No statistics were quoted. How old was his information? Any 'benefits to the community' have not been quantified nor have the costs. There is NO Cost Benefit Analysis provided. Is it 10 or 20 years out of date? Most other data quoted by Iron Road is years out of date. BUT Iron Road does not quote the current cost per ton of Iron Ore. Why? Is it because the current price is so LOW that it would make their perceived financial benefits to the state look ridiculous?

There is NO recognition of the costs to Agricultural industry through contamination dust arising from the mining operations. Why?

There are no agreements, I understand, between the District Councils involved with respect to costs, inclusive of potential decline in revenue of properties in the vicinity of the proposed mine, transport corridor and port site, and the loss of rate revenue. There is NO agreement with anyone as to the actual transport route I understand. There is no economic benefit statement to the community relating to the proposed road changes, only the potential for continued maintenance and repair liabilities for the life of the mine and beyond. Why not?

1.3.1 **Infrastructure Corridor** and heavy rail line will accommodate 6 return trains per day. Does this equate to 12 trains? 24 hours/day, 7 days/week? Day and Night?

1.3.2 Eyre Peninsula's sustainable industries include Fishing, Aquaculture, Agriculture and Primary Industries including Grain, Livestock and Wool production, Tourism and Eco Tourism in a pristine land and marine environment. There is no consideration given to the dust and harmful mineral impact upon pastures and then to animals which ingest these contaminants over a period of time. Why? I understand that **Uranium and other heavy metals** are in abundance on Eyre Peninsula. Why is there no mention of the **possibility of radioactive dust** being released in blast dust and being blown all over Eyre Peninsula?

1.4.1 **State Approvals** I refer to the Guidelines "allowing for the greatest level of environmental scrutiny and public comment." Why has this been made extremely difficult for the public, despite requests made in the presence of DSD and DIPTI staff. Iron Road has made available USB's some of which do not work and have you any idea how difficult it is to reference over 4,880 pages on a small screen? Have you tried it? To expect that a person will be able to read the document of 4,880 pages, comprehend and write a response within the time frame allowed and the inflexibility of an extension of time is unjust, of serious concern and a complete lack of understanding as the harvest period is of utmost importance. If this project is supposedly of "such benefit" why hasn't a hard copy of the mine lease and the Environmental Impact Statement been made freely AND free of charge to those requesting it?
2.1 **Project Objectives** To positively contribute to the economic development of Eyre Peninsula and South Australia would require benefits to be made using current figures and iron ore prices. Why has this not been done?

Little positive social development has occurred and seems very unlikely due to the negative impacts this whole project proposal has had on families, businesses (and there are many) which make multimillion dollar contributions to South Australia's economy. Iron Road has NO social licence and just how is Iron Road planning to protect the unique environmental assets of Eyre Peninsula?

2.2 **Market Demand** The global population is projected to increase to 9.6 billion people by 2050 (United Nations, 2013) "with a significant proportion of this growth anticipated in the Asian region. All these people need to eat. How will removing sustainable farming land feed them?"

2.3 **Planning Framework MLP**

2.3.1 "South Australia's Strategic Plan (2011) provides"......already 5 years out of date.

- Creating a vibrant city. CBD? Adelaide?? WHAT are the EP local and regional benefits?

- Safe communities, healthy neighbourhoods. How can EP local communities be safe when Iron Road persons have publicly stated that the reputation of construction camps hasn't improved. Many women and children who presently live in their own safe communities will lose that peace of mind with thousands of construction workers living on their doorsteps. How safe for children to walk home from school? So Much for SAFE communities???

- Also refer to Figure 2-2 Housing within 5 km of the proposed Mining Lease area. All of the homes and sheds have rainwater catchment areas and storage tanks. We all drink rainwater. Also refer to Figure 2-3 Exempt Land Areas.

- All land is "Exempt Land" except for areas of native vegetation and public road reserves. NOTE the huge amount of native vegetation which is also on the crests (green lines running North West to South West,) and other huge areas of native vegetation. Why is this allowed to be destroyed? Why has no one considered the massive drift and dust pollution problems that will be created for all of Eyre Peninsula. Why is there NO on-site BOM weather and wind data provided. Why has NO baseline monitoring data been done and provided?

- Exempt Land so just who is responsible for the damage and pollution to land and ground water?

- Is it the person whose signature is on the Waiver?

- What Duty of Care does Iron Road have under the Law of Torts?

- What Social Justice for the many families whose lives will be totally disrupted by Dust, Noise and Vibration?
- Will Iron Road Board of Directors as per Table 1-1 be living within metres of the mine site and rail corridor? Why Not?
- Iron Road states at the time of writing No Waivers of Exemption had actually been entered into. Why not?

- **An affordable place to live.** When farming families have lost their homes and futures, when local businesses have lost their agricultural based incomes, who can afford another place to live?
- **Every chance for every child.** When parents and grandparents, and other family members and friends have lived with stress and uncertainty for years
- What chance for every child then? A bit like Bob Hawke's statement: "No child will live in poverty by ........".
- **Growing advanced Manufacturing.** By using manufactured modules (overseas?) and offloading them by ship how can local communities benefit?
- Realising the benefits of the mining boom. Hundreds of Australian mining employees are being made redundant. And they still have to breathe clean air, drink unpolluted water and EAT. Why hasn't Iron Road realised that the mining boom is in DECLINE?
- **Premium food and wine from our clean environment.** Perhaps the biggest joke has been saved until last. Why has this proposal been made for an area that already produces premium food and wine from a clean environment? How many are already employed producing premium food and wine on Eyre Peninsula? Their jobs are sustainable and growing. Glencore and Viterra have already publicly stated that contamination from mining pollution has already been taken into consideration AND there will be a downgrading of grains.

Table 2-5 **Development Plan Policy Summary**

* should be The entire proposal is littered with should, could, would, low, may, may not, will be, will not be, as required, it is Iron Road's intention, will result, is expected, is proposed, is anticipated, Why, after this long period of time, there NO factual data provided?

2.4 **Consequences of Not Proceeding**

A mineral resource will not be lost. It will remain where it is for the time being. Jobs will be protected within the vibrant Eyre Peninsula. Families will not have to suffer any longer from the mental, emotional uncertainty and stress they have been living. Businesses will be able to proceed with deferred plans put on hold, property valuations will retain values. Export income will continue to be produced for South Australia. Warramboo is such a rich agricultural area with hay being cut in that area in September 2015. Why are there no photos of the magnificent crops grown between Warramboo through to Wudinna, across the entire EP in 2015? What is meant by the
trend of population decline on central Eyre Peninsula when so many young people and families are returning to buy businesses and raise their families in the wonderful location of Eyre Peninsula. In December 2015 Tooligie's community Christmas Tree had 50 young children and their families in attendance. Not an indication of population decline. FIFO and DIDO employment opportunities do not support local jobs. Construction camps are self contained. What instability in the Eyre Pen Region is referred to by Iron Road? Why is there no concrete evidence to prove any benefits?

2.5 **Climate MLP**

2.5.1 **Temperature and Rainfall.** NO on site data provided. Why?

Figure 2-11 Why wasn't the full 2014 rainfall figures provided? The previous months rainfall were some of the wettest on record. **Selective figures** are shown for only 3 months of the year 2014. Why?

2.5.2 **Wind.** NO on site data provided. Why? The lack of actual site wind specific data also implies that the Noise dispersion and Dust patterns having regard to the wind and to the topography, are subject to conjecture.

2.6 **Seismic Events** The South Australian Seismology Report (Love et al 2010) outdated data. Figure 2-13 shows Seismic Activity in South Australia. Yes. Seismic events on Eyre Peninsula AND within the proposed mine and corridor area.

3.1.1 **Existing Port Facilities** Proposed Port Spencer. Centrex Metals has significantly reduced operations on Eyre Peninsula. Most Centrex properties are up for sale, some are under contract or sold. Again why use outdated data?

3.3.3 **Mine Site Water Supply** The water from the proposed Bore field near Kielpa is extremely high saline, comparable to SEA WATER. What independent data, if any studies have been done to prove that the potable quality aquifers are generally shallower and would not be impacted by the proposed bore field? What data is available for over the 25 year life of the CEIP mine? What is the impact of using very high salinity water for 25 years on land from a natural resources point of view?

3.5 **Process Optimisation Studies** are ongoing (incomplete). Why? Approval should not be granted until all relevant data is available and the design reflects this.

4.1. **Proposed Mine** There will be 2 - 3 years of pre-stripping and construction. How will the dust and noise be managed during this time? Does the pre-stripping include blasting? Will it be on a daily basis? The MLP and the EIS is devoid of information relating to the economic losses attributed to the impact on grain production. The application is devoid of information relating to the impact upon agricultural business within the fallout cloud of contaminated dust through contaminated grain
deliveries. It is also devoid of information relating to the potential contamination of rain water, the main source of drinking water for the area. What consideration has been given to employee fire fighters or to the CFS as a consequence of a bushfire in the vicinity of the explosives storage area?
In the event of a catastrophic explosion of the explosive storage area (magazine), what would be the blast radius? and given that there will be a significant supply of diesel on site.

4.2 Railway Corridor Iron Road states where required it will be fenced. Landowners want corridor to be fenced completed on both sides of the corridor and before any proposed construction begins. Why hasn't a firm commitment been given? What consideration has been given to Public Liability Insurance issues for land owners? Figure 4-16 example of Steel Monopole. Are they of varying Pole heights? What are the implications for aerial water bombers during fire fighting? How much fire fighting access will there be along the rail corridor? Why not shown? Rail Maintenance Track. There will be 2 Passing sidings, both 1.8 km long to allow for passing trains. 1 will be approx 45 km from Port site. The 2nd will be approx 110 km from Port site. Does this mean that there will be double the noise level at passing sidings? Will the stationary train shut down its engines completely to lower noise levels? If not, why not?

Iron Road says that the Railway Line has been designed with wide bends and loops to minimise wheel squeal. Where is the decibel data? Where is the data to show how long it will take from first hearing an approaching train to when it has passed and is out of hearing range? Six return trains per equals 12 trains. A lot of rail traffic noise. I have heard grain trains 7 k.ms away passing and whistle blowing at crossings on Eyre Peninsula. 17 Public road and numerous farm track Crossings are mentioned - Whistle blowing at all of them? Or Silent Death? No data provided of the impacts of trains, noise, frequency and light on local residents and stock (eg at lambing time) Will all the ore wagons have reflective markings along both sides and will they be kept clean for safety Day and Night?

Figure 4-9 Topography exaggerated. Why not correct?

Table 4-2 Proposed Railway Line Water Course Crossings
Culverts will be designed for a minimum of 1 in 20 year rainfall flows. 400 culverts and 2 bridges, What about compaction? What about erosion and undermining of railway tracks? Why not 100 years rainfall flows?

4.3.1 Materials Handling Will the complete concentrate be under cover? Covered by what?

4.3.3 Buildings Will the Customs Office and Harbour Master/Stvedore offices only be manned part time? Module Laydown area - a potential risk to agriculture. What is the Bio-security Management Plan and Treatment? What Quarantine arrangements are proposed?
4.3.4. **Construction Camp** 650 workers will use a lot of Uley water. What is the proposed daily water amount? The annual amount of water expected to be used? I understand that power will be supplied by Diesel generators. They will generate a massive amount of noise. This will impact on local residents, especially on calm, still nights. Noise also travels long distances over water. Will they run 24/7 or will there be a curfew period? Will there be banks of Batteries to store power? If so, where will they be located? Will a Mosque or prayer room be provided? Iron Road personnel have publicly stated that "the reputation of the construction workforce has NOT improved over the years". Police would have to come from Tumby Bay. I understand this is a one person police station.

4.4 **Long Term Employee Village** of approx 300 will use SA Water. What are the proposed daily and annual water usage estimates?

4.5 **Construction Phase The Environment Protection (Noise) Policy 2007** is mentioned. It is now 2016. Have standards changed? "to minimise disturbance to sensitive receivers to acceptable levels". I take it that sensitive receivers are local residents and who decides what are acceptable levels?

4.5.2 **Temporary LayDown Areas** Are these to be within the 60-150 m wide corridor or on landowners property? When will landowners get this new information?

4.5.4 **Earthworks and Materials Crushing and Screening** At Port this will require blasting over approx 5-6 months. Again more noise and dust. What consideration has been given to the blast vibrations on the many holiday homes at Port Neill? Plates 8-5, 8-6, 8-7. A very popular tourist and holiday destination all year round, as well as permanent residents. Again blast noise and dust. What **compensation** has been planned and budgeted for due to blast vibration impact and damage to buildings, private and public? Any?

The soil along the proposed corridor will not be suitable for Ballast. So ballast is to come in from where? What **Mining Licence** does Iron Road have to quarry materials anywhere in their project?

13.58 Dust **Refer to page 13-76**

Dusts "can be deposited on vegetation to the extent that it can impede growth, threaten the survival of individual plants, resulting in habitat degradation. Reactivate dusts such as cement dust can alter nutrient balances within plants, resulting in adverse effects on plant growth (Doley2003) In other words, They Die. It is a known fact that for over 20 kms from the Iron Duke mine site between Cowell and Whyalla native vegetation is affected and dying, also crops are affected. Ever driven past this mine site at night and seen the lights and massive dust pollution going over everything and up into the unchecked?"
4.5.5 **Concrete Batching Activities** The estimated concrete demand for the Port site is approx 9,500 cubic metres. Will this locally based plant operate 24 hrs/day? 7 days/week? How much Uley water will be required? How much water is required in 5 cubic metres of concrete? That would be 1,900 loads of concrete?

4.5.6 **Modules** to be made and brought in by ships at the Port Site. Iron Road say many jobs for locals, but this work will already be done Offshore before the project begins. Does Offshore sound better than done Overseas? The availability of jobs for the local community is based on what data, given that the job profiles of the proposed positions are not identified and the glut of mining employees on the job market due to the significant down turn in the mining industry. The application MUST contain all relevant information so that the public is well informed of the intentions of the Applicant.

4.5.7 **Construction Water Supply** Saline groundwater, with a higher salinity level than sea water is proposed for dust suppression. What controls will in place to prevent erosion and saline contamination of land and water? Given that Iron Road states that saline water will be used at the Port site and along the infrastructure corridor. Eyre Peninsula does not have spare water for mining projects.

4.6 **Operation Phase** This is proposed for 24hrs/day, 365 days/year. Will Iron Road and all their sub contractors obey Total Fine Ban Days and halt dangerous activities? Will they obey Harvest Bans and trains not operate due to adverse weather conditions?

4.6.2 **Railway Line Operations** 2 locos and 138 wagons of approx 1.3 km in length will travel at 80 km/hour. Figure 4-41 does not show any reflective safety material the length of the wagon. Why? How will they be covered? How will the bottom dumping wagons prevent ore residue seeping the entire length of the rail corridor? How long will it take for a train to completely pass 1 given point? How long will it take from first hearing an approaching train until it is no longer heard? Including the whistle blasts for 17 public roads and numerous farm tracks? Why no data?

4.6.4 **Port Operations** The port site will receive approx 145 vessels per year, an average of 3 per week. Will they travel through the Sir Joseph Banks Marine Park? How will this be policed? **Ballast Water Management. This is of a very serious concern.** How will it be monitored? Where will it be disposed of, given that these would be overseas vessels? Who will monitor and oversee such monitoring on every vessel? How will Iron Road ensure and prove that such disposal is done under exacting and correct protocol? Iron Road have not indicated how this would be ensured. Why not?

5.2 **Commonwealth Legislative Requirements and Strategic Framework**

What of the Leafy Sea Dragons? South Australia's marine emblem? Where are they in all of this? What thought and protection has been given to them?
What consideration has been given to other marine life including whales which are known to regularly be in these waters?
As Iron Road is considered a Foreign Owned Entity how can they be able to access such a huge tract of Eyre Peninsula's land?
There are quarantine concerns - Quarantine Act 1908.

5.3.5 **State strategic Framework** What is the current (today's) price for Iron Ore/tonne?
Table 5-5 To manage and protect South Australia's natural resources. How? By pumping on Very Saline Water to the same salinity of Sea Water?

6.5 **Stakeholder Engagement** This has not been accessible, thoughtful or timely.
All the meetings and information events have produced a high negative response from stakeholders. They have been held at peak work pressure times, namely seeding, harvest, shearing. At Cleve on 9th December 2015, landowners refused to meet with Iron Road personnel. Instead a private meeting was held with 2 DIPTI staff members during which landowners clearly made their feelings and position known. DIPTI and DSD staff members can not ignore what was privately stated them on December 9th and 10th 2015. Iron Road stakeholder engagement does NOT reflect the actual negative response from those affected. I cannot recall ANY District Council public meetings held to inform ratepayers - EVER - regarding CEIP.

6.7 **Conclusion** Iron Road has not gained a respected place in the community.
Rather just the opposite, through the bullying, intimidation and aggressive manner in which Iron Road has treated people and communities.

7.3.1 **Climate** There is NO site specific data

7.3.2 **Wind** BOM weather stations at Cleve, Adelaide (come on!!) Wudinna, Kimba and Port Lincoln are NOT site specific to the project, either at the mine, corridor or port. Wind and climate are most certainly different at all these sites. Why no data?

7.3.3. **Figure 7-6 Rainfall Deficiency 1/9/2014 to 30/11/2014.** Selective data. Why not show the whole year? Because that would prove one of the wettest winters on record. this is known as fudging the facts, I believe.
**Plate 7-1 Farmland April 2014.** Why not show the photos of the HAY being cut in the Warramboo area and along the Tod Highway in September 2015?
**Figure 7-2 Farmland at proposed port site April 2014.**
These two and the following two photos are taken after harvest and before a new crop has been sown and germinated.

7.3.6 **Marine** Tidal studies done for a period of 34 days do not present a complete reference for a project with a minimum life of 25 years. No wonder every section has a disclaimer as to the accuracy and correctness of the content. The proposed port site is
not in the Upper Spencer Gulf and does not have high salinity levels. Instead they are basically the same as open waters off the south Australian coast (BOM 2014b).

8 Land Use and Tenure
8.1 Assessment Methods The length, times, duration and locations of field studies. Where is this data?

8.2 Existing Environmental Values Eyre Peninsula is not remote or sparsely populated. It is flourishing, vibrant with a rich mixture of natural assets which appeal to many thousands of local, interstate and overseas visitors in a safe, pristine environment. In excess of 90% of all land on Eyre Peninsula is used in Primary Production in a sustainable way.

8.2.4 Marine based Activity
Figure 8-4 shows the boundaries of the Sir Joseph Banks Group Marine Park. (Not Sir Joseph Band Group Marine Park as named on the opposite page.) How will mining shipping be regulated and excluded from this area? Scant recognition as to the environmental sensitivity of this area and its ultimate outflow to the sea (marine park and aquaculture zones) has been given in the application. Restricted public access to coastal reserves. does Iron Road expect export vessels to have the manouvurability of small pleasure and fishing craft? The "Dog Fence" is a renown Snapper fishing area. Will public access be denied?

10.3 Existing Environment The existing Air Quality is expected to be very good or good (as defined by the EPA in the SA Air Quality Index.). This is a joke isn't it? Does this mean Iron Road doesn't know and that they haven't done or commissioned ANY base line studies since listing on the Australian Securities Exchange in 2008?
Plate 10-1 Example of Machinery-generated Dust on Eyre Peninsula.
This is actually a header reaping a crop and the 'Dust' is organic matter after the straw has been processed through the header to separate the grain in the heads from the stalk. The resulting organic matter then forms a mulch on the ground to protect and enrich the soil. Again misrepresentation of facts. Page 13-88 Dust. On what basis are the claims "given the already degraded environment" "short term exposure" - talking a minimum of 25 years here (not exactly short term) 'localised" and at worst able to be remediated in the long term (How Long?) or during a rainfall event" Relying on ONE rainfall event to wash their mess somewhere else is not sound environmental management is it? Table 13-24 claims the consequences would be insignificant. In whose opinion? Certainly not the sensitive receivers'.

10.3.2 Sensitive Receivers are People, their homes, work places schools, hospitals, business premises and public recreation places. Our beautiful beaches with pristine, clear and clean water, blue skies, and starry skies at night. Will Iron Road install a Dust Proof Impenetrable Barrier around above and below the proposed project to save the sensitive receivers from pollution? And what form will that take? What world's Best
Practice? Figure 10-1 shows the Sensitive Receivers in close proximity to the port development. Why hasn't any NOW baseline data been done by any Independent Monitoring companies or consultants?

10.5 Impact Assessments There will be considerable Dust generated from Construction, from Rail transport, even from empty rail wagons, on site at mine and port, at all stages of this project. Air emissions from shipping each ship would have at least one auxiliary motor and one boiler which would continue to operate for the entire berth time, expected to be 33 hours per ship for 156 ships per year. Soil compaction is a huge concern for farmers throughout the entire project area. Iron Road says low impact. Why? Where is the data to show this?

10.5.2 Windblown dust Minimum 18km/hr winds are expected at the port site. What will happen to the rainwater catchment areas for drinking? Why is there no data or mention of dust, pollution, contamination to crops, pastures, livestock watering points? Rainwater is collected for household drinking, washing, cooking and bathing. Clean unpolluted rainwater is a basic right of life? Do we become a third world country in the process of this project being established? What independent monitoring processes will be put in place to monitor the possibility of radioactive dust being released during blasting operations? Clean uncontaminated rain water is also required for agricultural spraying. Why no data on this basic fact? If there is dust on plants, be they crop or pasture, agricultural sprays are rendered useless and ineffective. Why hasn't this fact been recognised? There has been no data presented so How can potential impact will be low? Whose assessment of Low/negligible? Findings and conclusion are inconclusive and incomplete. Erosion from dust and drift will happen, especially in the lighter soils area where the project will be situated.

11 Climate change and Greenhouse Gas At the moment, Now, emissions are low. If this project goes ahead, I believe there will be a massive increase in greenhouse gas emissions. Why is there no data on such emissions from the port construction camp - diesel generators. How much greenhouse emissions from Ships at berth for an expected 33 hour period per vessel with motor and boiler operating?

Plate 11-1 View from Mount Wudinna. Half the photo shows Mount Wudinna which is rock and the other half productive EP Dryland farming land. Does Iron Road not realise that South Australian dryland farmers are the Best in the world? Plate 11-2 Example of a rain event on the Eyre Peninsula.

This photo looks like it has been taken somewhere on Eyre Peninsula, in saltbush country, and looks like a rain shower some distance away; the red soil is typical of station country out from Whyalla. The vegetation appears to be saltbush, excellent feed for meat and wool production. This is not a typical rain event.

11.4.1 Existing Environment Table 11-6 shows the current levels as at 2014. The projected levels are just that, projections.
11.4.2 Design Measures to Protect Environmental Values

- Reduction in size of truck fleet.
  The mine is not operating with 93 trucks and never has been, so Iron Road cannot claim credit for a reduction to 12 trucks.
- Module Offloading facility. Does this facility mean overseas assembly, not local jobs?
- Optimisation of blasting techniques
  Will Iron Road blast only on calm days? How will they stop the blast dust going up into the air? How high will the dust go? Will Iron Road install an permanent unbreachable, dustproof barrier around and above the mine site? How will this be achieved? Who will monitor for Uranium (radioactive dust) present in the air?
- Water source from bore field. The current proposal is for extremely high salinity water to be used with no Hydrology data supplied or any effects on how existing groundwater supplies will be affected. Water used for dust suppression will spread onto adjacent properties due to rain and wind events. Where will all the salt from the borefield water be deposited? What protection arrangements are in place against run off and leaching? Who is responsible for this, the person whose signature is on the waiver or Iron Road? What if the land is sold in future years? Who is then responsible for and environmental damage, contamination, degradation and clean up?
- Also the Tod Reservoir does NOT currently supply approx 7% of the region's water requirements (DeLoitte 2013) This statement is INCORRECT. again using outdated data. How many more statements throughout Iron Road's proposal are also INCORRECT?
- Hydrology There is NOT enough base data on aquifers on Eyre Peninsula.

12.1.3 Construction Blasting Criteria Very little information is devoted to this section. Why? I understand that blasting would be the noisiest part of the whole project. Table 12-2 notes that peak sound pressure levels of 120dBL for 95% blasts per year. How many years of construction? There will be blasting at the mine site, along the rail corridor and at the port site. Yet 2 pages back (page 12-2) Figure 12-1 show an increase from Typical Sound Levels Woodland eg farmland to be LESS than 20dB and yet 120 to 125 dB to be up almost at the Threshold of PAIN of 130dB. Yet only 1 and 1/2 pages. Why?

No mention has been given to "The Cone of Influence". The amount of land affected by water pressure. By Iron Road's own admission, it will be an area 20 kms long extending out 15 kms wide across in an oval area surrounding the proposed mine site.
(7 kms plus the length of the open pit which will be approx 6 kms plus another 7 kms in length equals a length of 20 kms). Then 7 kms wide plus the width of the mine pit 1 km plus another 7 kms equals 15 kms wide)
I think they have possibly referred to it as "de watering", Iron Road personnel publicly agreed that would be the area involved. Definitely much larger than just referring a 7 km radius out from the mine pit.

I am unable to complete this submission due to the failure of the USB before my submission has been completed and request an extension of time to submit the remaining points I wish to present for your consideration.
1st February 2016

CEIP Submissions
Mining Regulation
Attn: Business Support Officer
GPO Box 320
ADELAIDE SA 5001

email to  dsed.ceipconsultation@sa.gov.au

www.ceipconsultation.sa.gov.au

I require that the government withholds my name and all contact details

Dear Sir/Madam

CENTRAL EYRE IRON PROJECT

In response to Iron Road’s proposed Central Eyre Iron Ore Mine Mineral Lease application and associated Infrastructure Proposal (EIS). I have very grave concerns that the following issues do not appear to have been adequately addressed in the proposal. There has been a lack of specific information provided throughout the so called consultation process. There has been a complete lack of consideration given to people and also the expectation that 4,880 pages can be read, understood and comprehend, and to write a response. The timing of meetings has been unacceptable as they have not been timely, with consideration given to peak busy tasks, such as Shearing, seeding and harvest times. The refusal to allow for an extension of time to lodge submissions and to expect that people effected have to pay $350.00 just to get a hard copy as so many of the USD s provided by Iron Road have failed, cannot be opened or read.

DUST
What of the risk to all of Eyre Peninsula, including people, livestock, rainwater catchment areas from the potential for exposure to radioactive dust from blasting operations, planned for the mine site, the rail corridor and the port site? It is a well known fact that there are deposits of uranium on EP. Department of State Department records show this. Why isn’t this addressed at all?
Plate 10-1 What a joke claiming that a photo of a header reaping a crop, is an example of machinery generated DUST on Eyre Peninsula. In actual fact the ‘haze’ in the photo is ORGANIC MATERIAL. From the stalks that have been separated from the heads of grain, then chopped up by the straw choppers which becomes mulch and back onto the soil as humus. How can this be compared to the toxic dust from blasting and when a mine is in operation? There is no data provided.
Pluviers are very territorial birds and other pluviers and other bird species will resent any intrusion onto new territory. What of Migratory birds? Again a complete lack of understanding or knowledge has been shown.

The fact that there is a disclaimer for every section regarding the accuracy and completeness proves this. And to expect people to have to pay $350 for something which is inaccurate and incomplete is astounding. It just sums up the whole attitude of a Foreign Owned Entity which Iron Road is and the contempt with which Australian citizens and local residents are held.

Iron Road and other Meetings with people effected and interested parties with differing interest levels, have had a very negative outcome. People have left fearful, felt intimidated and bullied, that their concerns have been dismissed out of hand, there is NO social licence for this project to proceed. Iron Road has lost any trust and respect due to how personnel have treated people.
### Section C: Your Submission

Points to consider when making your submission:

- Provide information on any aspect of the existing environment that either has not been included in the MP and/or EIS; or that you consider has been inadequately described.
- Are there any environmental, social or economic impacts or benefits associated with the MP and/or EIS that have not been identified?
- If applicable, are the proposed environmental, social or economic outcomes acceptable? If not, try and describe what outcome you would find acceptable.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Reference and Page No. (if known)</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Groundwater example</td>
<td>MP 7.1.9 p53</td>
<td>Example</td>
</tr>
<tr>
<td>Infrastructure example</td>
<td>EIS 6.3.2 p103</td>
<td>Example</td>
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#### Adverse approach to mining on agricultural land

While I recognize that we need to be able to respond to opportunities for development and economic gain & they are where they are in agricultural land, marine parks etc I have concerns that there is not a National or State wide approach to managing and applying limits to the amount of viable food, a significant environment that is open market. I believe we are moving towards world food shortages and have previously sought to save environments deemed significant enough be sacred lands, conservation lands, marine parks etc. That these environments are no longer protected from perceived immediate short term economic gains. That there are no limits on how many or the amount of these environments that can be changed significantly enough to no longer fulfill their original purpose and intention to produce food, maintain our Aboriginal history and preserve our environments for future. While I recognize in this instance iron road access requirement of agriculture lands is a small percentage in the big picture our Rye Peninsula farming land, collectively as a state and nation there are areas held in all over our country and no boundaries to changing land forever. The government has a long history of taking land to the name of economics, starting with taking Australia from the Aboriginal people, it is time the government took the custody of the land seriously and responsibly and sets some National and State wide boundaries and limitations to the acquisition of land for economic only purposes.

#### Consultation

Having said the above if we have to have a mining company (I recognize we have little to no choice in the matter), then I am pleased that it is Iron Rode. At each of the consultations of information that I have attended there is a readiness to look after and consider the local people. There appears to be a commitment from Iron Road and an active encouragement by Iron Road for the local community and business to share in any of the potential benefits or spin offs. I only hope this continues and that whenever possible they maintain a "buy local" priority approach throughout the duration of the project and mining phase. I think our local business, organisations and communities need support to recognize these opportunities and plan to ensure there are maximum local benefits for purchasing locally where possible, and be in a position to tender competitively. I think there is an opportunity to uplift and develop a more entrepreneurial and professional approach to our community without the risk of losing the local feel.

#### Local accommodation

While I recognize the efficiency and effectiveness of building a separate long term accommodation village I think it has social and cultural negatives for the community. It creates an "us and them" both socially, institutionally and in daily living. I would prefer to see pockets of flats or apartments integrated throughout the town with common cooking areas, laundry areas etc. that don't present as "Iron Road's" rather they appear as there for all the District's use. This would also provide a better option left behind and more able to be utilized by the community when the mining comes to its conclusion and is closed.

#### Social Impact - Flights

Looking forward to the establishment of affordable local flights out of Whyalla. Whyalla is strategically placed in the centre of the Yorke Peninsula and if I feel this has been acknowledged or utilized, not hold the full benefits that it would have by regional development planning because of the driving distance. Whyalla & neighboring district people fly/drive often to Adelaide (more of a range of purposes in Adelaide schools, medical appointments, holiday flights out of Adelaide, social cultural events/shows, sporting events etc. It would also open up Whyalla district as a potential hub if government and other organizations could access Whyalla more directly without having to fly and then drive. I think a lack of public affordable flights in and out Whyalla has contributed to the reduction in business and government growth opportunities.

#### Social Impact - Education/Health

More population has the flow on effect of increasing our health/school access to locally provided, and supported services. Increased population in schools would increase opportunities for student choice of subjects provided locally and the additional numbers for locally delivered training and the sustainability of local TAFE campuses.

#### Social Impact - Childcare

More population and increase in employment opportunities will benefit and allow for a full time community based childcare service (including School Age Care). Conversely this is limited to either private care or self-employed FCC workers, which care times are at their discretion of the people providing the care. We are currently working on making the feasibility for community based childcare however with the lower numbers of population, lack of consistent full time employment and then fluctuating needs of families (less need for childcare during good farming times and then an increase in need during drought times - this can fluctuate year to year) making a fulltime service a risk of being unsustainable.
TAFESA Wudinna Response to CEIP Mining & Infrastructure Project

This response is from local TAFESA staff that have taken an interest and followed the CEIP Project. Our involvement has been by attending Iron Road community information sessions, DSD information, public workshops, focus groups (contributed to education/training needs), and commitment to CCC meetings. We have two local TAFESA staff members who represent our community on a number of organisations eg Mid-West Support Group, Local Government, Mid West Health Advisory Council, Wudinna & District Telecentre Inc, and local Child Care study group. Our staff are also involved in voluntary community support services eg Ambulance, swimming pool rostering etc.

We had the opportunity to meet with and respond to Iron Road’s Social Impact consultation regarding the benefits of increased training opportunities and the value of more diverse education/employment options for small rural communities. As advances in agriculture have developed we have seen population and employment opportunities for our communities decline. This limits the diversity of skills young people can develop as more is being outsourced to outside contractors. Attempts across Eyre Peninsula have been made to address this through various programs; however our committees and organisations acknowledge that what we need is a viable long term project that will work with community towards sustainable development.

While individuals have differing views about mining in agricultural land we recognise that the percentage of land for such a long term project is small. The company is willing to work with individuals and community on shaping the project. We see the major infrastructure that the CEIP will require will also benefit our wider community and Eyre Peninsula eg rail project to include agriculture freight to port, water, power and IT, all of which all of our organisations will benefit from.

With mining and population increase come’s diverse job and training opportunities many of which are not available currently. It also provides new career opportunities that can start at school level and progress to employment with Iron Road or mining support services.

There is an opportunity for a collaborative School/TAFESA/Industry centre of excellence focussed on mining trades (eg similar to Cleve School Agricultural focus).

As the Iron Road project has developed we have noticed a significant interest and inquiry into training and reskilling outside of agriculture, which had been our predominant area of training interest.

A 2nd sustainable industry will offer a wide range of careers and give real employment choices. This will enable people the choice to stay or move to live in a regional area and enjoy the lifestyle benefits.

Eyre Peninsula has always been ‘home’ to many families who have had to move away for employment and often say if the opportunity arose they would come home to raise their family.

We fully support the CEIP page 24 ‘Contribution to Growth in Training Opportunities Statements’.
CEIP Submission

We as Stop Invasive Mining Group Incorporated, SIMGI, have members attend many meetings and presentations from Iron Road, IR, Government Departments and TBCCG meetings. SIMGI operated information sites at Port Lincoln, Wudinna, Kimba, Yallunda Flat and Cummins Shows (A & H Shows) as well as Field Day sites at Cleve, Eyre Peninsula Field Days and Yorke Peninsula Field Days. The feedback from the public, we see is that there has been very questionable community consultation.

What social licence has Iron Road obtained? The discussions with Warramboo affected landowners and the Transport Corridor Landowners are very condemning of Iron Road. In our opinion there has been lack of respect to individuals and farming enterprises, no transparency, bullying and intimidation.

We believe the community presentations are spoken at you and not in the true spirit of consultation. Presentations seem to be in your face and how good IR is for the individual, the community and South Australia. To some it is confronting to have several Iron Road representatives standing at the front of a presentation and question time. With some of the Iron Road staff raising their voices when answering questions or just state that you are wrong. Where is the documentation from Iron Road to prove the truth in what they are presenting?

Community acceptance? Ask the right audience and you get the answer you are seeking.

Local Council Elected Members in this proposal area appearing to be in favour of this project on the perceived idea of extra local jobs, money spent in towns, increased population meaning more ratepayers to add to their income. With construction camps, DIDO and FIFO workers this may not happen. Iron Road or government departments have presented at the many meetings or workshops that we have attended. Have any of the four Local Councils held a public meeting for ratepayers to discuss this proposal and shown the negatives as well as positives? TBCCG have never held a public meeting to explain to the community about IR proposals. What have they done with this community information? Twenty-three people on the TBCCG do not represent the DCTB community. In our opinion the TBCCG does not have an independent chairperson as he works for Regional Development Australia who support the project. WE recall the chairperson referring to the Warramboo land as “useless” at a meeting on the Great Australian Bight in Tumby Bay.
In our opinion the CEIP Wudinna CCC do not have an independent chairperson as they did do some work for the government as per EPLUS program.
District Council Tumby Bay has never had a public meeting to inform ratepayers. In our opinion most people in the DCTB haven’t sought information on the proposal.
Many farmers on Eyre Peninsula believe the spin of the fictitious $10 per tonne saving on grain freight and many believe IR will set up the Port infrastructure for grain handling.
Are the mining company and the media conveying complete information to the communities?

10-9-2014: At a DSD presentation to the TBCCC the intimidation and bullying was raised by SIMGI, (from the gallery).
12-3-2015: At a DSD and DPTI workshop at Cleve the intimidation and bulling was again raised by SIMGI. Due to an IR employee being present, discussions in private proceeded with DSD.
6-3-2013: It has been indicated, by landowners, that some corridor landowners were offered $1000 to sign an agreement to allow corridor through their property.
An IR person suggesting to corridor people that first in best price for land as money could become scarce if left too late to sign. Sign, or you are stopping progress, trying to pressure people into agreeing/signing? Is this more intimidation?
Iron Road certainly not understanding Agri-Business in suggesting landowners swap farm sections either side of railway to have their property in one and not having to cross railway corridor. No properties are the same and that suggestion is very disrespectful to farmers.
Some landowners indicated they haven’t had contact from IR since October 2013. Why?
The railway corridor is stated to be on one side of property and next week the other side. Why?
Landowners do not know how many if any railway crossings for paddock access on their properties.
Photo shown of an overpass at Cavan, Adelaide, and told one like this to be built for access across railway on your property. Is this true representation of what is planned?
9-12-2015: Iron Road have made many different statements, a huge lack of information to landowners in the transport corridor as an employee of the Department of Planning, Transport and Infrastructure, (DPTI), and an employee of the Department of State Development, (DSD) heard at a Cleve meeting. This meeting at Cleve certainly should have alerted the government departments of the conduct of Iron Road.
10-12-2015: Meeting at Wudinna with mine site landowners had an employee of DSD, listen to many concerns and lack of information, no exact details and questionable community consultation.
Were these concerns discussed with other DSD and DPTI staff in Adelaide?
We are told verbal comments are not taken into consideration in the MLP and EIS process, therefore extra pressure is loaded onto landowners and the public to reveal the comments and sources in writing. In the end it seems like “he said you said” and many people are aware of litigation and will not feel comfortable to put all details in writing.
We recall the following: from Iron Road presentations and a radio interview.

15-1-2012: An Iron Road person indicated IR preferred FIFO as then they can control the workers. Fly them in to immediately start work and end of their shift fly them out.

29-1-2013: Radio interview with an Iron Road employee on ABC at approx. 6.45am as he explained his new role with Iron Road. ABC archives have two recordings of the interview but both have been edited as in the morning, 6.45am, it is recalled as stating, “that if any farmer has a [redacted] come and see me.” The comment was in a louder aggressive voice but on the midday country hour this comment was edited out.

It appears his attitude from day one was not for the local people and community as he tries to portray.

6-3-2013: After a Port Neill presentation locals indicating a sub-contract service employee were offering $[redacted]000 for some to sign documentation for the corridor.

Land owners Indicated that the sub-contractor was rude and operated in a bullying/threatening manner.

8-5-2013: An Iron Road employee after presentation introduced himself to a member of the public. “You attend many presentations so must have something to contribute. When he knew that person was from Koppio he loudly said he would not comment on Koppio proposals so why should you comment here. That person informed IR person he is a stakeholder as ratepayer in the District Council Tumby Bay where some of the transport corridor and the port is located.

The IR person was rather rude and aggressive. Several locals heard this discussion and were not impressed with the conduct of the IR employee.

19-09-2013: IR employee in reply to a question on water modelling from a member of the public. “Bollocks to you, I have heard about you, you’re in dreamland, 6kms estimate not 60, go get hydrogeologist as answer to your question on underground water. You are scaring the community, all in raised voice. Will not affect Polda Basin! Don’t get caught in the fallacy of soil moisture for cropping!”

Another IR employee mentioned Arrium COULD be third party and there will a train every hour!

Meeting at Port Neill where Iron Road made special emphasis about the train. “It is called the Silent Death in Western Australia so don’t play with it.”

We believe in the manner it was said it could be taken that IR were proud of that fact and were addressing the audience as like children and don’t play with it!

“Silent Death”, everyone knows what that means!

7-4-2014: Warramboo where an IR employee refused to discuss in public some questions from an affected landowner, used the excuse of confidential, but landowner said everyone could hear, as he wanted answers and so did the public.

Another IR employee, very aggressive and red faced, challenged newspaper article about a certain family. “Journo Wrong” said in raised voice, “Polda Basin absolutely safe, anyone who says otherwise is WRONG!”

Not the first time that an IR person has raised their voice on questions about water.

A member of the public asked an IR employee as to when IR were going to inform the corridor landowners that third party COULD be Arrium, and if so, a train every hour. (From a Port Neill meeting).

The IR employee denied it had been said and wanted to know which IR representative had said it.

10 seconds after the presentation finished, the IR employee was in that person’s face, demanding the name of IR employee who said the third party could be Arrium.
Privately it was admitted that particular employee no longer works for IR.
Many noticed this reaction from the IR employee.
Intimidation?
We recall that IR person saying, “You are stopping the progress, jobs, money for South Australia.”
Intimidation?

8-4-2014: Next night at Cleve presentation, an IR employee said a rumour has been started that IR have signed an agreement with Arrium for third party on railway. The member of the public, from the previous night, interjected and told the IR person to tell the truth and the public member repeated what was said at Warramboo (COULD be Arrium).

10-9-2015: At TBCCG, IR, we recall,” stated the reputation of construction camps hasn’t improved much so that is why it is at the mine site, would not like camps to be near a town.”
IR has stated, DSD and DPTI are working well with us. Who is in control?
An indicated 21,000-ship movement around Australia per year and the Southern Right Whale population is increasing. “Big ships don’t kill whales as it is the smaller fast moving fishing vessels.”
No documentation to prove these statements correct!
Notice in the EIS, IR recognise a whale strike near Tumby bay but readily dismiss it as “may have come from the open ocean.”
Easy to generalise and have answer suggested in your favour!

29-9-2014: SIMGI site at Wudinna show, an IR employee visited but would not leave so had to get him escorted away by a member wanting IR to show them what IR had at their site.
Very noticeable that while IR was at our site the locals were not attending.

19-9-2015: Wudinna Show this year we had a different IR employee try the same tactic. Okay to visit but not for that length of time.
Intimidation tried again!

We believe the above from Iron Road Presentations and a radio interview indicates that Iron Road have very questionable transparent community consultation, have shown aggression in answering some questions and have tried to intimidate certain people.
In our opinion IR want us to believe everything they present should not be questioned.
Why have Iron Road seemed to be aggressive towards affected landowners and some public?
One would expect a company trying to establish a mine and infrastructure on farming land would have a more-friendly approach.
2.2.3 Utilities

Water Supply (from EIS)

In both the MLP and EIS

The Tod River is the only permanently flowing waterway on the Eyre Peninsula and has a capacity of 11,300 ML (SA Water 2014).

The Tod Reservoir currently supplies approximately 7% of the region’s water requirements (Deloitte 2013).

This statement is in the MLP and EIS.

The statement is incorrect.

It is common knowledge to many Eyre Peninsula residents that the Tod Reservoir hasn’t been used for years.

How many other statements are incorrect?

If Iron Road readily uses incorrect information like this, then how confident can the community feel about all their other statements being true.

Modeling will be incorrect if their research information is incorrect!

Iron Road cannot blame other agencies it contracts for information.

In due diligence Iron Road should be checking to confirm the correct information.

Following is a letter from SA Water, 25 June 2015.

This letter was sent to several landowners situated near the Tod Reservoir.

It states, “the Tod River Reservoir remains as a continuing water supply, but was taken offline in 2002 due to high levels of salinity that made the water unsuitable for drinking water supply.”
Dear Land Owner

TOD RIVER DAM SAFETY PROJECT

The Tod River Reservoir, situated 27 kilometres north of Port Lincoln, is supplied by concrete channels fed from weirs constructed across the Tod River and its major tributary, Pillawarta Creek. The Tod River Reservoir remains as a contingency water supply, but was taken off-line in 2002 due to high levels of salinity that made the water unsuitable for drinking water supply.

SA Water has commenced planning to improve safety at the Tod River Dam. The Dam was identified in a recent SA Water Dam Safety Investigation and is part of a program to improve safety at a number of SA Water dams state-wide.

The works will be undertaken in order to meet the updated Australian National Committee on Large Dams Incorporated (ANCOLD) Guidelines on Dam Safety Management (2003). The works will increase the dam’s ability to manage flood events and improve its resistance to earthquakes.

A number of options are being investigated for the works and SA Water will consider the most cost effective option to meet the updated safety guidelines and other project criteria, such as community and environmental interests.

To ensure that community views are taken into consideration during options assessment through to project delivery, SA Water is engaging with the local community and other stakeholders.

SA Water is also actively exploring beneficial uses for its offline reservoirs that could generate revenue and support economic development in the state.

The budget and timeframes for the Tod River Dam Safety Project will be finalised during the option assessment process, but the project is expected to be completed by June 2018.
4.2 Infrastructure Corridor Design Description (from EIS)

The proposed infrastructure corridor will connect the mine site with the port site, extending approximately 148 km (refer to Figure 4-3). This section describes the proposed infrastructure corridor, including the design principles, the railway line, bore field and water pipeline and the power transmission line.

The proposed railway line and maintenance track will extend along the entire length of the infrastructure corridor, while the water pipeline and power transmission line will join the corridor north of the Birdseye Highway. The infrastructure corridor will therefore range in width from approximately 60 m in the south to approximately 110 m in the north depending on which components are present (refer to Figure 4-4 and Figure 4-5). However additional width will be required in some locations to provide for two rail sidings, a pump station and for earthwork embankments with a maximum width of approximately 150 m.

Passing Sidings (from EIS)

Two passing sidings are proposed along the main railway line (refer to Figure 4-6 and Figure 4-7). One will be approximately 45 km from the port site and the other will be approximately 110 km from the port site. Both sidings will be approximately 1.8 km in length, which will provide enough room to allow for a complete train to be clear of the main railway line to enable passing.

SIMGI Questions

This is the first time landowners have seen the above, indicating areas for passing sidings, why didn’t IR identify this to the affected landowners before?

Which landowners have the passing sidings on their properties?

No documented plans have been shown to transport corridor landowners on exactly where this railway corridor is situated on their farm.

How can landowners comment on an imaginary plan?

Before mid-September 2015 we accessed, a document presented to SA Freight council. When shown to corridor landowners it was the first they had seen rail noise fully compliant information. It also showed and confirmed a potential future third party rail connection that had not been seen before.

Why did an Iron Road employee show the SA Freight council and not the affected landowners?

Transparency? No!

In our opinion Iron Road has been allowed to submit a MLP and EIS without proper documentation to landowners and general public. The MLP and EIS contains many assumptions and not all the facts.

Where are the detailed engineers plans for the affected landowners to study?

Where are the plans that show within 100mm the actual position of the transport corridor?

One cannot build a house without submitting architectural plans to your Council for approval and if something that could impose on neighbours then it is available to the public, so once again where are Iron Road’s detailed plans
**Scope 3 Emissions** (from EIS)
Steel and concrete will be required to construct the CEIP Infrastructure. The steel and concrete will require manufacturing and transport. GHG emissions will be generated from both the embodied emissions present in the steel and concrete and the manufacturing and transport of the steel and concrete from China to the project site?

Is this adhering to the Australian Jobs Act 2013?
IR already stating supply from China before project granted!
So much for tendering in Australia and keeping local Australian jobs.

**4.5.6 Modules** (from EIS).
Iron Road intends to use modular construction methods for large-scale infrastructure and buildings at both the mine site and port site. This method involves performing a majority of the construction work at an off-shore pre-assembly yard and shipping the substantially completed assemblies to the proposed module offloading facility at the port site.

Is this adhering to the Australian Jobs Act 2013?
Off-shore pre-assembly.
In our opinion this makes a mockery of jobs for the following IR statement
“Every chance for every Child” stated in 2.3 MLP Planning Framework, Strategic priority.
What chance for every child if Iron Road is already nominating jobs and materials from overseas?

**14.7.1 Ship Strike** (from EIS)
There have been three recorded whale strikes within South Australian waters (IWC 2013), none of which were within the Spencer Gulf. There are currently no recorded whale strikes within the Spencer Gulf; however in 2013 the carcass of a Southern Right Whale was found at Tumby Bay.
The cause of death was attributed to a vessel strike but the location of the death was uncertain due to the level of decomposition and it may have drifted into the gulf from open water.

Convenient to assume the area where the whale was struck.

**1.1.1 History of the CEIP**
based on an overall 25 year mine life.

**1.1 Project Overview** *(Jacobs)*
an expected minimum mine life of 25 years

Does this mean IR plan to mine the other identified deposits in their tenement?
If so there will be more agricultural land lost to mining and more potential for pollution and contamination to the environment.

Economics for the project do not seem feasible.
Present day prices at approx. $40 per tonne for iron ore would not allow a profitable business. $4-7 billion is suggested as needed for this project so why grant a MLP and EIS to a company that cannot afford to start or be viable?
1.3.3 Objectives of the Mining Lease Proposal

This MLP has been prepared in accordance with Section 35 of the Mining Act and Regulation 30 of the Mining Regulations 2011 (SA) and identifies and assesses the potential environmental, social and economic impacts and benefits of the proposed CEIP Mine. Mitigation and management strategies have been proposed where possible to minimise and avoid adverse impacts. The objective of the MLP is to:

- Demonstrate a net public benefit for the proposal and provide a clear identification of any associated risks and to develop a proposed set of environmental, social and economic outcomes for the construction, operation and rehabilitation phases of the mine.
- Provide a source of information to interested stakeholders to gain an understanding of the project, the need for the project, project alternatives investigated, the effects on the environment, the impacts that may occur and the measures to be taken to minimise these impacts.
- Provide a forum for public consultation and informed comment.
- Provide a framework for State Government assessors to consider the proposed mine in line with environmental, social, economic and technical factors and to establish appropriate lease conditions relating to construction, operation, closure and rehabilitation.

The structure of the MLP has been developed in response to the minimum information requirements outlined by the Ministerial Determination 006 (South Australian Government Gazette 50: 3064-3077).

For such a huge project only minimum information required?

2.2.2 Exempt Land and Waivers of Exemption

The Mining Act was established to, among other things, facilitate the extraction of the minerals resources which are owned by the State. To facilitate this mineral extraction in areas where preexisting land uses exist, the Mining Act sets out the process to be followed and includes the requirements for both the proposed mining operator and the landowner.

In summary, the Mining Act (Section 9) sets out a variety of different land uses which fall within the category of ‘exempt land’ and means that mining operations cannot be undertaken on that land unless a certain process has been undertaken which requires the consent of the landowner.

Where exempt land exists, the person who has the benefit of the exemption must agree to the conduct of any mining operations. This is referred to as “waiving the exemption” and must be set out in a formal agreement between the person who has the benefit of the exemption and the mining operator and be accompanied by appropriate compensation.

The majority of the land within the proposed mining lease is exempt land by virtue of it being used for cropping or other agricultural purposes, or due to the existence of housing and other buildings such as shearing sheds. However, there are many areas of remnant native vegetation, including within HA869, which are not classified as ‘exempt land’.

How can Iron Road apply for a MLP before all the waiver of exemptions have been obtained?
2.2.3 Utilities
Electricity
Electricity on the Eyre Peninsula is provided from the South Australian Electricity Grid via the transmission (ElectraNet) and distribution (SA Power Networks) networks. The South Australian Grid is connected to the National Electricity Market via two interconnector systems. South Australian electricity supply is sourced from coal fired power stations at Port Augusta (16%), nine gas fired power stations (65%), various wind farms (17%) and diesel generation (2%) (Deloitte 2013).

This project will increase power consumption on Eyre Peninsula, EP, and more reliance on interstate power as Port Augusta Power Station is closing down. Mining is an energy intensive project according to Iron Road. The project to help overseas steel makers to presumably lower their emissions but here on EP it will be, in our opinion, an unacceptable increase in emissions, pollution and contamination.

Water Supply
The Tod River is the only permanently flowing waterway on the Eyre Peninsula and has a capacity of 11,300 ML (SA Water 2014). The Tod Reservoir currently supplies approximately 7% of the region’s water requirements (Deloitte 2013).
This statement is incorrect; refer to letter from SA Water on page 6.

2.3.1 South Australia’s Strategic Plan
South Australia’s Strategic Plan (2011) provides a framework for the ongoing growth and development of the State and was developed based on seven strategic priorities:
• Creating a vibrant city
• Safe communities, healthy neighbourhoods
• An affordable place to live
• Every chance for every child
• Growing advanced manufacturing
• Realising the benefits of the mining boom for all.
• Premium food and wine from our clean environment

We question the benefits of the mining boom for all.
“Every chance for every Child” stated in 2.3 MLP Planning Framework, Strategic priority.
What chance for every child if Iron Road is already nominating jobs and materials from overseas?

3.4.8 Ore Processing Facility Description
The ore processing facility will treat up to 150 Mtpa of iron ore at a head grade of 15.5% Fe. It has been designed to operate 24 hours a day, seven days a week and produce up to 21.5 Mtpa of magnetite concentrate with a relatively coarse size distribution, $P_{80}$ of 130 μm and with the following specifications:
• Iron grade (Fe) 67%
• Silica (SiO$_2$) $< 4$
• Alumina (Al$_2$O$_3$) $< 2$
• Phosphorous (P) 0.005%
• Sulphur (S) 0.002%
We are concerned with the free agents in the dust and other heavy metals and how are they to be controlled? Free silica is a huge health concern.
Fresh (Desalinated) Process Water Requirements (3.4.11)
A reverse osmosis (RO) plant will be located adjacent to the groundwater storage dam to produce desalinated water to be used for rinsing the concentrate to remove salts. The desalinated water will also be treated for potable use. Brine wastewater from the RO process will be used for dust suppression on the active (unrehabilitated) part of the IWL. Fresh desalinated water will be used for dust suppression and plant establishment on the progressively rehabilitated part of the IWL. Approximately 1,963 ML/year of fresh (desalinated) water will be required for processing of ore, with an additional 38 ML/year of potable water required for use in the process plant.

The continued use of this saline water allow more salt into the environment. How saline can the recycled water become before it becomes unusable?

3.5.1 Processing Wastes
Salt comprises a proportion of the waste generated from the process. The salt balance is presented as part of the material, salt and water balance (Figure 3-18). Salt is imported to the site from the water supply borefield in the form of saline groundwater and salt is mobilised from the pit contained within the moisture on the ore and waste rock. Mine pit dewatering also mobilises salt however this component is recycled within the pit and haul roads through dust suppression. The total salt throughput is approximately 0.8 Mtpa. The salt is ultimately discharged to the IWL within the moisture retained by the tailings and the waste rock and through application of RO waste brine to the IWL for dust suppression. The total average salt content of the IWL is approximately 0.3% and accumulates to a total mass over the life of mine of 20 Mt.

Who is responsible for this salt if it leaches on to and affects adjacent land?
20mt = 400,00 road trains of salt mentioned in the above.
480mt = 960,000 road trains of salt. We have heard of this figure.
Which is correct?

3.5.2 Integrated Waste Landform
The concept landform design is consistent with work in progress and completed for waste rock and IWL designs in Australia over the last 20 years. Concave and linear slopes, often rock armoured and of varied configuration, exist at mine sites such as Wiluna Gold and Mt McClure. Two IWLs containing tailings are found at the Challenger Mine and at Sunrise Dam, which has a 30 m high concave armoured slope. Large landforms with stable water harvesting berms can be found at Granny Smith, Leinster Nickel and Kalgoorlie Consolidated Gold Mines. At the Jundee mine, the W10 landform, with a 30 m vertical height armoured concave slope, has 0.15 m of topsoil ripped into the armoured surface and is somewhat analogous to the landform design presented here, although it is important to note that all have unique features which make direct comparisons difficult.

Note the examples are only 30m height so is this a first on 130m plus height?
No experience!
0.15m = 6 inches so how much topsoil for CEIP waste landform?
3.7.4 Land Use Options
Consideration of these alternative final land use options will incorporate an understanding of climatic influences and climate change upon long-term productivity and sustainability, particularly for options such as cropping or agroforestry. Increasing aridity is predicted in the bulk of southern Australia and factors such as declining rainfall and higher evaporation rates are predicted to gradually change the nature of local land use. The validity of alternative land use options, in terms of achieving stakeholder expectations and the primary objectives of a stable, rehabilitated landform are all to be considered by investigation and research, as part of the forward work plan during the investigation, construction and operational stages of the CEIP.

Climate change, long term increasing aridity could take hundreds of years and is it right? The fact is, there is a huge risk to the environment if this CEIP project is granted. This mine pit hole, actually two, and the 130m + high integrated waste landform has the potential to change the weather pattern in the adjacent area. IR has readily dismissed this, but the potential is real especially for winds.

3.8.3 Water Sources
Due to the high salinity of groundwater resources in proximity to the mine and borefield, there is currently no use of this water source. Audits of registered groundwater bores have identified no groundwater bores in use within 20 km of the proposed mine pits or 20 km of the proposed borefield. Water used in the processing of the ore will be saline groundwater and will be recycled in the process. Brine from the RO plant will also be recycled for use in dust suppression. Approximately 95% of proposed mine site water requirements will be supplied by recycled water.

Water has to be supplied via bore-field before it can be used for recycling. At the project start is there water available for dust suppression until the pipeline is built from the bore-field? Will there be trucks carting water from the borefield? Increase of traffic. There will be dust to suppress at the mine site before there is enough water in the pit to use. What water will Iron Road use for dust suppression from day one?

Energy Efficiency
The design of the CEIP has incorporated a number of energy efficiency measures that have directly contributed to a reduction in projected energy demand during construction and operations, including:
• Reduction in size of truck fleet – The change from diesel-powered conventional load and haul mining to the proposed in-pit crushing and conveying mining method has significantly reduced the size of the haul truck fleet required from approximately 93 to 12 trucks, while taking advantage of greener grid-based electricity as the mining energy supply.
• Optimisation of blasting techniques – Rock and ore blasting techniques have been optimised to minimise the energy consumed in the primary crushing phase of the mining process.
• Water source from borefield – Initial designs of a desalination plant located near Elliston or a water supply and desalination plant at the proposed port site required significantly more power to pump the water requirements to the mine site. The current proposal pumps water approximately half the distance of earlier designs.

Minimisation of fuel consumption – Fuel consumption will be minimised by sourcing products locally wherever practicable to minimise travel distances and selecting efficient plant and equipment.

How can IR claim reductions from earlier draft plans that were not physically in operation? Mining is an energy intensive project according to Iron Road.
3.8.3 Water Sources
The majority of water required for the mining operations will be saline water sourced from the borefield. This will be supplemented by small variable volumes of rainfall run-off from mine pit dewatering, with rainwater captured and used where possible. On-site treatment of saline water via a reverse osmosis desalination plant will be used to obtain freshwater for final filtering of the concentrate and potable water for administrative and accommodation areas. Expected annual usage requirements for each water source during operations are summarised in Table 3-23.

Due to the high salinity of groundwater resources in proximity to the mine and borefield, there is currently no use of this water source. Audits of registered groundwater bores have identified no groundwater bores in use within 20 km of the proposed mine pits or 20 km of the proposed borefield. Water used in the processing of the ore will be saline groundwater and will be recycled in the process. Brine from the RO plant will also be recycled for use in dust suppression. Approximately 95% of proposed mine site water requirements will be supplied by recycled water. No water discharges are planned as part of the project. Waste water is entrained in the tailing delivered to the IWL at a moisture content of approximately 6.8%. Brine is used for dust suppression of the IWL and saline water recovered from mine pit seepage will be used preferentially for dust suppression on haul roads. Rainfall run-off will be recycled for use in the process pant. The majority of water required for the mining operations will be saline water sourced from the borefield.

Approximately 95% of proposed mine site water requirements will be supplied by recycled water. Clarify the difference between the two?

4.2 State Legislative Requirements
If the mining lease is granted, a further stage of DSD assessment is undertaken that requires the preparation of a PEPR. The PEPR will be developed by Iron Road and must be approved by the Minister before mining operations (including construction) can commence. The PEPR must set management procedures for construction, operation and closure of the proposed mine and outline key measurable criteria against which the environmental outcomes for the proposed mining lease will be evaluated.

When will the PEPR be available to the public?

4.2.2 Environment Protection Act 1993
The Environment Protection Act 1993 (EP Act) has been established to promote ecologically sustainable development through the use, development and protection of the environment. Long and short-term economic, environmental, social and equity aspects are considered when determining matters in relation to environmental protection, restoration and enhancement. Section 25 of the EP Act establishes a general environmental duty, requiring that activities that pollute or might pollute the environment must not be undertaken unless all reasonable and practicable measures to minimise harm are implemented.

In our opinion a rather broad open ended statement
5.3 Engagement and Consultation Approach
Iron Road values its place within the community and believes well planned and managed mining operations, with a clear commitment to social and environmental responsibility, benefit both the Company and the community. Iron Road’s work is based on the following principles:

- Maximise opportunities to communicate and engage with communities and stakeholders
- Work with community leaders to identify mutual benefit
- Actively foster good working relationships with federal, state and local governments
- Liaise effectively with regulatory bodies and advisory agencies
- Seek to leave the community with lasting positive benefits following mine closure
- Strive to leave the community with no lasting negative impacts
- Support programs and training to add to social wellbeing in local communities
- Operate openly and develop strong relationships within communities
- Prioritise local employment and business opportunities and encourage CEIP workforce to live in nearby communities and participate in local events.

In addition to legislative requirements relating to consultation with stakeholders, Iron Road has drawn on South Australian Government policy directions including Better Together: Principles of Engagement (DPC 2013). Iron Road has also incorporated industry recognised approaches such as those developed by Dr Peter M. Sandman and those developed by the International Association for Public Participation (IAP2), including Foundations of Public Participation (IAP2 2012). Flexibility has underpinned Iron Road’s consultation and engagement strategy and suggestions from stakeholders, together with lessons learnt from the experiences of other resources proponents, have been incorporated into the program on an ongoing basis.

Iron Road was one of the first industry signatories to the South Australian Chamber of Mines and Energy (SACOME) Code of Practice for Stakeholder and Community Engagement (SACOME 2012) and the principles of the Code, outlined below, also underpin the approach.

1) Inclusive – the engagement process identifies, reaches out to and includes, participants who clearly represent all stakeholder groups including community, government, business and industry.

2) Transparent and Accountable – the engagement process is transparent and it is clear who is responsible and accountable for its implementation.

3) Clear and Informed – the engagement process provides timely, balanced and objective information and promotes shared understanding between and within stakeholder groups. Issues on which stakeholder groups are to be engaged are clearly scoped and the factors that can or cannot be influenced by their input are clear.

4) Accessible and Timely – the engagement process is accessible to stakeholder groups. Time to deliberate is provided and an appropriate tone is created to encourage deliberation and the forming of informed opinion.

Community consultation is very questionable. DSD and DPTI from private meetings at Cleve, 9-12-2015 and Wudinna, 10-12-2015, heard from directly affected landowners. There have been many different statements from IR and a huge lack of detailed information. DSD and DPTI cannot ignore the information from the affected land owners.
5.5.2 One-on-One Meetings
Establishing strong relationships with landowners whose properties lie within, or are adjacent to, the proposed mining lease, together with directly affected community members, has been a priority for Iron Road. It has been important not only to understand concerns and specific issues facing each, but to involve those directly affected from the early stages in the project evolution process to ensure they are well informed with any changes that might impact them and their businesses.

Direct dealings with impacted landowners around future acquisition of land is difficult for all concerned and is handled as sensitively as possible. In addition to dealings with minesite landowners, Iron Road has hosted information sessions specifically for landowners directly impacted by the infrastructure components to provide general information about the approvals process, engineering and design and potential environmental impacts.

All of the above Stakeholder Engagement sounds good from Iron Road but the actual affected landowners disagree as per private meetings on December 9 and 10 with DSD and DPTI. The two Government departments cannot ignore what was said!

5.5.6 Community Reference Groups
In addition to the CEIP CCC, Iron Road liaises with two other community formed reference groups, whose purposes are framed by Terms of Reference (refer Appendix E). As outlined below, they have been established to enable direct engagement with Iron Road on behalf of the communities they represent. Their focus is based on geographical and social proximity to elements of the CEIP Infrastructure, rather than the proposed mining lease:

• The Port Neill Community Reference Group (focused on the proposed port, rail and other infrastructure)
• Tumby Bay and Districts Community Consultative Group (focused on the proposed port, rail and other infrastructure)

As both of the reference groups are self-formed and independently managed, they advise Iron Road as to when and how they would like to be consulted and engaged with. The groups also meet upon request from Iron Road should the need arise. Meetings have focused on topics the groups have considered as significant to their community as well as highlighting opportunities for involvement in the CEIP Infrastructure.

We cannot recall the TBCCG, (sometimes referred as TBCCC), ever holding a public meeting to convey the information they receive to the ratepayers of the District Council of Tumby Bay. 23 volunteers on the TBCCG do not represent the ratepayers of the district.

6.1.6 Identify the Measures and Factors that will Limit Impacts
Consistent with Section 35(1)(a)(ii)(B) of the Mining Act, the assessment considered the measures and strategies that are being proposed by Iron Road to manage, limit or remedy impacts. Iron Road adopted a hierarchy of controls applied in the following order:
• Elimination: Redesign the project to eliminate an impact (e.g. use of an integrated waste landform eliminated visual and other impacts that would have come from a rock storage facility adjoining the open pit).
• Minimisation: Redesign the project to minimise an impact (e.g. use of in pit crushing and conveying, instead of a truck and shovel option, to minimise dust impacts).
• Design engineering (physical) controls (e.g. covered conveyers to reduce dust).
• Management system (procedure) controls (e.g. watering of roads to reduce dust).
The assessment also considered natural factors that may limit impacts (e.g. dominant wind direction).

How can IR claim reductions from earlier draft plans that were not physically in operation?

6.2.3 Assess the Sensitivity to Change of any Assumptions
Under Regulation 30(2)(d), the information provided for the purposes of a mining proposal must, so far as it is relevant, identify the sensitivity to change of any assumption that has been made and any significant risks that may arise if an assumption is later found to be incorrect.
The level of certainty assessed above required certain assumptions to be made in the impact assessment. The risk assessment rated the sensitivity to change of assumptions as follows:
• **Low**: Sensitivity testing demonstrates conclusions reached in the impact assessment are highly unlikely to change if assumptions are found to be incorrect.
• **Medium**: Sensitivity testing shows conclusions reached in the impact assessment may change if assumptions are found to be incorrect but the level of impact would not increase significantly.
• **High**: Conclusions reached in the impact assessment would be erroneous and could not be relied on if assumptions were found to be incorrect. Sensitivity testing not undertaken, or unable to be undertaken with meaningful results.

In our opinion an open-ended statement.
Reference of assumption from the dictionary: act of assuming (in all senses): arrogance.

7.3.1 Geochemical Composition of Iron Concentrate and Waste Material
A detailed overview of the geochemical composition of the iron concentrate and waste material is provided in Section 2.2.2 of Appendix S. Of relevance to public safety, it should be noted that:
• Background radioactivity readings for the area surrounding the mine site are 0.2 uSv/hr. Analysis of core samples resulted in an average radioactivity of 0.18 uSv/hr, with no single result above background levels. As such, there are not sufficient concentrations of radionuclides at the mine to represent a hazard to public safety.
• Respirable silica will be present at very low concentrations in the fine tailings (0.07 per cent by weight).
• An analysis of composite samples from the proposed mine site for naturally occurring asbestos and other fibres was undertaken in accordance with AS4964-2004 for qualitative identification of asbestos in bulk samples. No asbestos was detected.
• Elemental analysis of mine waste material indicated that no elements exceed health investigation levels outlined in DEC (2010) or NEPC (1999) and do not represent a hazard to public safety.

In our opinion IR, in the MLP and EIS documents, has supplied inconsistent figures, in other areas, so how can we believe there will not be health issues to humans and animals.
7.3.2 Fire Hazard
South Australia’s climatic conditions provide an ideal environment for bushfires. Typically, incidences of bushfire are more frequent in dry summer conditions. To protect people and property, fire bans are implemented annually during high risk months. Fire bans within the Eastern Eyre Peninsula, Lower Eyre Peninsula and West Coast districts (the location of the CEIP) were applied from 1 November to 30 April during the 2013-14 fire danger season (CFS 2014a). Remnant vegetation coverage on the Eyre Peninsula is patchy, predominately limited to designated conservation areas, with the majority of the region cleared for agricultural purposes. As such, there are predominately low fuel loads, resulting in quick burning, low intensity grass fires in the agricultural regions.

Historically, research indicates that South Australia can expect serious fires within the State in six or seven years out of 10.

A variety of ignition sources exist within the area of the mine site based on the current land use (predominately agricultural activity). These ignition sources include (CFA 2007):

- Harvester fires through material collecting on hot engine parts
- Hay cutting and carting through hot exhaust on dry grass or spontaneous combustion
- Cutting, welding and grinding equipment
- Powerlines not appropriately cleared of vegetation
- Electric fencing in the presence of dry vegetation

Will the Mine stop production on extreme fire days as the rest of the community do?
Fuel loads cannot be considered low when most of the farming land grain crops are ripe ready for harvest.
Examples: The Wangary wild fires and the Pinery fire, South Australia, to understand the ferocity of the fire on extreme weather days.

7.3.3 Geohazards
The mine site is located within an area not considered to be at significant risk of earthquakes. The majority of earthquakes in South Australia are centred around the Mount Lofty Ranges and the Flinders Ranges (up to Cleve). The Earthquake Hazards Zones Map for South Australia (Government of South Australia 2014) shows that the mine is located within an area of the state that has a hazard factor of less than 0.11 (i.e. not subject to earthquake loads in accordance with AS1170.4). Seismic events are rare and typically small in nature. The South Australian Seismology Report (Love et al. 2010) indicates that no seismic events were recorded in proximity to the mine site in 2010, as previously indicated in Chapter 2 Existing Environment, Figure 2-13.

With such a huge open pit mine hole then the possibility of future earthquakes could occur. The earth plates move and there is a huge section of removed rock from the mine pit holes.
Murphy South approximately 6.2km long, 1.4km wide and 630m deep.
Boo Loo approximately 3km long, 1km wide and 325m deep.

7.6.1 Design Measures
- The design parameters for the integrated waste landform will ensure it is geotechnically stable and safe.

Waste landform with no example of stability at proposed 130+m height.

Examples are only 30m height.
8.6.1 Design Measures
The following design control measures have been incorporated to minimise the impacts and risks to traffic as a result of the construction, operation and closure of the mine:

• The use of modularised construction methods which will reduce the overall volume of construction traffic for the CEIP.
• Construction of a camp for contractors on the minesite.
• Upgrade of Nantuma Road between the Tod Highway and the proposed CEIP Infrastructure corridor.
• Upgrade of the Tod Highway and Nantuma Road intersection.
• Upgrade of the Eyre Highway and Mays Road intersection.
• Upgrade of the North Coast Road and Port Neill Access Road intersection to allow for the turning circle of the module transporter.
• Upgrade of the Port Neill Access Road and Lincoln Highway intersection to allow for the turning circle of the module transporter.
• Upgrade of the Lincoln Highway and Balumbah-Kinnard Road intersection to allow for the turning circle of the module transporter.
• Upgrade of the Birdseye Highway and Tod Highway intersection to allow for the turning circle of the module transporter.
• Upgrade of the Tod Highway and Kimba Road intersection to allow for the turning circle of the module transporter.
• Undergrounding of power lines that cross the module haul route roads. Check of clearance for power lines parallel and close to module route roads.
• Widening of culverts and road formations to at least 12 m along the module haul route to allow for the module transporter.
• Grading of cuttings which have insufficient width for the module transporter to pass through along the module haul route.
• Installation of foldable signs along the module haul route.
• During detailed design each of the proposed level crossings along the infrastructure corridor will be designed in accordance with AS1742.7, which defines the sighting required for level crossings in order to provide clear visibility of warning signage for an approaching motorist as well as between a road vehicle and an oncoming train.

Is IR responsible for, and paying for the entire expenses for the above? Ratepayers should not have to pay, as they will if councils are required to meet the expenses.
8.7.2 Travel Time Delay from Module Transport
The transportation of modules from the module offloading facility at the proposed port will result in delays to traffic required to wait for, or divert around, the large, slow moving modules. A range of module load sizes are under consideration for delivery to the mine site, as depicted in Table 8-7.

Table 8-7 Module Sizes

<table>
<thead>
<tr>
<th>Module Size</th>
<th>Max.Load</th>
<th>Quantity</th>
<th>Haul Mode</th>
<th>Haul Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large (Port to Mine) – 13m x 53m x 45m</td>
<td>2200 tonnes</td>
<td>22</td>
<td>SPMT</td>
<td>1 km/hr</td>
</tr>
<tr>
<td>Medium (Port to Mine) – 13m x 53m x 45m</td>
<td>800 tonnes</td>
<td>123</td>
<td>SPT</td>
<td>40 km/hr</td>
</tr>
<tr>
<td>Large (Port only) – 20m x 53m x 50m</td>
<td>2200 tonnes</td>
<td>99</td>
<td>SPMT</td>
<td>1 km/hr</td>
</tr>
</tbody>
</table>

The simulation model shows that the utilisation of diversion routes will reduce average delays for motorists by approximately 95% for modules travelling at 1 km/hr. When the speed of the module approaches 40 km/hr, less delay would be experienced by following the module and passing it at the end of the section or when the module temporarily pulls over at a laydown pad. Delays associated with module movements will occur throughout construction of the project and will result in a short term inconvenience to motorists utilising the primary module route, which is considered to represent a low impact.

Although it is not expected that traffic delays will be longer than predicted for the delivery of modules, this has been identified as a risk as the operation and management of the road network is outside of the control of Iron Road. Should travel times along the diversion routes be increased beyond what is predicted, a consequence rating of minor has been assigned, reflecting the short-term inconvenience that would be caused to other road users. However, as accredited traffic controllers will be in place to manage the intersections and diversion routes, it is considered unlikely that travel delays will be greater than predicted in this assessment. As such, the overall risk of travel time increases being greater than expected is considered to be low.

As the design of the CEIP continues to progress, opportunities to further optimise the proposed development will be pursued. The objective of optimisation studies is to minimise environmental and/or social impacts of the project, whilst maximising benefits to the local community and other third parties. Optimisation studies are ongoing and include consideration of module route options, including the potential utilisation of the railway access road as opposed to, or in addition to, the existing local roads.

Will the module transportation require police escorts?
1km per hour over approximately 150kms = 6.252 days of continuous travel.
There will most likely be longer traffic delays than IR have stated.
Have weather and road conditions been included into IR calculations?

8.7.5 Pavement Condition and Wear
Traffic generated by the mine has the potential to increase the wear and tear on the road network over and above what would be expected without the project traffic, due to the additional axle loading on the road pavement.
IR or the Council pays for repairs?
In our opinion there are many places that will not support such weight or width.
8.7.7 School Bus Operations

The potential increase in travel time for school buses as a result of road closures has been classified as a minor consequence, as alternative bus routes will be available. Although Iron Road will liaise with the local schools to assist in planning alternative routes, it is considered possible that over the life of the mine a potential school bus route may be required to use an alternative route. As such, the overall risk of school bus travel times being longer as a result of the mine is considered to be low.

School buses will be stopping at crossings so an increase in time for bus routes. The “Silent Death” train will be using the rail-line so potential for accidents to occur. Travelling times will be increased for students on school buses and more driver fatigue.

Governments in cities provide freeways and expressways so motorists can save a few minutes commuting to and from work.

The CEIP project will add more travelling time to all road users.

11.7.7 Establishment of Microhabitats on Integrated Waste Landform

The conceptual Integrated Waste Landform (IWL) design (see Appendix S) includes a number of features that may provide habitat benefits for fauna, including diversity in landform shape, microhabitat features and native vegetation of diverse height. The IWL would include outer slopes, benches, areas with cover of rocky strew, bunded and / or contoured areas and top soil and subsoil. The planned rehabilitation of the IWL includes revegetation of the slopes and benches with native vegetation, which would provide areas for a diversity of local groundcover plant species to establish and areas for small mammals and reptiles to utilise. The proposed depth of the topsoil (15 cm) and subsoil (0.5 to 1 m) would also allow small mammals, reptiles and insects to establish burrows.

Vegetation of the IWL with local provenance trees and shrubs (e.g. Chenopods such as Salt Bush, Acacia species) plus native grasses would also provide habitat opportunities for fauna. Further detail regarding the IWL concept design is provided in Appendix S. It is considered this would represent a positive change, would be long term and localised, hence this would be considered a low benefit.

There will be an increase of pests, such as foxes and rabbits in this CEIP project area.

Who will be responsible for the control, and expenses, of these pests long after the mine closes? When does Iron Road’s responsibility end?

12.6.1 Design Measures

The following design control measures have been incorporated to minimise direct and indirect impacts and risks to native flora as a result of activities involved with the construction, operation and closure of the proposed mine:

- The final proposed integrated waste landform design requires significantly less land (approximately 3,000 ha less) than the preliminary tailings storage and waste rock facility designs considered, resulting in a reduced requirement for vegetation clearance.
- The proposed integrated waste landform design results in significant reduction in process water usage (~ 70% / 31 GL per year), thereby reducing the risk of elevating saline groundwater and impacting surrounding habitat for flora.
- The proposed integrated waste landform design allows progressive rehabilitation of the landform, resulting in more rapid return of vegetation and reducing the risk of significant weed outbreak on the landform.
- Establishment of designated haul routes and light vehicle roads on-site to restrict vegetation
impacts to designated areas and minimise ongoing disturbance.

- Establishment of bunded vehicle washdown areas with controlled surface water runoff to maintain weed hygiene practices and reduce weed impacts to flora habitat.
- Dust design measures as per Chapter 15 to minimise impacts to flora habitat via dust impacts to vegetation.

How can IR claim reductions from earlier draft plans that were not physically in operation?

**12.7.9 Vegetation Stress or Loss Due to Dust Deposition from Mining Activities**

In our opinion there appears to be damage to the vegetation as one travels past the Iron Duke Mine between Cowell and Whyalla.

Why won’t this happen around the CEIP project?

Dust, pollution and contamination will not stop at the project’s footprint perimeter.

**12.7.12 Groundwater Impacts upon Vegetation within Hambidge WPA**

Groundwater modelling has been undertaken to determine impacts of the construction and operation of the proposed mine; e.g. drawdown from pit dewatering and evaporation from the pit with concurrent groundwater elevation due to seepage beneath the integrated waste landform (see Chapter 19). The groundwater modelling suggested there would be a negligible increase in groundwater beneath the IWL during operation and there would be no significant mounding beneath the IWL over the long term. In addition, modelling assessed a zone of influence surrounding the mine site. Impacts from drawdown are not predicted to extend beyond 7 km from the mine pits during operation.

The northwest corner of Hambidge WPA is located approximately 7 km from the mine site boundary. The groundwater beneath Hambidge WPA is currently approximately 15 mbgl – part of the same aquifer that lies beneath the IWL. Mallee vegetation within Hambidge, particularly mallee on dune crests, is unlikely to be groundwater dependent, given the depth and lack of visible evidence of stress from saline groundwater. Modelling predicts that groundwater levels may change by a maximum of 1 m beneath the mine site and its surrounding area over 25 to 1000 years following closure of the mine.

Different hydrologists have differing ideas on the connection of underground water on EP. If IR are wrong, then it could take many years to show the affect but once the aquifer is damaged it cannot be reinstalled to its original condition.

**13.3.5 Summary of Key Environment Values**

The mine site and surrounding area is currently used for agricultural purposes; predominately grain cropping and some grazing. Soils within the region are generally nutrient poor; however, they have been improved through the application of fertilisers and appropriate management to support agriculture. There are areas of low-lying salt pans within the central and northern sections of the mine site, which are not suitable for agriculture.

Two types of soil are prevalent across the mine site: calcareous earths and shallow sands over calcrete. Characteristics of these soil types are largely consistent: prone to water repellence and erosion, shallow effective rooting depth, high levels of salinity, low inherent fertility and low levels of water retention.
Geochemical analysis of more than 9,000 drillholes determined that approximately 2% of all mine waste is considered to be potentially acid forming (refer to Appendix S for detailed analysis). In nearly all cases of samples taken from the surface to 15 m in depth, elevated sulphur values are offset by neutralising calcium oxide (calcrete). Areas of PAF material correlate with the Neogene geological unit and the upper groundwater surface interface at depths between 15 to 35 m and with the Palaeogene and Saprolite geological units at depths between 45 to 75m (MWH 2015a).

Mine pit depth of approx. 700m and over the huge mine pit area, two holes, there could be other heavy metals available to the environment by mining. Palaeogene geological units under the project. Are not Palaeo channels and indication for uranium?

13.7.1 Elevated Soil Salinity
The use of saline water for dust suppression will affect soil quality on land within the mine site. Saline water will only be used for dust suppression purposes on designated haul routes and areas already clear of vegetation; however uncontrolled discharge of saline materials may potentially elevate soil salinity levels, reducing soil quality and therefore restricting vegetation growth and agricultural productivity.
Saline water will flow side-ways, not just immediately below the CEIP footprint perimeter.

13.7.2 Sediment Deposition
Deposition of sediments from erosion of slopes of the IWL could affect productive land both on and off the mine site, during construction and operation of the landform and post-mine closure should the landform not be geotechnically stable. The concept landform design represents an extremely conservative approach to landform stability with the inclusion of a series of concave slopes and backsloping benches, as well as earthen bunds around perimeters of each outer bench. In addition, the landform includes a surface cover which comprises stabilising waste rock mixed with top-soil and subsoil.
Waste landform with no example of stability at proposed 130+m height.
3.5.2: Examples are only 30m height.
20mt+ of salt has been added to the mine site and IWL so the risks of leeching into adjacent farm land is great.

13.7.4 Loss of Topsoil during Stockpiling
Too many risks are considered low impact, minor or negligible. The weather will alter the timing of many procedures and there will be losses.

13.7.6 Contamination of Soil
Dust, pollution and contamination will not stop at the project’s footprint perimeter.

13.7.7 Topsoil Loss from Erosion
Too many risks are considered low impact, minor or negligible. The weather will alter the timing of many procedures and there will be losses.
14.6.1 Design Measures
- The truck fleet proposed to be used during operation of the proposed mine site has been significantly reduced as a result of the use of in-pit crushing and conveying (IPCC) technology. This alteration to the project design will result in significantly less oil and other vehicle servicing wastes, including tyres.
- A design change in tailings management has avoided the need for an additional 80 ML/d of water and also avoided the need for an additional 80 km of large diameter water pipeline, many pumps, liners, valves etc., reducing the total volume of materials consumed at the mine.

How can IR claim reductions from earlier draft plans that were not physically in operation?

14.6.2 Management Strategies and Commitments
In order to minimise and mitigate impacts associated with waste disposal and management during construction, operation and closure activities, control and management strategies will be incorporated into the PEPR and implemented for relevant project phases. Key control and management strategies are outlined in Table 14-2.

Will the PEPR be available to the public?

15.3.2 Air Quality Receptors
Air quality receptors include environmental, social, cultural and economic elements of the receiving environment that may be altered by increased air emissions. For the air quality impact assessment, potential receptors identified include:
- Sensitive receivers
- Commercial receptors (agricultural land)
- Native vegetation

Sensitive Receivers
Sensitive receivers include locations where people live or work that may be affected by air emissions due to the proposed mining operations. These include dwellings, schools, hospitals, business premises or public recreational areas. Environmental receivers such as terrestrial flora and fauna are addressed in Chapters 12 and 11 respectively.

The closest sensitive receivers to the proposed mine are illustrated in Figure 15-1. The sensitive receivers closest to the proposed mine are residential dwellings located intermittently around the proposed mine site, the Warramboo township and the Warramboo grain silos. Table 15-5 lists the sensitive receivers and their estimated distance to the proposed mine site boundary.

Commercial Receptors (Agricultural Land)
The dominant land use in the study area is dryland agriculture, including mixed cereal crops and grazing. Proposed mining operations resulting in the deposition of airborne emissions to adjoining agricultural land may impact on agricultural values including land quality and crop yields.

Will there be independent monitoring of dust at all these, receptors, sensitive receivers and commercial receptors?
The local community should not have to pay for independent monitoring.
All sites should have independent monitoring.
With such large assumptions on what the CEIP project will return in dollar value then the cost of individual site monitoring should hardly affect IR.
There should be at least 12 months of site specific data before CEIP project commences.
Native Vegetation
There are small patches of degraded native vegetation within and adjacent to the proposed mine site and larger areas of native vegetation at greater distances from the primary dust generating activities. Hambidge WPA is greater than 10km from the open pit and thus impacts as a result of dust emissions form the mine and related activities to this area are not considered credible. Proposed mining operations resulting in the deposition of airborne emissions on nearby native vegetation may impact the quality of this vegetation. 
In our opinion there appears to be damage to the vegetation as one travels past the Iron Duke Mine between Cowell and Whyalla. Why won't this happen around the CEIP project? Dust, pollution and contamination will not stop at the project's footprint perimeter.

15.7.2 Dust Emissions during Construction
Why isn't there site specific base line data available?
IR have been at the proposed mine site for some years now.

Health Impacts to Sensitive Receivers from Dust Generated during Construction Phase

Health Impacts to Sensitive Receivers due to Dust Generated during Operations

Amenity Impacts to Sensitive Receivers due to Dust Generated During Operations
Dust emissions averaged out over a year would give misleading results. If the adjacent community and environment were exposed to heavy dust for just a few continuous days, then health could be affected. Dust will be collected off houses and sheds via roof rain water collection. Health impacts?
This contaminated rain water if used for crop spraying could affect the chemicals to be sprayed onto the land and crops in farming operations.
Dampness from dews will help dust adhere to plants. This could even affect the sunlight available to plants.

15.7.6 Impacts on Agricultural Values
Impacts to Agricultural Values (Reduced Yields) due to Dust Generated from Proposed Mine
Due to the importance of this issue to the community and Iron Road, significant research is being investigated in partnership with others. A nation-wide and industry-accepted crop yield monitoring program (YieldProphet™) is currently being considered in partnership with SARDI and would be included in the PEPR should this program be found to be supported by the surrounding landowners and offer advantages over incident-based methods. In addition to this program, Iron Road is considering a partnership with the Minnipa Agricultural Centre for a research project that determines the locally grown wheat species tolerance to dust and saline aerosols, despite air quality concentration predictions being below potential problem levels. Both programs will be detailed in the PEPR should the CEIP be granted government and Iron Road Board approvals.
One would anticipate no cost to landowners as this problem will not occur without mining.
Again, will the PEPR be available to the public?
The Program for Environmental Protection and Rehabilitation should be public and not just between the mining company, DSD and DPTI.
Impacts to Agricultural Values (Reduced Yields or Contamination) due to Deposition of Saline Aerosols and Salts from Proposed Mine, including Post-Mining

As identified above, lead indicators will be established prior to construction to provide confidence to adjoining landowners that predicted dust deposition levels will not affect crops. A nation-wide and industry accepted crop yield monitoring program (YieldProphet™) is currently being considered in partnership with SARDI and would be included in the PEPR should this program be found to be supported by the surrounding landowners and offer advantages over incident-based methods.

Dust, pollution and contamination will not stop at the project’s footprint perimeter. If the predictions are wrong, then is Iron Road going to compensate for lost income to landowners for their average yields for the life of the mine and if ground contamination then forever?
Where is a mine of this size, CEIP proposal, in cropping areas in South Australia?
Too many risks are considered low impact, minor or negligible.

15.7.9 Justification and Acceptance of Residual Impact and Risk

Too many risks are considered low impact, minor or negligible.

16.3.2 Sensitive Receivers

Will there be independent monitoring at all these sensitive receivers?
The local community should not have to pay for monitoring.
There should be at least 12 months of site specific baseline data before CEIP project commences.

16.6.2 Management Strategies and Commitments

In order to minimise and mitigate impacts of noise during construction, operation and closure activities, control and management strategies would be incorporated into the PEPR and implemented for relevant project phases.
Will the PEPR be available to the public?

17.3.2 Sensitive Receivers

Will there be independent monitoring of noise and vibration at all these sensitive receivers?
The local community should not have to pay for monitoring.
There should be at least 12 months of site specific baseline data before CEIP project commences.

18.7.3 Salinisation of Surface Water

How saline can the recycled water become before it becomes un-useable?

19.3.3 Regional Hydrogeology

Groundwater salinity data from recent drilling investigations within the study area indicate that salinity ranges from 35,000 to 53,600 mg/L in the Tertiary sediment aquifer and ranges from 113,000 to 150,000 mg/L in the fractured rock (gneiss) aquifer (SKM 2014a) within the mine site.

How saline can the recycled water become before it becomes un-useable? The more salt the more risk to the environment.
Groundwater Model Assumptions
- Development of the Murphy South mine pit to 537 m below ground level
- Development of the Boo Loo mine pit to 220 m below ground level

The below stated before by IR:
Murphy South approximately 6.2km long, 1.4km wide and 630m deep.
Boo Loo approximately 3km long, 1km wide and 325km deep.

More contradicting figures used. 93m and 105m are huge differences.

Predicted Effects of Water Affecting Activities Post-Closure
Would not the pit fill to SWL, standing water level, of the area?

19.6.1 Design Measures
- The soil cover profile will be designed to act as a store and release cover to minimise infiltration into the landform and through-drainage into any stored PAF material. Storage of PAF material will not occur in the top 10 m layer of the integrated waste landform, to demonstrate that it is well buried within the landform.

Will it be within 10m of the sides of the IWL?
PAF material could be within approximately 90% of the height of IWL.
Contaminated water will seep side-ways as well as down.

- Abstraction of a saline groundwater resource for mine processing (considered suitable for limited industrial purposes only) which is not used by surrounding land owners and is not connected to potable groundwater resources in the region. The salinity of abstracted groundwater is expected to be in excess of 100,000 mg/L (SKM, 2014a)

How saline can the recycled water become before it becomes un-useable?
The more saline the more risk to the environment.

19.7.1 Impacts to Agricultural Production from Groundwater Level Rise due to Altered Recharge from Integrated Waste Landform

Although the development of the integrated landform will alter recharge locally, groundwater levels beneath the integrated landform are not predicted to increase during the life of the mine or post closure. As such, the impact due to enhanced recharge is considered negligible.

Although the numerical groundwater flow model does not predict any increase in the water table elevation, it is acknowledged that there are several areas located to the southeast of the integrated waste landform where groundwater is currently within 5 to 10 m of the surface. These areas may be sensitive to an increase in the water table elevation. In the event that the model predictions are incorrect, there is potential for water logging and salinisation of soils in susceptible parts of the study area.

Given only a small change to water levels may be required for impact to occur, the use of observation wells located between the integrated landform and the sensitive areas will be used to provide an early indication of potential issues and implement management options such as acquisition of the land and groundwater pumping.

The consequence of groundwater level rise from recharge from the integrated landform is considered moderate based on a localised contamination (salinisation) impact that could be remediated in the long term. With the implementation of monitoring to provide a leading indicator of potential groundwater elevation issues and inform adaptive management strategies, it is considered rare that impacts to agricultural receptors will occur due to mining operations.

If this happens what is the responsibility of IR who have left after mine closure?
20.9 Findings and Conclusion
As the most prominent visual element, the IWL will be progressively vegetated as soon as practicable to blend into the surrounding landscape. Visual impact may be increased in the event of unsuccessful landscaping for screening purposes, or if the vegetation of the IWL is delayed due to unforeseen circumstances.

How will an IWL of 130m+ blend into the surrounding landscape? Impossible until the present community all decease and the three generations time don’t know of the original landscape.

Easements and Restrictions on Land

Will Iron Road be paying for all the relocations?

21.7.1 Reduced Area of Productive Land Available for Agriculture
Further loss of productive agricultural land will occur due to other components of the CEIP (e.g. railway line, port). Combined, the proposed CEIP Mine and CEIP Infrastructure will result in the permanent loss of approximately 7,050 ha of productive agricultural land, less than 0.2% of all productive land in the Eyre Peninsula NRM Region (DWLBC 2003). Additionally, the proposed mine is located in the northern portion of the Eyre Peninsula where rainfall and crop productivity are lower than in the south. As such, the overall loss of productive agricultural land and subsequent reduction of supply in agricultural products is considered to represent a negligible impact to the overall agricultural industry and is not considered to adversely affect the sustainability of the agricultural industry on the Eyre Peninsula.

The extent of the proposed mining lease has been selected to ensure that it adequately meets the needs of Iron Road for its mining and processing operations and it is not expected that additional land will be required. It is, however, considered possible that minor boundary changes could occur, but the consequence of any such changes on agricultural production would be insignificant. The overall risk is therefore considered to be low.

In our opinion the above does not show respect to the affected landowners. Iron Road seem to forget these are real people running successful agri-businesses and have lived in the area for years. Maybe these farmers are just as successful as the farmers in the south. These farmers also support the many businesses in Wudinna which in turn employs other locals.

21.7.3 Loss of Stability of Integrated Waste Landform
Waste landform with no example of stability at proposed 130+m height.
3.5.2: Examples are only 30m height.

21.7.4 Shading of Adjacent Agricultural Land
Once fully established, infrastructure within the area of the mining lease (in particular the IWL) will represent significant vertical elements within the landscape. The IWL is adjacent to agricultural properties which rely on sufficient access to sunlight for crop growth.

Small areas of land located south of the IWL will be completely shaded in winter. Areas outside of the mining lease boundary will be permanently shaded by the IWL between 9 am and 3 pm in winter. Shading can affect crop productivity. However, the success or otherwise of crops is more likely to be dominated by factors of rainfall, soil type and management such as fertiliser, herbicide and pesticide application. This is consistent with general farming knowledge and observations of crop success in the shadow of Darke Peak (a local +200m high steep-sided hill) (pers. comm. T. Scholz). While any reduction in crop yield may be small, it still represents a long-term negative change to agricultural
land within the local study area and is therefore rated as a medium impact. The final IWL may differ in shape to the landform modelled for shadow impacts as the closure concept is refined throughout the life of the mine. As such, shadow impacts may differ from those presented above. As the overall height and footprint of the IWL are not anticipated to change, the consequences of an altered landform shape are considered to be minor, with effects to neighbouring properties able to be rectified. It is considered unlikely that the final IWL will result in a discernible change to predicted shadow impacts as the model was based on the maximum vertical and horizontal profile of the proposed landform. As such, the overall risk is considered to be low. “with effects to neighbouring properties able to be rectified”

How can this be rectified if the IWL is preventing the sun, for certain times of day, from shining on the land?
Does this mean compensation forever on that affected land?
Compensation cannot be just for the life of the mine as the IWL will always be there.
The shading will affect plant growth, crop and pasture, near the IWL. The wind pattern will also be affected around the IWL, although an IR employee has readily dismissed that suggestion.

Safety and Security

Why should this project be any different to other mining towns that we know have trouble with the behavior of some of the workforce?
The public have a right to their concerns on safety.

22.7.5 Amenity, Access and Disturbance
Displacement of Farming Families

If landowners employ solicitors to help in negotiations, will Iron Road pay for the landowner’s legal fees?
The sale of their properties will not happen if the CEIP project does not get approval.

Contribution to Government Revenue: Construction (23.2)
The CEIP will contribute significant taxes and royalties to local, State and Commonwealth government revenue. Total average government revenue during the construction period will be $17.3 million, with an average annual contribution of $300,000 to local government, an average annual contribution of $4 million to State Government and an average annual contribution of $13 million to Commonwealth Government (EconSearch 2015).
This significant contribution to government revenue will occur at a local, state and national level and is considered a high benefit.
Those figures cannot be used as todays current price is around $40 per tonne.
All Iron Road predictions on economics have to be revised.
This document contains many pages of assumptions that are very questionable.
How can Iron Road be able to submit a document, MLP, with figures based on a much higher iron ore price?

Loss of agricultural land and potential production losses (23.7.2)
The permanent loss of productive land will occur in areas unable to be rehabilitated, such as the open pit. Some areas within the proposed mining lease not required by Iron Road may be made available to local farmers for cropping and/or grazing and will support the continued operation of land in accordance with established land management practices.
Combined, the proposed CEIP Mine and CEIP Infrastructure will result in the permanent loss of
approximately 7,050 ha of productive agricultural land, less than 0.2% of all productive land in the Eyre Peninsula NRM Region (DWLBC 2003).

The revenue from this area of land has been conservatively calculated using above average and average data (yield 2-3 t/ha, price $250-300/ha, cropping intensity 50-80% and livestock $150-250/ha) and does not include any allowance for drought years. The annual revenue loss is $3.2-6.8 million. This is comparable to the predicted annual revenue range for the mine of $1.6-3.8 billion based on a conservative range of iron concentrate prices (AU$75-175). For the life of the 25 year mine, the total farming revenue is $79-171 million as compared to $40-94 billion from the mine. Thus it would take between 6,000 and 30,000 years of farming the equivalent area of land to return the same revenue as mining.

As such, the overall loss of productive agricultural land (0.2%) and subsequent reduction of supply in agricultural products (not detectable within seasonal variations) is considered to represent a negligible impact to the overall agricultural productivity and is not considered to adversely affect the sustainability of the agricultural industry on the Eyre Peninsula.

The above figures do not reflect current day iron ore prices at time of MLP application. Farming has a long-term future and mining is for less than a generation with a permanent loss of productive land. The mine impact is far larger than the footprint perimeter stated. Any loss of sustainable agricultural land has an adverse effect on all Agri-business on Eyre Peninsula.

Table 23-12 Predicted Employment Resulting from CEIP (EconSearch 2015) (23.7.3)

<table>
<thead>
<tr>
<th>Location</th>
<th>Direct and Indirect Jobs</th>
<th>% Increase in Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wudinna</td>
<td>827 98%</td>
<td></td>
</tr>
<tr>
<td>Kimba</td>
<td>11 1.5%</td>
<td></td>
</tr>
<tr>
<td>Cleve</td>
<td>67 6.0%</td>
<td></td>
</tr>
<tr>
<td>Tumby Bay</td>
<td>78 6.8%</td>
<td></td>
</tr>
</tbody>
</table>

Impossible to predict where these proposed workers will reside.

Why, in our opinion, are inconsistent figures being used in this document?

**Contribution to Job Creation: Operation**

Table 23-12 Predicted Employment Resulting from CEIP (EconSearch 2015)
23.9 Findings and Conclusion
Too many assumptions for employment in this document. With today’s iron ore price around $40, the competition for supply of goods and services will be strong and the smaller local supplier won’t be able to compete with state, national or overseas companies. We believe IR would have to cut costs where-ever possible and that questions all the figures presented in the CEIP project MLP and EIS. Other established Iron Ore companies at the moment are cutting costs and dismissing workers. This also allows experienced workers available to other projects and could cause locals missing jobs if the CEIP project is approved.
SIMGI Summary:
We, SIMGI, believe the following:
The MLP has many assumptions with inconsistent figures with unanswered questions and questionable statements.
The MLP document has many assumptions from Iron Road Limited.
The present day prices for iron ore do not make this project feasible.
Indications from affected landowners of lack detailed information from Iron Road.
Corridor Landowners do not know the exact route of the transport corridor through their properties.
No true community consultation.
There has been intimidation and bullying to certain people.
Iron Road project community consultation is only with affected local councils and two CCC groups.
There is a huge risk of pollution and contamination to the environment from this CEIP project.
A short-term mining life that is not sustainable as once all the minerals are extracted the perceived economics is finished.
We need our food producing agricultural land.
Land that will continue producing, especially with modern farming practices, well into the future.
There are plenty of non-agricultural areas for mineral extraction.
What Insurance policies does Iron Road have in place?
Public Liability Insurance with every individual landowner, farm businesses, lessees, sharefarmers and anyone listed on land titles recognised on the document?
Will IR sub-contractors have sufficient insurance cover?
Most farmers would have at least $20 million cover but it would have to be a far bigger cover by Iron Road considering the many affected farms near the proposed mine site and along the transport corridor.
Iron Road indicates some landowners might be able to shift machinery and stock along their transport corridor road.
What insurance cover does the landowner need if using this road?
What insurance cover for extremely saline water from Iron Road bores that could leak onto Council land and farming properties? Or is the onus on the local councils that have some of these bores on their roadside land?
What insurance cover against train derailment for property, environment damage and contamination?
Is Iron Road paying for all costs associated with all land title transfers?
Are Iron Road paying for the cost of materials and labour for realignment and establishment of new water points for stock, new pipelines, new gate paddock access and farm road ways that are impacted by the transport corridor?
Is there compensation for disruption to land phone services?
Is there compensation for disruption of water supply?
Is there compensation for disruption of Power Supply?
Is there compensation for agistment of stock if the corridor is not fenced before construction of infrastructure begins?
Will Iron Road fence the complete transport corridor?
Safety for public and livestock: the insurance policy would require this corridor to be fenced.
Will Iron Road fence the sections before construction starts?
How will Iron Road access this corridor for construction?
Landowners should not have construction vehicles/machinery driving anywhere on their property.
Iron Road must stay within their boundary if this project is granted!
Driving on farming properties will cause erosion to soil that would not have happened if the projects were not granted.
Money cannot buy everything or reinstate lost soil.

Under the MLP if property owners don’t agree to sell IR, they are taken to ERD court
What happens if the corridor landowners don’t agree to sell their land to IR?
Will Part 9 of the Development Act 1993, acquisition of land, then be enforced?

The following might not be what is required in submissions but DSD and DPTI, at Cleve in December, stated unless it is in writing what-ever is verbal does not count.
SIMGI believe the following:
“In our opinion the whole process from exploration to MLP and EIS is wrong.
The system wrongly promotes to the general public that the government and mining companies are listening to and involving the affected landowners, but are they understanding.
There is no true community consultation.
Workshops by mining companies or government departments where they talk down to people.
A lot of presenters involved do not know how to communicate with country people.
After workshops or presentations, the affected community usually think what a waste of time and did they really listen to concerns.
Affected community are volunteers and are not paid when attending, but the mining company and department representatives are paid in their normal job.
Community members have to take time off work or go after hour to these meetings.
There seems to be little consideration or is this the plan when timing these events?
Only hard copies supplied to directly affected landowners with a fee for anyone else wanting copies.
USBs are very hard to study and comment from.
Ten weeks to study 4880 pages and write a submission is ridiculous! (From December 6 to February 2.) Have to read and comment on the average of 82.71 pages per day.
Long harvest days have many people working 12 hours plus and quite often the partner is involved as well. When the weather is favourable harvest continues without many farmers taking a break to secure their income for the year.
What reasonable spare timeframe do farmers and their partners have to make a submission during this period?
The time limit and busy period of year, harvest, make it unreasonable for the community, as yes, they do have holidays after harvest and during January, to work in with their yearly farming program.
School holidays are during January so where is the time to relax if one has a young family? Notice DPTI close over Christmas and DSD has a reduced staff.
The community have to study the proposal after hours or on weekends. Council offices are shut from 5pm and on weekends and impossible for several people to read the one hard copy at the same time in the council office.
Libraries are not opened all weekend for reading of one hard copy. Some of the USBs did not open on some of the community's computers.
Iron Road, one would think, should only be too obliging to provide more hard copies. After all IR have much to gain if the proposal granted so why is the reluctance to spend, very little money in the scheme of the process, to supply the community with more hard copies?
The Tumby Bay Library only copy was of the EIS and no MLP. The project does involve the District Council of Tumby Bay and all its ratepayers.
In submission writing you are damned if you do and damned if you don’t.
Contents in submissions only help the proposed mining companies to make sure they have covered everything.
The whole prolonged process by mining companies and government departments wears the affected community down.
Some people cannot be bothered to spend hours writing submissions that will help company on anything it has missed.
After attending these presentations and workshops many people are very disturbed by the attitude of the mining company and government departments.
People with viable businesses are feeling squashed by governments trying in invent a bigger labour force and supporting overseas companies with a short-term future.
In our opinion if or when a MLP and EIS is granted the process then is in favour of the mining company.
The government departments say, yes, and have nothing to do with negotiations of land purchase and access. The government departments “walk away”.
Many landowners have to employ solicitors to safeguard their rights and businesses.
The stress and pressure on the landowner to agree and sign is enormous from then on.
The pressure of supporters of the mine and transport corridor and Port, presumably the Local and State Government and some local community will be extremely great.
The Department of State Development is the promoters/facilitators of mining and also claim to be the Regulator. 
This is a huge conflict of interest in our opinion. 
The affected community only has one chance to write a submission with no allowance to re-address their concerns. 
The mining company on the other hand has many opportunities to keep altering the proposal until it is acceptable to DSD and DPTI.
We believe this process is extremely unfair and wrong!

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Bronte Gregurke  
Keith Coventry  
Stop Invasive Mining Group Inc.  
epsimgi@gmail.com  
www.epsimgi.com
2 February 2016

Attn: Business Support Officer
CEIP Submissions
Mining Regulation
Department of State Development
GPO Box 320
Adelaide, South Australia 5001

Dear Sir/Madam,

PUBLIC SUBMISSION (EIS)- CENTAL EYRE IRON PROJECT

Thank you for the opportunity to provide a public comment for the Central Eyre Iron Project (CEIP) being developed near Wudinna by Iron Road Limited. RESA welcomes the opportunity to comment on the workforce and skills impact of this project.

RESA is a not for profit industry organisation providing organisational and workforce development advice and services to the mining and resources industry to build job opportunities, skills and productivity of the industry, and its supply chain. RESA achieves this by coordinating and facilitating industry programs, working with business and government, and brokering support for organisational development programs. Our purpose can be summarised as, more resources jobs for South Australians, a more highly skilled resources workforce and, improved capability of resources and supply chain businesses.

It is with this remit in mind that RESA provides comment on the EIS that has been developed by Iron Road Ltd, as part of their Mining Lease Submission.

Throughout the EIS, Iron Road proposes a series of "Control and Management Strategies", successful delivery of these strategies in conjunction with the development plans, will benefit the Wudinna district, Eyre Peninsula and South Australia as a whole through skills, capability and workforce development for the State.
Building industry and community capability

The CEIP EIS anticipates there will be substantial direct and indirect business opportunities for local, regional and state-wide businesses, through direct procurement of goods & services to the company and employees, and to other sectors (such as contractors) within the region.

To ensure benefits flow to all South Australians, measures need to be put in place to ensure strong regional and aboriginal employment as well as local procurement practices that support resources developments.

Regions and communities will be more supportive and become more resilient within a setting that supports:

- Small and Medium Enterprise (SME) development. Frequently regional business are SMEs, to further strengthen these regional businesses and support them to win packages of work within the sector, business skills development, including business model innovation, will assist in building their capability. This can lead to new suppliers and more competitive products and services and the potential to develop State, National and export markets, A focus on appropriate regional vocational skilling will support diversity within the workforce. This will allow communities and individuals to be more competitive for vacancies within the sector, this outcome is likely to flow across and benefit allied industries such as agriculture, fishing and forestry, increasing the regional workforce’s adaptive capacity and making them safer and a simpler choice for employment,
- Engagement with all levels of schooling to encourage the uptake of STEM subjects to lead to a stronger future of regional employment across all levels of the sector,
- Encouragement of Indigenous SME development, employment, skilling and mentoring, will ensure Aboriginal people can engage in the economic and social benefits that result from resources development, particularly on their traditional lands.

As a foundational aspect of a mining operation, support for regional employment and upskilling needs to be embedded within the project strategy to best realise the benefits of the project for the community and all South Australians. This assists in demonstrating social value which is earned by real consideration of the community as a partner in the development and sharing the benefits of the development. This includes providing meaningful employment and upskilling opportunities to people within affected communities.
Control and Management Strategies to support the growth of industry and community capability have highlighted programming to assist businesses locally to identify opportunities and assistance with the procurement process. There is programming in place at RESA to assist SME’s with the development of their business capability into the resources sector which would complement this strategy well.

As noted in the EIS, Iron Road intends to employ locally during the construction and operation of the project. RESA completed the “Whyalla & Eyre Peninsula Workforce Scoping Study” in 2011 and a series of workforce reports for the sector over the last five years which provides data on current and forecast workforce figures within the mining and processing operation for the region. These study indicates that should this project go ahead, the impact on the region will be quite positive in terms of employment and skillling. Iron Road’s EIS indicates that they will seek a largely DIDO/FIFO workforce for construction; however RESA believes that, and our Studies show, that the likely workforce profile would allow considerable opportunity for local employment at the semi-skilled/operator level. RESA would be prepared to work with Iron Road to develop a strategy of local employment and skills development for the construction phase, to continue positive community engagement as the project develops.

**Local and regional employment**

The CEIP has pledged to boost local and regional employment by committing to at 40% local employment target in the first year of operation, with that increasing to 60% residing locally by year five of operations. To support this, Iron Road states that it intends to develop policies and/or offer incentives to encourage the CEIP Infrastructure’s operational workforce to reside locally. In line with local employment weighting, encouraging employees to reside locally will benefit the region (especially the DC of Wudinna) greatly, by increasing the viability of schools, hospitals and other public services such as health programs, policing and services.

The EIS indicates that the CEIP projects anticipates that there will be a greater opportunity for regional and local businesses to tender for contracts during this time, which will contribute to local employment and business growth.

RESA supports a strong platform of local procurement that will assist Iron Road in developing a strong local and regional workforce, regional schools careers programming (with industry on the Yorke Peninsula) and training programming to maximise the local employment for the project. RESA is able to provide advice on workforce planning.
Regional workforce and skills development

Iron Road indicates it is committed to ensuring, where possible "local and regional community member participation in the direct employment and supplier opportunities arising from the CEIP". The workforce and skill requirements gaps will need to be carefully monitored to ensure that the region is well prepared to participate with the project.

In order to not impact industries of similar skill sets, such as agriculture, fishing and construction, the CEIP should consider the impact of increased wages and employee competition on the region.

Control and Management Strategies, which include working with regional TAFES to consider vocational and pre-voc programming to support local entry into the resources sector are a positive opportunity for the region. Iron Road, should also consider working with the allied industries to ensure that skills programming assists them with any losses they experience.

RESA supports Iron Road Ltd in its efforts to progress the CEIP on the Eyre Peninsula, for the benefits that it can bring to the regional communities on the Peninsula, as well as the flow on affects that will positively benefit South Australians as a whole. RESA is keen to work collaboratively with EP projects to ensure jobs, skills and capability which benefit the community.

Should you require any further clarification on the points raised here, please don't hesitate to contact me on (08) 7325 8507 or electronically at Phillip.decourcy@resa.org.au

Yours Sincerely

Phillip De Courcey
Chief Executive Officer
Resources and Engineering Skills Alliance
Population decline

A small snapshot of the population decline on Eyre Peninsula is presented in the IR documents, a longer term outlook would be more useful.

The population decline in Wudinna DC is a result of children leaving for schooling and University. The town’s population has become more affluent in recent years, allowing many more children to be sent away for schooling. Furthermore, in the last 25 years there has been about 30 acres of houses built in Wudinna, not bad for a town with a ‘drastic decline in population’ according to IR documentation.

Iron Ore Price

Iron Ore prices are currently low, outlooks are not looking positive, and some analysts have predicted that the price of iron ore could halve back to where prices were 10 years ago.

Q. If the mine becomes unviable, how does the community have confidence there is sufficient funds put aside for remediation works of the site and environs?

Q. The funds for remediation need to truly reflect the true cost of remediation or again the cost will fall to the community. DSD at community meetings have not been able to give an example about a mine which has satisfactorily been closed.

Community time

The amount of time this project has ‘cost’ the community is ridiculous, with time spent at meetings, reading, undertaking research and CCC meetings at which very little has been achieved. The CCC could hardly considered community consultation, as questions posed by community members were not answered satisfactorily by IR and true minutes were not kept.

Q. How is IR planning to engage the community in the next phase of the mining operation, as their track record is hardly explanatory?

My experience with this exploratory stage of mining has left me with the view that maybe mining for bulk materials should be exhausted in pastoral area before being allowed in agricultural areas, especially when this mine is marginally profitable at best.

Meetings

Any meetings with families, individuals or farmers effected by the mine, IR have never provided any minutes or notes, so it will be always be he said/she said scenario, hardly satisfactory in this day and age.

Q. Will IR provide effected peoples with notes/minutes of meetings as requested?
IR also failed, until reminded that support services are needed by a community when its members are devastated by an upheaval such as a mine. In small close communities where farmers see their land as part of their identity such services should automatically be offered rather than the company being reminded of their responsibilities.

Q. Will IR continue to offer support services including funding of financial, legal and other support as needed by effected landholders to enable them to make decisions on their futures?

Productive land

It is stated by IR that the loss of productive agricultural land, will only effect 0.2% of EP productive land (which is assumed to include grazing land) the figure reported should be the percentage of arable land which is to be effected. As ultimately most of the land in the mining foot print will be gone from arable agriculture.

It is also stated in the IR documents that if this mine goes ahead all other magnetite hot spots (5 or 6 hot spots in total) in the district may become viable to mine. Each one of these taking out a farm and neighbour. This mine has the potential to take over 1% of EP arable land (note the difference from IR productive land estimation)

Q. When will IR come clean with the community and politicians the true ‘cost’ of this mine in terms of loss of productive arable land?

I suspect most workers will be drive in drive out, and this may put pressure coastal and other urban centres such as Port Lincoln resulting in more agricultural land being subdivided into unproductive parcels of land.

Dust

IR documents state there will be no dust of an inconvenience. We have seen what a ‘no rust rule’ looks like at Iron Knob and Iron Duke. The scary thing about the dust from the proposed IR mine is we do not know what the dust of composed of.

The risk to agriculture and surrounding vegetation is that if the dust contains salt, which is more than probable as it will be coming from the waste heap and the operation. The dewatering water and other water used for dust suppression is up to 5 times saltier than sea water. So it more than likely that the dust will contain salt, and large quantities of it.

The salty water is going to be mixed in with waste dirt to make a heap 135 m high and cover some 2000 acres. The evaporation rate of this area will be huge, leaving salt to increase in concentration while more and more salt water is added for dust suppression.

Q. What is the risk to agriculture from salty dust?

Q. What is the risk to native vegetation from salty dust?

Q. What plants are likely to grow on the waste heap and IWL, is something that is yet to be explained. During pumping tests conducted locally during the exploration phase the extracted water was released into a local wetland and killed seablite and samphire - two plants well known for their salt tolerance. The ‘dream’ to revegetate the waste heap and IWL areas remains to be seen, yet our community will see for an eternity.
Our soil and air already have high levels of salt, in fact as a farmer I can get a yield response by simply spraying summer weeds and diluting the ground salt levels. I suspect any extra salt in the air could have dire consequences for agriculture.

Q. Is IR going to compensate farmers from lost production as a result of dust and salt borne dust? Or are farmers going to have to take IR to court to receive compensation?

It is stated that the dust will not exceed 2 g/m²/month above background levels. This figure has been adopted from NSW, where higher annual rainfall is received allowing more washing and leaching of salt from the plants and soil.

Q. Are acceptable dust levels going to be revised for low rainfall environments such as Central EP, if mining is to be permitted in mixed (cereal/livestock) zones.

There is going to be run off, from this new mountain of waste and the IWL, it is stated that they with keep this water within the site, however over time some may enter adjoining land.

Q. How will runoff be stopped from entering adjoining land over time taking with it whatever pollutants it contains?

Potential damage to buildings

IR documents state there is a low level of risk of properties and individuals being effected by noise and vibration from blasting.

Q. Who is paying to put in baselines e.g. photos, building inspections and reports in any susceptible houses and buildings in proximity to the blast area (~15 km radius) or will this be another cost burden to the neighbours of the mine?

Environment

Given that hens cannot hatch chickens out in a blast area, do other ground nesting birds have same problem? Quails, plovers, sky and ground larks, mallee fowl, bustards, kingfisher.

Q. The failure of the mine to trigger the EPBC needs to be revisited as the mine will negatively affect Mallee Fowl populations in the mine footprint and reduce and fragment areas of habitat with their infrastructure.

The permanent draw down of ground water is going to have negative effects on all wetland vegetation surrounding the mine.

Q. How will landholders and the environment (Native Vegetation Fund) be compensated for loss of environmental values and assets in their property which are not in the mining footprint?

Grain port

Claims have been made that the port may save producers $10/tonne, but costs to grain producers are likely to increase more than this due to inflationary factors associated with the mine (e.g. cost of labour, cost of recreation, cost of housing), devaluation of surrounding land and the cost of lost production in grain and harvest due to dust and salt.
Train

While it will only take 53 seconds for a train to pass a point, it will take considerable longer for the noise to pass creating inconvenience for neighbours and beyond of the rail corridor.

Q. What steps is IR going to take to minimise noise pollution from trains – building of noise barriers, planting of native vegetation?

Waste

Iron Road make reference in Figure 14.1 to the Zero Waste hierarchy, however during the exploration phase IR was unable to observe this hierarchy, and had to be told to recycle their returnable cans and bottles, as were over filling the skips at the waste depot at Warrambo. IR also buried plastic bags associated with core samples on private property, these should have been disposed more appropriately,

Q. How is IR going to commit to this hierarchy when they have an unfavourable track record?

Drought

In Figure 7.6, 2014 rainfall deficiencies are shown for the period September to November 2014, this is hardly surprising for an area which has winter dominated rainfall patterns, and IR should know as they are in touch with the community that 3 months rainfall figures do not make a drought!!!!

Q. IR should use a more realistic figure to explain the effects of drought......
Iron Road Mining Lease proposal for ‘Central Eyre Iron Project (CEIP)’

I wish to submit this submission in strong opposition to the Central Eyre Iron Project proposed by company Iron Road Ltd for the reasons outlined below:

• **Reduction of Prime agricultural land**

Only 4.3% of land in SA is available for dry land cropping (non-irrigated). Eyre Peninsula (EP) is one of Australia’s highly productive agricultural regions. Iron Ore is not a scarce commodity and it is presently in low demand around the world due to oversupply, which in turn has caused the sharp decline in its commodity price.

The proposed CEIP Mining Lease area covers a huge area of 8,458 hectares, of which Iron Road has acknowledged a total of 5,174 hectares of land will be lost on a permanent basis post mine closure (p.21-15 ‘Land use & Tenure’). This equates to a permanent loss of 61% of highly productive cropping land on EP, not including the land within the transport corridors for this project.

CEIP has an expected mine life of approximately 25 years, whereas agriculture is infinitely renewable, and will continue to feed Australia and the world for the next 1000 years. Invasive mining (such as CEIP) and agriculture **CANNOT** co-exist in areas of intensive farming such as Eyre Peninsula. Mining destroys the very land that agriculture depends on. Once the farm land is gone......it’s gone FOREVER!

• **Exempt Land/Waivers of Exemption**

The entire CEIP is situated on Exempt land under Section 9 of the Mining Act 1971, due to being cultivated land and within close proximity to houses and/or sheds. At the time of writing the MLP, Iron Road did not have any registered Waivers of Exemption and had therefore not entered into any agreements with any landowners to access to their land.

As this land is Exempt from mining, this project should not be approved in this highly productive region but in outback Australia.

• **Food Security**

By 2050, the world’s demand for food is expected to rise by 70%. With increasing world population and decreasing amounts of prime agricultural land, preserving EP’s agricultural viability is critical for food security both in Australia and the world.

Invasive, open-cut heavy metal mines, such as CEIP, pose a serious threat to food security on Eyre Peninsula.

• **Dust contamination of crops/pastures**

If wind-borne mine dust contaminates crops and pastures on EP, this could threaten our overseas grain and livestock exports.
Decrease in productivity

Mine dust deposition on leaves of developing crops reduces the plant's ability to photosynthesise; thereby reducing plant growth, crop yields and quality or even causing the plants to die. Dust deposition on pasture paddocks could have the same effect on livestock feed.

Loss of Income

If farming productivity is decreased due to dust deposition, crop/pasture contamination, or due to some/or all of their farmland being required for mining operations/infrastructure then the farmer will suffer a loss of income as a result.

Decrease in land values

Land would decrease in value due to being located next to a large-scale open-cut heavy metal mine, as no-one would want to live in a mine's vicinity due to the heavy impacts associated with a mine (dust, noise, lights, risk of contamination etc.). Farms which were in the close vicinity of a mine would have difficulty trying to sell their property due to all of the negative impacts I have outlined.

Succession Planning

Farmers would be unable to pass on their farms to their children if land is taken over/and or damaged/contaminated by mining operations.

Contamination of soils

Toxic dust from the mine site could cause sterilisation of the soil and would render it infertile and unable to produce crops.

Contamination of water supplies

Dust emanating from the mine could lead to contamination of rainwater tanks (most farm households are self-sufficient and totally rely on rainwater for drinking etc.), dams & livestock drinking troughs.

Blasting

The vibration and noise caused by large daily blasts at the mine site would disturb livestock within the mine's vicinity, and cause undue stress to the animals. Cattle especially, could get spooked from the vibrations resulting from blasting activities. There is also the potential risk of damage to housing and infrastructure within the vicinity of the mine, as there may be a lot of old, original stone farm homesteads in the area which may not be able to withstand large blasts from the mine.

Noise & Light Pollution

As the proposed large-scale mine would operate 24/7, 365 days a year for the next 25 years; livestock would suffer stress due to deprivation of quiet rest at night. Farming
families and surrounding communities, such as residents of Warrambou (within 750m of the ML boundary and only 5kms of the pit) would be expose to increased health risks due to sleep deprivation caused by bright lights at night and constant noise.

**Family health/well-being**

Fear for their own and their family's health/well-being due to the potential impact of mine-generated contaminants & sleep deprivation. Farmers have experienced high levels of stress and in some cases depression, caused by years of fighting for their right to farm and refusing access to their land by Mineral Exploration companies.

**Dust**

Dust emanating from the mine could travel many kilometres, especially in strong winds such as on FP. Many farming families rely entirely on rainwater or groundwater, as they are not connected to mains water, so dust could contaminate their rainwater tanks used for drinking. Dust also causes a risk to human health, especially for asthmatics during the drier months. Household tasks such as drying clothes on a clothesline would be made difficult due to the dust emanating from the mine site.

**Noise & Lights**

The mine would operate 24 hours per day, 7 days per week, for every day of the year for the next 25 years. Rural communities are exposed to very low levels of noise, but during the night there is virtually nil (apart from the odd car going along the main highway or birds). During still, calm nights or strong winds the noise from the mine site would be most noticeable and this would cause sleep deprivation for surrounding townships.

- **Minimal Rehabilitation Plans** – Once the proposed CEIP is completed, there is to be very minimal rehabilitation (ie. Returning the land to as close as possible to it’s pre-mining state/land use). The pit will not be backfilled, instead it will be simply made safe for the public and to prevent public access. The waste rock dumps will not be returned to the pit, but will remain. The community will be left with a toxic pit lake and an eyesore.

The pit lake water level (post mine closure) would take 1000 years to stabilize (p.3-72), at approximately 335m below the pre-mining groundwater level, and as such a permanent cone of depression is predicted to form around the proposed two pits. This is a serious environmental issue which would have devastating impacts on landowners surrounding the ML.

**Dust Suppression methods/Pit dewatering**

Saline water is proposed to be used for dust suppression which could sterilize the soils and prevent future crop production.

**Increased traffic to/from the mine site**

The Highways would see an increase in traffic due to the proposed mine and it's workers, especially during the construction phase. This could cause a decrease in
public safety on the roads at the already busy peak holiday periods and during the harvest period.

**Flora & fauna** - The native flora may die due to the dust deposition from the mine containing contaminants, native fauna (eg birds, wombats) may decrease in numbers in the area due to the noise & vibrations from mining operations/ blasting, or die if they drink/land in the tailings dam at the mine site due to it's toxic contents. Air quality would deteriorate due to the dust from the mine causing possible health impacts to native fauna.

**Destruction of prime fertile soil** - The removal of topsoil at the mine site in preparation for building mining infrastructure and then placing it into a stockpile for many years would decrease it's fertility and possibly even become sterile, as it can only be stored for a limited time.

**Destruction of Prime farmland**

As the open-cut pits, one of which is 6.2kms long, 1.4kms wide and 630m deep, will not be backfilled with the waste rock dumps at mine closure, all of this prime farmland located in the pit area and the vast waste rock dumps and tailings dam ), will never be returned to cropping again, and will be lost forever. The mine life is only 25 years.

**Groundwater Levels**

The pit dewatering may affect groundwater levels due to the huge amount of water that will be drawn down for pit dewatering, causing a significant risk of reduced sub-soil moisture levels and crop production within the mine site, and surrounding local area.

**Wrong Location**

The proposed CEIP is in the wrong location. There are huge environmental risks associated with a large-scale invasive, heavy metal mine, such as CEIP, as it is to be located in a densely populated prime agricultural & tourist area. These types of mines are generally located out in the remote areas of Australia's outback, which are sparsely populated and not prime agricultural areas. I am not anti-mining, however, invasive mining needs to be in the right location, not on EP.

**Jobs**

There may be a FEW local jobs created, however, these are only short-term. CEIP would be a FIFO or DIDO project. Not many new jobs would be created in the local area, the jobs would simply be taken from another sector and put into the mining sector. Some local businesses could lose workers to the CEIP, because of the promise of a higher salary, however, this is only short-term.
The agricultural industry would suffer particularly, as they would take jobs from the agricultural industry and lure them to the mining industry, due to the attraction of a higher salary offer. This would have a detrimental impact on local agricultural businesses who rely on these workers.

Local businesses may think that they are set to gain an increase in their business through the proposed CEIP (eg food purchases, hardware), however, large mining companies generally organize their own bulk purchases from outside the local area (eg Adelaide). Full catering would be at the mine site, so there would be no need to purchase groceries at the local stores and everything would be purchased in bulk from Adelaide or beyond, not locally.

There are very few benefits of the CEIP or the local population.

- Apart from the negative impacts caused by dust, noise, lights, and vibrations from blasting, another big issue associated with mining is the social issues it can possibly cause within the local townships.
- Due to the high wages paid to mine workers, this can result in drug & alcohol related social issues in the local area, and at Mine Camp sites.
- There could be an increase in crime in the local area, putting pressure on our local police personnel, which in our local area are few in numbers.
- Extra pressure would be put on the local hospitals & doctors due to a possible increase in admissions due to work related injuries or social incidents.
- Rental properties could significantly increase in price due to the possible increase in demand due to short-term workers at the mine, causing a decrease in vacancies for locals and maybe even causing evictions due to the unaffordability of the increased rental rates due to the proposed Hillside mine.

1. What are the drawbacks for the land holders affected

**Drawbacks for the land holders affected are:**
The major stressors identified by these families include:
- Not knowing whether they will lose their farm and livelihood, which, in at least one instance, has been in the family for four generations;
- Unable to plan for short and long term improvements to the farm due to lives being in limbo
- Despair their hard work put into improving their farm will have been for nothing
- Not knowing if they can pass on the farm to their children (succession planning)
- Threat of possible court action by the Company to obtain a waiver of exaction over their land
- Financial concerns eg the mounting legal costs incurred in defending their property
- Less time to spend with their family/children due to long hours spent each day doing research and paperwork re Hillside
- Strain on personal relationships due to stress/pressure
- Negative health impacts – stress/anxiety, illness, depression

**Compensation for Heritage**

There is no amount of money that could be paid for a fourth generation heritage farm, such as those affected by the CEIP, which has never been owned by anyone else other than their family. They have 140 years of knowledge about their farm, which is specifically about their farm only. Farms on the EP are very tightly held within farming families, and prime farmland does not readily become available for sale. More importantly, which a lot of people do not realise, is that farming is not only our business, it is EVERYTHING, our family life, rest and play.
It is better to have farmers crop the land for generations to come.
Mining has an end point, but farming is an infinitely renewable industry.
Farmers care for the land they farm, they take care of it and nourish it, and will continue to feed Australia and the world for thousands of years to come.
After 25 years of mining at CEIP all that will be left is one big hole in the ground and huge, ugly waste rock dumps, forever, never to be cropped again. Is this how we deal with food security and increasing world populations?

- **Summary** – The negative impacts from the proposed CEIP far outweigh the benefits as I have pointed out above. It is inconceivable that the Government would grant a Mining Lease for a proposal which does not have a net benefit for the community. The CEIP is proposed for the wrong location – a prime agricultural and tourist area, densely populated.

- The location of a new proposed mine should have been considered a top priority or major deterrent when the State Government made an assessment for a large-scale, open-cut heavy metal mine such as CEIP
- . The CEIP Mining Lease Proposal should be rejected for this reason.

A more suitable location for invasive mines, such as CEIP, would be in the remote outback of Australia.
Proposed Central Eyre Iron Project (CEIP)

Iron Road Limited
2nd February 2016

Government of South Australia
CEIP Submissions
Mining Regulations
Attn: Business Support Officer

To whom it may concern,

Our Ref: CEIP-16.02.033

With the approval of the Proposed Central Eyre Iron project we would anticipate the below economic and social benefits for the state of South Australia, surrounding communities, Iron Road and awarded suppliers;

Employment Opportunities

- Direct and indirect job opportunities associated with the project sourced locally.
- Supporting job opportunities for the community, i.e. teaches, doctors, nurses, government employees, utilities providers, local businesses, etc. due to population increase.

Infrastructure

- Improved rail and port infrastructure for existing and new business’s on the Eyre Peninsular
- Upgrade to the electricity network across the region
- Iron Road have pledged to complete upgrades to the road network at no cost to local government.
- The potential upgrade to the Wudinna airport by the Wudinna District Council
- Infrastructure from the proposed CEIP could potentially be utilised for community emergency assistance, site, community and marine services.

Economic Benefits

- Potential to decrease local unemployment rate.
- Population growth to South Australia
- Expanding tourism opportunities
- Government royalties
- Funding for future Government projects

Technology and Innovation

- With the use of non-traditional mining practices of In Pit Crushing and Conveying (IPCC) will reduce dust and noise impacts and require lower use of diesel.
Yours faithfully,

Josh Maher
Area Sales Manager
Surface Mining - Australasia

08-9270-0727 - Phone
0439-672-199 - Mobile
30th January, 2016

Dear Sir/Madam,

Re: Development of Central Eyre Iron Road Project (CEIP)

Corporate Aircraft Charter (CAC) has made significant investments to assure specialist aviation supply throughout Australia, and in particular, remote South Australia.

CEIP’s investment in South Australia and the Eyre Peninsula offers significant opportunity for South Australian employment and exceptional direct contribution to the local, state and national economies.

Proudly South Australian, as a potential supplier, that resulting services provided to CEIP would result in potential increased local employment in the following areas:

- South Australian based pilots;
- Improved aerodrome facilities to the local communities; and,
- Locally based aerodrome managers.

CAC is able to provide the CEIP of exceptional, innovative and specialised tailor-made aviation solutions, assuring the supply chain for both personnel and cargo.

CAC strongly supports the potential CEIP development and the associated social and economic benefits.

Yours sincerely

Chris Anglberger
Managing Director
Please find enclosed the Associations’ response to the Mineral Lease Application and Environmental Impact Statement lodged by Iron Road Limited for its proposed Central Eyre Iron Project.

This response has been developed in consultation with the Port Lincoln Residents & Ratepayers Association Inc.

Given the time constraints of the deadlines for both the MLA and EIS responses placed upon members, a number of sections of the MLA or the EIS have not been commented upon.

The expectation of the Department (Government) to comments on a collective document of some 4,880 pages given the time of year is clearly designed to discourage considered public opinion on the matters raised. This is further exacerbated by the fact the community had just completed a response to the MLA (1,100 pages) pertaining to the Kookaburra Gully Graphite proposal.

Community resources (being volunteers who are working mums and dads) are not able to provide the time required to adequately respond to such demands. Time constraints more akin to what might be achieved by full-time employed staff (e.g. government departments) to review, analyse, investigate and respond.

The lack of a hard copy for the Associations to consider unless paid for by members is a further dis-incentive to respond. Maybe, when the NBN is fully functional, might country residences have reliable internet service available and thereupon warrant everyone having a computer upon which to read a data CD that government expectation clearly relies upon prematurely.

The assumption that all members have access to high speed internet access to download a large file without being constantly disconnected is also mis-directed government assumption.

It is further noteworthy that no public meeting sponsored by the applicant has been held in Tumby Bay to explain the content of the MLA or the EIS and to enter into debate on issues arising. In that regard, the Associations put the position that the applicant has failed achieving a realistic Social Licence to Operate for this project and has effectively generate deep seated distrust.

It is noteworthy that the economic impact assessment has failed to consider the current global market trends in commodity prices and the supply and demand of iron ore, especially with China.

The position held by the Associations may be summarised:

a) the economic analysis of the project is flawed,

b) there are significant environmental issues that have been ignored or glossed over,

c) the baseline data in relation to noise and dust affecting individuals in the vicinity of the mine; the transport corridor and the port facility is non-existent,
d) the meteorological baseline data that underpins noise and dust dispersion is not site specific, 

e) there are significant aspects of the application that are subject to 'future work' the outcome of which is not subject to public scrutiny, 

f) the claimed benefit to Australian industry is not demonstrated in light of the stated position that all modular components will be constructed off-shore, all cement and railway components will be provided by China manufacturers, and 

g) that the applicant does not have a 'Social Licence to Operate’, given the paucity of information provided with respect to the health and environmental impacts of the project.

It is further noteworthy that no agreements (or MoU's) exist with Local Governments for impacts by the proposal, except for the MoU pertaining to the Wudinna Airport upgrade.

A further feature of the proposal is the complete non-transparency of 'communications and outcomes' of discussions 'apparently' held with the District Council of Tumby Bay, as evidenced in the official Minutes of Council Meetings.

Given that the existence of infrasound has been completely ignore in the application, the Associations have included copies of a number of articles on this issue with the expectation that the issue will be recognised and addressed in an appropriate manner.

Yours faithfully,

M. Stevens
Chairperson
Tumby Bay Residents
and Ratepayers Assoc Inc.

Glenn Fowler
Chairperson
Port Lincoln Residents
& Ratepayers Assoc Inc.

In association with

Port Lincoln Residents & Ratepayers Association Inc.

www.plrara.com.au

e-mail: secretary@plrara.com.au

Cc: The Hon. Peter Treloar MP, Member for Flinders
RESPONSE TO THE MINERAL LEASE APPLICATION
IRON ROAD LIMITED CENTRAL EYRE IRON PROJECT

Background
It is noted previous exploration activities in the area were undertaken by a variety of companies leading to the take-over of the Exploration Licence EL3699 (Warramboo) by Iron Road in June 2008.

It is noted that "much of the surrounding terrain consists of granites of the Hiltaba Suite, characterized by high background levels of Uranium in the order of 10-12ppm Uranium compared with 4-5ppm for other granites" (Eyre Energy Limited Prospectus, Independent Geologist Report, H C Paterson, 12 July 2007). The pre-history of the exploration of this area is available in Open File Envelope No 10624 (includes EL2846 from which EL3699 was excised) under the auspices of Eyre Peninsula Joint Venture Project between Adelaide Exploration Ltd (wholly owned subsidiary of Adelaide Resources) and Quasar Resources Pty Ltd.

EL3699 subsequently became EL4898 under the control of Iron Road Limited.

It should be noted that the previous exploration activities were interested in uranium and it compounds, having regard to the existence of a number of palaeochannels in the region.

The presence of uranium etc. is of concern and one which has been raised with the company, but not, in our opinion, adequately dealt with.
MLP 01 Introduction
The Iron Road Limited Central Eyre Iron Project (CEIP) has as a part of that proposed development a proposed mine (CEIP Mine) which is within a centralized area of Exploration Licence 4849 (EL 4849).

The Mining Lease Application (MLA) is for that CEIP Mine which is within a registered Mineral Claim 4383 (MC 4383).

Comment 1
The extent of EL 4849 needs to be provided as this is but one mine in potentially a number as indicated in advice to the Australian Securities exchange (ASX) as well as in the Definitive Feasibility Study (DFS). The environmental impact therefore needs to be determined over the whole of EL 4849 and not just that related to the MC 4383. The accumulated impact is not known.

Comment 2
The MC 4383 is registered over a significant area of Exempt Land (Mining Act, Section 9(1)).

The legality of the Mineral Claim (MC) needs to be established in accordance with the Mining Act 1971 (the Act) which clearly states a claim may be pegged, but . . . “unless the benefit of the exemption is waived under section 9AA, no claim, lease or licence shall authorise prospecting, exploring or mining upon such land” . . .

The issuing of a Mineral Claim (which is questioned in the first instance) is not able to be the authority for the registration of a claim (MC 4383), the issuing of a lease or licence (Mining Lease/Licence) when Exempt Land (as admitted by the Company) has not been waived. “Exempt Land shall be exempt from mining operations in pursuance of this Act”, (Mining Act, Section 9(1)).

The intent of the Act MUST be complied with.

Until compliance with the Act is in effect, the issuing of a ML subsequent to any accepted Mining Lease Application (MLA) and/or the issuing of a Prescribed Notice in pursuance of the Act are each a mining operation, and cannot legally occur.

Comment 3
The major shareholder of Iron Road Limited, being ‘The Sentient Group’, is an off shore company with its head office in the Cayman Islands.

Comment 4
EL 4849 and its associated PEPR enables Iron Road to undertake exploration activities.

The question now arising is one of the legality of the Notices of Entry obtained under the EL 4849 and duly signed by the landowners in the absence of presentation or knowledge of the contents of the PEPR.

In the execution of a contract, i.e. the signing of the Notice of Entry (NoE) and any other document arising there from has been undertaken in breach of the law of contracts as the company was in full knowledge of the implications of the NoE and its environmental impacts, whilst the landowner was not.

This issue is the subject of an extensive investigation by the Office of the SA Ombudsman. The determination of the Ombudsman being that the PEPR is a public document and should have been released to landowners and the public.

Comment 5
With the release of the Definitive Feasibility Study and the public disclosure of same, questions were asked of the company pertaining to environmental issues arising, to no avail. This will be discussed in more detail further in the response including a discussion of the ‘so called’ commitment to managing the environmental components of the project.
(Wudinna paper on iron dust)
Comment 6

Motherhood statements!

1.1.2

“commitment to providing a net benefit to the environment and community”.

This needs to be established, given that no cost benefit analysis has been provided when requested.

The oxymoron of a net benefit to the environment needs to be challenged when a hole of some 9 km x 3.5 km x 600+m is to be excavated, with a very significant salt content and a significant aquifer containing hyper-saline water is to be dewatered together with a waste rock dump of some 130m high and 3km in length containing the waste products of the extraction processes (now free to move through weathering, leaching and dust) and the once contained salt, escapes the reader. A detailed explanation as to how this represents a net benefit to the environment is required.

1.2

“providing an increase in employment opportunities . . .’ and ‘potentially provide a catalyst for additional development on EP’.”

By its own admission, the majority of the work force will be FIFO or DIDO rather than LOCAL. The employment statement must be considered in the context of employment at a state or Federal level, not local. What, therefore is the extent of local employment opportunities given the oft touted position that preference will be given to locals?

Comment 7

Figure 1 - Wilgerup - tonnes product per year. The problem is that Centrex has written down the Wilgerup mine (an approved mine) to land value only as it withdraws from the iron ore exploration in SA (refer to ASX announcements). There have been sales of property assets associated with its activities on Lower Eyre Peninsula. The factual data contained herein is questioned.

Comment 8

1.2.1

“concentrate . . . loaded into . . . covered wagons” (underlining added)

Whilst the Company has listened to some extent of community feedback, the reality of ‘covered’ needs to examined in details. The crux of the matter is transportation of iron ore through an agricultural area and the issue of fugitive dust escaping from the wagons. Covered does not imply sealed.

The issue of the impact of fugitive dust on agricultural land will be discussed in detail in this response as well as within the context of the EIS (especially the transport infrastructure)

Comment 9

1.2.2.

It is noteworthy that Tumby Bay is conveniently omitted from the description of locality, despite the fact that Cape Hardy lies within the District Council of Tumby Bay. This is despite the company’s admission that the project as a whole has been discussed in ‘public’ meetings in the region and despite the fact that NO public meeting has been held in Tumby Bay to discuss the project. (One on One meetings as claimed by the company are not public meetings whereby the public can hear the questions put and the answers given and engage in any ensuing debate thereby become informed as to the extent of the project and the relevant issues concerning the environmental impact, employment and impact upon agricultural industry per se.)

The impact of the proposed mine is not just the immediate environment of the hole in the ground.

Obviously the ratepayers of DCTB do not warrant acknowledgement, despite the fact that part of the road network is within the responsibility of DCTB and, in the absence of any formal MoU or draft agreement with Council, at a potential cost to ratepayers. It should be noted that Council has moved in recent times (Oct-Nov Council meetings) to seal the remainder of the Kinnaird Road at an estimate of $800000 of ratepayers’ funds, despite the fact that the road is subject to an existing Provisional Development Authority and most likely, included in a Development Authority arising from the current EIS for Cape Hardy port facility.
The actual cost /benefit afforded by this action to the ratepayers of the District Council of Tumby Bay has not been established. As it stands, any costs to ratepayers can be seen as a major cost without benefit or worse, a Council expending ratepayer funds in support of a mining company without exercising due diligence in arriving at such a decision. I point of fact, the sealing of the Kinnaird Road was placed in the Council's Long Term Financial Plan that was developed in 2015.

Clearly public transparency is not the forte of the Company nor of Council in this matter.

This matter will be taken up in the context of the EIS application as well as in this application, as the two are linked.

Comment 10

1.3.1
State Approvals

“MC 4383 was registered to IRD Mining on 27 May 2015 over an area of approximately 8,458 ha and the application for a mining lease relates to that entire area.

MC 4383 is primarily located within the boundary of Iron Road’s EL 4849, though a portion in the south-west corner is located within EL 4815 held by Lincoln Minerals Limited. To enable the pegging of the MC, IRD Mining entered into written agreements with those companies pursuant to Section 80 of the Mining Act, whereby they both provided consent to IRD Mining to the pegging, lodging and registration of the MC and the application for and granting of, a mining lease over that MC.” (page 1-7)

QUESTION 1
Was the MC registered over exempt land for which a waiver of exemption(s) had not been granted, noting that a section of the claim also involved the Lincoln Minerals Limited tenement? Were the landowners so informed? Where is the evidence of compliance with the Mining Act pertaining to the registration of a claim when exempt land has not been waived?

Section 80 is not the authority under which the MC is to be claimed. Section 9 and 9AA is the authority when exempt land has not been waived.

Where is the legal advice (or judgement of a Court) that provides for the registration of a mineral claim when exempt land is not waived?

Where is the legal advice that supports the lodgement of a Mineral Lease Application when exempt land has not been waived?

Comment 11

1.3.3.

“Demonstrate a net public benefit for the proposal and provide a clear identification of any associated risks and to develop a proposed set of environmental, social and economic outcomes for the construction, operation and rehabilitation phases of the mine.” (page 1-8)

The issue being, where is the cost benefit analysis that underpins the statement ‘provide a net public benefit’ when there are no agreements with the various Councils impacted by the proposal, let alone a statement of costs to the ratepayers that may have to ‘support’ local road and services infrastructure for the ‘benefit’ of the mining company.

Where is an audited statement as to the loss of agricultural productivity as a consequence of the proposed action?

Where is the independent verified statement of the environmental loss arising from the proposed action?

The only conclusion that can be drawn from this statement is that ‘public’ has the widest possible interpretation being the whole of Australia, not local benefit. So what is the ‘local benefit’ so often purported to be achieved by the project in the ‘consultation’ process undertaken by the company?

“the MLP has been developed in response to the minimum information requirements outlined by MD006”. 
The assumption being minimum is best and represents ‘world's best practice’ as touted by the company and the Government alike.

Chapter 2

2.1 Overview of local communities

It is noted the reliance upon ABS data (2011 Census) which is historically out of date. What is the reality of 2015 population figures and the anticipated trend, supposedly decline in the area of interest?

As previously stated the Central Eyre Iron Project, a part of which is the mine, encompasses the District Council of Tumby Bay, yet it is precluded from any discussion to date. The project has been promoted as a single entity, yet this does not appear to be recognised herein.

If the argument is for increased population growth as a consequence of the CEIP, then an analysis of the total demographic impact of all affected areas, should be identified and discussed in detail.

2.2 Warramboo

It is interesting to note that the Warramboo to Kimba Road is conveniently omitted in figures 2.1 and 2.2, thereby alerting to or removing potential questions relating to road closures and significant community impacts from this early point in the submission.

This would appear to be contrary to the opening statement of ‘informed discussion’.

2.2.2 Exempt Land etc.

"2.2.2 Exempt Land and Waivers of Exemption

The Mining Act was established to, among other things, facilitate the extraction of the minerals resources which are owned by the State. To facilitate this mineral extraction in areas where pre-existing land uses exist, the Mining Act sets out the process to be followed and includes the requirements for both the proposed mining operator and the landowner.

In summary, the Mining Act (Section 9) sets out a variety of different land uses which fall within the category of ‘exempt land’ and means that mining operations cannot be undertaken on that land unless a certain process has been undertaken which requires the consent of the landowner.

Categories of ‘exempt land’ include land used as a cultivated field (e.g. cropping land) and land that is situated within 400 m of a dwelling or within 150 m of a building, spring, well, reservoir or dam.

Where exempt land exists, the person who has the benefit of the exemption must agree to the conduct of any mining operations. This is referred to as “waiving the exemption” and must be set out in a formal agreement between the person who has the benefit of the exemption and the mining operator and be accompanied by appropriate compensation.

The majority of the land within the proposed mining lease is exempt land by virtue of it being used for cropping or other agricultural purposes, or due to the existence of housing and other buildings such as shearing sheds.

However, there are many areas of remnant native vegetation, including within HA869, which are not classified as ‘exempt land’.

The sale and purchase of land is voluntary, as is a person’s decision regarding whether or not to waive the benefit of an exemption. However, should a landowner decide not to negotiate an access agreement or the parties cannot reach agreement for some reason, the matter can be referred to the Environment, Resources and Development Court for a resolution.

As discussions and negotiations with landowners and their legal representatives are confidential and commercially sensitive in nature, it is not appropriate to provide any further information.
Iron Road will continue to engage with all landowners and believes that open and constructive discussions will result in a reasonable prospect of gaining full access to land in due course. (page 2-7)"

Comment 12

The Company has identified that the majority of land within the Mineral Claim is exempt land (specifically cultivated land) as defined by the Mining Act s9(1).

It proceeds to identify the process to be followed.

QUESTION 2

Is there legality of the Mineral Claim itself, given that the land so identified is Exempt Land and the Act specifically denies the authority pursuant to the Act for the registration of a Mineral Claim when a waiver of exemption over said Exempt Land has not been executed (s9(1)).

There is no question in law that the pegging of a claim can occur over Exempt Land, but the automatic registration of the claim appears to be contrary to the Act. That being the case, the claim is illegally registered and therefore the application is without legal foundation, as it is claiming that Exempt Land can be waived using the authority of a registered Mineral Claim. The problem being that the Mineral Claim should not be registered when Exempt Land had not been waived.

This is the point of contention that has now been taken up with the Office of the SA Ombudsman as it would appear that a significant administrative error on the part of the Mining Registrar has occurred and one which the Department of State Development appears unable to answer.

It is noted that the Company is claiming that the sale of land is confidential and commercially sensitive, a statement which is clearly at odds with the Real Property Act 1886.

The veiled threat of legal action through the ERD Court (page 2-7) does little to engender community support or a ‘Social Licence to Operate’ for the project, even more-so in the context of possible legal challenges to the authenticity of the Mineral Claim in the first instance.

2.2.3

Electricity supply

It is noted that the power source for the grid network includes a contribution from Port Augusta Power Station (16%). The writers of this application would have been well aware of the closure of Port Augusta Power Station and yet this is not mentioned.

What is the reality of the situation when Pt Augusta goes off-line? What is the capacity of the network to provide power to Eyre Peninsula to meet the existing needs without a cost impact to current users? What is the likelihood of power outages as a consequence of the closure? With the projected demands of the CEIP proposal, what are the risks to the existing consumer base on the network?

The issue is not only an upgrade to the existing infrastructure which is at capacity, but also the guarantee of supply AT NO ADDITIONAL COST to existing consumers.

What therefore is the economic cost of bringing CEIP on line with the ‘existing supply’ network?

2.2.3

Water Supply

Water Supplies (page 2-9)

"Aside from River Murray water, the remaining reticulated water supply for much of the Eyre Peninsula comes from a number of well-fields. Those groundwater supplies are located near Port Lincoln, between Lock and Elliston and numerous groundwater basins at Polda, Uley-Wanilla, Uley South and Lincoln. Groundwater sources currently supply approximately 37% of the region’s water requirements(Deloitte 2013)."
The Tod River is the only permanently flowing waterway on the Eyre Peninsula and has a capacity of 11,300 ML (SA Water 2014). The Tod Reservoir currently supplies approximately 7% of the region’s water requirements (Deloitte 2013).

Dams and recycled water provide another key water resource on most areas of the Peninsula, especially in areas outside of the reticulated water scheme. Dams and recycled water sources currently supply approximately 6% and 11% of the region’s water requirements respectively (Deloitte 2013)."

It is interesting to note that reliance for the water supply issue rests with Deloitte 2013. What appears to have been completely overlooked is the Water Allocation Plan developed by the Eyre Peninsula Natural Resource Management Board, the local authority for water usage and control.

It is suggested that this section of the Application be referred to the EPNRM Board for comment (and correction) and that the results published (for public review) prior to any decision being made.

It is noted (page 2-9)

“The Tod River is the only permanently flowing waterway on Eyre Peninsula. The Tod Reservoir currently supplies approximately 7% of the region’s water requirements”.

Unfortunately this information is factually incorrect. The Tod Reservoir is off-line as the water quality is so poor it does not meet current potable water standards. In point of fact, the future of the Tod reservoir is questionable given the current work being undertaken and the potential to reduce its capacity significantly.

It is unfortunate that the Company does not provide an accurate assessment of water supplies on the Peninsula and conveys the impression that the ground water supplies are inexhaustible, no matter what might eventuate as a consequence of the CEIP etc. It fails to recognise that the Kielpa bore-field could well be used for future desalination to supplement potable water supplies on the Peninsula. There appears to be no statement to the contrary on this possibility.

It is claimed that the Kielpa bore-field is unique and completely unrelated to the fresh water lenses in the Polda Basin.

The impact upon regional hydrology is unknown in the context of the continuous dewatering over a 25 year life plan of the proposed mine together with water extracted from the Kielpa bore field.

The application is devoid of a regional hydrological impact assessment that has been verified by the relevant State authority.

It is claimed that the crater lake will take some 1000 years to 'stabilize' at a 'predicted level (guessed)', based upon what empirical evidence?

Of further concern is the quality of the water in the crater lake given that exposed ore containing sulphides (“A Review on Pyrrhotic Oxidation”, Nelson Belzile et al, Journal of Geochemical Exploration, 2004) will now be exposed to oxidation. Furthermore, the crater face will also enable weathering (including oxidation) which may result in further contamination of the water due to heavy metals, uranium and or similar compounds etc. now being able to go into solution and ultimately migrate into the surrounding aquifer and environs.

Air transport

"The proposed mining lease will be located between two commercial airports, the closest being Port Lincoln and the next closest being Whyalla. Additional airfields (non-commercial) are located at Wudinna, Kimba, Cowell, Lock, Tumby Bay, Cummins and Elliston. To support the CEIP, it is proposed that the Wudinna airport will be upgraded to accommodate commercial flights. That upgrade will be undertaken by the Wudinna DC which is the owner and operator of the airport". (page 2-11)

Comment 13

It is noted that the Wudinna airport will be upgrade to ‘commercial’ standard by the Wudinna District Council. What is not in evidence is who pays for the upgrade or, in the absence of evidence to the contrary, will these costs (inclusive of revealing the actual capital costs and the amount for future maintenance liabilities and aviation fees) be met by ratepayers, and thereby the ratepayers are subsidizing the mining development for what local benefit?
Ports

"Cape Hardy is located approximately 7 km south of Port Neill on the east coast of the Eyre Peninsula and will have a capacity of 70 Mtpa so that third parties can utilise the facility". (page 2-11)

**Comment 14**

This application does not recognise the fact that Cape Hardy is located within the boundaries of the District Council of Tumby Bay.

It is noted that the export facility will be constructed at Cape hardy with a significant over capacity potential ‘for third party users’.

It is also noted that the third party users are not defined.

The issue being the significant potential for contamination of product of a multi user facility, especially if consideration is being given to grain exports through the proposed facility.

It is noted ‘discussions have been held with a grain exporter’. It is also noted that the risk assessment of contamination of grain using a common facility has not been mentioned to date.

Evidence as to the economic impact of contaminated grain obtained under FOI District Council of Tumby Bay is outlined in the extract from the 'Centrex Metals Mineral Export Facility Application Submission', Eyre Regional Development Board Inc, April 2009, as follows:

"Grain export markets are particularly sensitive to contamination of iron ore, whereby cargoes that have either been directly contaminated or perceived to be contaminated through either being shipped through a combination of iron ore and grain facility, or the ship has not undergone thorough cleaning prior to loading with grain."

<table>
<thead>
<tr>
<th>Port Loading</th>
<th>Vessels</th>
<th>Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GER/FRF</td>
<td>Mani P</td>
<td>51,200.00</td>
</tr>
<tr>
<td>PAD/WER</td>
<td>Two Hai</td>
<td>41,808.77</td>
</tr>
<tr>
<td>FRB/WER</td>
<td>North Duchess</td>
<td>48,582.63</td>
</tr>
<tr>
<td>PAD</td>
<td>Tai An Hai</td>
<td>41,859.14</td>
</tr>
<tr>
<td>WAI/PLOI</td>
<td>Andromeda</td>
<td>50,000.62</td>
</tr>
<tr>
<td>PAD/PLO</td>
<td>Pearl of Fujairah</td>
<td>50,139.50</td>
</tr>
<tr>
<td>NTL</td>
<td>Andros</td>
<td>51,981.65</td>
</tr>
</tbody>
</table>

**Total Compensated**: 336,022.31 metric tonnes

The following vessels were held up for three weeks for unloading, whereby significant demurrage costs were incurred until an alternative market destination could be established. This impacted on the pool return and the final payment received by wheat growers.

<table>
<thead>
<tr>
<th>Port Loading</th>
<th>Vessels</th>
<th>Tonnage</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAL/PLOI</td>
<td>Andromeda</td>
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<td>AQABA</td>
</tr>
<tr>
<td>PAD/PLO</td>
<td>Pearl of Fujairah</td>
<td>50,139.50</td>
<td>Kuwait</td>
</tr>
</tbody>
</table>

The sensitive nature of food related products and iron ore needs to be recognised as importers and purchasers will look to reduce the market price of cargoes, even when there is clear evidence that no contamination has occurred. This is known as market perception.

The identification of which company holds the risk, in the event of grain contamination occurring, Centrex as the owner of the iron ore, ABB Grain as the contracted service provider for storage, handling and loading of the vessels.

ABB grain also provides the storage, handling and loading services for grain, under a deregulated market, whereby several different grain companies own the grain, which is exported from Port Lincoln. The risk of contamination to grain would pose a complex legal issue case to identify the responsible party and to seek compensation.
Comment 15

Such an occurrence would have considerable impacts upon Australia’s clean green export credentials in the world market place. That being the case, where is the evidence of consultation with Federal authorities (Department of Agriculture etc.) on this matter and the outcomes of such consultations?

In the absence of evidence to the contrary, the co-location of grain export facilities at Cape Hardy provides a significant risk to the agricultural industry on Eyre Peninsula and to Australia’s clean green export credentials.

Should grain be contaminated as a consequence of the mining activities, who wears the economic loss?

Evidence of this concern will be provided also in the discussion of the EIS pertaining to Cape Hardy proposal.

2.3.1 South Australia’s Strategic Plan

Table 2-3

Creating a vibrant city

“. . . will support the ongoing growth and development of the Adelaide CBD . . .”,

Comment 16

The relevance of the statement clearly is designed to disadvantage the local community and to support the overall theme of supposedly additional employment for the State as a whole whilst ignoring the reality of the fact that the mining boom is over and clearly does not support the concept of a ‘community licence to operate’ as touted by Government.

The employment figures tabled appear to be in the context of the magical 1:4 figures touted in support of such projects, but without actual substantiation.

Questions such as how many persons will actually be employed from the local areas for:

a) the construction of the mine

b) the operation of the mine (including administration)

c) the construction of the port

d) the operation of the port (including administration)

e) the construction of the transport corridor and its associated infrastructure

f) the operation of the corridor

are relevant to the discussion.

What is the potential cost to the agricultural industry through the potential reduction of labour as a consequence of the mine and or, the additional cost to be borne by the agricultural industry in wage matching that would potentially occur?

The company admits that the majority of employment will be sourced from FIFO and DIDO, not local employment, including the potential for offshore employment sources through ‘457 Visas’.

In addition, the actual job profiles are also important as this allows the local community to undertake training in advance should the opportunity arise.

Then one can hypothesise as to the multiplier effect with jobs potentially being located anywhere in the country and loosely drawn associations with the project.

What are the actual regional benefits to the townships impacted upon by the project?
Safe communities, Healthy neighbourhoods

In answering this question a detailed analysis of the operation of the various villages proposed needs to be undertaken to determine the exact nature of any benefit derived by the local community. Experience would suggest that mining camps are self contained in all respects (vide the Pilbara region).

Long term support for local business would imply a MoU with respect to the supply of services would be in place.

It is suggested, in the absence of evidence to the contrary, that such situations do not exist and that the usual supply and demand criteria of business will prevail where the company will tender for services, tenders which the small local businesses would, on balance, not be able to compete.

What appears to be completely overlooked is the impact of fugitive dust and noise. The application appears devoid of reference to the Act of Parliament that was required to clean up Whyalla; the outcomes of the Natural Resource Committee visit and report on the activities of Arium (Iron Duke) and the Senate’s report on the impact of mining on communities.

An affordable place to live

“These improvements will be funded by the private sector rather than requiring public investment”

Comment 18

It is claimed but where is the evidence of the various MoU or deeds of agreement with local government and State Government, in support of this claim?

Moreover, what improvements will be funded by private enterprise?

It is known that no such documents exist between the company and the District Council of Tumby Bay. From this Council ratepayer’s perspective, what are the costs (infrastructure costs for which Council has responsibility to provide) associated with the project that would mitigate against the claim for an affordable place to live?

No doubt, the same question should be asked of all other Council’s impacted by the proposal.

Given the proposition to develop construction camps at the mine site (and at the Port) the question of public safety arises in the context of company policy with respect to the consumption of alcohol and drugs on the worksite.

Every chance for every child

“The whole of the CEIP project will provide an estimated 2490 jobs during construction and 760 ongoing”.

Comment 19

In part this provides a macro answer to a previous question with the LONG-TERM job creation being an estimated 760.

The claim of indirect jobs to the State of some 3027 and 1985 is not substantiated and in context represents the oft touted multiplier effect taken across Australia.

What are the actual benefits to South Australian employment and local employment alike in the context that the mining boom has passed and the commodities market fallen significantly, primarily as a consequence of economic factors in China?

Growing advanced manufacturing

“on site processing ...representing local investment in advanced manufacturing supporting employment and building technical capability”.

Comment 20

It is understood that the processing plant will be of modular construction and transported to the site and assembled.
QUESTION 3
Where will the components of the processing plant etc. be manufactured? It is not obvious that it will be Australian made?

A similar question arises with the manufacture of the sleepers and rails and associated components.

QUESTION 4
Will these be Australian made thus supporting Australian industry or will it be made off shore?

Clearly if the latter, then the claims of the company are not credible.

Realizing the benefits of the mining boom for all
The reality of statements made in this section are unrealistic in the current economic environment.

The DFS indicated the project being costed at $US73 (or $75-175 as declared in the economic impact statement) per tonne with a dollar ($A) value of $US0.83. Current ore prices are at record lows around $US37-38 per dmt and economic commentators suggest that it will not improve for some time into the future dependent upon world economic (not local) factors, especially China.

The following extract from BankSA TREND Bulletin (December 2015) foreshadowed the China slowdown impacts:

TRENDS
‘China’s slowdown’
DECEMBER 2015
(14) Bank SA

China has been an enormous global success story in recent decades - but some of its success has happened a little too fast, and the resultant need to transition from construction to consumers as an economic driver is sending shockwaves through the world.

Given that China is important to Australia, is that is creating some shockwaves a little closer to home as well.

Chart 1 (right) shows that China has been by far Australia’s biggest trading partner for several years. Indeed, China’s share of Australian trade dwarfs the matching peak share achieved in the late 1970s, and you have to go back to the pre-World War Two era to find a time when Australia had greater reliance on any other single nation for trade purpose - in that case, the United Kingdom.

So, to make the obvious point, if China sneezes, then Australia has a problem.

And now to ask the obvious questions: is China sneezing, could it be catching a cold, or have its recent woes been nothing more than a passing fever?

The answers there will tell you a lot about where Australia’s own economy heads next.

This is, of course, a different sort of China conversation. For some years the China story was one of boom. But now China is in a difficult transition period as it moves towards a consumer based economy and away from a rapidly industrialising economy based on construction activity. This transition is not an easy one, and it has brought with it an economic slowdown for China with repercussions for Australia.

So what has caused China’s recent slowdown?

China’s stunning reliance on construction and construction-related spending as a share of its economy helped it rocket through an industrialisation phase that took many other nations much longer to achieve.

But it has overdone it: China has built too much, and borrowed too much to do so.
Chart 2 (page 15) shows business investment (capital spending by corporates, much of it on construction) as a share of the economy across 200 nations. China - the only nation named in the chart - is a remarkable outlier.

It is spending a fortune on construction, but in many cases the things being built are already in over-supply. China’s transition is required because it has already ‘built too much’ - too many steel mills, iron ore mines, shopping centres and apartments.

But the problems are rather wider than just that. In both Japan and Korea, nations whose growth also accelerated thanks to a long period of over-reliance on over-construction, the final phase of that infrastructure growth was characterised by a credit bubble that saw debt grow by an extra 30% of annual national income (in the late 1980s in Japan and the mid-1990s in Korea). That surge of debt proved to be the last throw of the dice before an extended period of difficulties.

Such run ups in debt aren’t that unusual. In years past each of the US, UK and Australia came a cropper after a debt binge, though the common denominator was the liberalisation of financial markets, followed by a phase in which people borrowed because they could, which led to the price of assets such as housing and shares going up, which then encouraged more borrowing . . . and so it went.

The difference is that the last seven years saw China add the equivalent of 100% of annual national income to its stock of credit. That surge in debt, to place it in its proper perspective, equals the size of the US commercial banking system. And each extra dollar of debt is boosting China’s economy by less than the one before it, a classic sign of a lack of sustainability.

Given the massive size of the construction sector, the transition now underway to a consumer based economy is an ongoing challenge.

To be clear, that change is proceeding in a remarkably orderly manner: China may be slowing, but to date its slowdown hasn’t been a hectic one.

Chart 3 (page 15) shows the resultant gentle downward glide path in both industrial production and wider economic growth in recent years.

What next? What’s the worst that could happen?

It is worth teasing out the worst that could happen. And yes, were these risks to all eventuate, it would be a real worry. In particular, two things may yet get worse than expected.

TRENDS - A bulletin of economic developments in South Australia, December 2015; "Premium food for thought"

BankSA (copy attached)
Will the project be subject to the Foreign Investment Board given that it is foreign owned capital that has developed the project to this stage?

**Comment 22**

**The mining boom has passed.**
The royalties payable to the State Government need to be identified in an actual cost/benefit statement projected over the life of the mine with an actuary calculation as to the value of the dollar over that period of time.

The infrastructure benefits are supposition in the absence of actual known and contracted third party investors/users (who have the appropriate development approvals to operate which are different to that being sought by the proponents of CEIP).

The claimed infrastructure benefits are based upon supposition in the absence of evidence to the contrary.

The previous comment upon the power upgrade to Eyre Peninsula requires to be modified in the context of the closure of Port Augusta power stations.

“The potential to unlock third party investment...” may be a reasonable position to aim for, but the reality needs to temper the enthusiasm of the company in promoting such a position given the mining boom is over (albeit, it is a cyclic phenomenon) and investment dollars are in comparatively short supply in the arena of mining. The BHP current share price experience is a good indicator.

**QUESTION 6**
Where are the third party players in the project that might give credibility to the claims being made?

The contribution to the State’s royalties coffers needs to be documented, commencing with an estimate of monies foregone (as a taxpayer incentive for the privilege of the company starting up) in the first five years heading the analysis.

**Comment 23**

**Premium food and wine from our clean environment**
The oxymoron generated in this argument does beggar belief. On the one hand we have a situation which effectively destroys forever some 8500 hectares of productive agricultural land which is clean and green through the construct of an iron ore mine with its 130+ metre high waste rock dump; its fugitive dust problems; problems with the management of waste rock containing heavy metals, rare earth and radioactive materials; the dewatering of the environment to a depth of at least 600 metres for a significant distance around the mine site and the proposed deposition of some 20 to 480 million tonnes of salt (the exact quantity is not clear) on the surface as a consequence of dewatering etc., to which will be added the outflow from the proposed desalination plant.

The end point being a rehabilitation program that supposedly “returns the area to agriculture at the conclusion of mining”. The community is not convinced!

An additional issue being potential contamination of the agricultural land for the whole of the transport corridor and certainly at the rail head at Cape Hardy. The regulators might like to examine the photographic evidence obtained from Northern Territory with respect to ore handling at a port facility. It is recognised that in the CEIP instance, magnetite is the principle iron ore and not haematite. None-the-less pollution arising from fugitive dust is a major issue of concern.
The above photograph dramatically illustrates the issue of **fugitive dust**. It is noted that this is not what is planned for Cape Hardy. Notwithstanding the differences, the community concern is fugitive dust and its environmental impact at the mine, transport corridor and the port facility.

It is proposed that the storage facility at the port is some one kilometre in length.

The environmental impact of this will be discussed at length in the response to the EIS. It is however, relevant to raise this in the context of the mine, because without the mine, the port does not exist and the problem therefore does not exist.

Evidence will be submitted raising significant concerns about the co-existence of grain handling and ore handling on the same facility in response to the EIS. However, suffice to say they do not complement each other and the risk of contamination of grain and hence our reputation on the world market may well be damaged. The view of the Federal Department of Agriculture must be sought in relation to the potential impact of fugitive dust (contamination) and the proposal presented in this application.

The issue of SEB offsets is noted. The issue being that the EPNRM Board is not the authorizing authority in determining the extent of the offset. That authority rest with the Department of State Development (under a delegation from the Native Vegetation Council).

It is noted that the offset does not necessarily return to the area giving rise to the SEB.

### Comment 24

**Other State Strategies and Policies**

**NRM Management Plan**

It is noteworthy that there is no mention of the management of regional water supplies, ground water in particular and the legislative requirement to rehabilitate all exploration bore containing water to the required NRM Act specifications.

Has the company’s exploration activities, especially those related to ground water been audited for compliance with the NRM Act?

The application is devoid of reference to the need for compliance with this Act.
Waste Strategy

“Waste products recycled or re-used for an alternate purpose”

Comment 25

The management of waste from whatever the source is critical given the longevity of this proposal. One of the most significant questions relates to the management of the hyper-saline water extracted from the aquifers around the site over the 25 or so years.

In response to questions asked by the CEIP CCC “How many 1,000’s of tonnes of salt are going to be discharged in the tailings cells each year?” the following information was provided:

In the most likely scenario of using a Borefield supply, the additional salt in the mining lease will be 6Mt on top of the existing 480Mt which is an increase of approximately 1%.

This is NOT considering salt in soil or shallow aquifer and therefore can be considered an overestimate.

The following concentrations of salt in various waters have been used to calculate the volumes of salt in the system and to provide a broader context:

- Existing large aquifer average = 120g/L
- Existing shallow small aquifer average = 60g/L
- Seawater = 40 g/l
- Borefield = 20g/l (about 20 times too salty for drinking)
- Drinking water (TDS) g/L
  - 0 - 0.6 good
  - 0.6 - 0.9 fair
  - 0.9 - 1.2 poor
  - 1.2 - unacceptable (unpalatable)

The Mining lease is approximately 100km². There is existing salt in the ground, both in the soil and the groundwater.

For simplicity sake (which will underestimate the volumes of salt in the existing system) we will calculate the volume of salt in just the existing larger aquifer and ignore the soil and small aquifer volumes.

Therefore the volume of existing salt = area x amount of water x salt concentration.

- Area = Mining lease = 100km² = 100,000,000m²
- Amount of water = flowing aquifer is 60m thick, porosity (water contained per unit of volume) of 30%, low
- flow aquifer zone is 440m thick, porosity of 5%.
- Salt concentration is 120g/L or 120kg/m³
- Therefore, the volume of existing salt = (100,000,000 x 60 x 0.3 x 120) + (100,000,000 x 440 x .05 x 120) = 480Mt.
- Salt to be imported to the area due to mining = volume of water x concentration of salt x years of operation.
• Volume of imported water = 35ML/d
• Concentration of salt = Seawater, 40 g/l or Borefield, 20g/l
• Life of Mine 25 years
• Salt volume if seawater used = 35,000,000 x 40 x 25x365 = 13Mt
• Salt volume if Borefield water used = 35,000,000 x 20 x 25x365 = 6Mt

QUESTION 7
Where does the Company intend to dispose of this quantity of salt that now has been brought to the surface as a consequence of mining operations?

It is suggested that the water will be used (recycled?) for dust control on the site. That being the case, the salt is now on the surface and mobile whether through fugitive dust, wind erosion or through leaching. What is not clear at this stage of the proposal is the impact of such a quantity of salt on the environment within the mine site and more importantly upon the agricultural farmland and neighbouring environs outside of the perimeter of the mining lease.

The claim the salt is not mobile is not credible.

In a similar manner, waste material from the processing plant, containing those products not required, inclusive of heavy metals, uranium and similar compounds, manganese, pyrrhotite will no doubt end up on the waste rock dump. Again these compounds are now free to migrate either within the fugitive dust or via leaching.

In the case of pyrrhotite, the issue revolves around the oxidation of this iron compound leading to the formation of acid soil.

Whilst the waste products may be ‘reused’ in some form or another, the issue remains as to the long term impact of these ‘waste’ materials on the environment.

The executive summary is devoid of the detail of the actual material and concentrations thereof to be placed in the waste rock facility. Physical characteristics of the facility are one thing, the actual waste material another.

It is noted the detail is contained in Chapter S.

In relation to the physical characteristics of the waste rock facility, the question of this physical object becoming a sound wall (i.e. reflecting the noise generated within the mine and producing a wind tunnel effect appears not to be addressed.)

The proponents have put forward a method of stabilization and erosion control for the waste rock facility.

QUESTION 8
In the absence of actual site specific meteorological data, the question is what empirical evidence exists that validates the proposed solution for the Warramboo site?

Comment 26

2.3.2
Wudinna DC Development Plan
Table 2-5 Development Plan Policy Summary
Provides the reader with the position of Council with respect to development of the nature proposed. What is missing at this point is the level of compliance with the policy that the proposed mine and associated infrastructure achieves.

A cursory examination would suggest there are a number of discrepancies with what is proposed to that required of Council.
The Council development Plan does not include any consideration of an explosives magazine. Issues such as location; security (SA Police, Federal Police clearance); blast radius (in the event of a catastrophic explosion); quantities to be stored; availability of diesel in the near vicinity and the impact of fire on the facility appear to have been overlooked.

3.6.2. Accommodation

Table 2-6 Wudinna DC 2012-2017 Community Plan

“maximizing opportunities for the adaptive reuse of the village following use by Iron Road”.

Comment 27

Experience in other places such as Western Australia have shown that ‘the village’ model is divisive and non-inclusive of the local community.

The village is a company controlled environment. How this is a ‘benefit’ to the township of Wudinna is not described. For it to be a benefit to the businesses in the township, then MoU relating to supply contract for goods and services would be in place. Rate revenue from the village would be predetermined and identified. Infrastructure costs borne by Council would be identified, costed and deeds of agreement entered into. What is not stated is the real potential exists for offshore workers to be imported on the pretext that local employees are not available and that these employees would be ‘confined’ to employee housing etc.

The proposal does not address or exclude this eventuality on the one hand and yet claims to be promoting integration with Wudinna.

Where are the long term demographic studies that support the proposition that the ‘village’ will be of use to the remaining population of Wudinna post mining?

What are the long term costs associated with a ‘vacated’ village and who will be meeting these costs? Rate and Council revenue (taxes) should be identified and MoU or deeds of agreement provided to cover costs. There appears to no reference to these matters herein. The absence of this data is seen as an undisclosed cost to the community.

The argument presented is a self-defeating one. There is insufficient accommodation in the town, a village ids built. At the end of proceedings the town is left with a village with a capacity of 300 to house a remnant population of how many?

Comment 28

Organic wastes
It is noted that organic wastes will reside in the Wudinna Landfill facility.

What is the cost to ratepayers of the additional charges to EPA as a consequence of the additional load placed upon the landfill facility?

Comment 29

3.6.1 Upgrade of the Wudinna Airport
It is noted that the Wudinna Council owns the airport and has accepted responsibility for its upgrade. It is also noted that a MoU has been entered into between Council and the Company. What is not clear are the details of such an agreement, especially where ratepayer monies may be being used to fund the upgrade. Is the agreement that the applicant will fund the upgrade through an ex gratia payment to avoid the payment of GST on goods and services available to Council?

The claim may well come back that the MoU is commercial and in confidence, but the response to that must be full disclosure (transparency) in respect to the commitment of ratepayer funds.

Furthermore, where is the cost benefit analysis pertaining to the upgrade so far as it affects the community, or is the upgrade purely to support the mining enterprise?
With respect to air traffic in the area, will there be a 'no fly' zone created over the proposed mineral lease area? If this is the case, what is the impact upon aerial crop spraying in the vicinity of the proposed mine?

**Comment 30**

**Access roads**
It is noted a number of significant roads will be closed as a consequence of the development.

It is noted that a maintenance agreement has been entered into between Wudinna Council and the Company.

It is noted that the detail of such an agreement is not disclosed in the context of this application, therefore, at what cost does the agreement impose upon the ratepayers?

It is noted that ‘maintenance’ is the issue mentioned here. The real issue also involves the cost of construction of the new roads to service proposed mine AND the replacement roads to service those properties which are now affected by the closures.

It is noted that no reference at this point is made to the impact upon essential services Ambulance, CFS and SES as a consequence of the road closures and the ‘alternate’ routes now required to service the area to the East of the proposed mine.

It is also noted that the economic cost to landowners as a consequence of the road closures (grain delivery etc) is not mentioned at this time.

**Comment 31**

3.6.3

**Emergency Services**
What is the current level of emergency services in Wudinna and surrounding districts, especially Warramboo?

What will the emergency services requirement be in the following circumstances:-

a) the construction phase where 1000+ employees located at the mine site, not Wudinna?

b) the accommodation village of 300 at Wudinna in the operational phase?

c) the contractors’ camp at the mine for 300 some 45+kilometres from Wudinna?

The existing emergency services, especially ambulance services, that service the existing district, noting staffed in the main by volunteers, compared the that which should be provided in the scenarios (a), (b) and (c) listed above needs to be articulated. How does the Company propose to address the anticipated shortfall?

It is noted that the Royal Flying Doctor Service does not rate a mention in this discussion. It is assumed that the RFDS would be a contributor to the emergency evacuation of the injured.

It is noted that a substantial explosives magazine will be constructed on the site of the mine.

**QUESTION 9**
The question being what is the blast radius of a catastrophic explosion of the magazine in relation to the emergency services stationed at the mine site?

**Comment 32**

3.6.4

**Existing Services**

**Water**
It is noted that all water services will be terminated at the boundary of the proposed mining lease.

**QUESTION 10**
Will the company pay for all the new service connections to properties affected by this disconnection? Further, will the company compensate landowners who will be required to relocate water distribution on their properties as a consequence of the planned disconnection?

Where is the cost benefit analysis of this disruption documented in the application?
Power
Will the company finance the reconnection costs to properties as a consequence of the relocation of the 19KvA SA Power Network system as a consequence of the mining lease?

Communications network
Will the company finance the reconnection of the TELSTRA network to those properties affected by the disconnection as a consequence of the mining activity?

Will the company finance the upgrading of the telecommunication system to G4 or better wireless broadband/mobile phone services in the area as a consequence of the disconnection due to mining activities?

If the response to these questions is in the positive, then clearly this is an economic benefit to the community and should be recognised as such.

If the response is in the negative (i.e. it is someone else’s problem) then this is clearly an economic cost to the community and should be so recognised.

It is not clear as to the position of the company with respect to these issues, except for the comment that the company has no control over these factors.

Clearly this is contestable in the context that the company should have negotiated deeds of agreements with the companies concerned and have declared the content and outcomes of such deeds in the context of this application as these issues potentially contribute significantly to community costs, not benefits.

Comment 33

3.6.5
Visual screening
It is noted that visual screening of the complex is on the agenda.
To further employment opportunities in the area, will the company consider the establishment of a native vegetation nursery on site to provide such screening and as a precursor to the ultimate rehabilitation of the area?

Comment 34

Eyre Peninsula Natural Resource Management Plan
It is noted that the only relevance of the plan relates to SEB offsets, which as previously indicated are not the province of the Board. It is noteworthy that water and native fauna are not issues that requires relevance on behalf of the Company or the Board.

It is assumed that the EPNRM Board provided advice to Government with respect to the environmental impact of the proposed mine. Unfortunately such advice appears not to be contained in this report, thus any assessment of the compliance regime required under the NRM Act or policies developed by the Board is not available, limiting the informed debate on the virtues or otherwise of the project.

The Association has raised numerous issues with the Board as per the following correspondence:

EYRE PENINSULA COMMUNITY MINE TO PORT CONSULTATIVE COMMITTEE

Ms Heather Baldock
Presiding Member
Eyre Peninsula Natural Resource Management Board
PO Box 22
Pt Lincoln

11th April 2014.
Dear Ms Baldock,

As you are aware, the Committee on behalf of the Association has raised a number of questions/issues in relation to the recently released Iron Road Limited Definitive Feasibility Study which the Company is promoting in the press and the Community.

I would draw your attention to the fact that the questions and issues raised remain unanswered and thus remain a concern to the Committee and the Association as a whole. These concerns can be summarised:-

**The Mining Lease** (yet to be confirmed by a formal application and assessment) is reported to be recently reduced for the Warramboo component of CEIP. Notwithstanding this reduction in area:

- What is the Board’s position to the statement that some 400+ Million tonnes of existing salt which will be supplemented by an additional 13 Million tonnes if sea water is used and or 6 Million tonnes if bore water from Kielpa is used, is likely to be deposited on the surface of the lease over the life of the mine?
- What position does the Board take on the fact that this quantity of salt now on the surface and available to be transferred by wind and rain to neighbouring agricultural properties and roadways with potentially significant economic consequences?
- Is this consistent with Board’s environmental position as laid out in Act?

Given the disclosure of the quantity of water to be removed from the aquifer (as declared in the Definitive Feasibility Study,[DFS]), it has been claimed that the dewatering of the mine would have ‘absolutely no impact upon Polda’, but no peer assessed scientific regional hydrological study has been produced to substantiate this claim:

- What is the Board’s position on the dewatering of the said aquifer and the potential impact upon the environment as a consequence not just in the confines of the mining lease, but the environment beyond the mine boundaries?

In accepting the stated dewatering rates of 12 and 23 Million litres per day for the life of the mine of 25 year, the net quantity of water removed is 109,500 Million litres to 209,875 Million litres. To this must be added the quantity of groundwater which will fill the hole following cessation of mining activities at the Murphy South site. This creating the 6.5km+ long by an average width of 500 metres (allowing for the battered/walls and slope of the hole) and 600 metre deep artificial lake with unknown water quality but due to existing salinity would be up to 5 times the salinity of seawater. This volume of groundwater equates to approximately 1,950 gigalitres or roughly 3.9 Sydney Harbours (Sydharbs) but with a salinity as high as could be obtained from 19.5 Sydharbs.

**THIS WATER HAS TO COME FROM SOMEWHERE!**

What is being ignored is the regional picture. There is an approved mine at Wilgerup where dewatering will occur; the proposed mine at Murphy South and the proposed bore field at Kielpa. In addition, there is renewed interest in the Lock Coal Field and surrounding area, the tenement of Lincoln Minerals Ltd adjacent to the CEIP to the West and Centrex Metals Ltd to the South East, not to mention the prospect of undeclared multiple mines associated with the CEIP given the declaration to the Australian Securities Exchange (ASX) of:

- The project cost being $7.2 Billion not the $3.9 Billion or $4.5 Billion currently suggested.
- The declared exploration reserves of a further 17 Billion tonne of ore.

The public/community has an absolute right to question the nature of the deposit. It is a known fact that Paleochannels exist in the area (a channel which is suspected of containing Uranium or other radioactive substances). It is also known that similar geological deposits in the Gawler Craton have concentrations of uranium within the ore bodies. It is also known that mining bedrock of the nature identified can produce Radon.

On this basis, it is reasonable for the public to ask the appropriate questions. Hence:

- Why was analytical work reportedly not undertaken to conclusively prove the non-existence of Uranium or its isotopes?
- Why was no work reportedly undertaken to disprove the presence or other wise of Radon?
- What is the significance of identifying the presence of Strontium and Lead in the assay results presented in the DFS, noting that there are radioactive isotopes of Strontium and Lead?
• Was the Lead identified in the analysis presented, the isotopic form of Lead at the end point of the decay of Uranium i.e. was the Lead a marker for the presence of Uranium?

The DFS also raised the issue of exporting Copper from Cape Hardy.
• Where does the Copper come from?
• What is the concentration of the Copper in the ore body?
• How is the ore to be processed to generate a product for export?
• What is the chemical nature of the Copper product?
• What are the environmental impacts of excess Copper in fugitive dust or accidental spills in the loading of the product at Cape Hardy, noting the known toxicity of Copper to cereal crops and the marine environments?

The Uranium debate is critical to the approval process. It is also critical in terms of contamination of grain, pastures and livestock. The presence of Uranium, it is understood, also affects the ability of people to obtain insurance. This is not scaremongering, but good due diligence and answers are an essential feature at this stage of the development process.

The DFS commentary continues with “there are no significant concentrations of heavy metals....” but no mention of the fact that ‘heavy metals ‘ is usually associated with the presence of Cadmium, Arsenic and Chromium (VI).

• What are the concentration of the Arsenic, Cadmium and hexavalent Chromium in the ‘mined’ rock?
• Whilst there is no mention made in reference to where these heavy metal products, where will they end up in the total operation of the mine?
• Do they reside in the waste rock dump and therefore subject to wind and water migration into the environment?

This is a significant question as these compounds are known carcinogens; hence the issue becomes a Public Health issue as well as an issue to be managed under Occupational Health and Safety legislation.

The point being made here is that the question of the exact composition of the material that is likely to emanate from the proposed mine (fugitive dust) needs to be clearly identified, given the potential health risks associated with fugitive dust and especially in this case where the mine is proposed to be of some 6.5 kilometres in length. The potential exists for a considerable area to be contaminated by dust. The dust from the mine is not as it was reported “the same as that which a farmer generates through ploughing”, hence the need for accurate disclosure.

In addition to being satisfied with the composition of the dust emanating from the mines and associated activities (spoil heaps, tailing dams...), the issue of fumes and particulates arising from diesel based machinery also needs to be considered, given the anticipated numbers of vehicles in a relatively confined space. It is recognised that diesel fumes and particulates are known carcinogens.

It is recognised that the Company has refined its mining and processing reducing its dependency upon diesel somewhat, but the question still remains.

Given the Board’s environmental responsibilities:
• What is the Board’s view on the potential impact of dust contamination and other particulates on the communities it represents?
• What is its view on the potential economic cost to the agricultural industry in the region of contamination of grain, pasture, meat and wool?
• What is the composition of the ore to a depth of 600 metres, noting that the mine was described by Mr Stock as being 6.5 kilometres long, 600 metres deep?(Port Lincoln Times, 11 Mar 2014, pp4)

It is noted in the DFS that the rail wagons transporting ore will be covered. Covered does not imply sealed to prevent fugitive dust.

**Environmental Issues.**
Given that no formal assessment processes have taken place at this point in time, one can but await the arrival of an Environmental Impact Statement; a Mining Lease Application and an EPBC referral in order that all environmental, social and economic issues are addresses from the mine to the port.

Not-withstanding these assessment, Wudinna District Council should have on file a copy of the Company’s PEPR document(s) pertaining to their environmental performance criteria as demanded by DMITRE at the time of granting of the Exploration Licence (or licences which implies more than one PEPR) given that Council has given approval to drilling activities on Council controlled land.

- Does Council have a copy of the document(s) and
- Has the Board seen a copy of the PEPR(s) applicable to these activities, noting that these activities were associated with drilling bores which contained hyper-saline water?

**The Transport Corridor.**
The exact location of the transport corridor has yet to be released, but it is known that the corridor will cross a number of salt creeks and salt pans. The problem arising here is one of compaction. Compaction of the ground under the rail line will result in a significant disruption to the normal environmental flow of groundwater (high in salts).

What is the Board's position on activities which impact the natural flow of ground and surface water?

**The Mining enterprise.**
It would appear that there are two versions of what constitutes the Central Eyre Iron Project, one being provided to the media and the Community, the other to the Australian Securities Exchange (ASX).

The ASX version details the total project with respect to the tenement as a whole and not just the area surrounding Warramboo.

It is understood that the ASX version is for the purpose of satisfying the rules of the ASX and to attract investors. The ASX version is that which is compliant with the rules of the Exchange and therefore can be taken as the true state of play because of its share price sensitivity.

That being the case:

- What is the true extent of the CEIP proposal involving the total reserve resource of some 17 Billion tonne in the 665km2 tenement area in addition to that identified at the Murphy South mine?

- If this is the big picture there will not be one hole of 6.5 kilometres, but potentially up to 52+kilometres of holes across the tenement.

- What therefore is the actual impact of the venture over the whole 665 km2 tenement?

- What is the environmental and economic impact of the big picture for the agricultural industry of the district?

- What is the economic impact on the management of natural resources in this context?

- Where is the Productivity Commission enquiry into the impact taken over the 25 years of the Warramboo proposition and thence over the whole tenement?

**The even Bigger Picture.**
Whilst there is no evidence to suggest any development is likely in the short term by Lincoln Minerals Ltd, this company has the Exploration Licence for the adjacent tenement to the west of Iron Road and there is a high probability that the ore deposits continue to the west. Lincoln Minerals has expressed support for the Iron Road project and the infrastructure that it may bring to the area.

What are the potential economic and environmental impacts of this potential development?

Add to this the small tenement to the South east of the Iron Road tenement held by Centrex Metals.

Furthermore, it should be recognised that most of the land around the Iron Road tenement is held by other exploration companies.
What is Board’s position on preserving the agricultural industry in the District/Region, or is its position one of overseeing the destruction of the agricultural industry, environmental water reserves and the resultant network of very large holes in the ground and huge overburden dumps?

To gain an insight into the environmental blight the Warramboo mine will create, one only has to imagine the transposition of the Iron Duke Mine onto the proposed site and doubling the size.

**Water, water everywhere, but not a drop to drink.**
An apt introduction to the issue of water and the implications the proposed development will have on underground water.

The DFS indicates dewatering of the mine to be some 12-23 Million litres per day on a continuous basis. It is also claimed that the majority of this water will be used in the various processes of the mine, supplemented by water from a bore field or desalination of sea water.

It is obvious that water of any type (salinity) is a precious commodity on Eyre Peninsula given that the Peninsula is not served by a major desalination plant or connection to the River Murray pipeline network.

It is also becoming more cost effective as technology advances to desalinate saline water, not necessarily with huge reverse osmosis desalination plants, but via solar distillation which is economic on a small scale (farm-size) enterprise or even household use as is the case in some European countries.

The risk, however, is the dewatering occurring as a result of a mining enterprise, removes this water from future potential use for stock or human consumption, thereby further impacting upon rural industry and or community interests.

The demand for a comprehensive regional hydrological study of all waters impacted by the mining proposal should be foremost in Board’s mind. These reserves are finite reserves. They will run out unless managed correctly.

**Concluding remarks**
Whilst the focus of this discussion is on the Iron Road project, it should not be taken in isolation of what is also happening on Lower Eyre Peninsula, especially Centrex Metals Ltd/Eyre Iron Pty Ltd Project Fusion and Lincoln Minerals Ltd, Kookaburra Gully and Gum Flat proposals, all of which could have equally significant impacts upon surface and ground water. Again, the issue is no regional hydrological impact study exists upon which responsible decisions can be made.

Given the Board’s responsibility in the management of natural resources and in particular water, will the Board seek to have regional hydrological studies undertaken in the regions is question?

The community concerns appear not to be heard.

I thank you for your consideration in this matter.

Yours faithfully,

[Name]

Information Officer/Spokesperson
Eyre Peninsula Community Mine to Port Consultative Committee
(a sub-committee of the Tumby Bay Residents and Ratepayers Association Inc.)

**Comment 35**
It is also noteworthy that the Board has not responded to the above correspondence.

**QUESTION 11**
What is the regional impact of the proposed CEIP project (the project being the mine and associated infrastructure?)
2.5 Climate

“The nearest weather station to the mine site is the Kyancutta station”.

Comment 36

There are NO SITE Specific weather observations.

There exists no site specific BASELINE data pertaining to temperature, wind direction, intensity etc or rainfall upon which modelling of fugitive dust or noise dispersion is based.

The issue of being able to make an informed judgement of the impact of the mines without site specific baseline data raises significant credibility questions in relation to the risk assessment pertaining to dust, noise, leaching etc. As such the question, in the absence of baseline data, does the company have a social licence to operate having regard to environmental impacts arising? The conclusion should be NO.

The lack of baseline data would force local landowners to employ measuring equipment at their cost in order to substantiate any claim with respect to noise and dust intrusion on their properties, lives and businesses. This is especially critical in being able to prosecute a claim for compensation should grain be condemned due to iron ore contamination.

In a similar manner, claims arising from fugitive dust impacts upon crops and animal husbandry in the area of the mine would require scientific verification. Without baseline data, a claim would be difficult to substantiate in court.

The baseline data should also contain the actual composition of the existing ‘background’ dust due primarily to farming activities, thereby allowing the impact of mining to be readily determined. Clearly if the baseline data does not exist, the Company does not have a social licence to operate.
This issue will be developed further in response to the position contained in Appendix S.

2.5.3 Natural Hazards

Comment 37

Storm events
The relevance of Peninsula wide data must be questioned in the context that the proposal relates to a specific site on the Peninsula.
What is the storm event data relevant to the Warramboo site?

Lightning strikes may be a risk factor in the context of lighting fires which may put the facility at risk and even more-so with a fuel depot and an explosives magazine on-site.

What is the specific risk assessment in this instance when the site specific data does not exist?

Comment 38

Wind roses
Figures 2-9/10 Wudinna.
As mentioned previously Wudinna is not the location of the proposed mine site and the data so produced is irrelevant.

What are the actual wind roses pertaining to the mine site, ie an on-site, twelve month assessment of weather conditions?

What are the predicted modifications to these wind roses as a consequence of the developing waste rock facility (to an elevation of some 130+m and some 3kilometres in length)? Such predictions would allow for a more accurate prediction of the noise and fugitive dust dispersion arising from the mining operations given that both are significantly impacted upon by wind (intensity and direction) as well as temperature.

What is the frequency of temperature inversions in the location of the mine? What impact would such phenomena have of the dispersion of dust and noise, especially to those ‘receptors’ in the near vicinity of the proposed mine?
Fire

The assumptions made with respect to fire appear to somewhat different to those experienced recently at Pinery. This section of the proposal should be re-examined in the context of the potential impact of a Pinery fire through the mine site and surrounding areas and the proximity of the Hambidge Wilderness Protection Area (WPA 3.8km to the south east).

2.7 Proximity to Conservation Areas

The vegetation of the Hambidge WPA is dominated by mallee communities, with small areas of woodland and shrubland. Several species of conservation significance are known to occur within the WPA, including the Malleefowl (Leipoa ocellata) which is vulnerable at a national and state level. The WPA also potentially supports populations of the Sandhill Dunnart (Sminthopsis psammophila) which is nationally endangered and considered vulnerable at a state level. The Hambidge WPA receives minimal visitor use, with the majority of visitors entering to visit a small elevated viewing point locally known as Prominent Hill (DEH 2007).

Comment 40

Several species of conservation significance are known to occur within the WPA. The issue being the relevance of this observation to the migration of these protected species into the area of the proposed mining lease or transport corridor, an issue that was raised in submissions to the EPBC, but apparently ignored despite a recent sighting of mallee-fowl within the precinct of the mine.

The significance of the sighting together with the potential destruction of the heritage agreement HA 869 within the confines of the lease application are of concern.

Attention is drawn to the fact that the company was aware of the presence of malleefowl in the vicinity as reported in the Association’s submission to the EPBC Referral.

Additional commentary will be made on this in relation to Chapters 11 and 12.

Chapter MLP 3

Comment 41

3.1 Overview of the mining operations

It is noted that the Murphy South pit will take approximately 2.5 year to reach full production. That being the case what is the estimated return to Government in royalties for this period of time (actual $A)?

It is noted that full production from this pit will occur over the ensuing 17 years. That being the case, what is the estimated return to Government in royalties for this period of time (in $A)?

It is noted that the Boo Loo deposit will come on line years 17 to 25. That being the case what is the estimated return to Government in royalties for this period of time (in $A)?

It is noted that the Murphy pit will have dimensions of 6.2km long x 1.4km wide x 630m deep, whilst the Boo Loo pit will be 3km x 1km x 325m.

It is noted that the waste rock facility will be approximately 130-150 metres above current ground level and that a 50 metre buffer zone from the boundary of the proposed mining lease will be established.

It is noted that by combining the waste rock and tailings, a smaller footprint is achieved.

It is noted that there will be 3 outbound trains per day to the port.

The facility will have a ‘small’ desalination plant.

Approximately 329 tonnes of explosives will be detonated per day.
Construction (assume at camp)  1050
Operational    260 employee  300 contracts
Shut down    300
Head Office  560 construction phase
60 operational phase.

Local employment (component) figures not disclosed

Accommodation

Accommodation for personnel working at the mine site will be provided in one of two locations. During the Construction phase, accommodation for up to 1050 personnel will be provided in a camp at the mine site (the mine construction camp). Once the project has moved into Production phase, approximately 260 permanent employees will be accommodated at the proposed long-term employee village adjacent to Wudinna and the contractor workforce of approximately 300 will be accommodated at the mine contractor camp (which will be the construction camp adapted as required).

The long-term employee village will provide accommodation for approximately 300 personnel to accommodate visiting staff or others as required in addition to the anticipated 260 mine site workforce.

Comment 42
The actual size of the accommodation village at Wudinna is unclear. It is assumed that the base load of 260 employees with a capacity to hold a further 40 for a total of 300.

It is this permanent workforce that would have a potential impact upon Wudinna.

- An indicative layout of the mine camp is shown on Figure 3-24. The camp will include the following facilities:
  - Dining and kitchen building
  - A licenced ‘wet mess’
  - Generators with associated fuel storage to provide power
  - Communications facility, including phone and internet access
  - Access road and car parking
  - Laundry
  - Waste disposal
  - Bus parking, bus stop area and car parking areas
  - Recreation building, gym and multi-purpose sports court

While it is Iron Road’s preference to employ locally-based workers at the mine, it is recognised that in order to meet workforce requirements, at least initially, the majority of the operational workforce may be FIFO or DIDO [3.8.1] (underlining and bolding added)

Comment 43
And the actual local employment content for the construction and operation of the mine is....???

It is noted that an approved plan from the Australian Industry Participation Authority has been obtained under the Australian Jobs Act 2013 (Commonwealth), but no details are referred to in this application. Upon what basis can Australian Industry compete for work in the proposal versus imports from off shore entities, including importing labour under 457 Visas?
Given the detailed description of the construction camp and its functionality, how does the company rationalize this against claims of integration with the local community at Wudinna which is some 45 kilometres away? The statement appears at odds with the so called integration with the local community claims of the Company, even more-so given the 12 hour shift and the two weeks on, one off rotation.

In addition, the timeframe for the construction phase and hence the operation phase is not clear. It is assumed that the construction of the Wudinna Village would be scheduled to coincide with the year 4 production start.

Comment 44

3.2
Reserves
3.2.1 It is noted that work on the origin of the Warramboo deposit has been undertaken by the Adelaide University, the findings of which appear to be at variance with that which has been the accepted position even up to 2007.

Scientific progress is to be encouraged. It is therefore assumed that the latest findings as to the probable age of the deposit have been subject to independent verification and peer review and accepted by the peak Geological authority in this State.

3.2.2 The reserves disclosed to the ASX for the CEIP are for the total project area not just the two mines that are the subject of this application, therefore what is the situation for the whole tenement whereby the potential life of the mining operation could be extended to take into account the other prospects that have been identified? It appears that figure 3-6 is incomplete when compared to disclosures made to ASX.

Is this application an application for just the two mines or is it one which encompasses all prospects within the exploration licence? If it is the former, then a clear statement of intent that the application is for two pit areas only needs to be made and that any further development would require a new application and an equally rigorous examination of the issues at hand, especially given the immediate proximity of the Hambidge WPA and the Polda Basin.

Table 3-5 Indicative concentrate specifications.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe</td>
<td>67%</td>
</tr>
<tr>
<td>SiO2</td>
<td>&lt;4%</td>
</tr>
</tbody>
</table>

Unfortunately this table does not provide much in the way of useful information.

In the absence of evidence to the contrary, it is assumed that the concentrate (magnetite) would be 96% of the material loaded for transportation and approximately 4% would be silicon dioxide (silica) with other impurities.

The issue here is the quantity of silica that is within the final concentrate that is to be transported to the port.

There are two significant issues namely the health impacts of the magnetite content of fugitive dust arising from the transportation process AND the health impact of the silica content of the ore (the 4% factor).

**QUESTION 12**

With returns to the State as mentioned previously, it is noted that construction will be year 1-3 (therefore it is assumed nil return to government), limited production in year 4 (2.8Mt) increasing to 17.6Mt in year 5 and thence full production (21.5Mt) in year 6. That being the case, what is the return to Government as a consequence of royalties due over the life on the mine(s)?

On the other side of the ledger, what is the loss of rate revenue to Wudinna District Council and the costs associated with the provision of additional infrastructure to support the development of the ‘village’ etc, as a consequence of the mining operate for the duration of mining operations (assuming 25 years LOM)?

**Waste Rock (page3-5)**

**Geochemistry of waste dump**

An assessment of the geochemistry of the waste materials indicates the following:
• Confirmed low total sulphur content with approximately 2% of total waste material (oxide, fresh rock and tailings) considered potentially acid forming.

• Approximately 10% of the oxide material to be encountered is classified as potentially acid forming (PAF), with the majority (estimated 90% by volume) of this PAF material classified as having low to very low acid generating potential (<0.5% sulphur).

• PAF material with total sulphur exceeding 1% comprises approximately 0.5% of the entire overburden material. This material is considered to be a low net acid production potential.

• The tailings component has a high Acid Neutralisation Capacity (ANC) ratio >2 (average ratio of 17) and high ANC (average of 15.6 kg H2SO4/t).

• Indicated negligible or low metal and elemental concentrations with the exception of manganese (average of 1140 mg/kg compared to an ecological investigation level (EIL) of 500 mg/kg and average crustal abundance of 950 mg/kg for manganese).

• Further details around the geochemistry and management planning for the IWL are provided in the CEIP Oxide Zone Mine Waste Geochemistry Review incorporating an Acid Management Drainage Management Plan (within Appendix S).

Comment 45
The above assessment is noted. However in light of the history of exploration of this area (see introduction) and the documentation provided by independent geologists (see introduction) questions arise as to the exact nature of the materials that will find their way to the waste rock dump.

In responding to questions raised by the CEIP CCC, concerning the nature of the material in the mine site, it has been claimed that the fresh rock (mined material) is essentially the similar to top soil, a claim that has been repeated in public meetings, especially in the context of the composition of dust.

The question further arose from the information disclosed in the DFS where the analysis of a core sample was disclosed. (Note the singular ‘a’ core sample)

The information tabled supposedly represented a single core sample of unknown location to a depth of 400 metres. The reality being hardly a cross section that is representative of the 9 kilometre (total length) proposed mines which will be excavated to a depth of some 630 (or 320m) metres.

The question of the presence of radioactive isotopes remains unanswered.

The following extract is taken from the questions on notice provided to the Company seeking answers at a public meeting following the release of the DFS. (A copy of this correspondence is included within this response)

‘JORC Code 2012 Table 1’ Section 2 Reporting of Exploration Results

Sampling Techniques

Samples were also analysed for As, Sn, Ba, Sr, Cl, Ni, V, Co, Zn, Cr, Pb, Zr and Cu

Comment 46
It is noted that uranium, thorium and other radioactive elements were not included in the analytical work, therefore the following questions remain unanswered:

Given the known presence of uranium, thorium and other radioactive materials in the Gawler Craton bedrock and associated palaeochannels in the district, why are these substances precluded from any analytical results?

Given the inclusion of lead (Pb) in the analytical data, which isotope of lead was reported on, given that lead is the end product of various decay sequences for radioactive elements? Was it Pb 214; Pb 211; Pb 210; Pb 209; Pb 207 or Pb 206?

Was lead therefore used as a marker for the presence of uranium?
What was the concentration of the lead in ppm?

Given that strontium was reported in the analytical result, what isotopic form of strontium was identified? If it were Sr87 (the radioactive isotope) was this used to determine the geologic age of the deposit using the Sr87/Rb87 dating procedures? If not, what was the concentration of the strontium sample in ppm?

It is noted that the analytical work sought to determine the presence of arsenic and chromium. That being the case, what was the concentration of arsenic in ppm?

With respect to the chromium, was the sample tested for hexavalent chromium (Cr(\text{V}))? If so, what were the concentrations in ppm?

It is noted that no mention in the analytical work was made of the presence or otherwise of cadmium.

It is noted that samples were analysed for the presence of copper. What concentrations of copper occurred in the samples in ppm?

*Environmental factors or assumptions*

- Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.

  While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.

- No environmental assumptions have been considered in the estimation

**Comment 47**

As alluded to earlier in this response, the issue of the presence of radioactive material is of considerable concern, given that the MLP is proposed for the mining of iron ore and does not include the mining of radioactive material. It is therefore assumed that if said materials are present then the disposal plan is for this material to be deposited on the waste rock heap. That being the case (and clearly in the lack of evidence to the contrary) the material will be exposed to wind and water migration. Wind will result in the transportation of the material into neighbouring farming properties potentially contaminating pastures, grain, and through the food chain meat. Rain will potentially leach the material from the waste dumps into the underlying and surrounding environment.

The issue of radon gas which is a characteristic of mining deposits such as that proposed is not dealt with.

The environmental impact of significant quantities of diesel fumes and particulates emanating from the mine is not dealt with.

The real issue of fugitive dust which contains not only iron ore dust but potentially significant quantities of free silica as a consequence of the mining process is of a major concern. Added to this is the issue of fugitive dust arising from the transportation of the refined ore from the mine to the proposed port some 145 kilometres through prime agricultural land. The ore is reported to contain up to 4% silica and a non-disclosed amount of other material, some of which may well be heavy metals.

The inference is that there are no environmental impacts from dust.

It is claimed that some 12 to 23 megalitres of water will be removed from the mine as a consequence of the dewatering process and that this water will be primarily used to control dust and other components of the process. It has been conceded that this water is hyper saline and one estimate (provided by an employee of the Company) of the quantity of salt being spread over the mine footprint during the life of the mine is in the order of 480 million tonnes. The inference being that this does not constitute an environmental impact!
As mentioned previously, the dewatering of the mine and the drawing of water from the proposed Kielpa bore field has a hitherto unknown regional impact both for water security and the environmental impact of such large scale dewatering.

**Comment 48**

It is assumed that the above questions were those which prompted the aforementioned response from the applicant in the local media, namely the Granite (May 2014).

Clearly, the position held by the Company was not one of ‘informed debate’ as often touted by its representatives and within this application.

It should be recognized the attitude of the Company as expressed by the Environmental Manager as evidenced by the opening sentence to the response is clearly an hostile response which can be considered as not indicative of a company with a social license to operate.

The assertion that fresh rock and top soil are essentially the same as claimed by the Environmental Manager can be taken as representative of the contempt the company has shown to the provision of accurate information and an ‘informed debate’. Apart from the fact that the two are geologically separated in time and deposition, the reality of this statement would be that the company could commence immediate production of the concentrated ore without the necessity to strip of some 60metres before reaching the ‘ore body’ not some 4 years down the track!

The credibility of the Environment Manager’s assertion that top soil is essentially the same as the ore body is clearly contestable.

The revelation that the concentration of manganese is double that of the required standard poses significant health and safety questions, given that manganese is a known neurotoxin. In the absence of evidence to the contrary, this material will end up on the waste rock dump in a format that is now readily migrated either through fugitive dust or through leaching.

A detailed management plan outlining the mitigation strategy for the health risks associated with manganese should have been included in this section of the application, not buried in Chapter S or schedule for further work.

**QUESTION 13**

Given the known existence of palaeochannels in this area and the previous exploration for uranium, what remains as to the concentration of uranium, etc. within the first 60 metres of ‘overburden’ as well as the presence of isotopes beyond the 400 metre mark as reported in the DFS?

It is noted in "Locals Bring Their Questions to Wudinna Info Evening", November 2014, the following claims were made:

"The dust is likely to contain oxidized iron and silica. Small quantities of other compounds....are likely to be present. Heavy metals including Lead and Uranium are well below acceptable limits set by the EPA”.

It was also claimed in the May 2014 "Granite" that iron ore is nontoxic.

The applicant now acknowledges the presence of heavy metals including Uranium and appears to dismiss their occurrence as ‘likely’. The issue being upon what empirical evidence is the advice provided to the public in both the May and November documentation based? 'Likely' is not credible!

**Existing Services**

“Telstra copper connections to existing dwellings within the mine site boundary are not illustrated in Figure 3-27.

- As is the case with road changes, every effort will be made to minimise disruption and inconvenience, recognising that these services are not under the direct control of Iron Road. The following utilities relocations are proposed:

- Prior to decommissioning the Kimba Road SA Water pipeline and following final negotiation with SA Water it is proposed that a new DN 150 CICL water pipeline will be installed around the mine site northern boundary. Re-connection will be made into the Kimba Road pipeline at the eastern and western boundary extents, to maintain regional supply.
Once electricity is available from the new power transmission line to be constructed along the proposed infrastructure corridor, the 19 kV power lines will progressively be isolated and removed. New power lines will be installed prior to disconnection of the existing services, where required, to maintain service continuity to properties outside the mine site.

- It is proposed that the 132 kV transmission line that crosses the western end of the mine site be isolated at the mine site boundary and removed and a new line installed around the mine site boundary.
- It is proposed that the majority of the Telstra services will be terminated at the mine site boundary. Service realignments will be undertaken to existing properties outside the mine site boundary including on Nantuma and Kimba Road."

Comment 49
The issues identified above represent significant capital costs to the entities concerned as well as potentially significant costs to those whom depend upon the existing services.

The application is very limited as to these costs and timelines and especially the extent of disruption to the existing landowners so affected.

The paucity of information contained in this section is a measure of the lack of consultation with landowners and service entities amounting to a denial of a community licence to operate.

These appear to be the ‘hidden’ costs to landowners and the community.

Site security

“Similarly, the explosive magazine and bulk explosive storage and preparation areas will be secure facilities, separately fenced with a 2.1 m chainlink fence incorporating locked and monitored gates. The explosives storage and manufacturing facility will also incorporate lighting and closed circuit television for security monitoring.”

Comment 50
Given the quantities of explosives stored in the facility, would not a razor wire addition to the top of the fence provide an additional deterrent?

Has the security arrangements been subject to both SAPOL and Australian Federal Police (and perhaps ASIO) consultation, especially noting the rather remote location of the facility with potential escape routes being the Tod Highway and the Eyre Highway as well as Nantuma Road?

The delivery of such a regular supply of ammonium nitrate to the site is of a concern.

QUESTION 14
Has the Company sought advice from both SAPOL and AFP concerning the transport routes to be taken in delivering the explosives to the site, especially in the context, if stolen there is a considerable avenue for the material to ‘disappear’ due to the remoteness of the site and the lack of police in the area, not to mention various 'escape routes’ are available?

This issue is further complicated by the location of the nearest Police Station being Wudinna with a single officer and 9to 5 office hours.

QUESTION 15
With respect to the explosives magazine and associated infrastructure, what is the technically identified blast radius in the event of a catastrophic detonation of explosives, noting the quantities to be stored on site, and what fugitive chemical and dust material will there be as contamination and health risk?

In addition, a significant quantity of detonators will be stored and used in the mining operations. What is the environmental impact of this material and its detonation products? It is noted that the Material Safety Data Sheet does not appear to have been included in the application.
It is assumed this material will be mercury fulminate. That being the case what is the quantity of mercury released into the environment as a consequence of the mining operation?

What is the pollution pathway for the mercury so released and the mitigation measures to minimize environmental and public health risks?

It is noted no reference to the fact that the complete site will not be fenced.

**QUESTION 16**

How the company intends to keep 'trespassers' (being recreational drivers, 4WD and motor cycles) out?

**Comment 51**

**Modular Construction** (page 3-22)

It is noted that modular components for the enterprise will be constructed offshore.

What benefit does local (Australian) industry gain from this proposed enterprise? It would appear to be none.

3.7.1

**Surface Infrastructure and Buildings**

"Based on liaison with Wudinna DC, local landowners and other key stakeholders during the late stages of mining, it will be determined which site infrastructure is of value and which will be decommissioned and removed from site. It is expected that the railway line and loop and transmission line will be retained based on negotiation with the State Government and potential private investors for future use.

Decommissioning and removal of site infrastructure would involve site assessment and remediation planning, including removal of fuel and chemical storage and wastewater treatment facilities in accordance with the relevant legislation and standards."

**Comment 52**

It is assumed that a full decommissioning and rehabilitation program be included in this application and not some vague notion currently expressed by the company as above.

If the response to this question is 'it will be covered in the PEPR and the rehabilitation management plan' being examples of future work to be undertaken, then both of these entities MUST be subjected to public scrutiny before any approval is issued.

**Pit Lake**

“Following decommissioning of the dewatering system at the completion of mining, groundwater will continue to discharge into the pit and a pit lake is predicted to form. As shown in Figure 3-32, the pit lake water level is predicted to stabilise at approximately -275 m AHD approximately 1000 years post closure. This is approximately 335 m below the pre-mining groundwater level and as such a permanent cone of depression is predicted to form around the pits. A new steady state groundwater flow regime will be maintained once the pit lake level has stabilised.”

**Comment 53**

The use of terminology such as "it is predicted" leaves the ready questioning what if the predictions are incorrect?

The predicted 275 metre below surface level and the statement of a permanent cone of depression raises concerns about the impact of the hole on groundwater outside the boundaries of the proposed mineral lease in the longer term, i.e. water that is required to maintain the environment, inclusive of Hambidge Conservation area and the surrounding lake network.

It is noted that the lake water level is *predicted* to stabilize at 275m AHD thus giving rise to a lake of water depth in excess of 300metres. Given this 'predicted standing water level', what is the cone of depression that supports this prediction? Does the cone of depression extend into the Hambridge WPA? If so, what are the long term environmental impacts upon the sustainability of the WPA as a consequence of the dewatering?
It also means that some 275metres of quarry face is exposed to the processes of weathering.

Given the predicted level of the lake surface, the potential for oxidation of the mine face, now exposed to the air and weather, to form acid (refer to paper ‘A Review of Pyrrhotite Oxidation; Belzile et al; Journal of Chemical Exploration; 2004) is a reality with these oxidation products now in solution and free to migrate off site in the water, together with whatever else can be washed into solution due to the exposure to air and weathering and the action of ‘acid’ upon the rock.

That being the case, what monitoring program and subsequent mitigation program will be put in place to prevent oxidation of exposed sulphide containing ore, thereby creating acids which will migrate to the lake waters.

**QUESTION 17**
In addition to the formation of acid, what is the effect of the acid on the rock face per se, especially in the context of the potential release into solution of other materials contained within the ore body that may be harmful to health or the environment?

**QUESTION 18**
The long term impact upon the environment appears to receive limited discussion in the application. What monitoring processes will be in place over the next 1000 years to ensure that the predictions of today are actually correct?

**QUESTION 19**
In the event that the (non-disclosed) rehabilitation plan does not address this eventuality, will the Government be liable for the remediation of any environmental impacts arising?

It is noted at this depth in the rock face there would be considerable less calcium carbonate or similar to ‘neutralize’ any acid formed.

### 3.7.4 Land Use options

"Consideration of these alternative final land use options will incorporate an understanding of climatic influences and climate change upon long-term productivity and sustainability, particularly for options such as cropping or agroforestry. Increasing aridity is predicted in the bulk of southern Australia and factors such as declining rainfall and higher evaporation rates are predicted to gradually change the nature of local land use. The validity of alternative land use options, in terms of achieving stakeholder expectations and the primary objectives of a stable, rehabilitated landform are all to be considered by investigation and research, as part of the forward work plan during the investigation, construction and operational stages of the CEIP."

*Post closure land use options will be discussed in detail with the Wudinna DC, State Government, local landowners and other key stakeholders during the later stages of mining.*

**Comment 54**

Clearly what the Company is seeking to diminish is the significant issue of salt (the quantity of salt being in the order of millions of tonnes somewhere between 480M and 20M depending upon what reference material one is reading) that will be spread over the site (but noting the definitive position of the Company that it will be contained within the boundaries of the Lease) and its future impact upon rehabilitation of the site and potential contamination of neighbouring properties.

The issue MUST be dealt with at this stage of proceedings.

Given that no site specific climate data has been submitted with this application and the position adopted by the Company of a wait and see attitude hardly engenders confidence that the Company actually knows what it is doing. Is this not a case of re-inventing the wheel, yet again? For a Company that claims to exhibit world’s best practice, then surely this is an area which it should be able to provide ‘best practice solutions’!

Clearly the Company is oblivious to developments by PIRSA, CSIRO and others in the field of greater low rainfall tolerant varieties of grain to meet variations of climate in the future.
What is also overlooked is the potential for agriculture to desalinate saline waters from aquifers and irrigate broad acreage for food production.

Both of these development scenarios lead to the realization that mining and agricultural (the production of food) cannot co-exist.

Clearly a number of models should have been generated which examine a number of options for consideration of the public in the context of a formal environmental assessment.

The application provides the opportunity to describe in detail the direction the Company wishes to take into the future. It **MUST** be recognised that the public **DO NOT** have an opportunity to comment upon the PEPR which is generated as a consequence of the approval of the Mineral Lease. In this respect, all options and directions **MUST** be outlined herein.

The use of the term ‘forward (future) work’ is interpreted as work which the applicant does not wish to have subjected to public scrutiny, clearly contradicting its stated position.

**Water**

"Water used in the processing of the ore will be saline groundwater and will be recycled in the process.

Brine from the RO plant will also be recycled for use in dust suppression. Approximately 95% of proposed mine site water requirements will be supplied by recycled water.

No water discharges are planned as part of the project. Waste water is entrained in the tailing delivered to the IWL at a moisture content of approximately 6.8%. Brine is used for dust suppression of the IWL and saline water recovered from mine pit seepage will be used preferentially for dust suppression on haul roads."

**Comment 55**

It is noted that the quantity of water per annum ranges from 9000-15000Mlitres from the Kielpa bore field, approx. 3,600M from dewatering and a comparatively small amount from rainfall.

It is further noted that the bulk of the water is saline, but no estimation of the salinity is attached to this section of the report.

The question, therefore, what is the amount of salt (predominantly sodium chloride) contained (dissolved) in this quantity of water in tonnes per annum that is now brought to the surface as a consequence of the mining operations?

It is noted that a reverse osmosis desalination plant will be installed at the site. That being the case, what is the chemical composition of the outflow that will ultimately end up on the site either as a dust suppressant for the waste rock facility or on the roadways?

**QUESTION 20**

It is noted that saline water will be used throughout the various operations at the site including dust suppression, what is the technically calculated amount (in tonnes per annum) of salt that is now to be spread over the site, including the waste rock dump(s)?

**QUESTION 21**

With the answer to the question above, what credibility remains in the claim that salt will be retained within the confines of the mineral lease and that the waste rock dump etc. and that the land can be returned to 'agricultural use' at the end of mining activities?

Clearly the salt is now in a mobile form (either in solution or in the dust after the water has evaporated) which can impact upon neighbouring properties.

**QUESTION 22**

What is the regional impact upon the Kielpa aquifer as a consequence of this significant extraction rate? What is the annual recharge rate for the aquifer?
Comment 56

Legislative Framework
Discussion of the legality of the Mineral Claim in terms of Section 9 and 9AA of the Act and Exempt Land. A Mineral Claim should not have been registered until Exempt Land waived.

It is noted that a number of pieces of legislation have been identified and compliance requirements identified, but the detail is not provided or referenced for further discussion/information in this application. (Table 4.2)

It is also noted that the 'list is not an exhaustive list', therefore what is missing and what is the relevance of the missing legislation to the proposal?

It is noted that an approved plan from the Australian Industry Participation Authority has been obtained under the Australian Jobs Act 2013 (Commonwealth), but no details are referred to in this application. Upon what basis can Australian Industry compete for work in the proposal versus imports from off shore entities, including importing labour under 457 Visas?

Stakeholder Engagement
Claimed framework

"As Iron Road progressed its activities and completed its studies, including all work undertaken to determine that the substantial magnetite deposit identified by the Company could be effectively and efficiently mined, it ensured that its extensive engagement with stakeholders also took into consideration the requirements specified under the Mining Act, 1971 (Act) and Mining Regulations, 2011 and Ministerial Determination 006. Under that legislation a mining proponent must consult with affected stakeholders, report on which stakeholders have been consulted with, identify the challenges or concerns expressed by stakeholders and set out how the proponent has responded to those challenges/concerns. (5.2)

Iron Road’s engagement strategy is considered on a whole of project basis, therefore all engagement activities have included conversations about the proposed CEIP Mine and all infrastructure components.

Iron Road was one of the first industry signatories to the South Australian Chamber of Mines and Energy (SACOME) Code of Practice for Stakeholder and Community Engagement (SACOME 2012) and the principles of the Code, outlined below, also underpin the approach.

1) **Inclusive** – the engagement process identifies, reaches out to and includes, participants who clearly represent all stakeholder groups including community, government, business and industry.

2) **Transparent and Accountable** – the engagement process is transparent and it is clear who is responsible and accountable for its implementation.

3) **Clear and Informed** – the engagement process provides timely, balanced and objective information and promotes shared understanding between and within stakeholder groups. Issues on which stakeholder groups are to be engaged are clearly scoped and the factors that can or cannot be influenced by their input are clear.

4) **Accessible and Timely** – the engagement process is accessible to stakeholder groups. Time to deliberate is provided and an appropriate tone is created to encourage deliberation and the forming of informed opinion.

5) **Meaningful** – The engagement process and outcomes are considered by decision makers and can influence the decisions made. The engagement process provides feedback to stakeholder groups on how their input influenced the outcome. (5.3)"

Comment 57

The reality

Given the significant development of mining activities within agricultural lands on Lower Eyre Peninsula in particular, the Port Lincoln Residents & Ratepayers Association Inc. and the Tumby Bay Residents and Ratepayers Association Inc. undertook an education program to advise interested landowners of the issues that they potentially faced with the onset of such activities by the various mining companies.
At the same time a small sub-committee of the Tumby Bay Residents and Ratepayers Association Inc. (TBRARA Inc.) was formed to manage the process. The Eyre Peninsula Community Mine to Port Consultative Committee was duly constituted under the TBRARA Inc.

A series of public meetings were held at Warramboo, Rudall, Port Neill and Tumby Bay to raise awareness of those attending in issues related to mining.

The Associations have been actively involved in issues pertaining to mining and the potential impacts upon the environment and community alike. In this instance questioning the Definitive Feasibility Statement which was actively promoted by the Company in early 2014 and responding to the EPBC referral for Cape Hardy and the transport corridor.

The Association also provided an input into the Agriculture Competitiveness White Paper with a specific focus on the impact of mining within agricultural land and the subsequent destruction of food producing land for short term gains arising from mining.

In this respect, the Associations questioned a number of issues contained in the DFS document and requested a public meeting be held in Tumby Bay in order that the issues be dealt with in the public forum.

This request was denied and statements of misunderstanding and misrepresentation were levelled at the Association by the Iron Road’s General Manager.

A response to the letter was provided to the Company as well as additional correspondence entered into with the CEIP CCC through its Chairperson.

To this day, the issues raised in the original correspondence have not been responded to by the Company.

The Company attempted to respond to some of the issues raised through an article in the Wudinna Granite (May 2014)

The Association responded to the inadequacies inherent in the article through the CEIP CCC. It should be noted that no response has been received from the CEIP CCC on the issues raised.

It should be noted that the letter to the CEIP CCC apparently disappeared as the Association’s Information Officer was contacted by the General Manager seeking a copy of the correspondence. A copy was duly provided. Importantly the correspondence raised issues pertaining to the impact of fugitive dust on agricultural land and provided a series of international references on the issue.

In summary the activities of the Associations with respect to progress of the CEIP Project include:

- Experience with the DFS L Ingle response to questions asked (and not answered) Threat of legal action. PLR&RA website article.
- Requests for Public Meeting(s) in Tumby Bay.
- Liaison with CEIP CCC Chairperson.
- Response to articles in the Granite.
- Provision of a copy to General Manager of correspondence to CEIP CCC that apparently not recorded in the Minutes of CEIP CCC.
- Association member attendance at Iron Road meetings.
- Information provided to TBCCC questions raised, not answered.
- Quality of advice provided to CCC.
- Raising the issue of the loss of agricultural land to mining in the Federal Government White Paper on Agriculture.

It is noted the position of the CEIP CCC was to represent the interests of the local communities of Wudinna and Warramboo, not the communities of the whole project. In this regard the Company failed to create appropriate CCC’s in all areas that were likely to be affected by the CEIP project, in short it did not comply with the Code of Practice it sought to uphold.
It is noted that the Company claims a ‘loose’ relationship with the Port Neill and Tumby Bay groups rather than a formal CCC designation. The issue therefore is one of credibility in claiming ‘public’ consultation as having occurred in these circumstances.

The reality of this relationship has been tested through the lodgement of a series of questions through the Secretary (with an apology for non-attendance at the meeting) to be asked of Iron Road representatives who were to be in attendance. It appears the questions were not asked (or referred to the representatives to be answered at a later convenience).

The level of understanding of the issues by the chair could be illustrated by a response to a question regarding the sealing of the Kinnaird Road which was referred to the local Mayor for an answer, completely missing the point that the transport corridor is subject to an EIS under Section 46/48 of the Development Act and thus requires an answer from the applicant (the Company), not the local Council.

As the correspondence from the Association shows, there was a significant reluctance to entertain the suggestion of holding ‘public’ meetings in Tumby Bay, indeed, every effort appears to have been made to thwart such an event occurring.

The position of the Association was made clear from the outset that a ‘public’ meeting was just that, public. A one on one scenario as constantly proposed by the Company is not a ‘public’ meeting.

It is for this reason that the Association states categorically that the Company does not have a social licence to operate as it has failed in all respects with respect to its held position as outlined in its Code of Practice.

The one on one approach is NOT public consultation.

Without prejudice to the individuals who attended the CEIP and Tumby Bay CCC meetings, the issue to address is the so called independence of the chairpersons.

In the case of the Tumby Committee a representative from Regional Development Australia, a Board that actively promotes mining development (clearly at the expense of the agricultural industry) is hardly deemed an independent chairperson.

In a similar manner, the Chairperson of the CEIP CCC is not seen as an independent chairperson, given the formal association (employee/contracted) with the Department of State Development and the policies of the Department at the time.

A critical examination of the minutes of meetings of these ‘representative bodies’ would also show failure on the part of the Company to comply with the so called code of practice. A simple example to illustrate the point is why did the Company not advise the Committees of the lodgement of the EPBC referrals nor did they offer to discuss the content of the referrals with the members of the Committees. Openness and transparency clearly did not occur.

An examination of the Minutes of Meetings (and Agenda) of the District Council of Tumby Bay as it is affected by the proposal indicate:

- No MoU exists with Council in regard to roads.
- No MoU exists re the provision of services in support of construction camp at Cape Hardy.
- No MoU exist with respect to infrastructure demands at Port Neill as consequence of activities of operations. It must be recognised that the DCTB has initiated a common effluent scheme throughout the township of Port Neill despite overwhelming objection by the ratepayers and at significant costs to the ratepayers. A cynic would suggest that the timing of the approval for this scheme may be co- incidental to the lodgement of the EIS by the company and the anticipated accommodation requirements at Port Neill.
- No MoU exists with respect to loss of rate revenue at Cape Hardy.
- No MoU exists with respect to non-complying activity (the port and land based infrastructure) and its environmental impact measured against the DCTB Development Plan, noting that the project is governed by the Section 46/48 of the Development Act which over-rides local government.
It is true a number of meetings have occurred between Council and the company, but the process is completely non-transparent. No minutes of meetings are kept. No items listed on the agenda for discussion in a public forum.

No mention of receipt of the MLA/EIS application at December 2015 Council meeting. (Notice of MLA and EIS existence posted on Council website on 15 Dec 2015) It can only be assumed that the attitude of Council as expressed by the CEO is that mining is purely speculative and will not occur, and or, the Council has neither the expertise nor resources to respond.

Clearly Council is failing to undertake its responsibilities in accordance with the Local Government Act, thereby not representing the views of the community it purports to represent.

Point of fact: Kinnaird Road is subject to current Provisional Development Authority for the Centrex/Port Spencer project. It is noted that Centrex is progressively liquidating its iron ore assets in the area, BUT the PDA has not been removed. Council, on the other hand, is planning to spend $800,000 plus of ratepayer's funds to seal the road. It is further noted that no cost benefit analysis statement has been provided to ratepayers for the expenditure of these monies. The assumption being, the beneficiaries are the mining companies, per se.

Given that the company has stated that its consultation program has not separated the two components, it is assumed that issues pertaining to road infrastructure and the relationship with the DCTB as outlined will be taken up under the auspices of the Development Approval. The discussion is included here as an example of the lack of transparency in the consultative process claimed by the company.

It is noted that a period of twelve weeks is considered to be adequate to consider BOTH the MLA and EIS applications which total some 4,880 pages.

It is also noted that hard copies of the documentation can be purchased from DSD at a significant cost to the public.

It is noted that an electronic form of the document (in a secured pdf file) and or a downloadable file from the DSD website is available.

The Department and by default the Company clearly has failed to recognise the difficulties of (a) assessing such a large document on a computer screen and (b) that internet access on the Eyre Peninsula is marginal, effectively ruling out access via this medium.

In addition, a secured pdf file does not allow the respondent the option of 'cut and paste' into a response.

Clearly the unwritten aim of the Department and of the Company is to stifle public commentary on these applications again contrary to the stated code of conduct expressed above.

**APPENDIX S**

"MWH reports:

With respect to mine waste a conservative estimate that 10% will have acid forming material and 10% will have neutralizing potential.

Landform management, rehabilitation and closure planning will be refined as current knowledge is enhanced by forward work."

**Comment 58**

The only possible conclusion that can be drawn from these statements is that the current position (i.e. the one relating to the actual application) is clearly not understood to the extent that the public can be assured of appropriate landform management, rehabilitation or closure planning occurring.

Clearly the current position is a minimalistic approach designed to gain approval in the absence of total knowledge and in an environment of incomplete transparency of the risks to be encountered and mitigated against. Presumably this is the accepted position of 'world's best practice' touted by the company.

It MUST be noted that the public is provided ONE opportunity to comment upon an application and in such a position of uncertainty as expressed by this Report, the approval should be denied.
The application lacks credibility in determining long term implications leaving the Government (and hence the taxpayer) exposed to the eventuality of non-compliance and the cost of rehabilitation when mining activities cease. This State has a classic example of this eventuality namely the Nairne-Barunga Pyrites Mine.

"The preferred landform design...is based on a conservative conceptual approach to accommodate design parameters..."

"Will contain all PAF mined in a manner that alleviates any risk of acid drainage and in combination contains saline material in a manner that prevents distribution of salts beyond the outer upper surfaces of the landform"

Comment 59
What is a 'conservative conceptual approach'? Is this not a figment of the author's imagination? In an application of this nature 'conservative concept approach' are not what the public expect. What is the design of the landform that mitigates against fugitive dust, wind erosion, dispersion of materials in solution and is not a sound reflector of noise generated in the confines of the pit activities?

The public must have confidence in the actual design and functionality of any manmade landform.

Statements such as 'alleviate any risk' and 'prevents distribution of salts beyond outer upper surface' fail to provide any confidence that migration of salt and other dissolved materials (including heavy metals, uranium, etc.) and that the actual upper surfaces of the landform can be rehabilitated to the stated land use (agriculture or re-forestation) given that onsite meteorological data is not provided and having regard to the actual quantity of salt generated on an annual basis through the mining activity.

The waste rock facility MUST contain all hazardous materials placed in it for the long term, not just the convenience of the term of actual mining operations and yet the Report continues:-

"Aspects requiring further investigation include mitigation of wind erosion, vegetation establishment, salt migration and management of any surface water and ground water influences."

Comment 60
The public are thus being asked to make a judgement upon incomplete data and planning. We reiterate our previous position that the application must be denied on the grounds that insufficient information is provided as to the management of the risks associated with the waste rock facility having regard to the nature of the material (as disclosed) and in the knowledge that this may not represent full disclosure of the materials to be so contained.

It is noted "further investigation....wind erosion..." is required. Clearly site specific meteorological data would remove this 'further' investigation and provided a more appropriate assessment of the issue.

The assumptions made using data from Wudinna and Kyancutta are just that 'assumptions' as opposed to real data upon which modelling can be based.

The approach does not, in our opinion, satisfy objective 1.3.

"Identification (based upon current knowledge base) placement and suitable management of potentially problematic waste materials".

It is noted that a risk management workshop was held between MWH, Iron Road and DSD. It is also noted that landowners or the CEIP CCC were not included. It further supports the premise that the attitude of the Department (DSD) and of the Mining Company is that landowners are not a party to the Mining Act.

Comment 61

Section 2.1.7 Groundwater
This section identifies the profile of groundwater with a salinity variation from 35000mg/litre to 150,000mg/litre dependent upon depth location and a pH variation of 3.39 to 6.39 dependent upon what geological formation the water is held.

It is noted that the analytical work was based upon 140 holes. It is not clear as to the depth of the holes being 75 metres (being overburden) or to a depth of 630 metres (being the basement of the ore body).
"that below the oxidized zone, the fresh rock waste expected to be generated has a low likelihood of being PAF. Data from magnetite concentrate data from processing test work completed in 2014... (Section 2.2.2.3) confirms this".

It is not clear that the 'sample' is representative of the whole deposit or characteristic of a limited portion of the deposit (noting that the prospect is some 9 kilometres in total length).

The question, therefore is does this study hold true for the whole deposit or is this another example of future work being required again noting that the future work is not subject to public scrutiny and could confirm concerns held that the concentrations of heavy metals, uranium etc. are well above that which has been disclosed to date in what appears to be 'limited' study?

This position is further supported by:

2.2.2.1. A review of 'available data' provides a snapshot of key characteristics and leads on to the use of the term 'future work...' (page 35 para 1)

The position being that all future work is clearly beyond the scope of public scrutiny and is representative of the minimalistic approach and contempt the company has shown to full disclosure of the facts pertaining to the nature of the ore body and the risks to be managed throughout the mining operation and beyond.

The conclusion being the analytical work may be representative of the reality of the samples provided, but for the project, the assumptions being made are 'best guesses!'

**Comment 62**

2.2.2.3

**Tailing characteristics** (page 35)

The limitations of the study are noted.

**QUESTION 23**
Why was not actual samples of water taken from the site (at various depths and hence salt concentrations) used to perform the tests thereby approximating to actual site conditions.

It is noteworthy that on page 37 it is stated that:

"salt stored within the tailings material will be bound in a low moisture environment **UNTIL incidental water from rain mobilizes the solutes**". (Bolding and underlining added)

It does rain at Warramboo!

Clearly the concerns expressed by the public are confirmed by this Report. The salts are mobile despite the statements of the company to the contrary.

**QUESTION 24**

What is the chemical composition of the mobile salts and how mobile will they become, given that the buffer zone is to be only 50 metres to the boundary of the proposed mining lease and neighbouring agricultural properties.

**Comment 63**

**Appendix A**

(page 77- )

The composition of the tailings: It is noted that three sample were subjected to analysis with the results presented on page 85 of this section of the report.

It is noteworthy the limited (3) sampling analysed as being representative of some 9km in length and 1.5km width to a depth of 630 metres proposed mine(s).

**QUESTION 25**

The concentration of Uranium is not consistent with that reported by Adelaide Resources, the question therefore being, is the sample representative of the true picture of the concentration of Uranium and its associated isotopes?
The balance of probability would suggest the answer to be no, thereby raising doubt as to the confidence to be placed on the work undertaken to date in this respect.

What also appears to be missing from the debate is the associated public and occupational health risks with the concentrations of elements (or compounds) identified, given that these compounds will be mobilized when placed in the waste rock facility.

The levels of Thorium and Strontium are significant as these are potentially decay isotopes of Uranium as is Lead.

The very high concentration of Manganese is of significant concern given its known neurotoxic properties.

The concentration of copper is significant given that high concentrations of copper (ie above trace levels) is known plant growth inhibitor.

The presence of Arsenic possibly in the form of arsenopyrites gives rise to concern that this is a major source of acid forming rock.

The level of Chromium (not identified as either Cr+3 or hexavalent Chromium) is a concern. The assumption is that it is hexavalent Chromium (in the absence of evidence to the contrary) and a known carcinogen.

An obvious omission appears to be the concentration of free silica, given that the waste rock facility will hold crushed/refined rock (in addition to any overburden) which is now mobile in the form of respirable (fugitive) dust.

**Comment 64**

**Appendix A2**

The salt migration study

It is assumed that the salt content of the tailings represents the total salt content being that already present in the rock plus that within the saline water used in the washing process.

The leaching test used distilled water.

The reality will be that hyper-saline water will be used for dust suppression on the waste rock dump, not distilled water. What conclusions would be obtained if the migration study were replicated using actual samples of hyper-saline water from the mine site?

What appears not to have been addressed in this Report is the actual composition of the dust as a consequence of the mining operations (blasting, loading onto conveyor, etc.) and the composition of the dust emanating from the waste rock dump facility.

In addition, the actual shape of the waste rock facility may, given the right meteorological conditions (wind speed and direction) contribute significantly to the fugitive dust issue.

**Appendix K**

Background Air Quality and Air Quality Impact Assessment

It is noted:

a) A program commenced in 2013

b) “An expanded air monitoring program is anticipated to commence 12 month prior to the construction phase”. (future work, underlining added)

c) Monitoring has been undertaken for dust suppression (including chemical analysis), Total Suspended Particulates (TSP), PM10 and meteorological parameters.

d) Methodology used includes BAM units capable of PM10 and PM2.5 measurements as well as temperature, wind speed and wind direction.

e) In 2015, one unit configured to measure PM10 particulates.

f) Dust deposition monitoring was undertaken at THREE sites (refer Figure 3.1)
The following concerns are raised:

a) It is noted that two of the monitoring sites (Harry’s (8Km to South) and Crow’s Nest (13+km to North)) are a considerable distances from the actual mine site and the relevance of monitoring for PM10 (the heaviest fugitive dust particles) is questioned other than to establish a level of naturally occurring nuisance dust. If these facilities were also measuring PM2.5 or PM1.0 particulates, then a baseline for existing dust particles at these locations would have more relevance.

b) It is noted that diesel particulates have not been measured at any of the sites in the original monitoring study. It is noted that Harry’s is located on or near the Tod Highway. Crow’s Nest location is not specifically identified, other than a camp.

c) It is noted Traeger’s is an unoccupied residence located on the boundary (?) of the proposed lease. Background nuisance dust monitoring at this site would have relevance.

d) It is noted that background monitoring was NOT undertaken at any residences in the immediate surround of the proposed mining lease (called receptor sites in the ensuing debate of probable impacts). In short NO baseline data exists for these sites.

e) Table 3.3 - contains no data

f) Table 3.4 Continuous PM10 particulates - Contains no data.

Conclusions based upon the disclosures to date:
1. No baseline data that represents nuisance dust and particulates around the proposed mine site has been presented for public scrutiny.
2. What data has been presented is PM10. There is no baseline data for PM2.5 or PM1.0. Meteorological data has been taken from Wudinna (wind roses)
3. What baseline data has been established for particulates emanating from diesel machinery, be it existing transport vehicles on the highway or farm machinery?
4. The relevance of the chosen three sites has to be challenged.
   a. A disused farm house could be considered as a baseline for natural dust, but not for normal farming activities that are currently carried out over the district.

      A more appropriate position for a natural dust baseline would have been the establishment of a monitoring station at the proposed site of the construction camp.

   b. The Crow’s Nest site’s relevance needs to be challenged. What features are present at this site that constitutes a baseline for the District?

   c. The Harry’s site may have marginal relevance, given its location adjacent to the Tod Highway.

5. The relevance of the baseline study appears (is) fundamentally flawed in that:-
   a. it excludes the reality of having a monitoring station located in the township of Warramboo,

   b. it excludes the reality of having monitoring stations located at all farm residences surrounding the proposed mine site and hence fails to establish a baseline of those most likely to be affected.

   c. fails to measure PM10 and PM2.5 particulates from diesel emissions at a baseline level.

   d. it fails to establish a baseline for those most likely affected by the development. It underlines the contempt the company has shown for the actual impact that is likely to occur should approval be given. The lack of benchmarking normal farming activities and the mathematical predictions of potential impacts arising from the mining operations based upon the three observation points leaves those landowners surrounding the proposed mine with no option but to undertake dust (and noise) monitoring at their expense in order to
protect their interests in court when claims arising from contamination (pollution arising) from the mining operations require to be settled. No baseline data would mean the onus of proof rests with the landowners.

The approval of a mining lease in these circumstances MUST not occur. Should a mining lease be approved, the Government would be complicit in any actions that arise, given they have been fore-warned that their negligence in ensuring appropriate measures are required to establish a baseline have not been achieved, is cause for compensation.

It is therefore RECOMMENDED the company be required to undertake air quality monitoring at all properties in the immediate vicinity of the proposed mine (those identified as receptor) measuring background dust at PM10 and PM2.5 as a minimum, with all samples being analysed for the chemical composition of the dust and for particulates arising from diesel emissions.

It is further RECOMMENDED that this data be made public before any decision is made.

It is further RECOMMENDED that the monitoring record corresponding meteorological data.

It is RECOMMENDED that these observations are for 12 months prior to construction commencing.

"Aspects requiring further investigation include mitigation of wind erosion, vegetation establishment, salt migration and management of any surface water and ground water influences." (Appendix S)

It would suggest that INSUFFICIENT work has been undertaken by the company prior to lodgement of the ML Application where significant questions have not been addressed.

This is not future work following interim approval. This work MUST be carried out before any approval is given.

The baseline data is considered to be part of a community licence to operate, otherwise how can an impact be established?

A baseline for nuisance dust has not been established.

'guideline of nuisance dust to be 4gm/square metre/month (Dec 2005)'.

It is understood there to be no such South Australian Government Standard.

**QUESTION 26**

What authority is this so called 'standard' authorized in to support the credibility of the claimed results so achieved by its use?

The implication being that the company appears to pull numbers out of the hat to justify the mathematical modelling giving it a favourable position.

*Section 4.2 TSP (particulates) PM10 a value of 30 microgram per cubic metre has been 'adopted' for the modelling study.*

Upon what basis (South Australian Authority) is the figure of 30 'adopted'? Again, it appears to be a number of convenience to achieve a mathematical model outcome that suits the position of the company. The application appears to be devoid of the empirical evidence supporting this figure that ensures no human health impact results from breathing the dust emanating from the mine.

The particulate study (inclusive of diesel particulates) appears to be significantly limited given that the composition of the particulates are not identified nor are any meteorological data (especially wind, temperature and temperature inversion potential).

The study appears to be devoid of consideration of PM2.5 or PM1.0 particulates, yet more evidence of the minimalistic approach taken in this application and clearly not representative of 'world's best practice' as so often claimed.

The study is devoid of any reference to the particulates containing emission products from diesel which are well known to be carcinogenic.

The baseline study is fundamentally flawed.
The mathematical modelling is based upon very limited if not irrelevant data that fails to provide a real picture of the actual proposed site.

Any suggestion that future work post approval in this area is not acceptable given that any work undertaken from 2 February is NOT able to be publicly scrutinized.

Section 5 provides a discussion on salt deposition under the heading "Calculation of Potential Salt Deposition":

It is noted the source data for the calculations are contained in Appendix F (table C1)

**QUESTION 27**
Why was the wind data for 2009 used in the modelling?

**QUESTION 28**
Why was not wind data that was site specific for 2014/2015 used given that data collection was being undertaken since 2013?

The credibility of the modelling and thence the outcome is not representative of the proposed mine site and should be rejected.

Section 5.2

"the assumption that salt content of the dust generating sources is assumed to be negligible".

This 'assumption' appears to be at odds with advice tendered in other parts of this application and that provided by the Environmental Manager to the CEIP CCC.

It is also understood that the daily blasting activity would release a considerable volume of fugitive dust in addition to that which may eventuate from wind erosion of the waste rock facility.

Having regard to the flaws identified in the previous section of this response, the actuality of dust containing salt needs to be modelled in the context of a baseline of actual dust (natural dust) in existence at the designated receptor sites.

The relevance of data sourced from Whyalla and Netley (Adelaide) for use in the modelling is questioned. Local factors are those which should be used, not imported from distant (irrelevant) locations. If the data does not exist, it is a requirement upon the company to undertake the research to determine said empirical information.

The credibility of the modelling is therefore questioned.

Section 5.6

"Measured background salt deposition of 1.2grams/square metre/month for site surrounding the mining lease . . .".

Is based upon what empirical data obtained from what sites?

It is suggested that this 'figure' is another with suspect credibility to further the position of the company

It is of considerable concern that the information contained within the Senate Enquiry . . . and the SA Government Environment Resource Committee enquiry into the operations of the Iron Duke facility appear to have been completely ignored in this application.

The application (and in particular, this section) is written with a complete disregard to the economic and health (inclusive of the occupational health and safety) impact of fugitive dust on the surrounding district. Indeed the mathematical modelling has been designed to limit any impact that requires mitigation, a position that defies reality as evidenced at Iron Duke, and documented by such companies as Rio Tinto and BHP.

We re-iterate the following:

- What also appears to be missing from the debate is the associated public and occupational health risks with the concentrations of elements (or compounds, inclusive of heavy metals) identified, given that these compounds will be mobilized when placed in the waste rock facility.

- The levels of Thorium and Strontium are significant as these are potentially decay isotopes of Uranium as is Lead.
The very high concentration of Manganese is of significant concern given its known neurotoxic properties as outlined in the below extract from the 556 page determination of the toxicity of Manganese as determined by the US Department of Public Health:

**TOXICOLOGICAL PROFILE FOR MANGANESE**

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service Agency for Toxic Substances and Disease Registry, September 2012

If you are exposed to manganese, many factors will determine whether you will be harmed. These factors include the dose (how much), the duration (how long), and how you come in contact with it. You must also consider any other chemicals you are exposed to and your age, sex, diet, family traits, lifestyle, and state of health.

The inhalation of air contaminated with particulate matter containing manganese is the primary source of excess manganese exposure for the general population in the United States. Populations living in close proximity to mining activities and industries using manganese may be exposed by inhalation to high levels of manganese in dust.

2.2 SUMMARY OF HEALTH EFFECTS (page 12-)

Although low levels of manganese intake are necessary for human health, exposures to high manganese levels are toxic. Reports of adverse effects resulting from manganese exposure in humans are associated primarily with inhalation in occupational settings. Inhaled manganese is often transported directly to the brain before it is metabolized by the liver. The symptoms of manganese toxicity may appear slowly over months and years. Manganese toxicity can result in a permanent neurological disorder known as manganism with symptoms that include tremors, difficulty walking, and facial muscle spasms. These symptoms are often preceded by other lesser symptoms, including irritability, aggressiveness, and hallucinations. Some studies suggest that manganese inhalation can also result in adverse cognitive effects, including difficulty with concentration and memory problems.

Environmental exposures to airborne manganese have been associated with similar preclinical neurological effects and mood effects as are seen in occupational studies. Acute or intermediate exposure to excess manganese also affects the respiratory system. Inhalation exposure to high concentrations of manganese dusts (specifically manganese dioxide [MnO2] and manganese tetroxide [Mn3O4]) can cause an inflammatory response in the lung, which, over time, can result in impaired lung function. Lung toxicity is manifested as an increased susceptibility to infections such as bronchitis and can result in manganic pneumonia. Pneumonia has also been observed following acute inhalation exposures to particulates containing other metals. Thus, this effect might be characteristic of inhalable particulate matter and might not depend solely on the manganese content of the particle.

A number of reports indicate that oral exposure to manganese, especially from contaminated water sources, can produce significant health effects. These effects have been most prominently observed in children and are similar to those observed from inhalation exposure. An actual threshold level at which manganese exposure produces neurological effects in humans has not been established. However, children consuming the same concentration of manganese in water as adults are ultimately exposed to a higher mg/kg-body weight ratio of manganese than adults (as a consequence of the lower body weight of children as well as their higher daily consumption volume and greater retention of manganese). Children are also potentially more sensitive to manganese toxicity than adults.

**Neurological Effects.**

There is clear evidence from studies of humans exposed to manganese dusts in mines and factories that inhalation of high levels of manganese can lead to a series of serious and ultimately disabling neurological effects in humans. This disease, termed manganism, typically begins with feelings of weakness and lethargy. As the disease progresses, a number of other neurological signs may become manifest. Although not all individuals develop identical signs, the most common are a slow and clumsy gait, speech disturbances, a
masklike face, and tremors. The neurological symptoms may improve when exposure ceases; however, in most cases, the symptoms are found to persist for many years post-exposure. In addition, a syndrome of psychological disturbances (hallucination, psychosis) frequently emerges, although such symptoms are sometimes absent. As the disease progresses, patients develop severe muscle tension and rigidity and may be completely and permanently disabled. Workplace inhalation exposure levels producing overt symptoms of manganism have been on the order of 2–22 mg manganese/m$^3$. While manganese neurotoxicity has clinical similarities to Parkinson’s disease, it can be clinically distinguished from Parkinson’s. Manganism patients present a hypokinesia and tremor that is different from Parkinson’s patients. In addition, manganism patients sometimes have psychiatric disturbances early in the disease, a propensity to fall backward when pushed, less frequent resting tremor, more frequent dystonia, a “cock-walk”, and a failure to respond to dopaminomimetics.

**Respiratory Effects.**

Inhalation exposure to manganese dusts often leads to an inflammatory response in the lungs of both humans and animals. This generally leads to an increased incidence of cough and bronchitis and can lead to mild-to-moderate injury of lung tissue along with minor decreases in lung function. In addition, susceptibility to infectious lung disease may be increased, leading to increased pneumonitis and pneumonia in some manganese-exposed worker populations.

**Reproductive Effects.**

Impotence and loss of libido are common symptoms in male workers afflicted with clinically identifiable signs of manganism. These symptoms could lead to reduced reproductive success in men.

**Developmental Effects.**

There is evidence to suggest that children exposed to high levels of manganese from environmental sources (airborne, drinking water, dietary) may develop a variety of adverse developmental effects, particularly neurological effects (as discussed above). Many studies suggest that children exposed to particularly high levels of manganese over a long period of time (months or years) will eventually develop one or more symptoms, including general cognitive impairment, diminished memory, attention deficit, motor impairments, aggressiveness, and/or hyperactivity. However, it is not clear from any of these studies whether other factors, perhaps environmental or genetic, are responsible for these changes in the presence of manganese, or whether manganese alone can produce these effects.

**Comment 65**

The concentration of copper is significant given that high concentrations of copper (i.e. above trace levels) is known plant growth inhibitor.

The presence of Arsenic possibly in the form of arsenopyrites gives rise to concern that this is a major source of acid forming rock.

The level of Chromium (not identified as either Cr+3 or hexavalent Chromium) is a concern. The assumption is that it is hexavalent Chromium (in the absence of evidence to the contrary) and a known carcinogen.

The concern pertaining to heavy metals present in the ore body and thence the fate of these substances, presumably to be discarded on the waste rock facility also needs to be addressed as evidenced by the following article:

**Heavy Metals Toxicity and the Environment**

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**Abstract**

Heavy metals are naturally occurring elements that have a high atomic weight and a density at least 5 times greater than that of water. Their multiple industrial, domestic, agricultural, medical and technological
applications have led to their wide distribution in the environment; raising concerns over their potential effects on human health and the environment. Their toxicity depends on several factors including the dose, route of exposure, and chemical species, as well as the age, gender, genetics, and nutritional status of exposed individuals. Because of their high degree of toxicity, arsenic, cadmium, chromium, lead, and mercury rank among the priority metals that are of public health significance. These metallic elements are considered systemic toxicants that are known to induce multiple organ damage, even at lower levels of exposure. They are also classified as human carcinogens (known or probable) according to the U.S. Environmental Protection Agency, and the International Agency for Research on Cancer. This review provides an analysis of their environmental occurrence, production and use, potential for human exposure, and molecular mechanisms of toxicity, genotoxicity, and carcinogenicity.

Keywords
Heavy metals; production and use; human exposure; toxicity; genotoxicity; carcinogenicity

Introduction
Heavy metals are defined as metallic elements that have a relatively high density compared to water [1]. With the assumption that heaviness and toxicity are inter-related, heavy metals also include metalloids, such as arsenic, that are able to induce toxicity at low level of exposure [2]. In recent years, there has been an increasing ecological and global public health concern associated with environmental contamination by these metals. Also, human exposure has risen dramatically as a result of an exponential increase of their use in several industrial, agricultural, domestic and technological applications [3]. Reported sources of heavy metals in the environment include geogenic, industrial, agricultural, pharmaceutical, domestic effluents, and atmospheric sources [4]. Environmental pollution is very prominent in point source areas such as mining, foundries and smelters, and other metal-based industrial operations [1, 3, 4].

Although heavy metals are naturally occurring elements that are found throughout the earth’s crust, most environmental contamination and human exposure result from anthropogenic activities such as mining and smelting operations, industrial production and use, and domestic and agricultural use of metals and metal-containing compounds [4–7].

Environmental contamination can also occur through metal corrosion, atmospheric deposition, soil erosion of metal ions and leaching of heavy metals, sediment re-suspension and metal evaporation from water resources to soil and ground water [8]. Natural phenomena such as weathering and volcanic eruptions have also been reported to significantly contribute to heavy metal pollution [1, 3, 4, 7, 8]. Industrial sources include metal processing in refineries, coal burning in power plants, petroleum combustion, nuclear power stations and high tension lines, plastics, textiles, microelectronics, wood preservation and paper processing plants [9–11].

It has been reported that metals such as cobalt (Co), copper (Cu), chromium (Cr), iron (Fe), magnesium (Mg), manganese (Mn), molybdenum (Mo), nickel (Ni), selenium (Se) and zinc (Zn) are essential nutrients that are required for various biochemical and physiological functions [12]. Inadequate supply of these micronutrients results in a variety of deficiency diseases or syndromes [12].

Heavy metals are also considered as trace elements because of their presence in trace concentrations (ppb range to less than 10ppm) in various environmental matrices [13]. Their bioavailability is influenced by physical factors such as temperature, phase association, adsorption and sequestration. It is also affected by chemical factors that influence speciation at thermodynamic equilibrium, complexation kinetics, lipid
solubility and octanol/water partition coefficients [14]. Biological factors such as species characteristics, trophic interactions, and biochemical/physiological adaptation, also play an important role [15].

The essential heavy metals exert biochemical and physiological functions in plants and animals. They are important constituents of several key enzymes and play important roles in various oxidation-reduction reactions [12]. Copper for example serves as an essential cofactor for several oxidative stress-related enzymes including catalase, superoxide dismutase, peroxidase, cytochrome c oxidases, ferredoxins, monoamine oxidase, and dopamine β-monooxygenase [16–18]. Hence, it is an essential nutrient that is incorporated into a number of metalloenzymes involved in hemoglobin formation, carbohydrate metabolism, catecholamine biosynthesis, and cross-linking of collagen, elastin, and hair keratin. The ability of copper to cycle between an oxidized state, Cu(II), and reduced state, Cu(I), is used by copper enzymes involved in redox reactions [16–18]. However, it is this property of copper that also makes it potentially toxic because the transitions between Cu(II) and Cu(I) can result in the generation of superoxide and hydroxyl radicals [16–19]. Also, excessive exposure to copper has been linked to cellular damage leading to Wilson disease in humans [18, 19]. Similar to copper, several other essential elements are required for biologic functioning, however, an excess amount of such metals produces cellular and tissue damage leading to a variety of adverse effects and human diseases. For some including chromium and copper, there is a very narrow range of concentrations between beneficial and toxic effects [19, 20]. Other metals such as aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), bismuth (Bi), cadmium (Cd), gallium (Ga), germanium (Ge), gold (Au), indium (In), lead (Pb), lithium (Li), mercury (Hg), nickel (Ni), platinum (Pt), silver (Ag), strontium (Sr), tellurium (Te), thallium (Tl), tin (Sn), titanium (Ti), vanadium (V) and uranium (U) have no established biological functions and are considered as non-essential metals [20].

In biological systems, heavy metals have been reported to affect cellular organelles and components such as cell membrane, mitochondrial, lysosome, endoplasmic reticulum, nuclei, and some enzymes involved in metabolism, detoxification, and damage repair [21].

Metal ions have been found to interact with cell components such as DNA and nuclear proteins, causing DNA damage and conformational changes that may lead to cell cycle modulation, carcinogenesis or apoptosis [20–22]. Several studies from our laboratory have demonstrated that reactive oxygen species (ROS) production and oxidative stress play a key role in the toxicity and carcinogenicity of metals such as arsenic [23, 24, 25], cadmium [26], chromium [27, 28], lead [29, 30], and mercury [31, 32]. Because of their high degree of toxicity, these five elements rank among the priority metals that are of great public health significance. They are all systemic toxicants that are known to induce multiple organ damage, even at lower levels of exposure. According to the United States Environmental Protection Agency (U.S. EPA), and the International Agency for Research on Cancer (IARC), these metals are also classified as either “known” or “probable” human carcinogens based on epidemiological and experimental studies showing an association between exposure and cancer incidence in humans and animals.

Heavy metal-induced toxicity and carcinogenicity involves many mechanistic aspects, some of which are not clearly elucidated or understood. However, each metal is known to have unique features and physicochemical properties that confer to its specific toxicological mechanisms of action. This review provides an analysis of the environmental occurrence, production and use, potential for human exposure, and molecular mechanisms of toxicity, genotoxicity, and carcinogenicity of arsenic, cadmium, chromium, lead, and mercury.

**Arsenic**

**Environmental Occurrence, Industrial Production and Use**

Arsenic is a ubiquitous element that is detected at low concentrations in virtually all environmental matrices [33]. The major inorganic forms of arsenic include the trivalent arsenite and the pentavalent arsenate. The organic forms are the methylated metabolites – monomethylarsonic acid (MMA), dimethylarsinic acid (DMA) and trimethylarsine oxide.

Environmental pollution by arsenic occurs as a result of natural phenomena such as volcanic eruptions and soil erosion, and anthropogenic activities [33]. Several arsenic-containing compounds are produced industrially, and have been used to manufacture products with agricultural applications such as insecticides, herbicides, fungicides, algicides, sheep dips, wood preservatives, and dye-stuffs. They have also been used in veterinary medicine for the eradication of tapeworms in sheep and cattle [34]. Arsenic compounds have also
been used in the medical field for at least a century in the treatment of syphilis, yaws, amoebic dysentery, and trypanosomiasis [34,35]. Arsenic-based drugs are still used in treating certain tropical diseases such as African sleeping sickness and amoebic dysentery, and in veterinary medicine to treat parasitic diseases, including filariasis in dogs and black head in turkeys and chickens [35]. Recently, arsenic trioxide has been approved by the Food and Drug Administration as an anticancer agent in the treatment of acute promyelocytic leukemia [36]. Its therapeutic action has been attributed to the induction of programmed cell death (apoptosis) in leukemia cells [24].

Potential for Human Exposure
It is estimated that several million people are exposed to arsenic chronically throughout the world, especially in countries like Bangladesh, India, Chile, Uruguay, Mexico, Taiwan, where the ground water is contaminated with high concentrations of arsenic. Exposure to arsenic occurs via the oral route (ingestion), inhalation, dermal contact, and the parenteral route to some extent [33,34,37]. Arsenic concentrations in air range from 1 to 3 ng/m³ in remote locations (away from human releases), and from 20 to 100 ng/m³ in cities. Its water concentration is usually less than 10 μg/L, although higher levels can occur near natural mineral deposits or mining sites. Its concentration in various foods ranges from 20 to 140 ng/kg [38]. Natural levels of arsenic in soil usually range from 1 to 40 mg/kg, but pesticide application or waste disposal can produce much higher values [25].

Diet, for most individuals, is the largest source of exposure, with an average intake of about 50 μg per day. Intake from air, water and soil are usually much smaller, but exposure from these media may become significant in areas of arsenic contamination. Workers who produce or use arsenic compounds in such occupations as vineyards, ceramics, glassmaking, smelting, refining of metallic ores, pesticide manufacturing and application, wood preservation, semiconductor manufacturing can be exposed to substantially higher levels of arsenic [39]. Arsenic has also been identified at 781 sites of the 1,300 hazardous waste sites that have been proposed by the U.S. EPA for inclusion on the national priority list [33,39].

Human exposure at these sites may occur by a variety of pathways, including ingestion of contaminated water or soil, or through the food chain [40].

Contamination with high levels of arsenic is of concern because arsenic can cause a number of human health effects. Several epidemiological studies have reported a strong association between arsenic exposure and increased risks of both carcinogenic and systemic health effects [41]. Interest in the toxicity of arsenic has been heightened by recent reports of large populations in West Bengal, Bangladesh, Thailand, Inner Mongolia, Taiwan, China, Mexico, Argentina, Chile, Finland and Hungary that have been exposed to high concentrations of arsenic in their drinking water and are displaying various clinicopathological conditions including cardiovascular and peripheral vascular disease, developmental anomalies, neurologic and neurobehavioural disorders, diabetes, hearing loss, portal fibrosis, hematologic disorders (anemia, leukopenia and eosinophilia) and carcinoma [25, 33, 35, 39]. Arsenic exposure affects virtually all organ systems including the cardiovascular, dermatologic, nervous, hepatobiliary, renal, gastro-intestinal, and respiratory systems [41]. Research has also pointed to significantly higher standardized mortality rates for cancers of the bladder, kidney, skin, and liver in many areas of arsenic pollution. The severity of adverse health effects is related to the chemical form of arsenic, and is also time- and dose-dependent [42,43]. Although the evidence of carcinogenicity of Arsenic in humans seems strong, the mechanism by which it produces tumors in humans is not completely understood [44].

Mechanisms of Toxicity and Carcinogenicity
Analyzing the toxic effects of arsenic is complicated because the toxicity is highly influenced by its oxidation state and solubility, as well as many other intrinsic and extrinsic factors [45]. Several studies have indicated that the toxicity of arsenic depends on the exposure dose, frequency and duration, the biological species, age, and gender, as well as on individual susceptibilities, genetic and nutritional factors [46]. Most cases of human toxicity from arsenic have been associated with exposure to inorganic arsenic. Inorganic trivalent arsenite (As(III)) is 2–10 times more toxic than pentavalent arsenate (As(V)) [5]. By binding to thiol or sulfhydryl groups on proteins, As (III) can inactivate over 200 enzymes. This is the likely mechanism responsible for arsenic’s widespread effects on different organ systems.

As (V) can replace phosphate, which is involved in many biochemical pathways [5, 47].
One of the mechanisms by which arsenic exerts its toxic effect is through impairment of cellular respiration by the inhibition of various mitochondrial enzymes, and the uncoupling of oxidative phosphorylation. Most toxicity of arsenic results from its ability to interact with sulfhydryl groups of proteins and enzymes, and to substitute phosphorous in a variety of biochemical reactions [48]. Arsenic in vitro reacts with protein sulfhydryl groups to inactivate enzymes, such as dihydrolipoyl dehydrogenase and thiolase, thereby producing inhibited oxidation of pyruvate and beta-oxidation of fatty acids [49]. The major metabolic pathway for inorganic arsenic in humans is methylation. Arsenic trioxide is methylated to two major metabolites via a non-enzymatic process to monomethylarsonic acid (MMA), which is further methylated enzymatically to dimethyl arsenic acid (DMA) before excretion in the urine [40, 47]. It was previously thought that this methylation process is a pathway of arsenic detoxification, however, recent studies have pointed out that some methylated metabolites may be more toxic than arsenite if they contain trivalent forms of arsenic [41].

Tests for genotoxicity have indicated that arsenic compounds inhibit DNA repair, and induce chromosomal aberrations, sister-chromatid exchanges, and micronuclei formation in both human and rodent cells in culture [50–52] and in cells of exposed humans [53].

Reversion assays with Salmonella typhimurium fail to detect mutations that are induced by arsenic compounds. Although arsenic compounds are generally perceived as weak mutagens in bacterial and animal cells, they exhibit clastogenic properties in many cell types in vivo and in vitro [54]. In the absence of animal models, in vitro cell transformation studies become a useful means of obtaining information on the carcinogenic mechanisms of arsenic toxicity. Arsenic and arsenical compounds are cytotoxic and induce morphological transformations of Syrian hamster embryo (SHE) cells as well as mouse C3H10T1/2 cells and BALB/3T3 cells [55, 56].

Based on the comet assay, it has been reported that arsenic trioxide induces DNA damage in human lymphocytes [57] and also in mice leukocytes [58]. Arsenic compounds have also been shown to induce gene amplification, arrest cells in mitosis, inhibit DNA repair, and induce expression of the c-fos gene and the oxidative stress protein heme oxygenase in mammalian cells [58, 59]. They have been implicated as promoters and comutagens for a variety of toxic agents [60]. Recent studies in our laboratory have demonstrated that arsenic trioxide is cytotoxic and able to transcriptionally induce a significant number of stress genes and related proteins in human liver carcinoma cells [61].

Epidemiological investigations have indicated that long-term arsenic exposure results in promotion of carcinogenesis. Several hypotheses have been proposed to describe the mechanism of arsenic-induced carcinogenesis. Zhao et al. [62] reported that arsenic may act as a carcinogen by inducing DNA hypomethylation, which in turn facilitates aberrant gene expression. Additionally, it was found that arsenic is a potent stimulator of extracellular signal-regulated protein kinase Erk1 and AP-1 transactivational activity, and an efficient inducer of c-fos and c-jun gene expression [63]. Induction of c-jun and c-fos by arsenic is associated with activation of JNK [64]. However, the role of JNK activation by arsenite in cell transformation or tumor promotion is unclear.

In another study, Trouba et al. [65] concluded that long-term exposure to high levels of arsenic might make cells more susceptible to mitogenic stimulation and that alterations in mitogenic signaling proteins might contribute to the carcinogenic action of arsenic.

Collectively, several recent studies have demonstrated that arsenic can interfere with cell signaling pathways (e.g., the p53 signaling pathway) that are frequently implicated in the promotion and progression of a variety of tumor types in experimental animal models, and of some human tumors [66, 68]. However, the specific alterations in signal transduction pathways or the actual targets that contribute to the development of arsenic-induced tumors in humans following chronic consumption of arsenic remains uncertain.

Recent clinical trials have found that arsenic trioxide has therapeutic value in the treatment of acute promyelocytic leukemia, and there is interest in exploring its effectiveness in the treatment of a variety of other cancers [69,70]. In acute promyelocytic leukemia, the specific molecular event critical to the formation of malignant cells is known. A study by Puccetti et al. [71] found that forced overexpression of BCR-ABL
susceptibility in human lymphoblasts cells resulted in greatly enhanced sensitivity to arsenic-induced apoptosis. They also concluded that arsenic trioxide is a tumor specific agent capable of inducing apoptosis selectively in acute promyelocytic leukemia cells. Several recent studies have shown that arsenic can induce apoptosis through alterations in other cell signaling pathways [72,73]. In addition to acute promyelocytic leukemia, arsenic is thought to have therapeutic potential for myeloma [74]. In summary, numerous cancer chemotherapy studies in cell cultures and in patients with acute promyelocytic leukemia demonstrate that arsenic trioxide administration can lead to cell-cycle arrest and apoptosis in malignant cells.

Previous studies have also examined p53 gene expression and mutation in tumors obtained from subjects with a history of arsenic ingestion. p53 participates in many cellular functions, cell-cycle control, DNA repair, differentiation, genomic plasticity and programmed cell death. Additional support for the hypothesis that arsenic can modulate gene expression has been provided by several different studies [75,76]. Collectively, these studies provide further evidence that various forms of arsenic can alter gene expression and that such changes could contribute substantially to the toxic and carcinogenic actions of arsenic treatment in human populations [77].

Several in vitro studies in our laboratory have demonstrated that arsenic modulates DNA synthesis, gene and protein expression, genotoxicity, mitosis and/or apoptotic mechanisms in various cell lines including keratinocytes, melanocytes, dendritic cells, dermal fibroblasts, microvascular endothelial cells, monocytes, and T-cells [78], colon cancer cells [79], lung cancer cells [80], human leukemia cells [81], Jurkat-T lymphocytes [82], and human liver carcinoma cells [83]. We have also shown that oxidative stress plays a key role in arsenic induced cytotoxicity, a process that is modulated by pro- and/or anti-oxidants such as ascorbic acid and n-acetyl cysteine [84–86]. We have further demonstrated that the toxicity of arsenic depends on its chemical form, the inorganic form being more toxic than the organic one [42].

Various hypotheses have been proposed to explain the carcinogenicity of inorganic arsenic.

Nevertheless, the molecular mechanisms by which this arsenical induces cancer are still poorly understood. Results of previous studies have indicated that inorganic arsenic does not act through classic genotoxic and mutagenic mechanisms, but rather may be a tumor promoter that modifies signal transduction pathways involved in cell growth and proliferation [68]. Although much progress has been recently made in the area of arsenic’s possible mode(s) of carcinogenic action, a scientific consensus has not yet reached. A recent review discusses nine different possible modes of action of arsenic carcinogenesis: induced chromosomal abnormalities, oxidative stress, altered DNA repair, altered DNA methylation patterns, altered growth factors, enhanced cell proliferation, promotion/progression, suppression of p53, and gene amplification [87]. Presently, three modes (chromosomal abnormality, oxidative stress, and altered growth factors) of arsenic carcinogenesis have shown a degree of positive evidence, both in experimental systems (animal and human cells) and in human tissues. The remaining possible modes of carcinogenic action (progression of carcinogenesis, altered DNA repair, p53 suppression, altered DNA methylation patterns and gene amplification) do not have as much evidence, particularly from in vivo studies with laboratory animals, in vitro studies with cultured human cells, or human data from case or population studies. Thus, the mode-of-action studies suggest that arsenic might be acting as a cocarcinogen, a promoter, or a progressor of carcinogenesis.

**Cadmium**

**Environmental Occurrence, Industrial Production and Use**

Cadmium is a heavy metal of considerable environmental and occupational concern. It is widely distributed in the earth’s crust at an average concentration of about 0.1 mg/kg. The highest level of cadmium compounds in the environment is accumulated in sedimentary rocks, and marine phosphates contain about 15 mg cadmium/kg [88].

Cadmium is frequently used in various industrial activities. The major industrial applications of cadmium include the production of alloys, pigments, and batteries [89]. Although the use of cadmium in batteries has shown considerable growth in recent years, its commercial use has declined in developed countries in response to environmental concerns. In the United States for example, the daily cadmium intake is about 0.4μg/kg/day, less than half of the U.S. EPA's oral reference dose [90]. This decline has been linked to the...
introduction of stringent effluent limits from plating works and, more recently, to the introduction of general restrictions on cadmium consumption in certain countries.

Potential for Human Exposure

The main routes of exposure to cadmium are via inhalation or cigarette smoke, and ingestion of food. Skin absorption is rare. Human exposure to cadmium is possible through a number of several sources including employment in primary metal industries, eating contaminated food, smoking cigarettes, and working in cadmium-contaminated work places, with smoking being a major contributor [91, 92]. Other sources of cadmium include emissions from industrial activities, including mining, smelting, and manufacturing of batteries, pigments, stabilizers, and alloys [93]. Cadmium is also present in trace amounts in certain foods such as leafy vegetables, potatoes, grains and seeds, liver and kidney, and crustaceans and mollusks [94]. In addition, foodstuffs that are rich in cadmium can greatly increase the cadmium concentration in human bodies. Examples are liver, mushrooms, shellfish, mussels, cocoa powder and dried seaweed. An important distribution route is the circulatory system whereas blood vessels are considered to be main stream organs of cadmium toxicity.

Chronic inhalation exposure to cadmium particulates is generally associated with changes in pulmonary function and chest radiographs that are consistent with emphysema [95].

Workplace exposure to airborne cadmium particulates has been associated with decreases in olfactory function [96]. Several epidemiologic studies have documented an association of chronic low-level cadmium exposure with decreases in bone mineral density and osteoporosis [97–99]. Exposure to cadmium is commonly determined by measuring cadmium levels in blood or urine. Blood cadmium reflects recent cadmium exposure (from smoking, for example).

Cadmium in urine (usually adjusted for dilution by calculating the cadmium/creatinine ratio) indicates accumulation, or kidney burden of cadmium [100, 101]. It is estimated that about 2.3% of the U.S. population has elevated levels of urine cadmium (>2μg/g creatinine), a marker of chronic exposure and body burden [102]. Blood and urine cadmium levels are typically higher in cigarette smokers, intermediate in former smokers and lower in nonsmokers [102, 103]. Because of continuing use of cadmium in industrial applications, the environmental contamination and human exposure to cadmium have dramatically increased during the past century [104].

Molecular Mechanisms of Toxicity and Carcinogenicity

Cadmium is a severe pulmonary and gastrointestinal irritant, which can be fatal if inhaled or ingested. After acute ingestion, symptoms such as abdominal pain, burning sensation, nausea, vomiting, salivation, muscle cramps, vertigo, shock, loss of consciousness and convulsions usually appear within 15 to 30 min [105]. Acute cadmium ingestion can also cause gastrointestinal tract erosion, pulmonary, hepatic or renal injury and coma, depending on the route of poisoning [105, 106]. Chronic exposure to cadmium has a depressive effect on levels of norepinephrine, serotonin, and acetylcholine [107]. Rodent studies have shown that chronic inhalation of cadmium causes pulmonary adenocarcinomas [108, 109]. It can also cause prostatic proliferative lesions including adenocarcinomas, after systemic or direct exposure [110].

Although the mechanisms of cadmium toxicity are poorly understood, it has been speculated that cadmium causes damage to cells primarily through the generation of ROS [111], which causes single-strand DNA damage and disrupts the synthesis of nucleic acids and proteins [112]. Studies using two-dimensional gel electrophoresis have shown that several stress response systems are expressed in response to cadmium exposure, including those for heat shock, oxidative stress, stringent response, cold shock, and SOS [113–115].

In vitro studies indicate that cadmium induces cytotoxic effects at the concentrations 0.1 to 10 mM and free radical-dependent DNA damage [116, 117]. In vivo studies have shown that cadmium modulates male reproduction in mice model at a concentration of 1 mg/kg body weight [118]. However, cadmium is a weak mutagen when compared with other carcinogenic metals [119]. Previous reports have indicated that cadmium affects signal transduction pathways; inducing inositol polyphosphate formation, increasing cytosolic free calcium levels in various cell types [120], and blocking calcium channels [121, 122]. At lower
concentrations (1–100 μM), cadmium binds to proteins, decreases DNA repair [123], activates protein degradation, up-regulates cytokines and proto-oncogenes such as c-fos, c-jun, and c-myc [124], and induces expression of several genes including metallothioneins [125], heme oxygenases, glutathione transferases, heat-shock proteins, acute-phase reactants, and DNA polymerase β [126].

Cadmium compounds are classified as human carcinogens by several regulatory agencies.

The International Agency for Research on Cancer [91] and the U.S. National Toxicology Program have concluded that there is adequate evidence that cadmium is a human carcinogen. This designation as a human carcinogen is based primarily on repeated findings of an association between occupational cadmium exposure and lung cancer, as well as on very strong rodent data showing the pulmonary system as a target site [91]. Thus, the lung is the most definitively established site of human carcinogenesis from cadmium exposure.

Other target tissues of cadmium carcinogenesis in animals include injection sites, adrenals, testes, and the hemopoietic system [91, 108, 109].

In some studies, occupational or environmental cadmium exposure has also been associated with development of cancers of the prostate, kidney, liver, hematopoietic system and stomach [108, 109].

Carcinogenic metals including arsenic, cadmium, chromium, and nickel have all been associated with DNA damage through base pair mutation, deletion, or oxygen radical attack on DNA [126].

Animal studies have demonstrated reproductive and teratogenic effects. Small epidemiologic studies have noted an inverse relationship between cadmium in cord blood, maternal blood or maternal urine and birth weight and length at birth [127, 128].

Chromium
Environmental Occurrence, Industrial Production and Use
Chromium (Cr) is a naturally occurring element present in the earth’s crust, with oxidation states (or valence states) ranging from chromium (II) to chromium (VI) [129]. Chromium compounds are stable in the trivalent [Cr(III)] form and occur in nature in this state in ores, such as ferrochromite. The hexavalent [Cr(VI)] form is the second-most stable state [28].

Elemental chromium [Cr(0)] does not occur naturally. Chromium enters into various environmental matrices (air, water, and soil) from a wide variety of natural and anthropogenic sources with the largest release coming from industrial establishments.

Industries with the largest contribution to chromium release include metal processing, tannery facilities, chromate production, stainless steel welding, and ferrochrome and chrome pigment production. The increase in the environmental concentrations of chromium has been linked to air and wastewater release of chromium, mainly from metallurgical, refractory, and chemical industries. Chromium released into the environment from anthropogenic activity occurs mainly in the hexavalent form [Cr(VI)] [130]. Hexavalent chromium [Cr(VI)] is a toxic industrial pollutant that is classified as human carcinogen by several regulatory and non-regulatory agencies [130–132]. The health hazard associated with exposure to chromium depends on its oxidation state, ranging from the low toxicity of the metal form to the high toxicity of the hexavalent form. All Cr(VI)-containing compounds were once thought to be man-made, with only Cr(III) naturally ubiquitous in air, water, soil and biological materials. Recently, however, naturally occurring Cr(VI) has been found in ground and surface waters at values exceeding the World Health Organization limit for drinking water of 50 μg of Cr(VI) per liter [133]. Chromium is widely used in numerous industrial processes and as a result, is a contaminant of many environmental systems [134].

Commercially chromium compounds are used in industrial welding, chrome plating, dyes and pigments, leather tanning and wood preservation. Chromium is also used as anticorrosive in cooking systems and boilers [135, 136].

Potential for Human Exposure
It is estimated that more than 300,000 workers are exposed annually to chromium and chromium-containing compounds in the workplace. In humans and animals, [Cr(III)] is an essential nutrient that plays a role in glucose, fat and protein metabolism by potentiating the action of insulin [5]. However, occupational exposure has been a major concern because of the high risk of Cr-induced diseases in industrial workers occupationally exposed to Cr(VI) [137]. Also, the general human population and some wildlife may also be at risk. It is estimated that 33 tons of total Cr are released annually into the environment [130]. The U.S. Occupational Safety and Health Administration (OSHA) recently set a “safe” level of 5μg/m3, for an 8-hr time-weighted average, even though this revised level may still pose a carcinogenic risk [138]. For the general human population, atmospheric levels range from 1 to 100 ng/cm3 [139], but can exceed this range in areas that are close to Cr manufacturing.

Non-occupational exposure occurs via ingestion of chromium containing food and water whereas occupational exposure occurs via inhalation [140]. Chromium concentrations range between 1 and 3000 mg/kg in soil, 5 to 800 μg/L in sea water, and 26 μg/L to 5.2 mg/L in rivers and lakes [129]. Chromium content in foods varies greatly and depends on the processing and preparation. In general, most fresh foods typically contain chromium levels ranging from <10 to 1,300 μg/kg. Present day workers in chromium-related industries can be exposed to chromium concentrations two orders of magnitude higher than the general population [141]. Even though the principal route of human exposure to chromium is through inhalation, and the lung is the primary target organ, significant human exposure to chromium has also been reported to take place through the skin [142, 143]. For example, the widespread incidence of dermatitis noticed among construction workers is attributed to their exposure to chromium present in cement [143]. Occupational and environmental exposure to Cr(VI)-containing compounds is known to cause multiorgan toxicity such as renal damage, allergy and asthma, and cancer of the respiratory tract in humans [5, 144].

Breathing high levels of chromium (VI) can cause irritation to the lining of the nose, and nose ulcers. The main health problems seen in animals following ingestion of chromium (VI) compounds are irritation and ulcers in the stomach and small intestine, anemia, sperm damage and male reproductive system damage. Chromium (III) compounds are much less toxic and do not appear to cause these problems. Some individuals are extremely sensitive to chromium(VI) or chromium(III), allergic reactions consisting of severe redness and swelling of the skin have been noted. An increase in stomach tumors was observed in humans and animals exposed to chromium(VI) in drinking water. Accidental or intentional ingestion of extremely high doses of chromium (VI) compounds by humans has resulted in severe respiratory, cardiovascular, gastrointestinal, hematological, hepatic, renal, and neurological effects as part of the sequelae leading to death or in patients who survived because of medical treatment [141]. Although the evidence of carcinogenicity of chromium in humans and terrestrial mammals seems strong, the mechanism by which it causes cancer is not completely understood [145].

Mechanisms of Toxicity and Carcinogenicity

Major factors governing the toxicity of chromium compounds are oxidation state and solubility. Cr(VI) compounds, which are powerful oxidizing agents and thus tend to be irritating and corrosive, appear to be much more toxic systemically than Cr(III) compounds, given similar amount and solubility [146, 147]. Although the mechanisms of biological interaction are uncertain, the variation in toxicity may be related to the ease with which Cr(VI) can pass through cell membranes and its subsequent intracellular reduction to reactive intermediates. Since Cr(III) is poorly absorbed by any route, the toxicity of chromium is mainly attributable to the Cr(VI) form. It can be absorbed by the lung and gastrointestinal tract, and even to a certain extent by intact skin. The reduction of Cr(VI) is considered as being a detoxification process when it occurs at a distance from the target site for toxic or genotoxic effect while reduction of Cr(VI) may serve to activate chromium toxicity if it takes place in or near the cell nucleus of target organs [148]. If Cr(VI) is reduced to Cr(III) extracellularly, this form of the metal is not readily transported into cells and so toxicity is not observed. The balance that exists between extracellular Cr(VI) and intracellular Cr(III) is what ultimately dictates the amount and rate at which Cr(VI) can enter cells and impart its toxic effects [134].

Cr(VI) enters many types of cells and under physiological conditions can be reduced by hydrogen peroxide (H2O2), glutathione (GSH) reductase, ascorbic acid, and GSH to produce reactive intermediates, including Cr(V), Cr(IV), thiylradicals, hydroxyl radicals, and ultimately, Cr(III). Any of these species could attack DNA, proteins, and membrane lipids, thereby disrupting cellular integrity and functions [149, 150].
Studies with animal models have also reported many harmful effects of Cr (VI) on mammals. Subcutaneous administration of Cr (VI) to rats caused severe progressive proteinuria, urea nitrogen and creatinine, as well as elevation in serum alanine aminotransferase activity and hepatic lipid peroxide formation [151]. Similar studies reported by Gumbleton and Nicholls [152] found that Cr (VI) induced renal damage in rats when administered by single sub-cutaneous injections. Bagchi et al. demonstrated that rats received Cr (VI) orally in water induced hepatic mitochondrial and microsomal lipid peroxidation, as well as enhanced excretion of urinary lipid metabolites including malondialdehyde [153, 154].

Adverse health effects induced by Cr (VI) have also been reported in humans.

Epidemiological investigations have reported respiratory cancers in workers occupationally exposed to Cr (VI)-containing compounds [142, 148]. DNA strand breaks in peripheral lymphocytes and lipid peroxidation products in urine observed in chromium-exposed workers also support the evidence of Cr (VI)-induced toxicity to humans [155, 156].

Oxidative damage is considered to be the underlying cause of these genotoxic effects including chromosomal abnormalities [157, 158], and DNA strand breaks [159].

Nevertheless, recent studies indicate a biological relevance of non-oxidative mechanisms in Cr(VI) carcinogenesis [160]. Carcinogenicity appears to be associated with the inhalation of the less soluble/insoluble Cr(VI) compounds. The toxicology of Cr(VI) does not reside with the elemental form. It varies greatly among a wide variety of very different Cr(VI) compounds [161].

Epidemiological evidence strongly points to Cr(VI) as the agent in carcinogenesis.

Solubility and other characteristics of chromium, such as size, crystal modification, surface charge, and the ability to be phagocytized might be important in determining cancer risk [135].

Studies in our laboratory have indicated that chromium (VI) is cytotoxic and able to induce DNA damaging effects such as chromosomal abnormalities [162], DNA strand breaks, DNA fragmentation and oxidative stress in Sprague-Dawley rats and human liver carcinoma cells [27, 28]. Recently, our laboratory has also demonstrated that chromium (VI) induces biochemical, genotoxic and histopathologic effects in liver and kidney of goldfish, *carassius auratus* [163].

Various hypotheses have been proposed to explain the carcinogenicity of chromium and its salts, however some inherent difficulties exist when discussing metal carcinogenesis. A metal cannot be classified as carcinogenic per se since its different compounds may have different potencies. Because of the multiple chemical exposure in industrial establishments, it is difficult from an epidemiological standpoint to relate the carcinogenic effect to a single compound. Thus, the carcinogenic risk must often be related to a process or to a group of metal compounds rather than to a single substance. Differences in carcinogenic potential are related not only to different chemical forms of the same metal but also to the particle size of the inhaled aerosol and to physical characteristics of the particle such as surface charge and crystal modification [164].

**Lead**

**Environmental Occurrence, Industrial Production and Use**

Lead is a naturally occurring bluish-gray metal present in small amounts in the earth’s crust.

Although lead occurs naturally in the environment, anthropogenic activities such as fossil fuels burning, mining, and manufacturing contribute to the release of high concentrations.

Lead has many different industrial, agricultural and domestic applications. It is currently used in the production of lead-acid batteries, ammunitions, metal products (solder and pipes), and devices to shield X-rays. An estimated 1.52 million metric tons of lead were used for various industrial applications in the United Stated in 2004. Of that amount, leadacid batteries production accounted for 83 percent, and the remaining usage covered a range of products such as ammunitions (3.5 percent), oxides for paint, glass, pigments and chemicals (2.6 percent), and sheet lead (1.7 percent) [165, 166].
In recent years, the industrial use of lead has been significantly reduced from paints and ceramic products, caulking, and pipe solder [167]. Despite this progress, it has been reported that among 16.4 million United States homes with more than one child younger than 6 years per household, 25% of homes still had significant amounts of lead-contaminated deteriorated paint, dust, or adjacent bare soil [168]. Lead in dust and soil often recontaminates cleaned houses [169] and contributes to elevating blood lead concentrations in children who play on bare, contaminated soil [170]. Today, the largest source of lead poisoning in children comes from dust and chips from deteriorating lead paint on interior surfaces [171]. Children who live in homes with deteriorating lead paint can achieve blood lead concentrations of 20μg/dL or greater [172].

**Potential for Human Exposure**

Exposure to lead occurs mainly via inhalation of lead-contaminated dust particles or aerosols, and ingestion of lead-contaminated food, water, and paints [173, 174]. Adults absorb 35 to 50% of lead through drinking water and the absorption rate for children may be greater than 50%. Lead absorption is influenced by factors such as age and physiological status. In the human body, the greatest percentage of lead is taken into the kidney, followed by the liver and the other soft tissues such as heart and brain, however, the lead in the skeleton represents the major body fraction [175]. The nervous system is the most vulnerable target of lead poisoning. Headache, poor attention spam, irritability, loss of memory and dullness are the early symptoms of the effects of lead exposure on the central nervous system [170, 173].

Since the late 1970’s, lead exposure has decreased significantly as a result of multiple efforts including the elimination of lead in gasoline, and the reduction of lead levels in residential paints, food and drink cans, and plumbing systems [173, 174]. Several federal programs implemented by state and local health governments have not only focused on banning lead in gasoline, paint and soldered cans, but have also supported screening programs for lead poisoning in children and lead abatement in housing [167]. Despite the progress in these programs, human exposure to lead remains a serious health problem [176, 177]. Lead is the most systemic toxicant that affects several organs in the body including the kidneys, liver, central nervous system, hematopoietic system, endocrine system, and reproductive system [173].

Lead exposure usually results from lead in deteriorating household paints, lead in the work place, lead in crystals and ceramic containers that leaches into water and food, lead use in hobbies, and lead use in some traditional medicines and cosmetics [167, 174]. Several studies conducted by the National Health and Nutrition Examination surveys (NHANES) have measured blood lead levels in the U.S. populations and have assessed the magnitude of lead exposure by age, gender, race, income and degree of urbanization [176]. Although the results of these surveys have demonstrated a general decline in blood lead levels since the 1970s, they have also shown that large populations of children continue to have elevated blood lead levels (> 10μg/dL). Hence, lead poisoning remains one of the most common pediatric health problems in the United States today [167, 173, 174, 176–179]. Exposure to lead is of special concern among women particularly during pregnancy. Lead absorbed by the pregnant mother is readily transferred to the developing fetus [180]. Human evidence corroborates animal findings [181], linking prenatal exposure to lead with reduced birth weight and preterm delivery [182], and with neuro-developmental abnormalities in offspring [183].

**Molecular Mechanisms of Toxicity and Carcinogenicity**

There are many published studies that have documented the adverse effects of lead in children and the adult population. In children, these studies have shown an association between blood level poisoning and diminished intelligence, lower intelligence quotient-IQ, delayed or impaired neurobehavioral development, decreased hearing acuity, speech and language handicaps, growth retardation, poor attention span, and anti social and diligent behaviors [178, 179, 184, 185]. In the adult population, reproductive effects, such as decreased sperm count in men and spontaneous abortions in women have been associated with high lead exposure [186, 187]. Acute exposure to lead induces brain damage, kidney damage, and gastrointestinal diseases, while chronic exposure may cause adverse effects on the blood, central nervous system, blood pressure, kidneys, and vitamin D metabolism [173, 174, 178, 179, 184–187].

One of the major mechanisms by which lead exerts its toxic effect is through biochemical processes that include lead's ability to inhibit or mimic the actions of calcium and to interact with proteins [173]. Within the skeleton, lead is incorporated into the mineral in place of calcium. Lead binds to biological molecules and thereby interfering with their function by a number of mechanisms. Lead binds to sulfhydryl and amide
groups of enzymes, altering their configuration and diminishing their activities. Lead may also compete with essential metallic cations for binding sites, inhibiting enzyme activity, or altering the transport of essential cations such as calcium [188]. Many investigators have demonstrated that lead intoxication induces a cellular damage mediated by the formation of reactive oxygen species (ROS) [189]. In addition, Jiun and Hseien [190] demonstrated that the levels of malondialdehyde (MDA) in blood strongly correlate with lead concentration in the blood of exposed workers. Other studies showed that the activities of antioxidant enzymes, including superoxide dismutase (SOD), and glutathione peroxidase in erythrocytes of workers exposed to lead are remarkably higher than that in non-exposed workers [191]. A series of recent studies in our laboratory demonstrated that lead-induced toxicity and apoptosis in human cancer cells involved several cellular and molecular processes including induction of cell death and oxidative stress [29, 192], transcriptional activation of stress genes [30], DNA damage [29], externalization of phosphatidylserine and activation of caspase-3 [193]. A large body of research has indicated that lead acts by interfering with calcium-dependent processes related to neuronal signaling and intracellular signal transduction. Lead perturbs intracellular calcium cycling, altering releasability of organelle stores, such as endoplasmic reticulum and mitochondria [194, 195]. In some cases lead inhibits calcium-dependent release of several neurotransmitters and receptorcoupled ionophores in glutamatergic neurons [196]. In other cases lead appears to augment calcium-dependent events, such as protein kinase C and calmodulin [194, 197].

Experimental studies have indicated that lead is potentially carcinogenic, inducing renal tumors in rats and mice [198, 199], and is therefore considered by the IARC as a probable human carcinogen [200]. Lead exposure is also known to induce gene mutations and sister chromatid exchanges [201, 202], morphological transformations in cultured rodent cells [203], and to enhance anchorage independence in diploid human fibroblasts [204]. In vitro and in vivo studies indicated that lead compounds cause genetic damage through various indirect mechanisms that include inhibition of DNA synthesis and repair, oxidative damage, and interaction with DNA-binding proteins and tumor suppressor proteins. Studies by Roy and his group showed that lead acetate induced mutagenicity at a toxic dose at the E. coli gpt locus transfected to V79 cells [205]. They also reported that toxic doses of lead acetate and lead nitrate induced DNA breaks at the E. coli gpt locus transfected to V79 cells [205]. Another study by Wise and his collaborators found no evidence for direct genotoxic or DNA-damaging effects of lead except for lead chromate. They pointed out that the genotoxicity may be due to hexavalent chromate rather than lead [206].

**Mercury**

**Environmental Occurrence, Industrial Production and Use**

Mercury is a heavy metal belonging to the transition element series of the periodic table. It is unique in that it exists or is found in nature in three forms (elemental, inorganic, and organic), with each having its own profile of toxicity [207]. At room temperature elemental mercury exists as a liquid which has a high vapor pressure and is released into the environment as mercury vapor. Mercury also exists as a cation with oxidation states of +1 (mercurous) or +2 (mercuric) [208]. Methylmercury is the most frequently encountered compound of the organic form found in the environment, and is formed as a result of the methylation of inorganic (mercuric) forms of mercury by microorganisms found in soil and water [209]. Mercury is a widespread environmental toxicant and pollutant which induces severe alterations in the body tissues and causes a wide range of adverse health effects [210]. Both humans and animals are exposed to various chemical forms of mercury in the environment.

These include elemental mercury vapor (Hg0), inorganic mercuroius (Hg+1), mercuric (Hg+2), and the organic mercury compounds [211]. Because mercury is ubiquitous in the environment, humans, plants and animals are all unable to avoid exposure to some form of mercury [212].

Mercury is utilized in the electrical industry (switches, thermostats, batteries), dentistry (dental amalgams), and numerous industrial processes including the production of caustic soda, in nuclear reactors, as antifungal agents for wood processing, as a solvent for reactive and precious metal, and as a preservative of pharmaceutical products [213]. The industrial demand for mercury peaked in 1964 and began to sharply decline between 1980 and 1994 as a result of federal bans on mercury additives in paints, pesticides, and the reduction of its use in batteries [214].
Potential for Human Exposure
Humans are exposed to all forms of mercury through accidents, environmental pollution, food contamination, dental care, preventive medical practices, industrial and agricultural operations, and occupational operations [215]. The major sources of chronic, low level mercury exposure are dental amalgams and fish consumption. Mercury enters water as a natural process of off-gassing from the earth’s crust and also through industrial pollution [216]. Algae and bacteria methylate the mercury entering the waterways. Methyl mercury then makes its way through the food chain into fish, shellfish, and eventually into humans [217].

The two most highly absorbed species are elemental mercury (Hg0) and methyl mercury (MeHg). Dental amalgams contain over 50% elemental mercury [218]. The elemental vapour is highly lipophilic and is effectively absorbed through the lungs and tissues lining the mouth. After Hg0 enters the blood, it rapidly passes through cell membranes, which include both the blood-brain barrier and the placental barrier [219]. Once it gains entry into the cell, Hg0 is oxidized and becomes highly reactive Hg2+. Methyl mercury derived from eating fish is readily absorbed in the gastrointestinal tract and because of its lipid solubility, can easily cross both the placental and blood-brain barriers. Once mercury is absorbed it has a very low excretion rate. A major proportion of what is absorbed accumulates in the kidneys, neurological tissue and the liver. All forms of mercury are toxic and their effects include gastrointestinal toxicity, neurotoxicity, and nephrotoxicity [213].

Molecular Mechanisms of Mercury Toxicity and Carcigenicity
The molecular mechanisms of toxicity of mercury are based on its chemical activity and biological features which suggest that oxidative stress is involved in its toxicity [220].

Through oxidative stress mercury has shown mechanisms of sulfhydryl reactivity. Once in the cell both Hg2+ and MeHg form covalent bonds with cysteine residues of proteins and deplete cellular antioxidants. Antioxidant enzymes serve as a line of cellular defense against mercury compounds [221]. The interaction of mercury compounds suggests the production of oxidative damage through the accumulation of reactive oxygen species (ROS) which would normally be eliminated by cellular antioxidants.

In eukaryotic organisms the primary site for the production of reactive oxygen species (ROS) occurs in the mitochondria through normal metabolism [222]. Inorganic mercury has been reported to increase the production of these ROS by causing defects in oxidative phosphorylation and electron transport at the ubiquinone-cytochrome b5 step [223]. Through the acceleration of the rate of electron transfer in the electron transport chain in the mitochondria, mercury induces the premature shedding of electrons to molecular oxygen which causes an increase in the generation of reactive oxygen species [224].

Oxidative stress appears to also have an effect on calcium homeostasis. The role of calcium in the activation of proteases, endonucleases and phospholipases is well established. The activation of phospholipase A2 has been shown to result in an increase in reactive oxygen species through the increase generation of arachidonic acid. Arachidonic acid has also been shown to be an important target of reactive oxygen species [225]. Both organic and inorganic mercury have been shown to alter calcium homeostasis but through different mechanisms. Organic mercury compounds (MeHg) are believed to increase intracellular calcium by accelerating the influx of calcium from the extracellular medium and mobilizing intracellular stores, while inorganic mercury (Hg2+) compounds increase intracellular calcium stores only through the influx of calcium from the extracellular medium [226].

Mercury compounds have also been shown to induce increased levels of MDA in both the livers, kidneys, lungs and testes of rats treated with HgCl2 [227]. This increase in concentration was shown to correlate with the severity of hepatotoxicity and nephrotoxicity [228]. HgCl2-induced lipid peroxidation was shown to be significantly reduced by antioxidant pretreatment with selenium. Selenium has been shown to achieve this protective effect through direct binding to mercury or serving as a cofactor for glutathione peroxidase and facilitating its ability to scavenge ROS [229]. Vitamin E has also been reported to protect against HgCl2-induced lipid peroxidation in the liver [230].

Metal-induced carcinogenicity has been a research subject of great public health interest.
Generally, carcinogenesis is considered to have three stages including initiation, promotion, and progression and metastasis. Although mutations of DNA, which can activate oncogenesis or inhibit tumor suppression, were traditionally thought to be crucial factors for the initiation of carcinogenesis, recent studies have demonstrated that other molecular events such as transcription activation, signal transduction, oncogene amplification, and recombination, also constitute significant contributing factors [231, 232]. Studies have shown that mercury and other toxic metals effect cellular organelles and adversely affect their biologic functions [231, 233]. Accumulating evidence also suggests that ROS play a major role in the mediation of metal-induced cellular responses and carcinogenesis [234–236].

The connection between mercury exposure and carcinogenesis is very controversial. While some studies have confirmed its genotoxic potential, others have not shown an association between mercury exposure and genotoxic damage [237]. In studies implicating mercury as a genotoxic agent, oxidative stress has been described as the molecular mechanism of toxicity. Hence, mercury has been shown to induce the formation of ROS known to cause DNA damage in cells, a process which can lead to the initiation of carcinogenic processes [238, 239]. The direct action of these free radicals on nucleic acids may generate genetic mutations. Although mercury-containing compounds are not mutagenic in bacterial assays, inorganic mercury has been shown to induce mutational events in eukaryotic cell lines with doses as low as 0.5 μM [240]. These free radicals may also induce conformational changes in proteins that are responsible for DNA repair, mitotic spindle, and chromosomal segregation [241]. To combat these effects, cells have antioxidant mechanisms that work to correct and avoid the formation of ROS (free radicals) in excess. These antioxidant mechanisms involve low molecular weight compounds such as vitamins C and E, melatonin, glutathione, superoxide dismutase, catalase, glutathione peroxidase and glutathione reductase that protect the cells by chelating mercury and reducing its oxidative stress potential [242].

Glutathione levels in human populations exposed to methylmercury intoxication by eating contaminated fish have been shown to be higher than normal [243]. These studies were also able to confirm a direct and positive correlation between mercury and glutathione levels in blood. They also confirmed an increased mitotic index and polyploidal aberrations associated with mercury exposure [243]. Epidemiological studies have demonstrated that enzymatic activity was altered in populations exposed to mercury; producing genotoxic alterations, and suggesting that both chronic and relatively low level mercury exposures may inhibit enzyme activity and induce oxidative stress in the cells [244]. There is no doubt that the connection between mercury exposure and carcinogenesis is very controversial.

However, in-vitro studies suggest that the susceptibility to DNA damage exists as a result of cellular exposure to mercury. These studies also indicate that mercury-induced toxicity and carcinogenicity may be cell-, organ- and/or species-specific.

Prospects
A comprehensive analysis of published data indicates that heavy metals such as arsenic cadmium, chromium, lead, and mercury, occur naturally. However, anthropogenic activities contribute significantly to environmental contamination. These metals are systemic toxicants known to induce adverse health effects in humans, including cardiovascular diseases, developmental abnormalities, neurologic and neurobehavioral disorders, diabetes, hearing loss, hematologic and immunologic disorders, and various types of cancer. The main pathways of exposure include ingestion, inhalation, and dermal contact. The severity of adverse health effects is related to the type of heavy metal and its chemical form, and is also time- and dose-dependent. Among many other factors, speciation plays a key role in metal toxicokinetics and toxicodynamics, and is highly influenced by factors such as valence state, particle size, solubility, biotransformation, and chemical form. Several studies have shown that toxic metals exposure causes long term health problems in human populations.

Although the acute and chronic effects are known for some metals, little is known about the health impact of mixtures of toxic elements. Recent reports have pointed out that these toxic elements may interfere metabolically with nutritionally essential metals such as iron, calcium, copper, and zinc [245, 246]. However, the literature is scarce regarding the combined toxicity of heavy metals. Simultaneous exposure to multiple heavy metals may produce a toxic effect that is either additive, antagonistic or synergistic.
A recent review of a number of individual studies that addressed metals interactions reported that co-exposure to metal/metalloid mixtures of arsenic, lead and cadmium produced more severe effects at both relatively high dose and low dose levels in a biomarker-specific manner [247]. These effects were found to be mediated by dose, duration of exposure and genetic factors. Also, human co-exposure to cadmium and inorganic arsenic resulted in a more pronounced renal damage than exposure to each of the elements alone [248]. In many areas of metal pollution, chronic low dose exposure to multiple elements is a major public health concern. Elucidating the mechanistic basis of heavy metal interactions is essential for health risk assessment and management of chemical mixtures. Hence, research is needed to further elucidate the molecular mechanisms and public health impact associated with human exposure to mixtures of toxic metals.

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An obvious omission appears to be the concentration of free silica, given that the waste rock facility will hold crushed/refined rock (in addition to any overburden) which is now mobile in the form of respirable (fugitive) dust.

We would contend that the analysis of the ore body presented fails to provide a complete picture as to its chemical composition. As such, the debate with respect to fugitive dust and or contamination of ground water is limited to the information made available.

As such any outcomes provided in the Application must be subject to the same limitations, limitations that cast significant doubts on whether all risks have been identified and assessed.

Attention is redrawn to the very limited information provided with respect to Uranium and similar compounds known to be present in the area but dismissed in this application.
Attention is drawn to the finding of the Senate Enquiry
Community Affairs Reference Committee: Impacts on health of air quality in Australia, August 2013

2.2 It was clearly throughout the inquiry, however, that air pollution is still a significant problem for certain parts of the Australian population. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) provided a definition of air pollution for the committee:

> Air pollution refers to the presence in the atmosphere of chemicals, particulates, or biological materials that cause discomfort, disease, or death to humans, damage other living organisms such as food crops, or damage the natural environment or built environment. Examples of air pollutants include particulates, oxides of sulphur and nitrogen, carbon monoxide, volatile organic compounds, toxic metals (such as lead), ground-level ozone, and odours.2

Health impacts of poor air quality

2.13 There is a substantial body of evidence indicating that particulate matter has negative impacts on human health – regardless of the size of particulates.14 A study published in the Lancet in 2012 found ‘ambient particulate matter pollution’ to be the ninth leading cause of global disease burden.15 The National Health and Medical Research Council-funded Centre for Air Quality and Health Research and Evaluation (CAR), reported to the committee that:

> People exposed to the short-term bursts or long-term higher levels of particulate pollution suffer a range of adverse effects, including:

- Increased risk of deaths, particularly due to heart and lung diseases;
- Increased risk of hospitalisation for heart and lung diseases; and
- Increased risk of asthma attacks.16

Safe levels of exposure

2.20 The committee heard, that at least for some pollutants, there is no safe level of exposure:

> Of importance is that the new evidence not only supports the previous scientific conclusions but also indicates that the effect can occur at air pollution concentrations lower than those used to establish the existing WHO health guidelines, particularly into relation to PM 2.5 and PM 10. So far no limit of exposure where there is no impact has been identified.27

2.23 The health impacts of air quality are not shared equally by all people. Certain groups of people, and certain geographies, are at a greater potential risk than others. The populations who are at the greatest risk are those who are exposed to the largest quantity of harmful particulates, and those who are inherently more susceptible to exposure.

2.24 Populations most exposed to particulate matter are those people living in close proximity to transport corridors and industrial and agricultural pollution sources.

2.25 While air pollution is often considered to be an urban problem, rural communities are also exposed to PM due to wind-blown dust smoke from controlled burning, bushfires, wood heaters, and PM from mining and other activities.33 73

3.50 As a result of the use of ambient standards, the committee heard that many communities that are collocated with industrial sites, mines, or major transport routes and infrastructure are being exposed to air quality that does not meet the NEPM standard’s object of protecting health,59 and that currently...
'monitoring of pollution and health impacts locally is unsatisfactory and a cause for concern among the local community.' 60 Representatives from Moranbah in Queensland argued that the lack of information about population exposure is as much a concern for residents as the exposure itself. 61

Committee view

3.67 Industry monitoring of emissions is an important tool in ensuring compliance with licensing conditions and protecting human health. As the creators of potentially harmful pollutants, industry has a responsibility to ensure that human health is preserved and the reliable and regular data is collected. The committee is of the view that this information should be made available to the public in as close to real-time as possible.

Health impacts of diesel emissions

5.2 The potential negative health impacts of diesel emissions are now well known. The WHO has listed diesel emissions as a Group 1 carcinogen.1 The International Agency for Research on Cancer (IARC), a WHO body that coordinates and conducts research on the causes of human cancer, reclassified diesel engine exhaust as a Group 1 carcinogen based on extensive evidence that exposure is associated with increased risk of lung cancer.2 The committee heard from the ILAQH that '[diesel] is not a likely cause—it is a cause of cancer.'3

5.3 Diesel exhausts release benzene, sulphur dioxide, carbon monoxide, nitrogen dioxide, polycyclic aromatic hydrocarbons and particulate matter, all of which have known adverse health effects.4

Senate enquiry 2013 (underlining added)

Whilst not legislation per se, the applicant’s attention is drawn to the known facts listed in evidence in the Enquiry. These facts are foreseeable and are required to be mitigated against, and that industry has a responsibility to ensure that human health is preserved and the reliable and regular data is collected.

The hazards of diesel emissions from locomotives is further highlighted in the following extract:

Locomotive Emissions Project Scoping Study of Potential
Measures to Reduce Emissions from New and In-Service Locomotives in NSW and Australia
Prepared for: NSW EPA
Prepared by: ENVIRON Australia Pty Ltd
Date: March 2013

4.1 Overview of Diesel Exhaust Emissions and Related Impacts

Diesel engine and equipment exhaust consists of hundreds of gas-phase, semi-volatile and particle phase organic compounds that are produced through fossil fuel combustion. Emissions of primary and secondary particulate matter (PM) are of specific concern due to air quality criteria for fine PM being exceeded within several Australian metropolitan and rural areas. Oxides of nitrogen (NOx) and volatile organic compound (VOC) emissions released from engine/equipment exhausts are of interest individually and due to their being precursors of photochemical smog including ozone.

Other emissions associated with non-road diesel engines and equipment include carbon dioxide (CO2), carbon monoxide (CO), carbonyl compounds (e.g. formaldehyde, acetaldehyde), polycyclic aromatic hydrocarbons (PAH), dioxins and furans, and a range of individual volatile and semi-volatile organic compounds including toxics such as benzene, toluene and 1,3-butadiene.

Fine particles with an aerodynamic diameter of under 10 micron (PM10) are small enough to be inhaled and remain within the respiratory system. Very fine particles of 2.5 microns or less (PM2.5) have been found to pose the greatest health risk as these particles are more readily deposited in, and damaging to, the lower airways and gas-exchanging portions of the lung. Adverse health effects related to fine particulate matter inhalation include exacerbation of existing pulmonary disease, oxidative stress and inflammation, changes in
cardiac autonomic functions and reduced defence mechanisms and lung damage (46). Significant health costs are associated with inhalation exposures to fine particulate matter (47).

Diesel particulate matter (DPM) is considered to comprise a particularly significant health risk due to the particle size distribution and chemical composition of such particulates. DPM is dominated by fine and ultra-fine particles, the composition of which may include elemental carbon with adsorbed compounds such as organic compounds (including potentially carcinogenic organic compounds such as PAHs), sulphate, nitrate, metals and other trace elements. The International Agency for Research on Cancer has recently concluded that diesel engine exhaust is classifiable as being carcinogenic to humans (Group 1), based on sufficient evidence that exposure is associated with an increased risk for lung cancer (48). It was also noted to have a positive association (limited evidence) with increased risk of bladder cancer.

NOx emissions from non-road diesel engines contribute to photochemical smog and notably ozone. Ozone exposures can induce serious respiratory tract responses including lung function reductions, aggravation of pre-existing respiratory disease (such as asthma), increases in daily hospital admissions, emergency department visits for respiratory causes, and excess mortality (49).

Environmental impacts associated with particulate and ozone concentrations include visibility reduction, impacts on crop productivity and ecosystem integrity, and damage to buildings and property (e.g. soiling of surfaces; deterioration of rubber, fabric, masonry and paint). (page 51-52)

Given the significantly high concentration of Manganese in the ore body, the application is deficient in its presentation of the health impacts upon humans, especially children.

The commentary below is representative of the health concerns due to exposure to Manganese:

"2.2 SUMMARY OF HEALTH EFFECTS

Although low levels of manganese intake are necessary for human health, exposures to high manganese levels are toxic. Reports of adverse effects resulting from manganese exposure in humans are associated primarily with inhalation in occupational settings. Inhaled manganese is often transported directly to the brain before it is metabolized by the liver. The symptoms of manganese toxicity may appear slowly over months and years. Manganese toxicity can result in a permanent neurological disorder known as manganism with symptoms that include tremors, difficulty walking, and facial muscle spasms. These symptoms are often preceded by other lesser symptoms, including irritability, aggressiveness, and hallucinations. Some studies suggest that manganese inhalation can also result in adverse cognitive effects, including difficulty with concentration and memory problems. Although the workplace is the most common source of excess inhalation of manganese, frequent inhalation of fumes from welding activities in the home can produce a risk of excess manganese exposure leading to neurological symptoms. Environmental exposures to airborne manganese have been associated with similar preclinical neurological effects and mood effects as are seen in occupational studies. Acute or intermediate exposure to excess manganese also affects the respiratory system. Inhalation exposure to high concentrations of manganese dusts (specifically manganese dioxide [MnO2] and manganese tetroxide [Mn3O4]) can cause an inflammatory response in the lung, which, over time, can result in impaired lung function. Lung toxicity is manifested as an increased susceptibility to infections such as bronchitis and can result in manganic pneumonia. Pneumonia has also been observed following acute inhalation exposures to particulates containing other metals. Thus, this effect might be characteristic of inhalable particulate matter and might not depend solely on the manganese content of the particle.

A number of reports indicate that oral exposure to manganese, especially from contaminated water sources, can produce significant health effects. These effects have been most prominently observed in children and are similar to those observed from inhalation exposure. An actual threshold level at which manganese exposure produces neurological effects in humans has not been established. However, children consuming the same concentration of manganese in water as adults are ultimately exposed to a higher mg/kg-body weight ratio of manganese than adults (as a consequence of the lower body weight of children as well as their higher daily consumption volume and greater retention of manganese). Children are also potentially
more sensitive to manganese toxicity than adults. A study conducted in infant monkeys suggests that soy-based infant formula, which contains a naturally higher concentration of manganese than human or cow’s milk, may produce mild effects on neurological development, although such effects have not been documented in humans. While many of the studies reporting oral effects of excess manganese have limitations that preclude firm conclusions about the potential for adverse effects, these studies collectively suggest that ingestion of water and/or foodstuffs containing increased concentrations of manganese may result in adverse neurological effects.

There is indirect evidence that reproductive outcomes might be affected (decreased libido, impotence, and sexual dysfunction have been observed in manganese-exposed men). The available studies on the effect that manganese has on fertility (as measured by birthrate) is inconclusive”.

(TOXICOLOGICAL PROFILE FOR MANGANESE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service Agency for Toxic Substances and Disease Registry, 2012)

Benchmarking the actual air quality having regard to existing levels of dust and particulates over which is superimposed the impact of the proposal is critical to the health and safety of all concerned as well as the health of the environment and what it sustains in the agricultural arena, is required.

5.6.1 Benefits Raised

"Positive feedback received has been focused on the significant employment, local business and economic diversification benefits that the proposed mine will bring to the region. A large proportion of local community members have expressed their hope that the proposed mine will contribute towards reversing the population decline that many regional communities have faced in recent years, particularly those within the Wudinna District Council area which has experienced a significant decline over the past 25 years. In particular there has been positive feedback about the benefits that the project may bring in terms of creating opportunities for young people to stay in, or relocate to, the region given the increased employment and training prospects. Additional benefits identified include a larger pool of potential volunteers and sportspeople in local communities and improvement of existing services and facilities, particularly health and education.

Feedback was provided regarding the positive impact the project would have on local, regional and South Australian economies through increased local procurement opportunities, opportunities to leverage potential infrastructure and services upgrades (upgrade to regional power, water and other infrastructure networks, upgrades to roads, upgrades to local schools) and potential benefits of a diversified economy not reliant primarily on the success of agriculture. Benefits regarding an increase to the South Australian Government revenue, as a result of the requirement for Iron Road to pay mineral royalties in relation to the magnetite produced from the proposed mine in due course were also identified. Other benefits identified related to the environment, particularly in terms of the opportunities to potentially use desalinated or treated waste water for community benefit and potential fundraising income that could be contributed to the community through Iron Road’s recycling activities. Iron Road is committed to working with the community to ensure opportunities are maximised locally and regionally."

An analysis of the above statement includes the following comments:

"Positive feedback received has been focused on the significant employment, local business and economic diversification benefits that the proposed mine will bring to the region."

While it is Iron Road’s preference to employ locally-based workers at the mine, it is recognised that in order to meet workforce requirements, at least initially, the majority of the operational workforce may be FIFO or DIDO (3.8.1) (underlining and bolding added)

Comment 67

And the actual local employment content for the construction and operation of the mine is not defined.

It is noted that an approved plan from the Australian Industry Participation Authority has been obtained under the Australian Jobs Act 2013 (Commonwealth), but no details are referred to in this application. Upon what basis can Australian Industry compete for work in the proposal versus imports from off shore entities, including importing labour under 457 Visas?
Given the detailed description of the construction camp and its functionality, how does the company rationalize this against claims of integration with the local community at Wudinna which is some 45 kilometres away? The statement appears at odds with the so called integration with the local community claims of the Company, even more-so given the 12 hour shift and the two weeks on, one off rotation.

"A large proportion of local community members have expressed their hope that the proposed mine will contribute towards reversing the population decline that many regional communities have faced in recent years, particularly those within the Wudinna District Council area which has experienced a significant decline over the past 25 years."

**Comment 68**

**QUESTION 29**
Can you define through the extensive records of community consultation 'which proportion of the local community and which demographics' expressed a supporting view that the CEIP may bring long-term population to the district?

The second question is the reality of why people move away in the context of an agriculture based environment. To answer this question a detailed analysis of the demographics is required. It most likely be found that there are three main reasons for a decline:

a. an aging population which has resulted in an amalgamation of properties (larger holdings) which can be managed with the purchase of larger machinery,

b. increased education opportunities both in the local schools and thence at tertiary institutions either in Whyalla or Adelaide affording greater employment opportunities either in the State, interstate or overseas.

c. a reluctance of modern youth to work on a farm.

Regional towns have suffered such declining populations with consequential reductions in services. The proposed model for the accommodation village may well statistically increase the numbers.

**QUESTION 30**
Will it increase the social fabric of the township that some desire as there is no evidence that married persons will come to the village or for that matter demographics that show an increase in the number of children?

The village will be a company village as experienced in other communities such as the Pilbara.

"In particular there has been positive feedback about the benefits that the project may bring in terms of creating opportunities for young people to stay in, or relocate to, the region given the increased employment and training prospects."

**Comment 69**

Questions have been raised with respect to the training opportunities for youth without answer. The reality of this so called benefit is questionable.

"Additional benefits identified include a larger pool of potential volunteers and sportspeople in local communities and improvement of existing services and facilities, particularly health and education."

The reality of the assumption put in this claim is that the village is a company run facility providing all needs of an employee. Coupled with the shift work and the time on job versus time away ( FIFO), the likelihood of any cross over as claim is remote.

"Feedback was provided regarding the positive impact the project would have on local, regional and South Australian economies through increased local procurement opportunities, opportunities to leverage potential infrastructure and services upgrades (upgrade to regional power, water and other infrastructure networks, upgrades to roads, upgrades to local schools) and potential benefits of a diversified economy not reliant primarily on the success of agriculture."

**Comment 70**

An analysis of the procurement model and thus the claim for local and regional benefit requires quantification. It is understood no MoU's exist with local businesses for the supply of goods and services.
It is understood the plant etc. will be constructed offshore and shipped to the port, transported by rail to be installed in the mine. What local industry will be involved in this exercise?

It is noted that a significant quantity of explosives will be required on a daily basis. What is the procurement model for the supply of this commodity? Will it be shipped in from overseas to the port and railed to the mine site or will it be transported from an Australian Manufacturer (?South Australian or Interstate) using local transport companies? It is suggested that Interstate transport contractors would be in a position to outbid a local carrier.

Then there is the supply of goods to the accommodation village and construction camps. As mentioned previously it is understood no local contracts or heads of agreement currently exist for such services.

Then comes the statement "leverage potential for infrastructure upgrades" which can be interpreted in the absence of evidence to the contrary, as the demand for taxpayer funds to supply (upgrade) the nominated services for the benefit of the company.

Unfortunately the application is written in such a way as to ignore any negative impacts. The reality being the destruction of a considerable number of agricultural business and the permanent destruction of the environment in order to extract a commodity with little real benefit to the Australian economy and the real potential to cause significant harm to our agricultural industry through contamination of grain and meat production, neither of which has received any consideration in the Application to date.

"Benefits regarding an increase to the South Australian Government revenue, as a result of the requirement for Iron Road to pay mineral royalties in relation to the magnetite produced from the proposed mine in due course were also identified."

Comment 71

But not quantified on an annual basis. Where is the chart providing the actual return (in $A) to the State Government in royalties over the 25 year life of mine?

"Other benefits identified related to the environment, particularly in terms of the opportunities to potentially use desalinated or treated waste water for community benefit and potential fundraising income that could be contributed to the community through Iron Road's recycling activities."

Comment 72

Where are the benefits to the environment identified and quantified, given the size of the hole, the size of the waste rock facility; the potential for salt and other chemicals to migrate from the site as a result of wind erosion (dust) or leaching; the potential contamination of the groundwater; the potential for acid rock formation; the significant cone of depression and unknown impact of dewatering to the immediate environment and the Hambidge WPA and to the Kielpa bore field and the list goes on to include impacts upon listed fauna and flora and to the river/creek network impacted by the construction of the transport corridor.

The application is very short on the detail with respect to the use of the desalination plant for any other function but processing of ore.

It is noted in a number of places throughout the applications that the modules; cement and railway components (in particular) will be manufactured off-shore.

QUESTION 31

What project defined statistics show a benefit to Australian manufacturing will be achieved as a consequence of this project?

The same question may be asked about the materials to be acquired for the various pipelines proposed.

It is suggested that a detailed explanation of the actual benefits to be accrued by Australian Manufacturers be provided by the applicant.

5.6.2

Concerns Raised

"At a local and regional level, concerns have been expressed about the potential impacts the proposed mine might have on existing industries and the potential skills shortages that may be faced by the agricultural and
other industries in the area should the project proceed. Particular concerns have been raised about possible adverse impacts on agricultural businesses in the area due to uncertainty, disruption to activities and potential long-term impacts on farming operations. Other concerns relate to project timing, the location of the proposed CEIP Infrastructure and the size of the footprint on agricultural land.

*Concerns have also been expressed about the potential social impacts of the project, including effects on cost of living and housing availability/cost and impact on existing community culture and values.*

**Comment 73**

The application is somewhat devoid of realistic discussion on the actual financial impact to the agricultural industry and to those agricultural businesses impacted by the proposal.

The political argument that mining and agriculture can co-exist is a fallacy, one depends upon the destruction of the other.

The application is devoid of any statement pertaining to the cost to local Councils as a consequence of the proposal, especially in light on the non-existence of any formal heads of agreements or MoU. At the point of time of lodgement of the applications, Councils (hence ratepayers) have potentially significant unfunded liabilities arising from the proposal.

**EXHIBIT**

**EYRE PENINSULA COMMUNITY MINE TO PORT CONSULTATIVE COMMITTEE**

PO Box 95
Tumby Bay
SA 5605

Mr Larry Ingle
General Manager
Iron Road Ltd

With reference to: **IRON ROAD’S CENTRAL EYRE IRON PROJECT DFS INVITATION**

Dear Mr Ingle,

I am in receipt of an invitation over the hand of Mr Tim Scholz relating to a number of Public Meetings and Open Day seminars to be offered to the communities of Warramboo, Cleve, Wudinna and Tumby Bay during the week commencing April 7th.

I am also in receipt of an email invitation to the Port Neill reference group and the Tumby Bay DCCC group for a round table meeting Wednesday 9th April, 2014.

With respect to the information sessions planned for the week of 7th April 2014 in relation to the recent release of the Company’s Definitive Feasibility Study, can you please explain why the citizens of the District Council of Tumby Bay are not afforded the same opportunity to attend a PUBLIC MEETING in Tumby Bay as offered to the communities of Warramboo and Cleve.

A round table meeting with the Port Neill reference group and the TBDCCC is NOT a public meeting of the citizens/ratepayers of the District Council of Tumby Bay community.

Given the fact that the Company’s proposal affects all ratepayers in the District Council of Tumby Bay, the ‘information session’ proposed is NOT a public meeting whereby the Company’s proposal can be put and questioned.

An information session is a one way event, the company’s position and not a forum in which the community can debate the pros and cons of the proposition.

An information session is not considered to be an appropriate method in this instance, to seek a social licence for the proposal.
We therefore request that the information session planned for Tumby Bay becomes a PUBLIC MEETING of two hours in the same manner as proposed for Cleve and Warramboo.

The following questions and comments are placed on notice for answers at the public meeting.

Thanking you for your consideration of our request.

Yours faithfully,

Information Officer/Spokesperson
Eyre Peninsula Community Mine to Port Consultative Committee
(a sub-committee of the Tumby Bay Residents and Ratepayers Association Inc)

Copies for information have been forwarded to:
Elected Members, District Council of Tumby Bay
Mr T Smith, CEO, District Council of Tumby Bay
P Treloar MP - Member for Flinders
Mr G Knight, CEO, DMITRE
Ms E Scholz, Mayor, Wudinna District Council
Mr T Scholz - Iron Road
Ms H Baldock EPNRM Board
Ms S Richardson, Tumby Bay District CCC
Ms H Lamont, CEIP CCC

Hydrogeology and Hydrology

“The ore body is contained within gneissic bedrock. Hyper saline groundwater is contained in fractures within the bedrock and the volume of water that seeps into the open pits is controlled by the degree of fracturing and the interconnection between fractures. Bedrock is overlain by 10 to 40 metres of sediments (sands, sand and clays) that yield small volumes of saline water.

Calculated groundwater seepage rates to the open pit and dewatering bores range from 12 to 23 megalitres/day, dependent on the depth and size of the open pits at each stage of operation. Some of this water will be lost to evaporation within the open pits; the remainder will be recycled for use in dust suppression and the process plant.”

Question 32
Given the volume of hyper saline water estimated to enter the pit(s), it has been reported that in the order of 400+ million tonnes of salt will be brought to the surface as a consequence of this activity. However, based upon a daily dewatering figure of 12-23 Million litres per day, the quantity of salt brought to the surface would be of the order:

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>35</th>
<th>gms per litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDS sea water</td>
<td>20</td>
<td>years</td>
</tr>
<tr>
<td>LOM 1</td>
<td>25</td>
<td>years</td>
</tr>
<tr>
<td>dewatering rate 1</td>
<td>12</td>
<td>megalitres per day</td>
</tr>
<tr>
<td>dewatering rate 2</td>
<td>23</td>
<td>megalitres per day</td>
</tr>
</tbody>
</table>

salinity of mine water

| TDS seawater x3 | 105 | gms per litre |
| TDS seawater x4 | 140 | gms per litre |
| TDS sea water x5 | 175 | gms per litre |
Salt generated

<table>
<thead>
<tr>
<th>Total salt per day</th>
<th>TDS =105</th>
<th>TDS=140</th>
<th>TDS=175</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume 12ML/day</td>
<td>1,260 tonnes/day</td>
<td>1,680 tonnes/day</td>
<td>2,100 tonnes/day</td>
</tr>
<tr>
<td>Volume 23ML/day</td>
<td>2,415 tonnes/day</td>
<td>3,220 tonnes/day</td>
<td>4,025 tonnes/day</td>
</tr>
<tr>
<td>LOM1 tonnes</td>
<td>9,198,000</td>
<td>12,264,000</td>
<td>15,330,000</td>
</tr>
<tr>
<td>LOM2 tonnes</td>
<td>22,036,875</td>
<td>29,382,500</td>
<td>36,728,125</td>
</tr>
</tbody>
</table>

To these figures must be added salt derived from sea water or from bore water.

Notwithstanding which calculation is correct, will the Company explain the environmental impact of this quantity of salt spread over the mine footprint and the steps it intends to take to restore/rehabilitate the mine site to agricultural productivity at the conclusion of its mining activities?

**Water**

“During the course of the study, there has been significant reduction in the volume of water required for the mine operations (from 45 gigalitres per annum to 14 gigalitres per annum).

Water supply investigations along the utilities corridor identified a high yielding saline aquifer located west of Kielpa, 56 kilometres from the mine site.

Studies are continuing to verify the capacity of this aquifer with a view to meeting the entire CEIP water demand with saline groundwater, supplemented by water recovered from open pit dewatering.”

**Question 33**

What is the regional hydrological impact of (a) dewatering the Warramboo pits to the extent of 12-23 million litres per day and (b) the proposed extraction of water from the proposed Kielpa bore field? What is the impact of dewatering at Warramboo and Kielpa in terms of water required to sustain the environment?

Notwithstanding the fact that the proposed Kielpa bore field is extracting saline water, what is the long term economic impact of reducing the water reserves that may become available for agricultural or human use due to advances in solar distillation technologies that could be applied to this water reserve?

This is the future generational impact of what is being proposed to quote ‘benefit the short term aspirations of the mining company’.

**Port Facilities**

“The Cape Hardy bulk commodities port is planned to have an initial capacity of 70 million tonnes per annum with the main export wharf capable of handling Panamax and Capesize vessels. Two shipping berths for bulk iron ore carriers will be serviced by a travelling/slewing ship loader. Heavy-lift ships and geared Handymax vessels will be accommodated in the inner harbour. The port precinct includes 1,100 hectares of land to enable future expansion and to offer export solutions to third parties for a range of commodities.

The inner harbour may be used for the import and export of low-volume high-value cargoes, including the import of machinery, cement and fertiliser and the export of copper concentrates, grain and other containerised cargoes.

The port site concentrate handling system consists of a receivals (in loading) circuit and an out loading circuit. The in loading circuit is designed to receive concentrate from the rail system via a bottom discharge dumper.”

**Question 34**

Nowhere in the DFS is reference drawn to the mining of copper at Warramboo?
Furthermore, no reference has been made to the toxicity of copper in sea water, especially in light of the fact that Cape Hardy is on the migratory path of the Southern Wright Whale, a totally protected species. Are we to assume one of the undisclosed outputs from the mine is copper?

**Question 35**
Given the quantities of fuel likely to be consumed, does the proposed port have the capacity to receive and store fuel?

**Question 36**
It is noted that the ore will be transported from the mine in covered bottom dump wagons. Are the wagons sealed to prevent the escape of fugitive dust?

Are the wagons decontaminated (cleaned) before leaving the port facility on the return to the mine?

**Question 37**
Fugitive dust is of significant concern. The DFS is very short on information relating to the potential risks associated with fugitive dust contamination, indeed, the JORC statement on the environment failed to mention the potential risks due to contaminated pastures, cereal grain, wool, meat and rain water, not to mention potential health risks to humans. Is it a matter of convenience to overlook the accumulative impact of the 4% free silica contained in the final ore concentrate and the health effect of continued exposure over a significant period of time?

Is it a matter of convenience to not make scientifically supported (including independent peer review) of all chemical analytical results pertaining to the presence or otherwise of heavy metals (Chromium (VI); Cadmium; Arsenic; Uranium and other radioactive substances (Thorium, Strontium [87], Radon) that are known to occur in deposits of this nature in the Gawler Craton and or the Paleochannels known also to exist within the region?

**Question 38**
It is noted that the proposed port is listed as an export port for copper concentrate. This the first occasion that the export of copper has been raised, therefore what are the environmental impacts of copper in the proposed project?

Firstly what risk assessment has been undertaken to determine the impact of copper (at levels greater than those considered to be trace levels for the purpose of agriculture) on the farming community both in and around the proposed mine, the corridor and at Cape Hardy, especially in the context of copper toxicity in sea water and the very probable environmental damage arising?

Where does the copper come from?

**Workforce**

**Construction**

*During construction the CEIP is expected to have a nominal peak workforce of approximately 1,950 people.*

**Operations**

*CEIP operations are expected to directly employ approximately 700 people. The mine, rail and port will run on a continuous 24/7 basis. Most employees will be engaged on continuous shift rosters, although there will be a smaller number employed on a day shift only basis or a normal five day working week. Iron Road will seek to employ a large portion of its operational labour force locally and from regional centres near the mine and port. Additional personnel will be sourced from Adelaide. As a result, the workforce is expected to be a mixture of residential, drive-in, drive-out (DIDO) and fly-in, fly-out (FIFO).*

**Comment 74**
The demographic probability of this occurring is remote. If one examines the workforce profile for the Hillside Mine (Ardrossan) it is obvious that the greater proportion of the workforce will be sources on a fly-in fly-out basis. In addition employees taken from the local districts will place current employers in an untenable position due principally their inability to match the salaries on offer from the mining company. This comment would apply equally to local Councils and their ability to retain the services of heavy machinery operators and truck drivers in particular.

The employment 'carrot' is not as one expects!

Construction Camps

“The CEIP will utilise two construction camps to house the construction workforce over the Project’s duration. A camp of approximately 1,300 rooms will be located within the mine site footprint east of Warramboo and a camp facility containing approximately 650 rooms will be located within the Port precinct at Cape Hardy. Both construction camps will be modular constructions and provide serviced facilities including kitchen/dining facilities, wet messes, administration buildings and recreational facilities.”

Question 39

Given that both of these facilities are included in the Major Project Development application and therefore come under the auspices of the Minister and Planning SA for ultimate approval, what financial liability has the District Council of Wudinna in the meeting of Council controlled infrastructure (roads, water and waste water) to service these camps, or will the Company totally finance this aspect of the development?

Accommodation Village

“The CEIP long-term operations village, to be situated in Wudinna, will house approximately 250 to 300 employees. The village will feature a modular built central hub with single and double room housing, reception and dining facilities. The village will be landscaped with native plants and winding pathways, creating a modern yet welcoming ‘home-away-from-home’ facility for the CEIP workforce.”

This facility is included in the major development application and hence all approvals pertaining to the village will be the province of the Minister and Planning SA.

Question 40

What financial liabilities has the Wudinna District Council in meeting Council controlled infrastructure (roads, water, waste water, etc.) connections to the village boundary, noting every other aspect of the village is the province of Planning SA and the developer, given that there is (in the absence of evidence to the contrary) no memoranda of understanding or Deeds of Agreement between Council and the Company on these matters?

The ratepayers are at this point in time exposed to unknown liabilities.

Local Roads

“The District Councils of Cleve, Tumby Bay and Wudinna are being consulted on possible road modifications required in their respective areas and some have submitted estimates for proposed upgrades and alterations.”

Question 41

Given the proposed development and the volume of heavy trucking required has the Company entered into any Memoranda of Understandings (as a precursor to formal Deeds of Agreements) with the various Councils concerned with respect to the construction (fit for purpose), maintenance and rehabilitation of the said roads over the life of the project(s)?

It is understood that most of the identified roads are not of a suitable standard to cater for the anticipated heavy loads. Has the Company sought application of the Transport Division (DPTI) for assessment of these roads to ensure that they are capable of safely handling the proposed traffic?

Regulatory Approvals
“The proposed mine at Warramboo will be subject to both a Mining Lease and a Program for Environmental Protection and Rehabilitation pursuant to the Mining Act, 1971. Lodgement of the Mining Lease application to the State Government for assessment is anticipated during Q3, 2014.

The infrastructure components of the CEIP such as the port, rail, power and a long term accommodation village at Wudinna will be subject to a Development Approval under the Development Act 1993.

The expected assessment level for the Development Approval is an Environmental Impact Statement, the highest level of assessment for developments in South Australia. The initial Development Application is scheduled for submission to the State Government during Q1, 2014.

Referrals under the Federal Government’s Environmental Protection and Biodiversity Conservation Act 1999 will be submitted during Q1, 2014 to determine if further assessment is required. A range of other State and Federal Government approvals will be sought during 2014.”

Note: It should be recognised that NO approvals exist at this point in time.

The DFS is in fact a speculative document and is very much subject to the receipt of the above approvals.

Environment and Community

“Environmental and social impact studies, including baseline technical surveys and meetings with community groups and government agencies have ensured that Iron Road understands the potential benefits and impacts of the CEIP.”

Note: It should be recognised that no environmental or social impact statement have been released therefore the content of these studies HAS NOT BEEN SUBJECTED to any PUBLIC or third party scrutiny.

No clearly defined statement as to the impacts, social or economic, have been released to the public, hence the veracity of these reports remain subject to review.

‘JORC Code 2012 Table 1’ Section 2 Reporting of Exploration Results

Sampling Techniques:

Samples were also analysed for As, Sn, Ba, Sr, Cl, Ni, V, Co, Zn, Cr, Pb, Zr and Cu

It is noted that uranium, thorium and other radioactive elements were not included in the analytical work, therefore the following questions remain unanswered:

Given the known presence of uranium, thorium and other radioactive materials in the Gawler Craton bedrock and associated Paleochannels in the district, why are these substances precluded from any analytical results?

Given the inclusion of Lead [Pb] in the analytical data, which isotope of lead was reported on, given that lead is the end product of various decay sequences for radioactive elements? Was it Pb 214; Pb 211; Pb 210; Pb 209; Pb 207 or Pb 206?

Was lead therefore used as a marker for the presence of uranium?

What was the concentration of the lead in ppm?

Given that strontium was reported in the analytical result, what isotopic form of strontium was identified?

If it were Sr87 (the radioactive isotope) was this used to determine the geologic age of the deposit using the Sr87/Rb87 dating procedures? If not, what was the concentration of the strontium sample in ppm?

It is noted that the analytical work sought to determine the presence of arsenic and chromium. That being the case, what was the concentration of arsenic in ppm?
With respect to the chromium, was the sample tested for hexavalent chromium (Cr(VI))? If so, what were the concentrations in ppm?

It is noted that no mention in the analytical work was made of the presence or otherwise of cadmium.

Given that Boron is an issue for the agricultural industry, why wasn’t an analysis for the determination of existence and concentration of boron in the samples undertaken? The issue being, if boron rich soil/overburden is brought to the surface as a consequence of mining and this material drifts onto neighbouring properties, agricultural yields could well be affected.

It is noted that samples were analysed for the presence of copper. What concentrations of copper occurred in the samples in ppm?

Environmental factors or assumptions

- Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.

  While at this stage the determination of potential environmental impacts, particularly for a Greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.

- No environmental assumptions have been considered in the estimation

Comment 75

As alluded to earlier in this response, the issue of the presence of radioactive material is of considerable concern, given that the MLP is proposed for the mining of iron ore and does not include the mining of radioactive material. It is therefore assumed that if said materials are present then the disposal plan is for this material to be deposited on the waste rock heap. That being the case (and clearly in the lack of evidence to the contrary) the material will be exposed to wind and water migration. Wind will result in the transportation of the material into neighbouring farming properties potentially contaminating pastures, grain, and through the food chain meat. Rain will potentially leach the material from the waste dumps into the underlying and surrounding environment.

The issue of radon gas which is a characteristic of mining deposits such as that proposed is not dealt with.

The environmental impact of significant quantities of diesel fumes and particulates emanating from the mine is not dealt with.

The real issue of fugitive dust which contains not only iron ore dust but potentially significant quantities of free silica as a consequence of the mining process is of a major concern. Added to this is the issue of fugitive dust arising from the transportation of the refined ore from the mine to the proposed port some 145 kilometres through prime agricultural land. The processed ore is reported to contain up to 4% silica and a non-disclosed amount of other material, some of which may well be heavy metals.

The inference is that there are no environmental impacts from dust.

It is claimed that some 12 to 23 megalitres of water will be removed from the mine as a consequence of the dewatering process and that this water will be primarily used to control dust and other components of the process. It has been conceded that this water is hyper saline and one estimate is in the order of 400 million tonnes. A calculation based upon the dewatering rate would suggest a lower figure, but none less significant in its environmental impact. The inference being that this does not constitute an environmental impact!
As mentioned previously, the dewatering of the mine and the drawing of water from the proposed Kielpa bore field has a hitherto unknown regional impact both for water security and the environmental impact of such large scale dewatering.

**Environmental**

- The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.

- Iron Road will require approval under the Mining Act (1971) which includes the approval of a Mining Lease Proposal (MLP) and a comprehensive Program for Environment Protection and Rehabilitation (PEPR).

- All baseline environmental surveys have been completed. The preliminary impact assessment did not categorise any potential Project impacts as 'High'. Detailed impact assessments are on-going in areas including air quality, groundwater, surface water, flora, fauna, noise, social, visual, and heritage.

- It is expected that all predicted impacts may be adequately mitigated and/or managed and that the MLP and PEPR will be subsequently approved by the State Government.

**Note:** In addition to the previous comments, the report fails to acknowledge the presence of protected species in the proposed project area (the Mallee Fowl and the Southern Right Whale).

The report fails to acknowledge the health impact of the proposal.

The report indicates the need to prepare a PEPR, but in the absence of evidence to the contrary, this document to date is not for public knowledge. In short, the environmental performance criteria for which compliance is required is contained in a non-disclosed document.

The environmental and economic impact of the transport corridor appears not to have been included in any risk assessment pertaining to this disclosure document.

The rehabilitation of the mine footprint and hole at the end of life, given the quantity of salt deposited on the footprint, is a significant undeclared environmental risk, given the expectation that the land will be returned to current use, ie agricultural land.

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- It is expected that all predicted impacts may be adequately mitigated and/or managed and that the MLP and PEPR will be subsequently approved by the State Government.

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The rehabilitation of the mine footprint and hole at the end of life, given the quantity of salt deposited on the footprint, is a significant undeclared environmental risk, given the expectation that the land will be returned to current use, ie agricultural land.

Comment 76
The benefit to the State through royalties is zero for the first 4 years (the life of the current parliament) and a concessional rate for the next 5 years presumably based upon an official agreement (Memorandum of Understanding or Deed of Agreement) with the State Government.

Given that no formal assessment processes have commenced or applications lodged, the start timeline is non-achievable, and yet "Iron Road has no reason to believe that the necessary Government approvals will be received within the timeframes anticipated in the DFS"?

Comment 77
Much has been said with respect to the economics of the Warramboo mine, note singular mine. Yet the DFS continues with respect to providing what is irrelevant information pertaining to the potential ore reserves for the remainder of the tenement as quoted hereunder.

It is noted that the life of the mine varies from 25 years (page 3 of release) and 20 years in the JORC statement, but the CEIP offers a potential operating life in excess of 25 years.

"Based on regional exploration work completed to date and increased ore body knowledge, there is an estimated to be a further 10 to 21 billion tonnes at 14% to 20% iron of resource potential within EL4849."

The DFS relates to one mine which has been estimated to cost some $US3.9B within an initial capital expenditure of $US5,217M with a LOM capital cost in the vicinity of $US7,502M. The figures do not add up so to speak, unless of course the differing amounts relate to the bringing on line of the remaining prospects in the tenement, ie the project is NOT a single mine, but an undisclosed number of mines across the region as illustrated on the map.

Is it not true that the DFS is a document to the market place (being the Australian Securities Exchange) designed to attract financial support for the Central Eyre Iron Project, which is inclusive of the Warramboo mine and the remaining identified potential mines with an estimated 17Bt ore resource/reserve?
The assumption that the Australian dollar exchange rate of $0.85 is very optimistic (currently 0.91) as is the statement that the mining tax and the carbon tax will be repealed. These issues will have significant impact upon the economic viability of the project.

Social

- The status of agreements with key stakeholders and matters leading to social licence to operate.
- A baseline social impacts and benefits study has been completed and results discussed with stakeholders.
- Various Community Consultative Committees have been formed for the purpose of consultation, information and feedback.
- Community engagement events and public meetings are regularly held to keep communities informed.

Comment 78

That being the case, why is the company NOT conducting public meetings in the township of Tumby Bay, given that a significant component of the project resides within the District Council of Tumby Bay and potentially impacts on the ratepayers of the District.

With respect to the community consultative committees, the question of community representation given that the Company invited certain members to the table, versus a truly independent community based (elected) committee without formal members being employees of the mining company needs to be examined in detail.
Experience has shown the current committees to be an avenue for the company to provide its point of view, not for a robust debate of the merits or otherwise of the proposals.

**Other**

- "To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:
  
  o **Any identified material naturally occurring risks.**
  
  o **The status of material legal agreements and marketing arrangements.**
  
  o **The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.**
  
  o **No significant (high) naturally occurring risks were identified** during a whole of project risk assessment.
  
  o **Iron Road Limited has not yet entered into any formal marketing arrangement for the sale of iron concentrates and is currently progressing this area.**
  
  o **The Exploration Licence is in good standing with all legal obligations met. Regular meetings with state and federal Government agencies occur for the purposes of discussing required approvals and facilitating meetings with other stakeholders.**
  
  o **A Mining Lease and Program for Environmental Protection and Rehabilitation (PEPR) must be approved before the reserve can be extracted and are dependent on the approval of the Minister for Mineral Resources.**
  
  o **Iron Road has no reason to believe that the necessary Government approvals will be received within the timeframes anticipated in the DFS.**"

**Comment 79**

As mentioned previously there are at least four naturally occurring risks which the Company has failed to recognise:

a. the habitat of the protected Mallee Fowl,

b. the habitat of the Southern Right Whale,

c. the presence of radioactive materials and or heavy metals,

d. Regional ground water impacts.
3 April 2014

Mr Brian R March  
Information Officer/Spokesperson  
Eyre Peninsula Community Mine to Port Consultative Committee  
PO Box 95  
TUMBY BAY SA 5605

Dear Mr March,

I refer to your letter dated 28th March 2014 emailed to both myself and Tim Schoiz in relation to Iron Road’s upcoming information sessions on the Eyre Peninsula.

The purpose of these sessions is to provide community members with an update on the results of our recently completed Definitive Feasibility Study (DFS). This purpose was clearly outlined in our letters of invitation to residents and the corresponding advertisements in various Eyre Peninsula newspapers.

Iron Road implements various forms of communication in order to keep our stakeholders informed about the Central Eyre Iron Project (CEIP) and has hosted numerous public events on the Eyre Peninsula since 2011, including both information sessions and public meetings within the Tumby Bay District Council area. Open Day information sessions, where interested community members can ‘pop in’ to a venue and ask questions of the Iron Road staff in attendance, have proven to be both very popular and successful. We will have the same level of information available at these information sessions including fact sheets, maps and copies of the presentation given at the public meetings.

Finally, I note the numerous questions and comments you included with your letter. You appear to have misinterpreted and/or misunderstood the bulk of the information outlined in the company's ASX announcement dated 26th February 2014 in relation to the DFS. Misinterpretation may cause unnecessary anxiety and fear in the community and I therefore encourage you to attend one of our planned sessions. You will be able to receive the facts directly from Iron Road which in turn will assist you in providing correct information to your members. Alternatively, I understand that you reside in Adelaide and you may find it more convenient to schedule a meeting with the Iron Road team in our Currie Street office.

Thank you for your interest in Iron Road and the CEIP.

Yours sincerely,

[Signature]

General Manager

CC  
Mr Trevor Smith, CEO, District Council of Tumby Bay and elected members  
Mr Peter Treloar MP, Member for Flinders  
Mr Geoff Knight, CEO, DMITRE  
Ms Eleanor Schoitz, Mayor, Wudinna District Council  
Ms Heather Baldock, EPNRM Board  
Ms Sally Richardson, Tumby Bay and District Community Consultative Group  
Ms Helen Lamont, Independent Chair, CEIP Community Consultative Committee
EYRE PENINSULA COMMUNITY MINE TO PORT CONSULTATIVE COMMITTEE

PO BOX 95,
TUMBY BAY, SA 5605

4th June 2014

Ms Helen Lamont
Independent Chairperson
CEIP Community Consultative Committee

Dear Ms Lamont and Members of the CEIP CCC,

Further to my recent correspondence raising questions in relation to the recently released Iron Road Definitive Feasibility Study (DFS), I note in the May edition of “Granite” some attempt has been made to answer some of the concerns raised.

Prior to addressing the specifics, it is appropriate to provide the context in which the questions were asked.

The DFS document is simply a prospectus issued by the Company to the market with the view of attracting investment dollars to further the project. The document is what is called a 'price sensitive document/announcement' on the Australian Securities Exchange (ASX), a document which is issued under the rules and conventions of the Exchange et al.

What it is not is a formal application for project assessment under the Development Act (Section 46 Major Development) i.e. it is not an Environmental Impact Study; it is not an application for a Mining Lease under the Mining Act, 1971, nor is it a referral to the Commonwealth under the Environmental Protection and Biodiversity Conservation Act (commonly known as an EPBC referral).

All of the above processes require full scientifically based evidence in support of the contentions made in the applications and all are subject to public scrutiny.

Given the publicity surrounding the DFS, it is not unreasonable to review its content and to raise issues accordingly. It is called due diligence.

For the Company to claim misinformation and misrepresentation is to be expected in light of the fact that no scientific data to verify or dismiss the questions/issues has been provided to the public or to the CEIP CCC.

The questions raised have legitimacy in the absence of scientific evidence to the contrary.

On the issue of regional hydrology, the fact remains no evidence has been provided to substantiate the claim made in the recent article. No evidence has been released that has been subjected to peer review and or Government scrutiny other than some assertions made about the hydrology around the perimeter of the proposed mine site at Warramboo. In addition, no official evidence has been provided to support or deny environmental impacts associated with the now proposed bore field in the Kielpa region or its impact upon the regional hydrology associated with the Eyre Peninsula Water Allocation Plan currently under review by the Eyre Peninsula Natural Resource Management Board (EPNRM) in association with SA Water and the Department of environment, Water and Natural Resources (DEWNR). Until such evidence is released the credibility of the statements made by a public relations officer(s) are without foundation.

The DFS identified the presence of heavy metals, copper and manganese in the ore body. Given the fact that no EIS has been provided for public scrutiny, the questions therefore remain valid. In the absence of scientific evidence to the contrary, the risk to public health and to employee health (under the SA Work, Health and Safety Act, 2012) let alone the wider environmental risks remain unanswered. Claims by the public relation officer(s) are again not credible.

The question posed, on the basis that heavy metals are synonymous with the geology of the Gawler Craton, was simply what are the concentrations of the metals so identified?

The rationale behind asking the question was based upon the knowledge that Arsenic and Chromium (VI) are known carcinogens; “some studies of environmental exposure to manganese have suggested possible links to...
neurodegenerative disease" (Lazenby D: Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Headland, pp52, 2007); the known toxicity of copper in concentrations above trace levels in cereal production land and its significant toxicity in the marine environment. It is noteworthy that no reference to the presence or otherwise of Cadmium was reported in the aforementioned document.

The identification of Lead and Strontium leads to the question of what isotopic form of Lead and Strontium were identified as both Lead and Strontium have radiogenic properties arising from various radioactive decay sequences indicative of the presence of Uranium and other radioactive materials?

It is reasonable to seek a scientific response to these questions given that the Gawler Craton has known occurrences of Uranium and other similar materials within its geological makeup. It is also known that Uranium exists in a nearby paleochannel thereby strengthening the argument for full disclosure with respect to the presence of radioactive materials in addition to the Radon and daughters of Radon known to be released in mining activities within the Gawler Craton.

The significance of these questions lie in the fact there is the real possibility of these materials being deposited on the waste rock dumps thereby exposing these chemicals to leeching following rain or dust suppression with (hyper-saline) water and or windblown onto neighbouring properties. The potential contamination pathways need to be identified and mitigated against.

It is understood (but not confirmed) that landowners are not able to obtain insurance in the event Uranium or other radioactive materials being present on their properties.

There are also significant questions to be asked with respect to the delivery of contaminated (be it radioactive material, heavy metals or iron ore dust) grain to a silo for export.

In the worst case scenario, who stands the economic loss?

**The potential iron ore dust in sheep wool which can greatly devalue the product;**

The Iron Road response "The potential for this to occur is not credible", needs to be reviewed in light of the findings of the State Government's Natural Resource Committee report on dust associated with the mining activities around Iron Duke and the impact upon the environment, including impact upon wool production.

This view was further supported by Senator Xenophon 20 May 2014.

“Iron ore dust will get into the wool, making it unsaleable – ask the farmers adjacent to Iron Duke about their wool; they can’t sell it and you could scour pots with it. Iron ore dust will taint our wheat, lowering its value. Iron ore dust will get into our waterways affecting our underground water supply.”

**The potential ingestion of heavy metal laden dust by grazing stock which can cause significant health problems and additionally a problem for sale at market, etc.**

Iron Road’s response "The dust is nontoxic and the potential for this to occur is not credible" is contestable.

There is a real need to identify the contamination cycle arising from fugitive dust be it generated from the activities associated with the mining process; the crushing and separation processes; the dumping of rock onto the waste rock piles; the transportation of the ore to the port and the handling of the ore within the confines of the Port, and its impact on nearby agricultural land/pastures/crops.

The potential exists (in the absence of scientific evidence to the contrary) for the pastures to be contaminated by iron ore dust and whatever else is contained in the dust (depending upon the location). In the event that the dust contains elevated concentrations of heavy metals what are the implications for grazing stock in the contaminated area where these animals may ingest contaminated pastures over a significant period of time?
Heavy metal contamination can be detected and with the market place expecting clean green produce, contamination of this kind would not be tolerated.

In a similar manner, the DFS identifies that fact that there is a residual amount of silica in the processed ore. The fact remains that silica exposure is a public (and employee) health risk and recognised in legislation. Again the publicist view is not credible.

The argument is also true for the issue of the impact of fugitive dust from the mine; from the transportation of the ore and ultimately at the port storage facility. The loose covering of the transport wagons from the mine to the port storage facility is not the solution, sealing the containers is, thereby providing an engineering solution to removing the identified risk. Significant bodies of evidence exist to support our contentions of the health risk associated with iron ore dust and its contaminants.

It is assumed that appropriate site specific meteorological studies have been (or will be) undertaken over a period of one year (notable the mine site, the processing site, the port storage facility) to determine the dust dispersion associated with each activity, modified accordingly as the waste rock dumps gain height and so affect the dust distribution pattern (and potentially the rainfall pattern alike).

In a similar manner, the management of the impact of an estimated reported 400M tonne of salt brought to the surface over the life of the mine needs to be addressed through the EIS process where the scientific and engineering details of how the Company intends to mitigate against the potential migration of salt (in solution or in dust) to neighbouring properties, will be disclosed.

The DFS includes the statement "various community consultative committees have been established" (underlining added). In the absence of evidence to the contrary, there is only one CCC, despite having drawn attention to the fact that the existing Committee's sphere of influence is confined to the area within Wudinna and Warramboo. The Company is required to seek a community (social) licence for the project, the project being the complete proposal not just that confined to Wudinna and Warramboo. The occasional information forum as conducted recently is not a replacement for a duly constituted Community Consultative Committee(s) in the transport corridor or the Port Neill/Tumby Bay precincts.

The serious questions surrounding the rehabilitation of the proposed Warramboo mine need to be raised. Experience has shown this is one of the most contentious issues of mining approvals. Examples exist where the miner has gone and the resultant problem has become the province of the Government (ie the taxpayer) to rehabilitate (the Barunga Mine near Nairne) which is an ongoing project a significant cost ($millions) to the taxpayer.

In the case of the Warramboo mine(s), the rehabilitation programme will need to be significant, given the size of the actual mine hole, the height of the overburden/waste rock dumps and the contamination of the site with the estimated 400M tonnes of salt, not to mention the volume of water that will eventually fill the hole from the aquifer (assuming of course, some water actually remains in the aquifer despite the dewatering programme). This water will be hyper-saline and will have the added problem of being contaminated by materials exposed as a consequence of the mining activity. It is highly probable that the concentration of dissolved salts will now contain increased levels of heavy metals, increased concentrations of copper and manganese and potentially increased concentrations of dissolved uranium or daughter nucleides. A conservative estimate of the volume of water required to fill the hole over time would be some 4 SydHarbs.

Finally, the DFS provides an indication of the future through the identification of the ore reserves across the tenement thereby providing a future guarantee for the investor. Is this a single mine proposition?

In conclusion, the focus on the DFS has provided the opportunity to raise significant questions with the expectation that answers based upon scientific and engineering evidence will be provided.

The answers to the questions raised before are still to be provided.

Your assistance is sought in encouraging the Company to provide the evidence behind the responses made to date in the Granite, thereby providing credible responses to the public as opposed to spin.

We thank you for your consideration of the issues raised.
Yours sincerely,

Information Officer
Eyre Peninsula Community mine to Port Consultative Committee
a sub-committee of the Tumby Bay Residents and Ratepayers Association Inc. and in consultation with the Port Lincoln Residents & Ratepayers Association Inc.

FOOT NOTE: A copy of this correspondence has been sought by the Managing Director, Iron Road. Apparently he original went 'missing' from the CEIP CCC files. (20-01-2015)

Reading material:

Hazard of Heavy Metal Contamination

http://bmb.oxfordjournals.org/content/68/1/167.full

Heavy metals and food contamination
http://ec.europa.eu/food/food/chemicalsafety/contaminants/cadmium_en.htm

Toxic Effect of Heavy Metals in Livestock Health: Veterinary World, Vol 1(1) 28-32, 2008

Determination of contaminant levels in forage grasses, Dareta Village, Nigeria: Archives of Applied Science Research, 2013, 5(3):229-236

(Google: Heavy metal contamination in animals)

(SA Parliamentary Committee, tabled Nov 2013)

The Senate: Community Affairs Reference Committee: Impacts on health of air quality in Australia, August 2013

Best Practice Environmental Management in Mining, Dust Control: Environment Australia, Department of Environment, 1998.
Central Eyre Iron Project (CEIP)

What it is and what it is not...

Iron Road appreciates that Eyre Peninsula communities want to understand the CEIP and how it will affect everyone’s lives.

Our community team members, Tim Scholz and Tilly Smart, have worked hard to provide as much information as possible to develop district-wide understanding as well as to seek input on the CEIP.

Significant matters need to be discussed with any major development. Project impacts must be taken seriously and addressed through a process of credible scientific assessment, evidence-based decision-making and respectful discussion. Furthermore, studies and history indicate that mining and agriculture can co-exist.

But we should want more than coexistence; we should aim for appreciation and understanding of all industries.

We are concerned that the ‘publishing’ of inaccurate or misleading information by parties other than Iron Road may cause unnecessary anxiety. Therefore, this month we address some of the assertions that have been made.

The CEIP development will result in the destruction of a sustainable agricultural industry

The development of an open-pit mine cannot avoid some land disturbance. In the case of the CEIP, inclusive of the mine, infrastructure corridor and port, the loss will be approximately 0.4% of agricultural land available across the Eyre Peninsula.

However, the CEIP also includes the creation of a new standard gauge rail and port logistics system.

A globally significant grain handler has taken up the opportunity for potential third party access and in doing so signed a memorandum of understanding with us to examine grain exports through our planned system. Initial discussions indicate that savings to farmers may be in the region of $10 per tonne of grain.

The CEIP development will result in the destruction of, if not a major disruption to, the regional hydrology of the area

The hydrology (surface water movement) will be modified in the immediate area of the mine due to the open-pit mine and stacked waste rock/tailings. Iron Road has designed these structures so that no surface water run-off will leave the mining lease.

We believe the statement is meant to discuss ‘hydrogeology’, which is the study of underground water movement. Extensive groundwater investigations by experienced hydrogeologists, coupled with sophisticated, regulator approved computer models, clearly demonstrate that there will be no impact to any potable water sources such as the Polda Basin (a subset of the Musgrave Prescribed Well Area).

Much work has been completed in this area and detailed information on those studies will be provided to the regulator in our approval applications.

The CEIP development has the potential for contamination of 150km of prime agricultural land adjacent to the transport corridor through fugitive dust containing free silica (a known carcinogen of
CHAPTER MLP 11

"As mentioned above, fauna surveys were undertaken at five sites across the mine site providing a representative snapshot of the habitat types across the site. Sites were selected as representative of the best habitat condition within the mine site rather than typical habitat across the site to maximise survey return for effort and to highlight the presence of ecological values (p11-5)

*It is unlikely that the Lake Warramboo Complex provides critical habitat to common fauna or conservation significant fauna. (s11.3.7, p 11-21)*

Comment 80

QUESTION 42

Given the extent of the proposed Mineral Lease, the question is why only 5 survey sites within a very limited area, 3 of which surround the HA 869 Heritage Reserve?

The limited view provides no confidence in the detection and identification of fauna that exists over the balance of the proposed lease, especially the southern aspect that is in the near vicinity of the Hambidge WPA.

QUESTION 43

Is the limitation of the survey due to the fact that the majority of the land in question is Exempt Land (sect 9A (1), Mining Act 1971) and no waiver of exemption exists granting access to undertake mining activities thereon?

QUESTION 44

The question therefore being, when will the comprehensive fauna and flora survey relevant to the whole site be undertaken and the results subject to public scrutiny?

A desktop review is just that, a literature review of probable species likely to be in the habitat of interest. The application must be supported by empirical evidence to substantiate claims made over the whole lease area, not assumptions made on limited surveys.

It is noteworthy that the Application is devoid of any reference to the East meets West Naturelink policy launched by the then Minister for the Environment, J Weatherill, MP.

"Target 3.2 of South Australia’s Strategic Plan outlines the government’s commitment to establish five biodiversity corridors linking public and private lands across the state by 2010. Our long term vision is to have five extensive corridors of healthy and diverse habitat across land and sea in 100 years time. The East meets West NatureLink is the crucial first step in achieving that goal.

The East meets West NatureLink spans three of South Australia’s biomes, across which species and ecological processes function. It is important that connectivity is conserved both within and between the Arid, Mediterranean and Marine biomes”

The proposed mining lease imposes a significant physical barrier between the Warramboo Lakes network and the Hambidge WPA.

Clearly the Application is deficient in its presentation in this regard.

Comment 81

11.3.4

Desktop Survey

It is noteworthy that no mention has been made of a reported Mallefowl sighting in the desktop survey.

It is noted that the data contained in Fig 11-2 is not dated, so its currency is questioned.

It is noted continued reference to the Lake Warramboo complex is made. It is unfortunate that the application lacks specificity in this respect, given the considerable area occupied by the lake system. The southern extremity of the system is located a short distance (1.2km) to the north of the proposed Mineral Lease.
11.3.7: "The majority of vegetation within the mine site is moderate to poor condition", based upon what empirical evidence, given only 5 sites identified on Fig 11-1. Clearly this is not a representative sample of some 1118 hectares of vegetation identified over the site (of 8000Ha)?

Figure: Nantuma Road in fore-ground with Kimba-Warramboo Road in top third of image.

What the satellite image shows is that there are significant pockets of 'native vegetation' together with large tracks of vegetation on top of sand ridges dispersed over the proposed mine site.

What is significant is that the tracks of vegetation provide wild life corridors from the North West to the South East, the latter being in the direction of Hambidge WPA. As mentioned in this response, the mine will provide a significant barrier to animal migration from the Warramboo Lakes area to Hambidge.

Figure: More detailed view of clusters of vegetation and to the tracks of vegetation across the ridges. It is also noteworthy that significant blocks of vegetation will be covered by the waste rock dump (IWL), creating a further barrier for animal migration across the site.
The minimalistic approach is clearly insufficient to allow an 'informed decision/view' to be achieved.

It is RECOMMENDED that the field survey be extended to a representative number of sites across the whole of the proposed Mineral Lease and especially in a number of sites on the southern boundary given the proximity to the Hambidge WPA. Such a survey would provide a degree of confidence that the objectives of the East meets West Naturelink policy are addressed and met.

11.5

“For native fauna and pest species, a number of potential impact events (listed below) are not considered further as there is no confirmed linkage between source, pathway and receptor, as demonstrated in Appendix C. These include:

Loss of habitat at the Lake Warramboo complex as a result of reduced groundwater elevation due to pit dewatering, as this is not expected to harm the limited environmental values (PIM_11-14). This is discussed further below.

Stress or mortality of native fauna as a result of poor water quality within eventual pit lake, as the water within the pit lake will not contain any contaminants of concern (PIM_11-20, Chapter 19)” (page11-13)

Comment 82

The first ‘assumption’ concerning the reduced ground water elevation due to pit dewatering is not expected to harm the limited environmental value is based on what long term research program?

What fails to be recognised by the applicant in presenting the last comment "as the water in the pit lake will no contain any contaminants of concern", is to consider the toxicity of the hyper saline water that will eventually fill the 'lake' AND the potential heavy metal contamination arising from the exposure of ore containing heavy metals, etc. as disclosed elsewhere in this report.

In addition, the applicant fails to consider the weathering of the exposed rock face which may well produce acid which will contribute to accelerated weathering of the rock face as well as contaminating the water.

11.5.1 Altered Habitat at Adjacent Saltpans

“Groundwater modelling undertaken as part of the environmental impact assessment for the proposed mine indicates that groundwater levels beneath the Lake Warramboo complex north of the mine site boundary may drop by 1 to 5 m as a result of pit dewatering required to access the mine pit (refer to Chapter 19 Groundwater for further details). This has the potential to impact the ephemeral lake complex including the existing hydrological regime and any groundwater dependent ecosystems that provide fauna habitat.

For an SPR linkage to exist, the source and pathway must result in a negative impact (harm) to a receptor (an environmental value). The current elevated groundwater level at Lake Warramboo is causing harm to the ecological values that remain in this disturbed landscape. A reduction in groundwater level will not cause increased harm to the ecological values. Instead, it is plausible that a lowering of saline groundwater may enable the stressed and senescing shrub (boree) and mallee vegetation at the site to rejuvenate, reduced salinity levels in soils may enable viable seed stock to propagate and reduced soil salinity (and therefore surface water salinity) may result in a higher diversity of macro-invertebrates during periods of inundation. A reduction in groundwater levels is therefore not considered to be a viable pathway for adverse impact upon the Lake Warramboo complex. Consequently, this has not been assessed further as an impact event.” (page 11-24)

This reflects a blatant disregard for the environment. The existing flora and fauna will be dramatically impacted by the loss of Groundwater Dependent Ecosystems (GDE) upon which food and shelter is currently accessible due to the water table. Dewatering will significantly impact the current environment. Without hydrological and ecological study of the wetlands the assumptions of impact are baseless.
Comment 83

11.6.1
Dust (Chapter 15) and Noise (Chapter 16) impacts
It is noted that additional work regarding these specific issues is scheduled for 'future work'. As mentioned previously ALL 'future work' is not subject to public scrutiny. In this respect the application is INCOMPLETE and should be returned to the applicant to be completed.

It is noted the risk assessment with respect to the reduction of habitat is claimed to be of low risk. The problem with this assessment is that it is based upon a very limited analysis of the vegetation across the proposed site. There is no confidence in the 'assumption' that it is applicable across the 8000 ha site.

The issue of fugitive dust impact upon native vegetation is basically dismissed at this point in time, although it is raised to a limited extent in Chapter 15.

The outstanding question being what is the long term impact of fugitive dust upon native vegetation remaining within the mine site and that impacted by dust outside of the boundary, given that the dust has a very high probability of containing significant concentrations of salt, heavy metals including copper, etc. which are known growth inhibitors?

Comment 84

11.7.1
Unauthorized clearing of vegetation
There should be zero tolerance to unauthorized vegetation clearance.

The risk assessment therefore is reflective of the contempt the applicant shows towards any approval given when it considers unauthorized activities as 'low to medium' risk.

QUESTION 45
Who audits the applicant with respect to compliance with the provisions of the approvals granted in this respect?

Comment 85

11.7.2
This section fails to recognise the presence of Malleefowl in the area. The risk assessment has no credibility given the very limited area of the survey.


Comment 86

11.7. and 11.7.8
Rehabilitation impacts
It is proposed to rehabilitate some 3000Ha of the waste rock facility (WRF), but, having regard to the dust suppression methodology and the salt content of the process tailings, confidence in what is being suggested is very low. Significant salt scarring is anticipated to the point where growth is not sustained. Added to this is the potential for copper present in the waste to also inhibit growth.

The proposed future work (trial and error) on the rehabilitation plan does not engender any heightened level of confidence in a solution being found and implemented. Further, future work is not subject to public scrutiny.

It is RECOMMENDED that the application be not approved until a satisfactory solution is devised to meet the rehabilitation requirements (including the potential to return to agriculture) is verified (and peer assessed).

This will ensure that native flora and fauna species will be sustained.
11.7.9
SEB offsets (page 11-38)
The assumption is made that all SEB will be returned to this project.

It is noted that the EPNRM Board is assumed to have some control of this process. This is incorrect as the Department of State Development has control of the process having a delegation from the Native Vegetation Council in these matters.

QUESTION 46
Is the extent of the SEB offset given the 1118Ha of native vegetation on the site?

It is noted that this question appears to be in the ‘future work’ basket. That being the case, it is RECOMMENDED that approval be not granted until this issue is dealt with and the outcome subject to public scrutiny.

Comment 88
Table 11-7 Compliance with SEB Plan
Where is the Plan? Future work that is not subject to public scrutiny!

It is noted the intention to carry out annual vegetation audits.

The questions here relate to the location of the survey points and the actual timing of the 'annual audit' noting that some native vegetation cycles do not occur on a specific day or week (vide native orchids).

It is RECOMMENDED that the audit process be undertaken in the known timeframes of when native plants are likely to be present, especially species such as orchids.

A once a year scenario is considered inappropriate.

It is noted the intention to carry out annual weeds audits.

The questions here relate to the location of the survey points and the actual timing of the 'annual audit' noting that some weeds do not occur on a specific day or week (vide native orchids).

It is RECOMMENDED that the audit process be undertaken in the known timeframes of when weeds are likely to be present, especially species occurring after summer rains and those which are winter weeds.

A once a year scenario is considered inappropriate.

Comment 89
11.7.10
Control and Management strategies will be in place (Chapter 12)
As mentioned previously in this response any issue referred to 'future work' is indicative of the incompleteness of the application and as such the application should be returned to the applicant for completion so that public scrutiny can be given to the 'complete' picture and not a part there-of.

In addition to the above commentary, further information/attention pertaining to the environmental aspects of this proposal is contained in the Associations’ response to the EPBC referral 2014/7349 reproduced below.
RESPONSE TO:

ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT (EPBC) REFERRAL 2014/7349

CENTRAL EYRE IRON PROJECT MINE SITE.

Submitted on behalf of:

Port Lincoln Residents & Ratepayers Association Inc.
Tumby Bay Residents and Ratepayers Association Inc.

Contact details:

The Secretary
Port Lincoln Residents & Ratepayers Association Inc.
PO Box 1948
Port Lincoln
South Australia 5606

The Secretary
Tumby Bay Residents & Ratepayers Association Inc.
PO Box 95
Tumby Bay
South Australia 5605
The proposed Action:

What is the Central Iron Ore Project?

“Iron Road Ltd (Iron Road) is proposing to develop the Central Eyre Iron Project (CEIP) – a long life iron (magnetite) mining, beneficiation and export operation on Eyre Peninsula in South Australia.”

“The CEIP is a collection of three deposits, namely Warramboo, Kopi and Hambidge” (Jacobs Ecological Survey, pp8)

“Considerable resource growth expected over conservatively modelled 25 year mine life based on significant additional Exploration targets already identified.

Base + Growth: “Assume initial base case production as above until the end of the fifth year of operations, where production increases to 24 million tonne per annum from additional resources and continues at that rate until the middle of the 28th year. This scenario is based upon future production being sourced from Inferred Resources and Exploration Target detailed in the Appendices of this Report.” Iron Road Definitive Feasibility Study Feb 2014 (as released to Australian Securities Exchange)

In answer to the question, the Central Iron Ore Project is not one mine, but a series of proposed mines across the tenement EL4849 as indicated in the following map.

Image constructed from Iron Road DFS and SARIG database

It should be noted that Iron Road has been granted an addition to the existing tenement being that section east of EL4588 to the boundary of the Hambidge Wilderness Area, an additional 30+ square kilometres in area.
Item 2.6: Public Consultation.

It is noteworthy of the range of consultation reportedly carried out by the Company over time.

Unfortunately, the question of how effective has this consultation been in the community, needs to be addressed.

1. The CEIP Community Consultative Committee (CEIP CCC).

In recent times the minutes (and Terms of Reference) of the CEIP CCC have been posted on the Wudinna District Council website. An examination of the content of the minutes will lead to the conclusion that there has been a paucity of information made available by the Company and a reticence of the Committee to respond to issues raised by the community. (http://www.wudinna.sa.gov.au/page.aspx?u=125&c=5008)

In February, Iron Road provided a range of information to the CEIP meeting, of which the following are relevant to this referral:

a) On the issue of salt: “in the most likely scenario of using a Borefield supply (the Kielpa borefield), the additional salt in the mining lease will be 6 million tonne (Mt) on top of the existing 480Mt which is an increase of approximately 1%”

The response continues with the calculation (“which will underestimate the volume of salt in the existing system”) in support of the 480Mt figure, inclusive of the assumptions made.

It should be noted that the calculation is devoid of the quantity of salt to be derived from the desalination plant to be located on site.

This gives rise to the environmental impact of such a huge quantity of salt to be deposited on the site especially in the context of seepage (especially from the rock dump) and salt laden dust as a result of evaporation and wind.

It goes further to question whether this site will be able to be rehabilitated with vegetation.

b) The Company presented the position (as at 20th February 2014) that the DFS document “is confidential and for investors only”, yet it was freely available on the ASX website and the reference was provided by the Company on 26th February 2014.

In response to a question about the physical nature of the surface soils compared to the mine rock, the response was “In the past we have heard some scaremongering by opponents of the project claiming that the mined rock is radioactive, contains acid forming materials and asbestos. It is important to note that the fresh rock and top soil is essentially quite similar (see table below) and shows the make up to be benign and containing insignificant amounts if any of the materials above.”

It is also reported that the Company claimed in a public meeting that the mined material dust is the same as that generated behind a tractor and cultivator.

It is unfortunate that the Company appears to lack the scientific background to differentiate between dust generated by cultivation of the top soil and that produced in the mining process which is the Precambrian formation (in the order of 4.5 Billion y.o.) being excavated and deposited upon the Quaternary strata (in the order of 2.6M.y.o to present day)

The information provided goes on to claim that there are no significant concentrations of heavy metals such as Lead (Pb), Copper (Cu) and Zinc (Zn).

Again, it is unfortunate that the commonly referred to heavy metals are Cadmium (Cd), Arsenic (As) and hexavalent Chromium (Cr), not those listed above. It is known that in similar deposit in the Gawler Craton, these do exist.
The unanswered question being, to what concentration do they exist and thence the contamination pathway to the environment when the material is mined? In addition, it is reported that manganese exists in the assay results. It is known that manganese has neurotoxic properties. Again at what concentration does manganese exist in the ore body and what contamination pathway exists once mined?

These are the immediate questions. The longer term questions revolve around mine’s end and the release of heavy metals into the aquifers.

Following an article in the Advertiser, 11 October 2014, page 80 in reference to Oakdale Resources and their activities on Eyre Peninsula, research was undertaken to discover the nature and extent of this venture.

The Australian Securities Exchange provided the information that Oakdale Resources (OAR) were not currently trading as well as information pertaining to a share offer prospectus.

Of interest was the precise location of the Oakdale Resources tenements in relation to the Iron Road tenement and the information provided from their drilling program.

Oakdale Resources (OAR) provided drilling program data and detailed independent geological assessment in a share offer prospectus, available on www.oakdaleresources.com.au.

This Gawler Craton geological data is the same geological structure as the Iron Road deposit.

Pages 47-48 and Figures 5 & 6 detailed the findings of the Malache prospect drill holes BLDD04 and BLDD12 wherein, “The cordierite-sillimanite bearing gneisses, possibly altered and metamorphosed felsic volcanic, can contain up to 25% pyrrhotite, secondary pyrite and trace chalcopyrite”.

Such an inconsistency to the disclosures offered by Iron Road for the impacts to the environment and the EPBC listed flora and fauna obligates a question for the presence or otherwise of similar pyrite concentrations within the Iron Road Warramboo deposit.

It is these pyrite containing ores that upon decomposition give rise to environmental impacts from acid soil et al. An example of the environmental damage arising from the decomposition of pyrite ores can be found in the Adelaide Hill at the Nairne Pyrite Mine (Barunga) rehabilitation site.

Information posted in the May 2014 edition of the Granite:

“The CEIP development has the potential for contamination of 150km of prime agricultural land adjacent to the transport corridor through fugitive dust containing free silica (a known carcinogen of...not only iron ore but also 3-4% the respiratory disease silicosis) across the seasonal prevailing wind dispersion areas (the community and towns)”

The response to which was:

“The potential ingestion of heavy metal laden CEIP dust by grazing stock, which can cause significant health problems and additionally a problem for sale at market etc:”

To which the response was: “The dust is non toxic and the potential for this to occur is not credible”.

A response to the Company claims, inclusive of evidence to the contrary, was provided to the CEIP CCC for their consideration. (Exhibit #1)

No response has been forthcoming from the CEIP CCC on these issues
There has been no inclusion of a study for the potential impacts to EPBC listed flora and fauna from these environmental pollutants.

It is noteworthy that the CCC does not represent the full extent of the CEIP Project. It does not represent those impacted by the transport corridor or the proposed port.

2. Tumby Bay District Community Consultative Group

There is a quasi representation of the Tumby Bay community through the Tumby Bay District Community Consultative Group, but again, when questions have been presented to this group, the responses have not been forthcoming.

The Tumby Bay District CCG presents to be a commerce based interest group and not a broad based community representative group.

3. Eyre Peninsula Community Mine to Port Consultative Committee

In 2013 the Tumby Bay Residents and Ratepayers Association Inc in concert with the Port Lincoln Residents & Ratepayer Association Inc formed the Eyre Peninsula Community Mine to Port Consultative Committee (EPCMPCC). The role of the Committee was to raise community awareness on issues pertaining to mining et al. A series of four seminars were held in Warramboo, Rudall, Port Neill and Tumby Bay. All but the Port Neill seminars were well attended.

The Committee also undertook an analysis of documentation in the public arena (SA Government Gazette Notices; Australian Securities Exchange announcements; press statements etc) pertaining to mining companies active on Eyre Peninsula. Upon release of the Definitive Feasibility Study by the company in February, a detailed examination of its content was undertaken and a series of questions formulated. In April 2014, the Company embarked upon a series of public meetings and drop in sessions across the region.

The EPCMPCC Committee wrote to the Company (Exhibit #2) seeking that the ‘drop in session’ planned for Tumby Bay be changed to a full public meeting whereby the public could hear the questions and the answers provided by the Company representatives. In addition a series of ‘questions on notice’ were provided to facilitate the discussion. The Company refused the request. The questions on notice, to this day, have not been answered.

Around the same time, the Federal Government sought submissions to its white paper on Agricultural Sustainability. One of the issues for which information was sought related to impediments on agriculture. The Committee made a submission to the Enquiry based upon the impact of mining on the sustainability of agriculture, drawing upon three case studies, one of which was the potential impact of the Iron Road Central Eyre Iron Project. (Exhibit #3, pages 1 to 7/45)

The Company took exception to the submission and wrote to the Committee complaining to be misrepresented et al. The Company failed to address the issues raised yet again.

The Company did invite the Committee’s Information Officer to a private session in their Adelaide Office, which was declined on the basis that the questions asked were framed in the context of the public interest with the expectation that they would be answered in the public arena and thereby subject to public debate.

Item: 2.7 Staged Development or Component of Larger Project
The statements made by the company in Item 2.7 require clarification.

The Company states:

"The proposed CEIP mine is a component of the CEIP Project", and “that the two referrals are geographically separated ensuring there is little potential for significant cumulative impacts”.
Clearly this is disputable as the impacts arise from a single origin, namely the CEIP project.

Whilst the Company has declared that the action is a part of another action, namely the infrastructure corridor (EPBC referral 2014/7285), it is also part of a greater mining enterprise spanning some 700 square kilometres involving not only the Warramboo site, but also Kopi and Hambidge as detailed in the Definitive Feasibility Study (26 February 2014) as released to the Australian Securities Exchange.

Item 3.2: Nuclear Actions et al.

The Company in answering 3.2.1 is the action a nuclear Action has responded in the negative.

It is noted in the DFS document, no analytical work was reported on the presence or otherwise of uranium, thorium or similar nuclides. The presence of lead and strontium was reported.

The Company has repeatedly been asked through direct correspondence and through correspondence to the CEIP Community Consultative Committee and the Tumby Bay District Community Consultative Group, the two groups reportedly to be community consultation groups by the Company, without a response. (refer Exhibit #2)

In the absence of any specific information on uranium et al being declared in the DFS and accompanying JORC 2012 reporting documentation, the question has been asked to the relevance of the analysis of Strontium and Lead in the documentation.

It is well known that isotopes of lead and strontium are the decay products of uranium and thorium et al and can be used as markers for the existence of the radioactive substances. When asked questions on the presence of isotopic forms of lead and strontium, no answers were forth coming.

It is also known that the Gawler Craton, within which this deposit is located, hosts uranium.

In addition, there are paleochannels in the area and it is known that the paleochannels also host uranium et al.

The following illustrates the potential for uranium to be present in the area:

**Corrobinnie Palaeochannel Project – Uranium**

| Location: | Wudinna District, Eyre Peninsula, South Australia |
| Geological: | Gawler Craton Archaean- Proterozoic basement and Tertiary |
| Province: | Palaeochannels |
| Commodity: | Uranium (Copper and Gold) |
| Ground: | 12 ELs totalling ~5,270 km² |
| Holding: | |
| Status: | (1) Adelaide Resources 40% and Quasar Resources earning 60% in Joint Venture over portion of the tenements. |
| | (2) Adelaide Resources 90% of EL 3564 and option over remaining 10%. |

**Project Summary**

The Corrobinnie Palaeochannel Project is a joint venture between Adelaide Resources and Quasar Resources, an affiliate of Heathgate Resources who operate the Beverley uranium mine in the Lake Frome region of SA. The joint venture applies to the Tertiary cover in 5265 sq kms of tenements containing sections of three palaeochannels, (Narlaby, Yaninee and Thurlga), with Quasar able to earn a 60% interest for $3 million expenditure over 4 years starting January 2007. The joint venture applies to only 3058 sq kms of the underlying basement, with the remainder retained 100% by Adelaide Resources, (or 90% in the case of EL 3564).
Exploration is targeting roll front uranium deposits developed at reduction-oxidation boundaries in palaeochannel fill sediments. The uranium is inferred to be derived from erosion of uranium-enriched Hiltaba Suite granites intruding the underlying basement. The Narlaby and Yaninee palaeochannels were explored for uranium in the late 1970s and early 1980s, and anomalous uranium was found to be widespread and associated with the mixed oxidised clays and sands and reduced sediments containing carbonaceous material making up the palaeochannel sediments. This early exploration phase was terminated prematurely in the early 1980s following Government policy change, but not before the discovery of the Yarranna uranium deposit in the Narlaby palaeochannel downstream and to the west of the Company’s tenements.

The Thurlga palaeochannel, draining to the north into Lake Gairdner, was recognised more recently, and has no history of previous uranium exploration.

Palaeochannel exploration under Quasar Resources management is proceeding, with initial reconnaissance drilling directed at both confirming the results reported by early exploration, and at mapping out the extent of the palaeochannel fill and the distribution of the favourable sedimentary facies within them. This work will have the benefit of Quasar’s proven exploration track record and will employ state-of-the-art technology such as the PFN (Prompt Fission Neutron) logging tool for direct in-situ uranium analysis. This will avoid the problems associated with using gamma probes for uranium estimation (or eU3O8) where there is radiochemical disequilibrium between uranium (U3O8) and its decay products.

Reference can also be made to the DIGIMAP00002 paleochannel map.pdf (EXHIBIT#4) which outlines the ‘Palaeodrainage and Cenozoic Coastal Barrier of South Australia’ (DMITRE August 2012). Further, no reference has been made to the existence of radon arising from the actual mining operation.

ADDITIONAL INFORMATION FOR CONSIDERATION:

1. Attached is a copy of “Petroleum and Geothermal in South Australia – Polda Basin” (DMITRE). (Exhibit#6)

Your attention is drawn to the fact that the Petroleum Exploration Licence (PEL 126) overlays the Iron Road tenement EL4849 on the western side of the Hambidge Wilderness Park, further complicating the environmental impact in terms of habitat impact and potentially ground water impact. (Exhibit#6, figure 4)

Clearly what is not declared is the cumulative impact of the actions of Iron Road and of those undertaken within the PEL.
“Nature Links – East meets West Nature Link Plan, Implementing South Australia’s Strategic Plan”; Department for Environment and Heritage, South Australia.

“The East meets West Nature Link Plan outlines a bold direction to enable plants, animals and ecosystems to survive, evolve and adapt to climate change” (Jay Weatherill, MP)

The Referral fails to acknowledge the existence of this Plan and the potential impact the Central Eyre Iron Project would have upon EPBC listed flora and fauna.

In the absence of evidence to the contrary, the development of the Warramboo mine alone has the potential to change the climate in the immediate vicinity, given the creation of the 6.2km long by 2.5 km wide hole (which will ultimately fill with hyper-saline water at mine’s end, together with other contaminants such as heavy metals and or radioactive materials that leach from the exposed Precambrian rock) and the 3km+ long by 135 metre high rock dump.

There has not been modelling to recognise the climatic and environmental impacts generated by the creation of man made permanent lakes and elevated terrain.

Fugitive noise and dust generated and dispersed from elevated origins have not been modelled to determine EPBC listed flora and fauna impacts.

In addition, the mine would provide a physical barrier to any migratory fauna pathways that currently exist (but not identified) as well as a barrier to any wind borne seeds.

Additional impediments relating to the balance of the project (Kopi and Hambidge) are clearly not dealt with in the baseline study, thereby raising the question of the credibility of the current baseline study to adequately describe the project.


It is noted that the 2005 edition of the Plan is referenced in the Bibliography of the Report.

The Report has failed to give due recognition to the Recovery Plan, and in particular the activities that have been undertaken on Eyre Peninsula, especially the fox baiting programme.

Furthermore, the Report fails to acknowledge a recent sighting of Malleefowl in the Warramboo region, given that it appears to have been written in 2012 and not updated.

The following sighting was sourced from the Australian Living Atlas website:

www.ala.org.au
Leipoa ocellata
Malleefowl
Observation: 2013-11-14 13:39
Added: 8 months ago
Nantuma Road, Warramboo SA 5650, Australia
Lat: -33.2908861
Lng: 135.6928556
Coord source: camera/phone
Malleefowl recorded November 2013, Nantuma Road, Warramboo, South Australia

Commentary on the ECOLOGICAL STUDY in support of the Referral (Jacobs)

Executive Summary:

This baseline study relies heavily on the ‘desktop’ analysis of various datasets and a field survey of 5 days in October, 2011.

It represents a snapshot pertaining to the Warramboo component of the Central Eyre Iron Project.

It makes NO reference to the total picture as described in the Definitive Feasibility Study (Feb 2014) as released to the Australian Securities Exchange.

The Environment:
“The vegetation condition across the study area is heavily influenced by significant clearance and agricultural practices immediately adjacent to, and often completely surrounding, each patch of native vegetation” (para 2, p6)

Comment: This is but stating the obvious, given the history of agriculture in this area. The remnant stands of native vegetation are being managed by the current farming community to avoid the complete destruction of this important habitat.

The report draws attention to the “salt affected vegetation where the saline groundwater table was elevated”. What appears to be overlooked in the discussion is the fact that area supports a number of significant wetlands, albeit, saline wetlands, with their own unique ecosystems.

The presence of the Heritage Agreement (869) stand is testimony of the community which continues today in the attitude of current farmers in the area.
It is noteworthy that this stand of some 250 hectares will be destroyed as a consequence of the proposed action. It is also noteworthy the conclusions drawn “vegetation observed throughout the study area was mature with little evidence of active recruitment” when a significant portion of the ‘study area’ was not accessible to the Company as access was denied by the property owners. The conclusions being drawn from a limited area of access and a drive around the roads circumnavigating the proposed site raise questions of credibility.

“Mining within the proposed Mining Lease (ML) is considered unlikely to have a significant impact upon the abundance, diversity, geographic distribution and productivity of flora and vegetation at species and ecosystem level” (para 4 p6)

Comment: It will simply deplete even further, the abundance, diversity of the flora and vegetation even more. The conclusion is inconsistent with the objectives of the Nature Link Plan. Diversity and Abundance of Species:

Of particular note with respect to the ‘survey’ was its length of five days and the timing, being 10th-14th October 2011.

Whilst there is no argument with respect to the findings on the five days of the survey, the question remains what about the remaining 360 days of the year? Is 1.37% of the year a statistically representative sample of what is occurring in the environment?

Species, Communities and other matters of Significance:

“This study established a baseline of flora and fauna diversity and conditions at Warramboo CEIP project site but represents one snapshot in time. A comprehensive baseline provides a solid basis on which to frame future management and rehabilitation, and likewise against which to dismiss or confirm the influence of any particular activity on a particular species, community or environment.” (bolding and underlining added) (p7)

Comment: On the basis of a desktop analysis and a five day field survey in 2011, this document is the basis of an environmental impact assessment for a significant mining project, often touted as second only to BHP enterprises spanning some 700 square kilometres and bordering a major conservation park (Hambidge Wilderness Area) on three sides.

The use of the word ‘comprehensive’ is mis-leading, given that the focus of the limited study relates to Warramboo and NOT the Central Eyre Iron Project in its entirety.

The REPORT:

1. Introduction:

“This report also presents the outcomes of a detailed in-field flora and fauna survey of the site”. Comment: Given the size of the CEIP project a five day visit to the area with limited access because of land owner denial of access, is hardly considered to be a “detailed...survey” as claimed.

1.1 Iron Road Deposits:

“The CEIP is a collection of three iron deposits, namely Warramboo, Kopi and Hambidge.” (p8)

Comment: Clearly the environmental impact assessment should be for the project, not a component thereof. What is the cumulative impact of the proposed mining activities as disclosed in the Definitive Feasibility Study (Feb 2014) and to the Australian Securities Exchange on listed EPBC species?

As mentioned above, the tenement (Mineral Exploration Lease EL 4849) is of some 700 square kilometres surrounding the Hambidge Wilderness Area on three sides.
1.3 Warramboo CEIP Infrastructure Requirements

It is noteworthy that this report was authored prior to the submission of the Development Application for the infrastructure requirements and not updated accordingly.

1.4 Study Area.

“For the purpose of this baseline assessment the ‘study area’ was defined as the proposed mining lease boundary and immediate surrounds (5km buffer) with reference to the environment of the larger ....EL4849. An intensive survey concentrated on a range of native habitat types found within the proposed ML.”

Comment: As mentioned previously a 1.37% of a year (five days) survey is hardly an intensive study of the environment pertaining to a mining project which is suggested to span some 25+ years and beyond.

In addition, the study fails to recognise that the Central Eyre Iron Project is not just the Warramboo mine site and thus should extend over the whole project footprint inclusive of Kopi and Hambidge.

1.4.3 Landscape, geology and soils:

It is more relevant to describe the area in question not only as being characterized by Archaean basement et al, but also it is located with the Gawler Craton. The Craton hosts the banded iron formations characteristic to the deposit in question.

The Craton also hosts deposits containing heavy metals such as cadmium, arsenic and chromium (hexavalent) and manganese, hence ore containing these elements needs to be identified and the risks identified. Furthermore, significant paleochannels exist in the area as mentioned previously in this response.

The paleochannels host uranium and other radioactive materials.

1.4.4 Watercourses and wetlands

What is unclear from the Report is the origin of the lake network. The report claims the lakes are ‘depressions where waters from surrounding catchment pool’, whereas another view may be the remnants of an ancient geological landscape.

The importance of groundwater and the lake network needs to be established.

There appears to be some confusion with respect to the drawdown distance being 7km (p23) or 9km (p27). Is there inadequate hydrological, hydro-geological information in the groundwater levels or any pump testing conclusion to support the position presented for the cone of depression and the regional extents for risks and impacts to flora and fauna?

The significant volumes of hyper saline groundwater to be repeatedly deposited within the region of the cone of depression have not been modelled for impact that will result from 480 million tonnes of salt which shall be generated upon the elevated ground.

The issue of Groundwater Dependent Ecosystems which should be referred to as not having been defined correctly in the Iron Road CEIP referral as the wetland perimeters have not been correctly defined. The impact assessment and modelling is based singularly upon ‘current season’ vegetation as identified in only 5 days and from desktop data not supported by on-site confirmation of the historic wetland zone as confirmed by soil testing for historic wetland dependent inclusions. The simplicity being that a 10 per cent error in accuracy of wetland dimension can equate to an average of 30 per cent under dimension in area. Thereupon, the wetland wader impact assessment and survey/study area for flora and fauna is significantly deficient.
3. Methodology

3.1 Ecological desktop review

Clearly a significant part of the development of this report is based upon the ‘desktop analyses.

It is noteworthy that the Hambidge Wilderness Area data is excluded from the study despite the fact that the Central Eyre Iron Project (as described in the DFS document) surrounds the park on three sides. Clearly the exclusion of this data reduces the credibility of the conclusions drawn within the Report.

It is also noteworthy that a five kilometre ‘buffer zone’ is considered in the Report. What criteria were used to determine the extent of the ‘buffer zone’ or was this a convenient choice to preclude undisclosed sensitive areas?

3.3.1 Flora survey and landscape description

It should be recognised that the extent of the survey was limited to areas where access had been granted under South Australian legislation. A significant portion of the proposed site was NOT surveyed as access was denied by the landowners, resulting in speculative conclusions as to what might be present or not.

The LIMITATIONS of the survey are well defined and hence the results should be viewed with these limitations well in hand. (p24)

5. Results of the field survey

Considerable text is devoted to the outcomes of the desktop analysis and the field survey but it is unclear as to how many EPBC listed species were identified within the proposed mining lease precinct and in the greater area of the tenement, given the scope of the Central Eyre Iron Project being not just one mine but encompassing the whole tenement.

It is noteworthy that the authors of the Report refer to records of species recorded within the Warramboo EL area. There is no such entity. The Exploration Lease (EL 4849) is NOT restricted to the Warramboo area. (p50) The conclusions with respect to the presence of Malleefowl in the area are in fact incorrect. (p51) Malleefowl has been sighted, photographed and reported in the area in question.

6.1 Significant species summary.

It is noteworthy that the conclusions are based upon whether data occurs in the various databases considered in the desktop analysis.

The question has to be raised as to the accuracy and currency of the data contained within these databases, given that they are not subject to peer assessment or audit and rely heavily on persons ‘taking the time to report sightings’.

A five day field survey is hardly credible in drawing the conclusions as per table 6-1 Likelihood of Occurrence. It raises the spectre of ‘I did not see it when I visited between 10th and 14th October 2011, therefore it does not exist’.

7.1.1 EPBC referral

“It is noted that the field survey undertaken to produce this report DID NOT constitute targeted survey for listed species with the exception of Malleefowl”. (underlining added)

It is somewhat incongruent that an EPBC referral contains an approach that fails to specifically target EPBC listed flora and fauna.
CONCLUDING STATEMENT

Whilst it is acknowledged that a desktop analysis of current databases is a reasonable starting point, there is an expectation that a comprehensive field survey in support of the outcomes of the desktop study would be undertaken. A five day period in October 2011, is hardly a ‘comprehensive’ survey of the Central Eyre Iron Project, a project which includes the Warramboo, Kopi and Hambidge (DFS 2014: p8 Jacobs Report)

The study is deficient in matters relating to the impact of the action on regional hydrology, especially that which is required for environmental sustainability; the impact of the proposed action on migratory pathways for fauna and flora as outlined in the Nature Link Plan as well as the potential impact of micro meteorological changes due to the size of the proposed mine(s) and the associated rock dump.

The report fails to discuss the impact on the environment at the conclusion of mining activities at Warramboo which would eventually see a 6.2 kilometre long, 2.5 kilometre wide and some 580-600 metre deep (dependent upon the final water table level as a consequence of the proposed dewatering process) hyper-saline lake form, a lake which most likely will be contaminated with heavy metals and possibly uranium or other radioactive substances that leach out of the exposed rock. This is in addition to the 480 million tonnes of salt that will be spread over the footprint of the mine over its lifetime. The impact of these factors on the habitat of listed species is not addressed.

The presence or otherwise of pyrite et al ore in the deposit, its fate in the processing and its ultimate environmental impact if placed upon the rock dump is not addressed.

The Report fails to discuss issues pertaining to Kopi and Hambidge, the other components of the CEIP project.

The Report fails to consider the impact of the Petroleum Exploration Lease which overlays a portion of the tenement.

The Report fails to take into account the Nature Link Plan.

The study has not been updated and thus fails to include the recent sighting of the Malleefowl in the region.

The community is well aware of the work undertaken by BHP in its Roxby Downs expansion project as detailed in the South Australian Government Gazette No.76, pp 6018 – 6045, 2 October, 2014.

The expectation is that Iron Road will be required to undertake the same level of environmental assessment rather than the limited ‘study’ submitted for this Referral. One, by its own admission, did not specifically target EPBC species.

Clearly the submission lacks credibility.

Accordingly, we suggest, at the very least, the action be a CONTROLLED ACTION subject to a REGIONAL ASSESSMENT. Preferably, the referral should be returned, to be updated to accurately reflect the scope of the Central Eyre Iron Project as defined in the Definitive Feasibility Study (2014) and on page 8 of the Report.
Exhibit #1: Correspondence to Ms H Lamont, Chairperson, CEIP CCC re ‘Granite Article’, May 2014.
Exhibit #2: Correspondence to Mr L Ingle, General Manager, Iron Road re public meeting and questions on notice.
Exhibit #3: Submission to the Agricultural Competitiveness taskforce, April 2014, pages 1 to 7/45. Exhibit #4: Paleodrainage and Cenozoic Coastal Barriers of South Australia, DMITRE, 2012
Exhibit #6: Petroleum and Geothermal in South Australia –Polda basin, DMITRE, South Australia.

Definitive Feasibility Study, Iron Road, (Feb 2014)

Nature Links – East meets West Nature Link Plan, Implementing South Australia’s Strategic Plan, Department for Environment and Heritage, South Australia.

Petroleum and Geothermal in South Australia – Polda basin, DMITRE, South Australia, Figure 4.


The Australian Securities Exchange: Oakdale Resources (OAR)

CHAPTER 12 Weeds, etc.

"There are gaps in the government vegetation data for of this area, hence vegetation type has been inferred from both the DEWNR vegetation cover layer (DEWNR 2011) and field results presented in Appendix J. (p 12-17)"

**Comment 90**

It is noteworthy that the majority of the weed survey sites exist in roadways.

What is missing is weed data within the actual confines of the Mineral Lease with the exception of the original 5 survey sites around the Heritage lot.

Is it to be inferred that the survey was limited due to access being denied by landowners due to Exempt Land (S9A (1) Mining Act, 1971).

Given the locations of the survey sites, the apparent denial of access to other land and the statement 'hence vegetation type has been inferred', the veracity of the assessment made on limited empirical evidence does not give rise to the required level of confidence that the true nature and condition of the vegetation across the whole of the Mineral Lease area is adequately reflected in Table 12-2.

It is suggested therefore that the data contained in this Chapter is NOT representative of the weed profile for the Mineral Lease.

**12.3.3 Native Flora Diversity**

Given the locations of the survey sites, the apparent denial of access to other land and the statement 'hence vegetation type has been inferred', the veracity of the assessment made on limited empirical evidence does not give rise to the required level of confidence that the true nature and condition of the vegetation across the whole of the Mineral Lease area is adequately reflected in Table 12-2.

It is suggested therefore that the data contained in this Chapter is NOT representative of the weed profile for the Mineral Lease.
The conclusions relating to the Hale Dwarf Greenhood Orchid, the Plain Beard Orchid and the Goldsack leak orchid are spurious given the limitations of the survey locations and no commentary with respect to whether the surveys were conducted at a time of the year when the orchids were likely to appear.

**Comment 92**

12.3.5

**Warramboo Lake Complex**

It is noted that the southern end of the lake complex is some 1.2 kilometres to the north of the mining lease. It is noted “... anecdotal records suggest these depressions typically fill...”.

The reality being insufficient site specific data has been collected on this area in order to gain an understanding of the habitat and its ecosystem. Where is the empirical evidence to support conclusions made in respect to this area and thence the impact upon it as a consequence of the proposed mining activities?

12.3.8

"The majority of the native vegetation within the mine site in total is in moderate to poor condition: (p12-32)"

**Comment 93**

This conclusion is based upon survey points 1-5 and a series of roadside observations. The problem being that a significant proportion of the native vegetation is not roadside vegetation and its condition has not undergone any empirical assessment thus the afore-mention statement is not representative of the site and potentially misleading.

It is RECOMMENDED that this section of the application be not accepted pending a full review of the actual condition of all native vegetation within the site. The economic implications being that condition affects the SEB offset required.

The assessment of the actual likelihood of listed species (p12-32) is not substantiated by the 'evidence' presented.

12.5.1

**Altered Habitat at Adjacent Salt Pans**

"Groundwater modelling undertaken as part of the environmental impact assessment for the proposed mine indicates that groundwater levels beneath the Lake Warramboo complex north of the mine site boundary may drop by 1-5m as a result of pit dewatering required to access the mine pit (refer to Chapter 19, for further details). (page 12-34)

The level of impact to conservation significant flora as a result of vegetation clearance activities has been determined based on assessments of the existing vegetation and habitat condition at the site and the interpreted presence and abundance of conservation significant flora at the mine site and surrounds. Given that the potential for EPBC listed flora species presence is low and only one SA rated flora species is present, it is considered that localised impacts are not likely to affect broader regional populations. 12.7.2 (page 12-42)

Although likelihood assessments of conservation listed species (i.e. likelihood of presence at the site) are based on field results, historical data, current reference information and ecological knowledge, some of these species are often difficult to detect and occur in far lower numbers than common flora. In addition, short-lived annuals such as Orchids and disturbance dependent species that lie dormant in topsoil and subsoil may emerge, e.g. when seasonal conditions change, following fire or when soil is disturbed (e.g. Yellow Swainson Pea, some acacia species). Loss of conservation listed species could have broader impacts to conservation and regional ecology. 12/7/2" (page 12-42)

**Comment 94**
Is this not why a detailed annual assessment is required in order that all available information is presented, not just a convenient snapshot and a significant number of assumptions? The excuse of the species were not present (difficult to detect) when we visited hardly provides confidence in the report and even less in the conclusions so drawn.

There appears to be a lack of detailed information with respect to the actual occurrence of listed species in the designated area. It is RECOMMENDED that appropriate flora surveys be undertaken to ensure all species are accounted for having regard to their cyclic behaviour and that the results presented for public scrutiny before any approval is given.

Comment 95

Table 12-6
Vegetation Management
"Implement Vegetation Management actions (to be formalized in the PEPR)"

The issue with 'future work' as reported on a number of occasions in this response, is that this work is NOT subject to public scrutiny and does not form part of the approval of the application.

Comment 96

Threatened Flora
KPI-collect seed, but the actual survey data is deficient in when seed is available Project phase-closure:

It is suggested that this is somewhat confusing. The establishment of the seed bank and or the production of seedlings should commence immediately to ensure the survival of the species from earthworks etc.

Comment 97

Dust
KPI-’ Develop further in PEPR’ is meaningless given that the public do not have the capacity to comment upon the PEPR.

What is also not addressed is the potential impact of fugitive dust upon native vegetation (and all other vegetation) within the confines of the ML as well outside the boundary.

What is not addressed is the vegetation program to be implemented as a consequence of the development of new roadways as a consequence of the ML proposal.

Comment 98

12. 7.2 (page 12-42)
Impact to conservation significant flora
"...based on assessments of existing vegetation at the site...and the interpreted presence..."

Questions need to be raised with respect to conclusions drawn by the applicant based upon significant limitations in the survey process and upon the use of the term 'interpreted presence' which is clearly indicative of the lack of empirical evidence to support such a contention.

It is significant that the stands of vegetation on properties within the boundaries of the ML (with the exception of the original 5 survey sites) have not been assessed. Why haven’t these stands been examined and appropriately assessed?

The Natuma Road sites appear not to be within the proposed ML.

Is it that the applicant has not had access to the properties to undertake the required assessments and so 'assumptions' are being made to justify the position presented?
Who audits the process to ensure that the information provided in the application is an accurate representation of the situation as opposed to a minimalistic approach that appears to characterize this application?

Table 12-9 is hardly a 'conclusive impact assessment' given the limitations of the survey undertaken to a very great extent on roadways rather than inclusive of land that will be covered by the IWL or transport infrastructure.

12.7.3
Appears to be a series of disclaimers

Comment 99

12.7.5
It is noted that the applicant recognises that DSD has the authority with respect to the determination of any SEB Offsets and not the EPNRM Board as implied earlier.

It is noted the ongoing discussions are necessary with Native Vegetation Council and "full details will be provided in the Program for Environmental Protection (PEPR)". The problem being that the outcomes of these discussions will NOT be subjected to public scrutiny.

It is RECOMMENDED that the full disclosure of the proposed program be made public now as an amendment to the application so that public comment can be provided.

Comment 100

12.7.6
"Therefore the risk of not realising planned future ecological values associated with rehabilitation within the mine site is considered to be low" (page 12-47)

Poor revegetation and rehabilitation is a major concern given the quantity of salt to be deposited on the surface as a consequence of mining activities over the life of the mine.

The probability of failure is very high due to salt leaching despite the so called mitigation processes proposed. By its own admission the applicant has stated that salt will leach upwards in the IWL as a result of normal rainfall.

The applicant is seeking to minimize the impact of putting millions of tonnes of salt onto the newly created surface structures.

"The integrated waste landform design enables progressive trials of rehabilitation . . ."

Comment 101

The inference being 'trust us, we know what we are doing' does not provided any degree of confidence in the described approach. Trial and error is not what the community expects.

The community understands that rehabilitation of salt affected areas is nigh on impossible, and yet it is being asked to accept that 'trials of rehabilitation' in an environment treated with hyper-saline water and an accumulated millions of tonnes of salt over the life of the mine, is an acceptable solution.

The community rejects outright the solution provided given the nature and mobility of the pollutants in the IWL facility.

The 'solution' also ignores the fact that the concentration of copper (amongst other pollutants) will increase considerably in the IWL. Its impact upon growth of vegetation needs to be assessed and documented given that higher than trace levels of copper are known to be growth inhibitors.

The position proposed by the applicant is not credible.

12.7.9
It is noted that dust deposition on native species may have an impact to the extent recognised that . . .

"it could impede growth, threaten the survival of individual plants, resulting in degradation of habitat for native flora and fauna" (page 12-49)

“As mentioned in Chapter 15, existing dust levels within the study area relate to wheat-crop farming . . .”

Comment 102
As discussed previously in this response, the so called baseline dust survey is considered to be totally inadequate for a consideration of an impact assessment of dust upon the environment as a consequence of the proposed mining activity.

Two out of three of the survey points are considered inappropriate to determine site specific data relating to (a) baseline or existing conditions affecting vegetation and (b) predicted conditions as a consequence of the mining activities.

The discussions failed to recognise the actual chemical composition of the dust generated and thus dispersed.

It is known that the composition of the dust will have a high salt content. In addition, once the ore body is being mined, the potential exists for the dust to contain other contaminants such as copper, heavy metals etc, some of which are known growth inhibitors.

At this point, the unanswered questions appear to be:

a. What are the baseline dust levels (including chemical analysis thereof) within the boundaries of the proposed mine site?

b. What are the baseline dust levels (inclusive of chemical analysis) at locations of high concentrations of native vegetation (especially those areas that will remain)?

c. What are the baseline levels of dust (inclusive of chemical analysis) on properties surrounding the proposed site (ie the identified receptors as well as agricultural fields between the boundary of the mine and the receptor residence)?

d. Given the composition of the ore and thus the dust generated through mining activities, what are the predicted dust depositions (PM10 and PM2.5) inclusive of an analysis of particulate matter (including diesel particulates) and having regard to the actual wind rose for the mine site and its temperature profile, on (a), (b) and (c) above?

e. In addition to the findings of (d), the modelling must also include a discussion of wind erosion on the IWL having regard to actual site meteorological factors and the changing physical characteristics of the IWL over time.

f. Whilst the discussion to date has centred upon the impact of dust on vegetation, the deposition modelling would be further enhanced by the outcomes of the trials apparently being undertaken through the Minnipa Research Station concerning the potential impacts of fugitive dust from the proposed mine upon the effectiveness of agricultural sprays/

g. The modelling would be further enhanced with a discussion of the potential health impacts of the fugitive dust from the mine upon crops and pastures in line with international research which has shown detrimental health impacts as a consequence of fugitive dust on pastures. Attention to this fact has been brought to the applicant’s attention in correspondence provided to the Chairperson CEIP CCC, a copy of which has been previously included in this response.

Comment 103

12.7.10
Recreation Activities
It is noted a potential risk to remaining native vegetation exists through a possible increase in 4Wdriving etc on the proposed mine site.
It is assumed that the security management protocols will include not only a suitable perimeter fence to the proposed site, but also appropriate signage, security patrols and prosecutions for those who trespass.

12.7.11

**Bushfire**

"Control and management strategies will be in place to prevent bushfire impacts to native vegetation. It is considered rare that construction and operation of the proposed mine could result in a bushfire which results in ‘worst case’ impacts to remnant vegetation within the mine site, particularly given the degraded nature such vegetation. As such, the risks to flora species associated with bushfire caused by mining activities are considered to be low." (page 12-50)

**Comment 104**

The issue being not only a consideration within the mine site but outside of the boundary of the mine. Does the management strategy prevent mining operations on total fire ban days?

It is apparent that the risk assessment undertaken by the company with respect to bushfires clearly lacks any consideration to the impacts of the Wangarry Fire and more recently of the Pinery fire, both of which occurred in agricultural areas with similarities to that of the Warramboo area.

The commentary pertaining to fire and the Hambidge WPA also demonstrates a lack of understanding of bushfires in agricultural areas.

With respect to the later, there is another ignition source that could threaten Hambidge being the close proximity of the rail corridor. Experience has shown trains do cause fires.

The Application appears deficient in this respect.

**Comment 105**

12.7.12

**Groundwater Impacts**

It is noted in para 2 that "the north west corner of Hambidge WPA is locate 7km from the mine site boundary".

It would appear that the location of Hambidge moves according to the position the applicant wishes to present given previous commentary has the WPA 3.8km from the mine boundary.

The 7km cone of depression therefore would extend some 3 kilometres into the WPA.

What is the salinity of water beneath Hambidge and what is the standing water level in metres below the surface prior to any mining activity and thence during the dewatering phase?

It is noted that these is "a risk . . . that groundwater modelling is incorrect, and that there could be habitat loss and degradation to Hambidge WPA habitat as a result of changes in groundwater quality and quantity".

That being the case clearly there is a lack of certainty in the data and accordingly it is RECOMMENDED a more detailed analysis of the current groundwater system be undertaken on a REGIONAL BASIS to ensure the assumptions made have credibility as do the conclusions relating to perceived risks.

As indicated, the timeframe for impact is not the life of the mine but infinite. The 1000 year limit described by the applicant is simply a figment of their imagination. The hole in the ground will remain as will the impacts.

The application, at this point in time is deficient in data as to the recharge of the aquifer beneath the WAP as well as beneath the IWL.

Such considerations are required in order to assess the risks associated with the migration of pollutants contained in the IWL into groundwater beneath the IWL and thence into the general environment including Hambidge.
Comment 106

Table 12-10
Impacts
IM-12-5, 6, 7, 8, 9, 11, 12.
The assessment lacks credibility due to the ignoring of the impact of salt that will be deposited on the surface as a consequence of mining activities.

Comment 107

IM-12.10
Lacks credibility in terms of the experiences of the Wangarry and Pinery fires.

Comment 108

IM-12.14
Not credible due to the lack of data pertaining to the migration of pollutants (over time) from the Mineral Lease.

Comment 109

IM-12.6
Not credible due to the lack of specific baseline data and a consideration of the chemical composition of the dust as a consequence of mining activities.

Comment 110

IM-12.18 and IM-12.20 Environmental Offsets and IWL failure
The assumption that 'medium benefit' is without foundation as details of the program is not disclosed in the application and ignore the high probability of failure due to the quantity of salt (etc) deposited in the IWL over the life of the mine. (It is suggested 20 Million tonnes to be deposited but unclear as to whether this is annually or LOM)

It is assumed the SEB offset will be applied to the mine site. In the event that they are not, what is the applicant's position in this eventuality?

The rehabilitation plan is NOT disclosed in this application. It is therefore not available for public scrutiny, therefore the application is incomplete.

Comment 111

12.8 Outcomes: Table 12-11
"Compliance with the SEB Plan" lacks credibility because the plan is not disclosed at this time therefore not subject to public scrutiny.

Comment 112

IM-12.14 Ground water monitoring outside of the mine boundary (page 12-53)
No reference to the monitoring process has been included in the discussion to date other than the cone of depression will extend into the WPA.

Comment 113

IM-12.16
"Average dust deposition not to exceed 4gm/square metre/month”.

QUESTION 47
Under what legislative authority is this arbitrary figure cited?

IM-12-03/04
Not credible given the life cycle of weeds (summer vs winter)
Comment 114

**Designated Rehabilitation**

The assumptions made ignore the reality of the saline environment the applicant will create in the IWL. The reality is foreseeable and hence the application should not be approved until the issue of rehabilitation in such an environment is satisfactorily resolved through additional research prior to approval rather than the trial and error process proposed by the applicant. To wait 25 years to recognise failure is unacceptable.

Comment 115

**12.9 Conclusions**

The conclusions outlined in the application are clearly written to support a positive outcome. However, as indicated in our response, there are significant shortcomings in the position described by the applicant.

A number of statement pertaining to the site are not demonstrable in fact, giving rise to the questions of credibility of data and outcomes/conclusions drawn.

**CHAPTER MLP 16**

**Noise**

It is noteworthy that Fig16-1 ignores the existence of infrasound, a known component of enterprises operating heavy machinery inclusive of crushing plants etc.

**16.1.2 Noise Criteria**

"The relevant noise criteria for construction, operation and closure of the proposed mine have been derived in accordance with the Noise Policy and in consultation with the Department of State Development and Environment Protection Authority".

Comment 116

**QUESTION 48**

Upon what jurisdictional basis is the legality of the assumptions made in determining what legislative standards should be applied?

It is noted in the Noise Policy the term construction is defined, but it is does not appear to define noise associated with mining operations.

"Therefore the construction noise criteria will be the same as for mining operation and mine closure".

The use of the term 'derived' would suggest that there are no definitive standards and that the applicant has simply chosen a 'figure' of convenience.

The applicant has provided noise levels of activities designated under the Wudinna District Council's Development Plan, the relevance of which is questioned given that Council standards are applicable to activities under the Development Act, not the Mining Act as claimed by the applicant.

It is noted that noise from blasting is excluded from EPA Schedule 1 (Clause 6):8.

Excluded also from the Noise Policy is noise outside of the human audible range (Schedule 1 (clause 6)10. It is assumed from this exclusion that infrasound does not exist in the EPA Act, or its policy and procedures, despite the growing scientific recognition of such a phenomenon.

Clarification of the legislative framework that is applicable to the determination of noise associated with mining activities is sought.

What are the noise level benchmarks under the Mining Act?
16.1.3

Noise Character Penalty

What is the legal standing of the application of the EPA Noise Policy to this application and hence the adoption of the so called noise character correction of 5dB (A)?

Given that the noise penalty is applicable to low frequency sound, what is the penalty for infrasound generated from industrial plant used in the proposed mining activities identified in this application?

16.3.1

Existing Noise Environment

"The area comprising the mine site is currently used for agricultural purposes, predominately cereal cropping and has largely been cleared of native vegetation. The existing noise environment is dominated by natural noise sources such as wind, insects and birds. Local road traffic and agricultural machinery also have an influence on background noise in some locations.

Background noise level measurements were performed at two locations (Plate 16-1 and Plate 16-2) within the mine site (SKM 2012), depicted on Figure 16-2, during a one week period between 4 and 11 February 2012 to determine the typical noise level generated by the exploration drilling operations.

Logger A (Plate 16-1) was located relatively close to the drilling locations to determine typical noise levels from these operations and Logger B (Plate 16-2) was located approximately 5 km from the drilling operations to determine the typical background noise levels. The noise levels at Logger B are considered to be representative of any potentially noise-affected premises. An example of levels recorded by Logger B is at Figure 16-3."

Comment 117

Comment 118

It is noteworthy that the assumption of drilling operations (no mention of how many drills were operating) is taken to be representative of the ‘typical noise’ generated by exploration operations.

The results are precisely that, a point source of noise arising from drilling operations, NOT mining operations where a combination of machinery and plant are in use across the mine.
Comment 119

16.3.3
Identifies the potential noise receivers and their relative distances from the SINGLE source.
"the quiet rural environment enjoyed by sensitive receivers is the Key Environmental Value".

The problem is that the baseline noise level at the so called sensitive receivers has not been determined (measured).

Comment 120

16.4
The community has expressed considerable concern as to the impact of noise (both audible and infrasound) (over and above the current baseline (not established)) of a 24/7 operation as proposed in this application.

Comment 121

16.6 Control measures to protect environmental values:
It is noted in table 16-2 “Continuous meteorological monitoring as required to support noise monitoring system”.

It is assumed site specific meteorological data was the foundation parameter for all noise dispersion modelling undertaken in support of this application. It is however apparent that NO site specific meteorological data exists therefore the outcomes of the modelling lack credibility as they are not representative of the actual site.

This has a bearing on noise dispersion during the initial site construction phase and thence to opening up of the mine pits and the formation of the new landforms (stockpiles and IWL).

The creation of the new landforms effectively create noise reflecting surfaces as well as modification to wind direction and intensity and thus noise dispersion. It appears the modelling presented does not take these factors into consideration.

The reporting of real time noise measurement is noted, but the statement lacks detail (placement of sensors, recording period(s), associate on site meteorological conditions etc).

16.7
"The key environmental risks would be monitored through the environmental management program."

Comment 122

There appears to be no reference to the detail of the environmental management program (EMP) in this application. In the absence of evidence to the contrary, this is 'future work' and as such not subject to public scrutiny.

It is RECOMMENDED a draft EMP be provided as an amendment to this application for public review, before any approval is made.

Comment 123

16.7.1 Construction Noise:
It is noted that construction noise will be associated with mining operations and construction of the rail loop and rail head infrastructure.

Whilst there is no contentious issue with construction work associated with the identified infrastructure being assessed under the 'construction' regime of the EPA Noise Policy, given that these facilities could well have been equally assessed under the Development Act, the issue remains as to the assignment of construction noise levels to mining operations (the pit etc).

The noise levels of machinery identified in scenario 1 Table 16-3, is noted.

What is missing from the data provided is the noise profile for each receptor as identified on Fig 16-4.
In order to provide a better understanding of the impact, the following data should be provided:

- Receptor Number...
- Distance from the mine (being the distance from the centre of the proposed pit)
- Wind rose profile (determined at the mine site (a) with no IWL and progressive construct of IWL to 130+M)
- Temperature profile (inclusive of temperature inversions)
- Noise sources affecting receptor
  - dominant noise source
  - accumulated noise (combined noise from all sources). The mine is not a single source of noise as suggested in the preliminary modelling using the drill rig.
  - infrasound source(s)
- Applicable exposure level standards: Day . . Night
- Baseline noise level (pre mining activity) Day . . Night
- Noise level with mining activities (including infrasound) Day . . Night . .

Noise level monitoring must be on a continuous basis until a statistically relevant amount of data is obtained to create a benchmark.

Noise monitoring should be undertaken again on a continuous basis should there be a significant change of activity, again until a stabilization of reading is obtained (new benchmark).

Spot noise monitoring should also be undertaken to ensure benchmarks are maintained.

Sound attenuation treatments must be available to receptors where noise levels are considered to be above the recognised key environmental level.

Such a monitoring regime provides a legal basis for compliance on behalf of the applicant and a basis for complaint on the part of the receptor should the need arise.

Table 16-8
It is noted that the Director of Mines is involved in the setting of standards. What are the limits set by the Director of Mines and under what authority (Act) are these 'limits' acknowledged in law?
16.9 Findings and Conclusions

"The assessment of operation noise indicated that the impact is expected to be low, as the modelling for all three operation scenarios demonstrates that operations can be managed to meet the applicable noise criteria at all sensitive receivers by managing operation activities in accordance with the PEPR.

The assessment of closure noise impacts indicated that the impact is expected to be low and can be managed to meet the applicable noise criteria at all sensitive receivers by managing closure activities in accordance with the PEPR."

Comment 124

The problem with these statements is simply the application does not include the PEPR and the public is not provided an opportunity to scrutinize the PEPR.

If the application is to approve these 'findings and conclusions' as credible, then the associated PEPR MUST be provided here and now to ensure transparency and public confidence in the process. Failure to do so provides an opportunity for significant changes to be made under the guise of a 'management plan' within the PEPR, changes that are NOT available for comment by the community or public at large.

An apparent omission from the discussion to date is the impact assessment of a catastrophic detonation of the explosives store or of a facility associated with the preparation of the final AMFO product.

Given the quantity of explosives held in the magazines and the preparation plant, what is the blast radius and this impact of a catastrophic explosion (eg compared to that of the Gladstone factory explosion of a few years ago)?

It is noteworthy that a full assessment of baseline noise levels for receptors in the township of Warramboo has not been established.

It is therefore RECOMMENDED that a statistically significant sample of receptors within the township be subjected to the same analysis as for receptors outside the boundary of the mine as detailed on page 111 of this response.

CHAPTER – L NOISE

"The predicted noise levels for each of the scenarios has been compared to the noise level criteria of 57 dB (A)(day) and 50 dBA (night) in accordance with the Noise Policy and advice from DSD and EPA."

These figures represent residential figures as per (9) Table 2 (subclause (1)9b) of the EPA policy paper plus the 5dB (A) penalty as agreed by DSD and EPA.

QUESTION 49

Under what legislative authority have these figures been established?

It is noted that certain criteria that have been used in the modelling have been authorized through email communications with the Department of State Development. The contents of the emails have not been provided in the Report so the question of transparency of policy or data 'decided' or 'authorized' by the Department is not disclosed.

It is noted that 2009 BoM data relevant to Wudinna Airport has been used to determine wind data further providing evidence that site specific data has not been obtained by the applicant in support of actual condition relevant to the site.

DISCUSSION ON INFRASOUND

The application is devoid of mention of the existence of infrasound arising from the activities pertaining to the port and infrastructure.
Whilst it may be a matter of inconvenience to the applicant, infrasound does exist and its physiological impact upon human health is becoming more accepted in the medical and scientific arena.

Plant and machinery (as proposed in this application) produce infrasound.

The suppression of the distribution of infrasound in air is low. The long wavelengths involved mean screening has little impact on noise reduction.

Given the 24/7 operation of the port and associated infrastructure proposed, the occurrence of infrasound and the risks associated with it need to be documents and mitigated against.

Failure to do so, in light of a known hazard, would, in the view of the Association, constitute a failure to achieve a social licence to operate.

The following articles and references point to the known body of information pertaining to infrasound and its physiological effects.

**INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY**

**ENVIRONMENTAL HEALTH CRITERIA 12**

**NOISE**

3.1.4 Infrasound and ultrasound

Frequencies below 16 Hz are referred to as infrasonic frequencies. Perception of sound from 100 Hz down to about 2 Hz is a mixture of aural and tactile sensations. For example, frequencies around 10 Hz, can cause discomfort through a modulation of the vocal cords. Reactions caused by extremely high levels of infrasound can resemble those of mild stress reaction and may include bizarre auditory sensations, describable as pulsation and flutter. High levels of infrasound can cause resonance responses in various organs in the human body, although the long-term effects of such stimulation are not known (Johnson, 1973).

![Graph](image-url)  

**Fig. 6. Comparison of various damage risk criteria for impulse noise with equal energy curves for L_{eq} = 90 dB (A). (From: Martin, 1978).**
The effects of high intensity ultrasound (above 20 kHz and 105 dB SPL), which will be discussed in a separate document, are reported to be similar to those observed during stress. However, these effects may be partly due to associated high (but less than ultrasonic) frequency sound (Acton, 1967). Although it is usually accepted that levels below 105 dB SPL have no adverse effects, there is evidence from one experiment, that physiological changes can occur at lower levels (98-102 dB) (Lisickina, 1968).
A Review of Published Research on

Low Frequency Noise and its Effects

Report for Defra by Dr Geoff Leventhall
Assisted by Dr Peter Pelmear and Dr Stephen Benton

May 2003
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1. Preamble

Low frequency noise causes extreme distress to a number of people who are sensitive to its effects. Such sensitivity may be a result of heightened sensory response within the whole or part of the auditory range or may be acquired. The noise levels are often low, occurring in the region of the hearing threshold, where there are considerable individual differences. There is still much to be done to gain a fuller understanding of low level, low frequency noise, its effects, assessment and management. Survey papers of low frequency noise and its occurrence include (Backteman et al., 1983a; Backteman et al., 1983b; Backteman et al., 1984a; Backteman et al., 1984b; Berglund et al., 1996; Broner, 1978a; Hood and Leventhall, 1971).

Historically, early work on low frequency noise and its subjective effects was stimulated by the American space programme, a source of very high levels of low frequency noise. The launch vehicles produce their maximum noise energy in the low frequency region. Furthermore, as the vehicle accelerates, the crew compartment is subjected to boundary layer turbulence noise for about two minutes after lift-off. Experiments were carried out, in low frequency noise chambers, on short term subjective tolerance to bands of noise at very high levels of 140 to 150dB in the frequency range up to 100Hz It was concluded that the subjects, who were experienced in noise exposure and wearing ear protection, could tolerate both broadband and discrete frequency noise in the range 1Hz to 100Hz at sound pressure levels up to 150dB. Later work suggests that, for 24 hour exposure, levels of 120-130dB are tolerable below 20Hz. These limits were set to prevent direct physiological damage (Mohr et al., 1965; von Gierke and Nixon, 1976; Westin, 1975). It is not suggested that the exposure was pleasant, or even subjectively acceptable, for anybody except those who might have had a personal interest in the noise. The levels used in the experiments are considerably higher than the exposure levels of people in their homes, arising from environmental, traffic, industrial and other sources.

The early American work was published in the mid 1960's and created no great sensation, but a few years later infrasound entered upon its "mythological" phase, echoes of which still occur. Infrasound - the "silent sound" - was blamed for many misfortunes for which another explanation had not yet been found (e.g., brain tumours, cot deaths, road accidents). A selection of some press headlines from the early years is:

- The Silent Sound Menaces Drivers - Daily Mirror, 19th October 1969
- Does Infrasound Make Drivers Drunk - New Scientist, 16th March 1972
- Brain Tumours 'caused by noise' - The Times, 29th September 1973
- Crowd Control by Light and Sound - The Guardian, 3rd October 1973
- Danger in Unheard Car Sounds - The Observer, 21st April 1974
- The Silent Killer All Around Us - Evening News, 25th May 1974
- Noise is the Invisible Danger - Care on the Road (ROSPA) August 1974
Blatantly incorrect claims were made in the book 'Supernature' by Lyall Watson, first published in 1973 as 'A natural history of the supernatural' and which had large sales as a paperback. For example, it stated that, in an experiment with infrasonic generators, all the windows were broken within a half mile of the test site and further, that two infrasonic generators “focused on a point even five miles away produce a resonance that can knock a building down as effectively as a major earthquake”.

Those who were investigating low frequency noise problems at this time were often asked "It's dangerous, isn't it?" Public concern over infrasound was one of the stimuli for a growth in complaints about low frequency noise during the 1970's and 1980's and may still have lingering effects.

However, infrasound has long been a respected area of study in meteorology, where the frequencies range from as low as one cycle in 1000 seconds up to a few cycles per second. Large arrays of infrasound microphones detect low frequencies originating in atmospheric effects, meteorites, supersonic aircraft, explosions etc. There is also a worldwide system of about 60 infrasound arrays, which are part of the monitoring for the Nuclear Test Ban Treaty.

It is a big step from the American endurance exposures and the exaggerated effects of infrasound to the very real low frequency noise difficulties faced in a number of environmental noise problems, where low frequency noise occurs at low levels, often in the region of an individual's hearing threshold. The noise, typically classed as "not a Statutory Nuisance", causes immense suffering to those who are unfortunate to be sensitive to low frequency noise and who plead for recognition of their circumstances.

The World Health Organization is one of the bodies which recognizes the special place of low frequency noise as an environmental problem. Its publication on Community Noise (Berglund et al., 2000) makes a number of references to low frequency noise, some of which are as follows:

- "It should be noted that low frequency noise, for example, from ventilation systems can disturb rest and sleep even at low sound levels"
- "For noise with a large proportion of low frequency sounds a still lower guideline (than 30dBA) is recommended"
- "When prominent low frequency components are present, noise measures based on A-weighting are inappropriate"
- "Since A-weighting underestimates the sound pressure level of noise with low frequency components, a better assessment of health effects would be to use C-weighting"
- "It should be noted that a large proportion of low frequency components in a noise may increase considerably the adverse effects on health"
- "The evidence on low frequency noise is sufficiently strong to warrant immediate concern"

This present study considers some properties of low frequency sounds, their perception, effects on people and the criteria which have been developed for assessment of their effects. Proposals are made for further research, to help to solve the continuing problems of low frequency environmental noise.
References ¹


1 The internet links given as references were last checked on 20 March 2003


Guski (1999): Personal and social variables as codeterminants of noise annoyance. *Noise and Health* 1, 45-56.


Reference threshold of hearing under freee-field and diffuse-field listening conditions.


Maguire, E. A., Gadian, D. G., Johnsrude, I. S., Good, C. D., Ashburner, J.,


Human Effects of Infrasound: U Landstrom; presented at Inter.noise 2000: The 29th International Congress and Exhibition on Noise Control Engineering.

The article presents the following:

The number of infrasound sources has increased markedly in recent years. Infrasound is in most cases an undesirable sound and is therefore classified as noise.

Through turbulent currents . . . infrasound can be spread from a number of different sources. The suppression of its distribution in air is low. The long wavelengths also mean screening can only to a small extent prevent the spread of infrasound.

Examples of common infrasound sources are . . . vehicles, diesel engines, compressors, machines with rocking parts . . . The acoustic pressure levels in the environment around plant of this type are strongly affected by resonances produced.

Among the physiological affects of infrasound which have been the main object of discussion in recent years is changes to wakefulness. Studies have shown an increased risk of drowsiness during exposure to infrasound.
THE EFFECTS OF HIGH LEVEL INFRASOUND

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INTRODUCTION

This paper will attempt to survey current knowledge on the effects of relative high levels of infrasound on humans. While this conference is concerned mainly about hearing, some discussion of other physiological effects is appropriate. Such discussion also serves to highlight a basic question, "Is hearing the main concern of infrasound and low frequency exposure, or is there a more sensitive mechanism?" It would be comforting to know that the focal point of this conference is indeed the most important concern.

Therefore, besides hearing loss and auditory threshold of infrasonic and low frequency exposure, four other effects will be provided. These are performance, respiration, annoyance, and vibration.

AUDITORY THRESHOLD

A most common misconception about infrasound is that it cannot be heard. A glance at the results of various investigations, summarized in Figure 1 shows that infrasound can be heard (at least down to 1 Hz). Single frequencies of infrasound are not perceived as pure tones. Instead, they are described as more of a chugging or motorboating sound. This leads one to the conclusion that what a person really hears is not a pure tone of infrasound, but instead the harmonics generated by the distortion from the middle and inner ear.
THE EFFECTS OF INFRASOUND IN HUMAN HEALTH

by

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Abstract

Infrasound is defined as sound with a frequency less than 20 Hz. It is produced by both natural and man-
made sources, although very high levels of infrasound must be artificially produced. A number of early
papers suggested that infrasound may produce very serious adverse effects on human functioning such as
the impairment of task performance, including driving. This paper assesses the literature published since
those early reports. Auditory, physiological, and performance effects are discussed. The more recent studies
show much less severe effects than those suggested in the first studies. Methodological considerations
indicate that the recent studies are much more reliable than the earliest reports.

Introduction

The effects of infrasound on human health became a cause of concern during the mid 1960's when
astronauts involved in the U.S. space program were found to be exposed to high levels of infrasound (in
excess of 150 dB) for short periods during launch. Much of the work examining the effects of infrasound was
done in response to this concern. However, infrasound is found in everyday life as well, most commonly in
motor vehicles (especially trucks). In this context, infrasound is a concern because it penetrates walls and
barriers with less attenuation than higher frequency sound.

Infrasound is defined as sound of a frequency less than 20 Hz. This definition was accepted at the
international Colloquium on Infrasound in Paris in 1973, and has been commonly used since that time.

Naturally occurring infrasound (thunderstorms, etc.) is usually in the frequency range below 2 Hz, while
infrasound due to manmade sources is normally above this frequency. Levels of infrasound between 75 and
95 dB are common, while levels up to 120 dB may be produced in motor vehicles. Higher levels of infrasound
must be artificially produced. These figures may be compared to a threshold of perception of 90 dB at 20 Hz.
As is suggested by the threshold of perception, infrasound is not in fact inaudible, as is commonly believed.

The higher frequencies in the infrasound range are audible, although it is not the pure tones which are
heard, but rather harmonics generated by distortion from the middle and inner ear.

Many of the early papers which examined the effects of infrasound were alarmist, causing a great deal of
excitement about possible effects. For instance, Gavreau (1968) warned of "profound effects on both men
and buildings". Bryan and Tempest (1972) gained considerable newspaper publicity for their paper entitled
"Does Infrasound Make Drivers Drunk?" They claimed that infrasound in motor vehicles could be the cause
of many unexplained highway accidents. Close examination of these papers reveals that there is little or no
scientifically derived data to support these claims. The publicity accorded these papers has had the effect of
predisposing many people to believe that infrasound must have a deleterious effect, and to some extent this
has hindered an accurate assessment of how hazardous it really is.

A number of papers, however, are designed to measure the health effects of infrasound using accepted
scientific methods. A literature search using computerized bibliographies was conducted to find all papers
relating infrasound to human health. After deleting those papers which used animal subjects, and those which were not in English (due to the limited budget for this effort, precluding translation), 19 papers remained: 7 reporting original research, and 12 review papers. These 19 form the basis for this study. The papers dealt with three aspects of health: auditory, physiological, and performance effects.

Each paper was examined to identify what information it contributes to the body of knowledge concerning infrasound and human health. In addition, each paper which contains original research was subjected to a critical appraisal designed to assess the validity of its conclusions, based on the strength of the analytical techniques used, and possible biases or confounders in the design or analysis.

This paper has three sections. The first describes the criteria used to evaluate the literature. The next assesses the literature on the effects of infrasound, on the basis of those criteria. The final section reports our conclusions.

Assessment Criteria

In other reports (Taylor et al., 1980) we have used both methodological and epidemiological criteria to assess the evidence that noise causes health problems. For infrasound, however, there are too few empirical studies to warrant using the epidemiological criteria for causation (see Sackett, 1976). Most of the methodological criteria can be applied, and provide a valuable framework for judging how much is really known about the effects of infrasound. The seven criteria used for the present study are as follows.

1. Is the problem statement clear?
2. What is the sample size?
3. How was the exposure measured, and what is the level and duration of exposure?
4. Is the outcome considered a health outcome or a physiological change?
5. Is the outcome measurement objective or subjective? Were the measurements taken in a vigorous manner?
6. Was any statistical analysis performed, and are the statistics appropriate?
7. Are there any confounding factors which will interfere with the direct relationship between exposure and outcome, or any biases in the way the sample was selected?

No matter how good each study might be individually, when judged on these criteria the overall generalizability of the results must necessarily be limited because of the limited number and scope of the studies. In order to present infrasound as the only noise source, most of the work on the effects of infrasound is conducted in a laboratory with an artificial noise source. The length of exposure to infrasound during the experiments is quite short. Also, the number of subjects in each experiment is small.

Further, because the literature was largely a response to a particular exposure problem, the findings may not be applicable to some critical issues.

For instance, there are no studies which directly examine the effects of infrasound from transportation sources on health, because infrasound here occurs only in combination with higher frequency sound. In addition, the existing studies are an inadequate indicator of the possible effects of exposure to low level infrasound over long periods of time, such as in an industrial setting.

Assessment of Studies

For the seven papers reporting original research, summaries in terms of the assessment criteria are given in Table 1. The dominant impression from the table is of very small samples (only one study has more than 30 subjects), and, perhaps as a consequence, an absence of statistical tests of results. For simplicity of presentation the papers will be discussed under three headings: auditory; physiological; and performance effects.
1. **Auditory Effects.** Three papers discuss the auditory effects of infrasound.

All of the papers used temporary threshold shift as the outcome measure; no paper examined the possibility of permanent threshold shift.

Jerger et al (1966) exposed 19 subjects to infrasound levels up to 144 dB for three minutes (ear only exposures). 8 of the subjects showed no TTS, while the remainder exhibited TTS of 10-22 dB in the 3-8 kHz range. All of the subjects experienced full recovery, and there was no accumulation of TTS during successive exposures.

Mohr et al. (1965), as part of an experiment designed to study various effects of noise at frequencies between 1 and 100 Hz, exposed 5 subjects to infrasound at levels up to 150 dB for a minimum of 2 minutes (6 different frequency ranges). Some of the experiments were conducted using hearing protectors, although those tests are not identified. The authors provide only a summary of their findings but say that they found no statistically significant objective effect of infrasound. They state that no shifts in hearing threshold were detectable one hour after exposure. It should be noted here that the authors utilized only noise experienced personnel (Air Force officers) in the tests, which may be a source of bias.

One review paper also contributes additional data about the effect of infrasound on temporary threshold shift. von Gierke (in Tempest, 1976, chapter 6) reports on Johnson's work presented at the International Colloquium in Paris. The work involved two parts; whole body exposure and ear only exposure. The subjects for the whole body exposure experiment were exposed to the same levels as those of Jerger et al (120-144 dB), but for 8 minutes. There was no effect on TTS for this exposure. In the ear only exposures, the subjects were exposed to higher levels of infrasound (up to 171 dB) for periods ranging from 26 seconds to 30 minutes. Temporary threshold shift of 8 dB was measured after exposure to 140 dB for 5 minutes, and of 14-17 dB after 30 minutes exposure to the same level. All subjects recovered fully within 30 minutes after exposure.

The studies examining the auditory effects of infrasound all agree that exposures of relatively short duration result only in temporary threshold shift, which disappears within 30-60 minutes after exposure. Levels of approximately 140 dB were necessary to produce TTS, and the degree of effect was a function of the duration of exposure.

2. **Physiological Effects.** Because the middle ear is the most susceptible part of the body to infrasound, it has been suggested that the physiological tolerance limit to infrasound will be determined by the middle ear.

The pain threshold for the middle ear is 140 dB at 20 Hz. Perhaps for this reason many of the experiments which study the physiological effects of infrasound use noise levels around that threshold. Three papers examine the physiological effects of whole body exposure to infrasound including one (Mohr et al, 1965) previously discussed under auditory effects. Using 5 noise-experienced personnel, Mohr et al measured a number of physiological changes, both objectively and subjectively. They detected no significant objective effects, but point out that the objective tests were gross and would not necessarily be able to measure small changes which would not be noticed subjectively. Some subjects reported experiencing middle ear pressure build-up (which could be alleviated using valsalva), mild abdominal wall vibration, and at the extreme levels, chest wall vibration, voice modulation (although no change in speech intelligibility), mild middle ear pain, visual field vibration, and a Jreeling of gagging. None of these symptoms were experienced when ear protectors were worn. The authors concluded that although the subjects felt that the exposures were "unpleasant", none of the levels experienced exceeded the voluntary tolerance limit.

The second paper (Slarve and Johnson, 1975) also examined the effect of infrasound on a number of physiological parameters. Four subjects were exposed to infrasound with a maximum level of 144 dB for 8 minutes. The authors found no effect on respiration rate, pulse rate and the general condition of the eardrum. They did find effects of middle ear pressure build-up (above 126 dB) and voice modulation and chest vibration (above 135 dB).

Again, one review paper (Johnson, 1975) provides details from a study not otherwise available to us. This is the study by Borredon (Centre de Recherches de Medecine Aéronautique, 1973), in which 42 subjects were exposed to infrasound (7.5 Hz) at 130 dB for 50 minutes. In this study a small increase in mininum arterial
blood pressure was noted, although the effect was not statistically significant. In addition, some subjects reported feeling "drowsy", although there was no objective measurement to back this up as a definite effect.

In general, the papers examining the physiological effects of noise appear to be well done, with the conclusions well supported. All 3 studies seem to be in agreement that no serious physiological effects can be measured at levels which are most commonly experienced. The most important effects noticed were subjective ones, which were found in each experiment.

3. Performance Effects. Six papers examined the effect of infrasound on either balance or other tasks (Table 1). The first paper (Green and Ihjnn, 1968) examined the effect of naturally occurring infrasonic waves (from weather systems) on the incidence of automobile accidents and school absenteeism.

It differs from the rest of the papers as it examines the effects of infrasound which is theorized through the examination of historical weather records rather than actually measured. Although the authors found some evidence of increased accidents and absenteeism during periods of supposed infrasonic activity, there are many possible biases, including the effects of local weather conditions themselves on the outcomes measured.

The next paper (Evans and Tempest, 1972) measured visual nystagmus (involuntary eye movement in a horizontal, vertical or rotary direction) as well as reaction time and visual acuity for 25 subjects who were performing a shape recognition task. Evans and Tempest claim that the experiment measures the effect of transportation sources, but in fact the levels they use (130-146 dB) are above those normally found in motor vehicles. The authors report a significant nystagmus effect. However, this is refuted by Harris et al (1976), who state that examination of sample charts reveals that much of the eye movement can be accounted for by normal eye blinks.

Evans and Tempest found no effect on visual acuity, but report a 30% increase in reaction time at levels of 115-120 dB. Unfortunately, this assertion in the text is not supported by any table or figure, and no statistical test of the change is reported, so it is impossible to assess the validity of their conclusion.

One review paper (von Gierke and Parker, 1976) reports additional data from experiments which further refute Bryan and Tempest's claim of nystagmus.

The authors report on a number of experiments which measured visual nystagmus in both humans (142-155 dB exposure) and animals (158-172 dB). In no case was visual nystagmus observed.

In another review paper, Johnson (1975) reports on a rail balancing task in which subjects were exposed to infrasound of various frequencies at levels up to 140 dB. There was no significant effect on rail task performance.

In addition, Johnson reports personal experimentation with a balancing task at levels of 165 and 172 dB, and found no effect.

Two papers deal with the effect of infrasound on task performance.

Harris and Johnson (1978) examined cognitive performance using serial search and complex counting tasks. They found no significant effect for exposure lengths of 15 and 30 minutes, for various levels of infrasound. They conclude that very high levels of infrasound are necessary to produce effects on performance.

Kyriakides and Leventhall (1977) compared the effects of infrasound, audible sound and alcohol. They utilized a high priority pointer-following task in conjunction with both central and peripheral components of a secondary task. The subjects were exposed to a level of 115 dB for 36 minutes while performing the task. The authors found that this level had no significant effect on performance of either the primary or secondary tasks. However, they observed a difference in performance over time between the infrasound and audible sound conditions. In the presence of audible sound, performance was maintained over time, while a degradation of performance was evident when infrasound was present. This led the authors to conclude that there may be an effect on performance if the time of exposure were increased.
An effect of infrasound on task performance has not been established in the literature. The one paper which reports an effect (Evans and Tempest) has serious flaws in the measurement of the outcome parameters.

The last two papers, which were well conducted and documented, show no significant effect of infrasound on performance. However, both of those papers suggest that an effect may be present at longer exposure durations.

Conclusions

From the literature reviewed here, we may make the following conclusions about the effects of infrasound:

1. whole body effects
   - middle ear pressure build-up at 130 dB
   - no subjective effects until > 150 dB.

2. auditory
   - some TTS for exposures > 137 dB
   - if exposure > 30 minutes, TTS 14-17 dB
   - full recovery within 30 minutes.

3. respiratory
   - rhythm change at 130 dB.

4. performance
   - limit not reached
   - may be an effect if time of exposure > 40 minutes.

The authors of the review papers examined come to roughly the same conclusions, with a few additions. As far as auditory effects are concerned, they conclude that 150 dB is acceptable if exposure time is kept below 30 minutes (Johnson, 1980, p. 11). In addition, they report a definite effect on respiration at 166 dB from animal experiments (Johnson, 1980, p. 8). For performance effects, below 142 dB the only effect of infrasound is on speech interference (Johnson, 1980, p. 7). Finally, there is no vestibular effect up to 155 dB (Johnson, 1976, p. 8).

From the papers examined, we can conclude that infrasound must be regarded as at worst a small part of the problem of the health effects of noise. The literature has demonstrated that objective effects of infrasound are found only at quite high noise levels. The early reports of drastic effects were greatly exaggerated, a conclusion we share with most of the review papers examined. It is necessary to keep in mind, however, that these findings are applicable only to specific, short-term exposures. There has been no attempt to quantify the effects of low-level infrasound when exposure is of longer duration. Therefore, the question of possible effects of industrial exposure or exposure in motor vehicles remains unanswered.

Bibliography


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CHAPTER MLP M Ground water

1.2  
"Additional confidence in model predictions (and an increase in confidence level classification) will follow 
model upgrade to a transient calibration after recording the evolution of groundwater levels during the first 
few years of mining and dewatering. The inclusion of additional groundwater data would allow a more 
rigorous calibration of the CEIP mine site model".

Comment 125

Is this not in the same category of future work which is not available to public scrutiny, or is it representative of the 
minimalistic approach that appears to have been taken in this application?

2.2  
"... the expected extent of groundwater depressurisation associated with pit dewatering, which was 
estimated prior to model development using analytical solutions (SKM, 2013). This work suggested that a 
radius of influence of up to 20 km is possible in response to mine pit development."

Comment 126

Does this mean the cone of depression is actually 20 km radius? That being the interpretation, the cone of depression 
would extend significantly further into Hambidge WPA than has been suggested earlier in this application.

As the Associations have previously drawn attention to both in questions raised concerning the DFS; the EPBC referral 
for the mine and within this reponse, the paucity of regional hydrology is of considerable concern. The inference 
drawn from 1.2 above is that "we (the applicant) do not really know whether what we have put forward actually 
represents the current state of play, but approve the proposal and we will verify the resuts some time in the future". 
The problem being, what if the applicant’s position is wrong?

It is RECOMMENDED that all hydrology associated with this proposal be subject to peer review in addition to the 
establishment of a baseline regional hydrological study (current position) from which any impact can be determined.

Appendix - Q - SOCIAL FACTORS

3.5.1  
"Similar characteristics and qualities were identified in Tumby Bay as part of the Centex Port Spencer 
proposal (Golder Associates 2009, Socio-Economic Baseline Study). These included the small town lifestyle, 
familiarity with community members, the quietness and visual amenity of the area, the low levels of crime 
and high levels of safety and the clean, relaxed and stress free environment."

Comment 127

It is interesting to note the reference to the findings related to the Port Spencer project included in this Report. Whilst 
the life style characteristic outlined are still characteristics to be cherished without the impost of mining companies, 
clearly the authors of the Report are unaware that the Centrex Port Spencer project and associated prospects are 
being wound up by the said company (refer to releases in the Australian Securities Exchange ASX: code CXM). Assets 
are being either sold or written down. The Wilgerup Mine has been written down to land value only.

Page 61/201  
"the DC of Tumby Bay scores below the Australian mean on all four indices and is in the lowest 50% to 60% of 
South Australian LGAs. It is the most disadvantaged of the local study areas on three of the four SEIFA, and 
has smaller areas within the LGA that are significantly disadvantaged (ie where scores fall below 900) on all 
indices."

Comment 128

One might extrapolate from these results the conclusion that the community does not have the financial where-with-
all to sustain Council’s involvement through the provision of infrastructure at ratepayer’s expense, as it appears to be 
the case with the recent approval for work to be done (at ratepayer expense) on the Kinnaird Road.
There are no Memoranda of Understanding between the applicant and the District Council of Tumby Bay suggesting any financial arrangement to the contrary.

It is the stated position of Council that MoU's are a waste of paper!

**Business opportunity** (page 100/201)

"The Economic Impact Assessment estimated that around 24% of direct construction expenditure on the CEIP (approximately $286 million per annum) and 18% of direct operational expenditure (approximately $201 million per annum) would be spent in the Eyre and Western region, with the greatest expenditure occurring in the Wudinna DC.

Business opportunities would change over the construction and operation stages of the project and are likely to include fuel supplies, communications, transport and logistics (such as workforce transport, mechanical services for fleet maintenance), engineering and construction services (such as light earthworks, road maintenance), the supply of services, goods or consumables to camp and village accommodation, catering, training, and the provision of materials." (underlined added)

**Comment 129**

Whilst the above statement describes an ideal situation, the reality of purchases made by contracts would suggest that it most likely would not occur, unless, of course, a series of MoU of Deeds of Agreement with the prospective providers of services already exist. It is suggested that the figures do not reflect reality in the business world.

"A 2007 study of the impacts of coal mining in the township of Moranbah in the Bowen Basin in Queensland found that the average non-resident mining worker spent over $160 in Moranbah each week on key items including alcohol, fuel, food and entertainment related expenditures, or over $3,800 across 24 working weeks per year (Rolfe et al 2007). Based on an LDC workforce of 300 people, this would generate an equivalent total expenditure in Wudinna of over $1.1 m per year."

**Comment 130**

The relevance of this example needs to be challenged, given that the Wudinna accommodation village will be a self contained entity as is the construction village, some 45 kilometres away.

"Whilst the CEIP would result in some loss of agricultural land (see Section 4.2.5), the project represents an opportunity to diversify the economic base in the Eyre Peninsula, at the same time maintaining the agricultural viability of the local economy."

**Comment 131**

The conclusion drawn that maintenance of the agricultural viability of the community is achieved, the reality is that a number of successful agricultural enterprises will be lost and that a significant risk due to fugitive dust contamination of the surrounding wheat and barley belt and associated pastures most likely will result. Contaminated grain will potentially be an outcome of the claimed joint port facility despite the fact that previous experience has shown significant economic losses to grain producers and handlers as a consequence of contamination by ore dust.

In the absence of evidence to the contrary and advice from the Federal Government Department of Agriculture with respect to contamination issues and the impact upon Australia’s clean grain export credentials, and claim that mining and agriculture can co-exists escapes reality.

The risks are significant.

**Page 101/201**

"Iron Road is committed to providing opportunities for local and regional contractors and businesses to participate in the project wherever practicable and would:

- develop an Australian Industry Participation Plan to maximise opportunities for Australian businesses to participate in the CEIP
- work with the Industry Capability Network (ICN) South Australia, Regional Development Australia
Whyalla and Eyre Peninsula (RDAWEP) and other regional development organisations to promote the participation of local, regional and South Australian businesses in the project

- work with business groups to identify local business opportunities; provide information on the CEIP business opportunities, tendering and procurement processes and standards to facilitate the prequalification of local and regional businesses
- work with government, education and training programs and Regional Development Australia to enhance business capacity among local and regional suppliers.
- maintain the existing register of businesses with an interest in supplying goods and services to the project
- identify contract packages that could potentially be let locally or regionally
- work with other members of the Eyre Peninsula Mining Alliance to create long term business benefits to Eyre Peninsula communities."

Comment 132
Again the applicant is proposing future work which is outside the scrutiny of the public. Where are the Heads of Agreement with the entities identified above and the associate key performance indicators or goal so that transparency in the approach and desired outcomes are clearly identified and thus the applicant is accountable to achieve same. In the absence of these performance criteria, the statement can be interpreted as a mere page filler.

"The construction workforce would typically comprise young single men, who would be made up largely of FIFO and DIDO workers. As a consequence, no long-term change in the population or demography of local areas is anticipated.

Wudinna and Tumby Bay police stations are staffed by one officer."

Comment 133
What representation has been made to SAPOL for the assignment of additional Police resources at Wudinna and Tumby Bay to cope with the significant influx (1950) of single men in the respective Cape Hardy and Warramboo mine camp sites?

Any suggestion that there will be no social problems associated with this influx is clearly a figment of the applicant’s imagination.

In the absence of evidence to the contrary, the applicant’s alcohol and drug policy does not appear to be attached to the application. It is assumed a zero tolerance to alcohol and drugs in line with the SafeWork Act is the accepted code of behaviour whilst on the job.

QUESTION 50
Does accommodation in the company provided camp constitute being on the job?

"The construction camp at the port site would be in use for approximately two and a half years, with the accommodation units being decommissioned and removed after the completion of the construction activities. During operations, Iron Road anticipates that the workforce for the port would live locally in residential housing and commute to work on a daily basis” (page 113/201)

The assessment of available accommodation includes:

“Around 100 operational workers would be required for the proposed port development. It is Iron Road’s expectation that the majority of the operational workforce would live locally, in townships or surrounding rural areas. These workers would be drawn from existing local residents or people who choose to relocate to the lower Eyre Peninsula to live and work. Assuming that half of the 100 operational workers were new residents, this would potentially equate to 50 new households. As discussed in Section 4.2.2, towns that can be reached within 45 minutes by car of Cape Hardy include Port Neill, Tumby Bay and Arno Bay, while Cowell, Cleve, Cummins and Port Lincoln can be reached within an hour or so, from where it would be possible to commute daily for work. In addition, some workers may choose to work on a FIFO basis, and would be
accommodated in local short-term / visitor accommodation, as Iron Road does not intend to maintain long term accommodation at the port." (page 117)

The assumption that the workforce for the Port would be drawn locally is just that, an assumption. Where is the evidence to support the assumption?

What is the workforce profile for the port and how does this match the skills of locally available candidates?

"An assessment of the housing market in the DC of Tumby Bay suggests a relatively high proportion of dwellings (around 30%) were unoccupied at the 2011 Census (ABS 2012a), including close to 200 dwellings in the township of Tumby Bay and over 100 dwellings in Port Neill. Almost 90% of dwellings in Port Neill and 70% of dwellings in Tumby Bay are owned or being purchased. This includes a number of shacks and holiday homes, with a ‘significant proportion of dwellings in the township occupied predominantly on a seasonal basis’ (DC of Tumby Bay 2013c, Port Neill Sustainable Future Structure Plan). The Port Neill Structure Plan further notes that the ‘unoccupied nature of two thirds of the existing dwellings within the township means that the township could theoretically accommodate a tripling (or slightly greater with an increase in the average household size from 2.0 to 2.2) of the population without requiring the construction of any additional dwellings. This would take the population in the current dwelling stock [of around 136 people] to something in the order of 400 persons’." (page 118)

Comment 134

The depth of research analysis in relation to the available accommodation in Tumby Bay and Port Neill is indicative of the minimalistic approach taken by the applicant in this application. Clearly the reason for the 200 (if accurate) and 100 (if accurate) supposedly vacant premises is that these houses are owned by locals and are most likely, holiday houses which is characteristic of the lifestyle of these communities.

The assumption or inference that there is a wealth of available housing is misleading, leading to the question what accommodation will the applicant provide for long term employees associated with the operation of the port?

It is noted that building approvals in Tumby ay have declined to the period 2013. What is the current level of building approvals and then the trend over the past five years to 2015, given that the final version of this component of the report was signed off 4 Nov 2015?

"Residual impact

Given the size of the operational workforce, the availability of housing for rent and purchase in townships within commuting distance of Cape Hardy, and existing structure plans for Tumby Bay and Port Neill, the impacts on housing are predicted to be negligible" (page 118)

Comment 135

Given the lack of understanding as to the true nature of the so called vacant housing in Tumby Bay and Port Neill as described, the conclusion lacks credibility.

"In addition, the development of the long term employee village on the perimeter of town could potentially lead to perceptions of an ‘enclave’ of highly paid workers, living in separate facilities ‘outside’ of the residential community, who support the town’s economy but have a limited sense of connection to it, and do not participate in, or contribute to the functioning of the community." (page 119)

It is noteworthy that the applicant has identified one of the most significant social cohesion problems that most likely will arise not only in Wudinna, but potentially across all sections of the project and more-so where FIFO or DIDO employees are involved.

Significant research has been undertaken as to the social impacts upon communities involved with FIFO and DIDO workforces. Clearly these impacts have not been brought to this discussion.
"The use of local services and facilities by the LDC workforce would also increase opportunities for interaction between non-resident workers and local residents, and promote a greater sense of familiarity and belonging. Directing." (page 120)

Comment 136
Unfortunately the opposite conclusion is also a distinct possibility, namely resentment at the increased competition for existing services.

"The operation of the port is not expected to affect the sense of community or impact people’s way of life in the long term, and residents, workers and visitors would be able to continue to live and use the local area in the same way they currently do." (page 120)

"Negligible residual impacts on social character and well-being are predicted from the operational workforce in the DC of Tumby Bay." (page 120)

Comment 137
The reality of course is the use of the marine environment will now be severely restricted as a consequence of the port facilities. In addition the impact of the port upon the marine environment will be significant despite contentions of the applicant to the contrary.

The impact of the construction workforce for the two and an half years is not well articulated. There will be potentially a significant impact upon the services provided by Tumby Bay (given the paucity of services available in Port Neill).

What is the predicted impact upon medical, dental, community health pharmaceutical ambulance, emergency services of an additional 600+ construction workforce available in Tumby Bay?

It is noteworthy also that the description of the airport facility at Tumby Bay is inaccurate. The airstrip is sealed and has pilot operated lighting system for night time use. It is frequently used by the Royal Flying Doctor Service.

The conclusions presented are not credible.

Cost of Living (page 121)
"Negligible residual impacts on cost of living are predicted within the DC of Tumby Bay."

Comment 138
Given that no discussion of the potential impact of significantly differing wage/income profiles between company workers and that of the District, and in particular, the township of Tumby Bay or Port Neill, the conclusion appears to lack credibility.

Safety and Security (page 122-3)
"A LDC workforce provides companies with considerable control over the labour force as accommodation and work sites are usually ‘closed’, the supply of alcohol is regulated, and worker behaviour is closely monitored, with minimal opportunities for negative interactions with the broader community."

Comment 139
If this is the management plan for the Wudinna Accommodation Plan, then it would appear to contradict to ‘integration’ of the workforce with the local community model espoused by the applicant. The question being, which model is to be recognised as that applying to this application?

"The design of the construction camps at both the port site and the mine site includes a gatehouse and security systems at the entrance to monitor and control access to the camps

Workers would be required to sign a ‘Code of Conduct’, linked to their employment contract, outlining behavioural expectations applicable at workforce accommodation and in local towns. Contractors as well as
employees would be required to adhere to the code of conduct and Iron Road’s policies regarding drugs and alcohol.”

Comment 140
The proposed management criteria for the camps and obligations of the employees is noted.

It is also noted the very limited Police presence in both Wudinna and Tumby Bay. The application is deficient in detail as to how this Police presence will be supplemented should the project be approved and implemented.

Public safety is a major concern, and with both Police Stations only offering 9-5 services, the concern is enhanced.

This question also goes to the provision of a safe work environment for the Police Officers assigned to Wudinna and Tumby Bay, by SAPOL.

"Negligible residual impacts on safety and security are predicted within the DC of Tumby Bay." (page 123)

Comment 141
Clearly the applicant, in drawing this conclusion with respect to Tumby Bay has total disregard to the potential social impact of an itinerant workforce, predominantly single males (located at Cape Hardy) as raised by the community of Tumby Bay.

The assessment is not credible.

Critical Population Groups
"Negligible residual impacts on critical population groups are predicted within the DC of Tumby Bay." (page 124)

Comment 142
Given the arguments and population/economic profiles presented in this report, the above conclusion appears to contradict the evidence presented.

Another interpretation of the data relating to Cape Hardy workforce may well be, "it's not on the townships doorstep, therefore out of sight and out of mind, and they will not complain anyway!"

"Iron Road would also be required to pay rates on land within the proposed mining lease." (page 128/201)

Comment 143
It is the understanding of the Associations that Mining Lease holders do not pay rates to Local Government. They are required to pay royalties to the State Government under the provisions of the Mining Act.

The question being, therefore, what is the loss of revenue to the Wudinna District Council as a consequence of granting the Mineral Lease?

The potential loss of Council revenue is a cost to the community, one which no doubt will be passed on to those remaining, this being a significant social impact that appears not to have been accounted for.

The loss of agricultural land is being considered in the context of a micro study. What is being ignored is the loss of sustainable food producing land per se, ie the bigger picture and the potential contamination of a significant foot print outside the actual mine footprint as a consequence of fugitive dust and the contaminants it contains.

(i) Loss of agricultural land
"The residual impact is predicted to be low in the short term, assuming that fair agreements and compensation are negotiated with directly affected landholders." (page 128)
Comment 144
There are some substantial assumptions being made in the so called 'residual impacts'.

The applicant has threatened legal action in the ERD Court should there be resistance to purchase of property. The application to date has not mentioned the potential for compulsory acquisition of property under the Development Act (s26/48 Major Development status assigned to project and s78 compulsory acquisition powers under the Act).

The question of fairness appears to be a one sided process. The applicant requires the land, but the landholder loses a business, so what value is to be placed upon the land? Its income producing capacity as an agricultural enterprise or simply the land value. Livelihoods apparently are not included in the negotiations. So what is ‘fair’?

Perhaps there should be Government Policy developed for inclusion in the Mining Act/Regulations that determines what is ‘fair’ in these circumstances.

It is suggested that the market value of the property pre any indication of mining (ie normal market value) should be the benchmark, to which is added a compensation allowance of 85% which has been used in other ‘negotiated’ situations, plus all legal fees and charges to be met by the applicant.

Such a benchmark position would clearly resolve the social issues of stress, anxiety, depression etc associated with the impact of a mining application over the family business which appear to commence from the time it becomes known that an Exploration Licence has been issued over their property (ies).

Comment 145
(iii) Amenity
It is significant that dust (fugitive dust) is of high concern. Dust from the proposed mine will pose issues with visual amenity, nuisance and health impacts.

As outlined in this response, there are significant issues relating to the Air Quality assessment provided in the application.

It is significant that the health issues associated with fugitive dust are simply not dealt with as the position of the applicant is that there are none as 'ore dust is non-toxic' Granite May 2014). Research would suggest otherwise.

The health impacts of fugitive dust has been brought to the attention of the applicant, but answers have not been forth coming.

The question therefore becomes, what is the health impact of fugitive dust (and it unknown/undisclosed contaminants) upon the community at large, having regard to the longevity of the mine and the fact that this might not be the only mine given the disclosures of reserves provided to the ASX.

Again, this section refers to ‘future work’ vide the dust management plan which is clearly out of the realm of public scrutiny (transparency). The application is clearly deficient in identifying the risks and appropriate mitigation measures.

The arguments presented in this section and the conclusions drawn are refuted based upon the responses previously made to the air quality and noise assessments.

Road closures
"The residual impact is predicted to be medium as a result of the increased travel time and inconvenience for local residents, landholders and other road users from the permanent closure of public roads around the mine site"

Comment 146
The assessment appears to be devoid of consideration as to the economic and social impact of the said road closures on the community per se, not just those surrounding the proposed mine site.
It appears no consideration has been given to the increased travel time for emergency services to reach the eastern side of the mine. This becomes a significant issue in the case of a bushfire, and given the stated dismissive position of the applicant with respect to bushfires, significant concern has been expressed as to access for CFS facilities in such circumstances. Travel times are critical but only considered a 'medium' inconvenience for the next 25 years or so by the applicant.

Clearly this attitude is not consistent with a social licence to operate.

**Cape Hardy**

"Social impacts associated with the proposed deep sea port facility at Cape Hardy including altered access to coastal areas, changes to land and marine-based activities, and altered land and seascape affecting local land values and amenity" (page 132)

**Comment 147**

It is not made clear to date of the exclusion zone on the marine environment surrounding the port infrastructure, including the shipping lanes.

These exclusion zones will have an impact upon local and possibly commercial fishing.

**(i) Access**

Several changes are proposed to the public road system near the port site. These will be subject to further consultation with the DC of Tumby Bay as detailed design progresses and include:

- The construction of new bridge over rail for the existing North Coast Road at the northern port site boundary.
- The closure of Brayfield Road on the eastern side of North Coast Road and upgrade of Brayfield Road between North Coast Road and Lincoln Highway.
- A minor realignment and upgrade to sections of the Port Neill Access Road, including the Port Neill.
- Access Road/North Coast Road intersection and Port Neill Access Road/Lincoln Highway intersection.

**Comment 148**

The changes to access are noted.

However, an examination of the Minutes of Meetings of the District Council of Tumby Bay do NOT disclose that any of the above have been formally brought before a meeting of Council, let alone brought to the attention of the community of the District and its ratepayers.

"In addition to the above, Iron Road has requested each of the four impacted District Councils to give consideration to entering into a Memorandum of Understanding (MoU) prior to the EIS being determined. The EIS Guidelines refer to setting out details of Management Agreements between Iron Road and each impacted District Council, but the CEIP has not progressed sufficiently enough at this stage to enable Management Agreements to be negotiated" (EIS:6-14)

**Comment 149**

It should be noted that the publicly held position of the District Council of Tumby Bay is that MoU are "not worth the paper they are written on" as stated in the Council Meeting of November 2015 at which members of the Association were in attendance.

"A suitable port boundary would be designated as the limit of jurisdiction of the port operator (see the proposed port operating limits (marine waters) on Figure 4-10).

During construction activities, appropriate exclusion zones would be established to ensure public safety for people on land and on or in the water, and to protect marine life. There would also be some restrictions on boating, swimming, diving, mooring or anchoring in the vicinity of the wharf and jetty, and during loading and unloading of vessels to ensure public safety. These restrictions would be determined by the South Australia Department of Planning, Transport and Infrastructure and would form part of a port operating agreement."
Comment 150
Clearly the application is lacking in detail (and hence transparency) to enable the community to make appropriate commentary upon the social impact when the impact cannot be realistically assessed. It is agreed, there will be impacts, but to what extent?

Impacts on the basis of public safety are not disputed, provided they are articulated. This is not apparent herein.

The assessment of negligible impact is clearly contestable and not credible in the absence of definitive information. It is noted some restriction (50m) would apply around the jetty complex. A more definitive position with a legislative base is required given the frequency of vessels to be arriving and departing and the size of these vessels (cape class) so that the public can assess the actual impact.

(iii) Amenity
"Local residents and visitors may experience some disturbance, inconvenience and loss of amenity associated with the construction and operation of the proposed port. Technical assessments of noise and vibration, air quality, traffic and visual amenity are contained in the CEIP EIS. This section deals with associated effects on amenity in terms of people’s experience and enjoyment of the local environment.

Construction activities at the proposed port would take place over a period of approximately two and a half years, 7 days per week, and up to 12 hours per day. Blasting would occur over a period of approximately 5 to 6 months as part of construction of the port infrastructure. Personnel would be on site between 6am to 6pm, with construction occurring between 7am and 5pm. The majority of the construction workers would fly-in and fly-out from Port Lincoln, and would be bussed to the onsite accommodation camp and work sites at the port."

Comment 151
It is noted that a discussion of the compliance with the District Council of Tumby Bay Development Plan (as amended) is not a feature of this application and so comparisons with the existing requirements for all other residents of the District Council are not included.

This of course arises from the fact that the project has major development status. It is noted that compliance with the recently Gazetted Council’s Coastal Zone is not required, however other are forced to accept the impost.

It is noted that a number of roads will disappear, whilst other will require significant upgrading. The future of the coast road (track - unmade road) along the coastline is not made clear in the application at this point. If this is to be subsumed by the project, then this is clearly a loss of amenity for the community, one which has not been broadcast by the applicant or Council.

Further, the loss of designated roadways and unmade road assets of Council have not been made public prior to the release of this document. What therefore is the economic loss to Council and thus the ratepayers as a consequence of the proposed action?

It is noted that blasting will occur over a 5-6 month period. It is assumed the impact assessment of this occurs with the EIS document for the infrastructure corridor. However what is the impact upon the residents of Port Neill and the local resident?

Again, it is noted that the majority of the work force will be FIFO ex Pt Lincoln. The question of the oft touted ‘local employment pitch’ that was a feature of presentations of the applicant, are clearly not credible.

Para 1, page 231 introduces a discussion of noise with the claim that construction noise will be within acceptable limits. It continues to discuss vibration levels and their predicted impact of operations of the train etc. It is suggested that whilst vibration might be an issue, the real issue is noise transmission from the site to the nearby township of Port Neill and those other receptors in the vicinity. Trains, whether loaded or unloaded, generate noise and infrasound. In addition heavy machinery associated with the complex also generates noise.
Comment 152
The question being whether the application has addressed the level of noise transmission (inclusive of infrasound) emanating from the site, be it across the landform or across the water to Port Neill and other nearby receptors?

Noise transmission is also dependent upon meteorological conditions. It is understood that no site specific meteorological observations exist. Port Lincoln BoM is some 80 kilometres to the south. It is known weather observations vary considerably the further north one travels.

"There is no existing wind monitoring station at Port Neill. The nearest coastal monitoring station is at Port Lincoln." (EIS 7.3.2)

Comment 153
Given that the nearest BoM weather station is Port Lincoln and that no site specific meteorological data has been collected, the noise and dust dispersion models clearly lack credibility.

Figure 4-14 Sensitive receivers within 2 km of the infrastructure corridor (south)
Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

Comment 154
The problem with the Figure 4-14 is the missing information between Cape Hardy and the Mount Hill Coomaba Road. The applicant is therefore NOT providing a complete picture with respect to the corridor and the potential impact it would have upon the families not identified.

This is a significant omission when consideration needs to be given to the impact of noise and fugitive dust upon these unidentified receptors as well as other ‘factors identified' in this Report.

"Iron Road is committed to negotiating consistently and sensitively with directly affected landholders to achieve agreements with all parties." (page 146)

Comment 155
Whilst this appears to be a reasonable corporate goal, the reality is that the corridor is subject to major project status under s46/48 of the Development Act. As such, s78 of the Development Act Compulsory acquisition, may come into play. There does not appear to be any recognition of this fact nor the social consequences arising there-from.

The spectre of compulsory acquisition has been present since the Government declared the major project status of the CEIP.

The corridor may have significant management impacts for those affected. These include re-alignment of fences, water reticulation, crossing points and the potential to not access part(s) of the property. The question being, who bears the expense of these management impediments, given that they are for all intensive purposes permanent?

It has been suggested that crossing points on private property will be limited to one. An assessment of such a limitation would suggest that it is unworkable in reality. In one instance a limit of one crossing for a property containing several kilometres of corridor is totally impracticable.

The social impacts (including mental health) of these impediments do not appear to be recognised in the application.

The overarching threat of compulsory acquisition is not a basis for ‘fair’ negotiations as claimed by the applicant.

"The assessment of noise and vibration noted the high level of acoustic amenity enjoyed by rural residents with minimal human induced noise sources. It found that construction works undertaken on a Sunday or a public holiday or during the night time (if required) would require a separation distance of at least 1-1.5 km between the construction work and a sensitive receiver in order to meet the requirements of the Environment Protection (Noise) Policy 2007 (Noise Policy). However, if the separation distance cannot be
achieved, specific environmental management controls would be implemented to ensure Noise Policy criterion are met. These controls would be detailed in a construction environmental management plan. (page 148)"

Comment 156
The question being what the baseline noise levels are at each receptor site against which any impact (perceived or real) can be measured. Given the use of heavy machinery, what are the levels of infrasound transmitted to the receptor sites?

It is noted the intention to include specified environmental management controls in a construction management plan, the details of which constitute 'future work' not subject to assessment or review by the public.

Clearly, the minimalistic approach continues.

"The assessment found that gaseous pollutants were unlikely to exceed relevant air quality standards at distances of 140 m or more from the railway line, with the closest sensitive receptor located 140 m from the proposed railway line". (page 149)

Comment 157
The problem being the baseline testing for air quality is flawed. In the first instance the baseline must be recorded at each and every receptor on the corridor. Secondly the meteorological data must be site specific. Thirdly the collected sample must be analysed for PM10 and PM 2.5 inclusive of the analysis for diesel particulates.

Having obtained the baseline data, then a predictive model can be generated with air pollutants characteristic of that from Diesel trains and all diesel powered machinery operating in the immediate vicinity. Having established a normal baseline (no port) and a predicted model (more representative of the area) actual monitoring can continue at all receptor sites to ensure that the predicted value and the actual value are below the accepted level.

Such a program will also provide benchmarking in the event of claimed poor air quality arising from some activity being undertaken by the applicant, leading to virtually immediate mitigation.

All air quality and noise measurements must be available in real time to the public.

The health and welfare impacts of noise and fugitive dust appear not to be addressed to the level that establishes an appropriate baseline from which real time impacts can be determined.

Changes to transport networks (page 149)
"Operation of the infrastructure corridor would also require the realignment and upgrade of several local roads which will be reviewed and confirmed in consultation with relevant DCs."

Comment 158
Given that the proposed changes involve expenditure of an hitherto undisclosed sum of money, the lack of transparency with this non-disclosure, when couple with the socio-economic structures of the various District Council (as outlined in the Report) in absence of evidence to the contrary, potentially places additional burden upon the ratepayers of these District to meet the costs.

It has been noted that the applicant sought to have a variety of MoU's with Councils on a variety of road matters, but that these have not eventuated.

As mentioned in the case of the District Council of Tumby Bay, such documents are considered a waste of paper. Notwithstanding this position, the application is devoid of a cost estimate of such upgrades, particularly in Council areas where there is a significantly low socio-economic position, leading to the question of whether ratepayer funds will be used in this regard.
This apparent undisclosed cost to ratepayers needs to be determined before any approval is given. The right of ratepayers to object to the costs must be upheld. Ratepayer funds are not there for the benefit of the applicant.

“A construction traffic management plan would be prepared to minimise potential impacts on the community and the operation of the road network.” (page 150)

**Comment 159**

Given the nuisance value of road works and the inconvenience caused, the so called ‘future work, the construction management plan’ needs to be included in this application. Further, the plan needs to be compliant with the District Council of Tumby Bay's heavy vehicle requirements.

Transparency is required on all factors likely to impact the social fabric of the area in question.

**Table 4-7**

"Increased competition for workers and resources, attracting them from other sectors of the local and regional economy, including agriculture and fishing”.

As mentioned elsewhere in this response, the competition for workers and resources is considered a major disincentive to the ‘economic benefit’ to the community. The resultant situation being increased costs for existing industries.

*Population increases and demographic change in Wudinna:*

- Reduction or reversal of population losses in local and regional areas, by attracting and retaining families and young people.

**Comment 160**

Population increases as a consequence of FIFO and DIDO alter significantly the socio-economic mix of the towns impacted. Experience in other places would suggest the impact is negative (Pilbara region).

Statistically there may be a population increase, but it is not a sustainable increase in the long term.

The retention of families and young people has not been established in the application.

*Potential population increases bring a critical mass to:*

- sustain services and businesses in Port Neil

**Comment 161**

The ‘evidence to support this contention’ is not apparent.

The assumption that the so called un-occupied residences in Pt Neill will be available to potential employees is without foundation. The greater majority of these houses are 'holiday residents' owned by persons in the District and beyond.

*Expanded membership base for volunteer organisations*

**Comment 162**

Experience in other comparable places would suggest this is not a credible assumption.

*Increased demand for, and utilization of social and community infrastructure in Wudinna as a result of the operational LDC workforce and population increases.*

**Comment 163**

It is recognised there will be an increased demand for services not only in Wudinna but also other communities impacted by the number of persons as a consequence of the proposal.
The information provided with respect to the employee profile is devoid of detail with respect to families and the number of children involved.

The provision of health services (and allied fields) and education facilities do not materialize over night. What therefore is the predicted impact upon these facilities as a consequence of the proposal? The lack of assessment of need is a major flaw in the application.

**Increased demand for housing and accommodation in the DC of Tumby Bay affects local supply and affordability.**

**Negligible residual impact** on housing from:
- the port’s operational workforce given the availability of housing in the DC of Tumby Bay and surrounding areas.

**Comment 164**

The conclusions drawn here appear to contradict the reality. The assumed availability of some 200 residences in Tumby Bay is without foundation. As in the case of Port Neill, most of the identified 'vacant' residences are owned by persons within the District and beyond and are holiday homes. Some may be available for short term rental, but the reality is, most will not.

Clearly more work needs to be undertaken with respect to the availability of housing in the local areas in order to address the supply and demand equation that will eventuate if the proposal is approved.

In the event the supply is deficient, what is the applicant’s position with respect to the provision of long term housing in Tumby Bay, Pt Neill, and Cleve and to a lesser extent, Wudinna?

**Potential impacts on critical population groups who may be more susceptible to adverse impacts, including women, children, older people and people on low incomes**
- **Negligible residual impact** on social character and wellbeing in DC of Tumby Bay from the construction or operational workforce.

**Comment 165**

The reality for Tumby Bay and Pt Neill with respect to the construction workforce is the potential competition for services provided in Tumby and the perceived threat associated with large numbers of itinerant workers descending upon the township (especially the hotels).

Outside of the normal sporting clubs, there is limited facilities in the entertainment category, ie no cinema or Clubs (vide the City Clubs scene).

The appears to be no needs analysis of the impact of the work force upon health services in Tumby Bay, noting there are no health services available in Pt Neill. A simple question being is there enough doctors in Tumby Bay to cater for the proposed construction work force impact?

The conclusion is not credible.

**Safety and security**
- **Heightened concerns about crime among residents**
- **Negligible residual impact** in DC Tumby Bay from the construction or operational workforce.

**Comment 166**

The reality for Tumby Bay and Pt Neill with respect to the construction workforce is the potential competition for services provided in Tumby and the perceived threat associated with large numbers of itinerant workers descending upon the township (especially the hotels).

Outside of the normal sporting clubs, there is limited facilities in the entertainment category, ie no cinema or Clubs (vide the City Clubs scene).
This is further exacerbated by the fact there is a single Police Officer stationed in Tumby Bay (none in Port Neill) on a 9 to 5 basis, with emergency support from Pt Lincoln some 50 kilometres away.

The conclusion is not credible.

*Minor impacts on recreational, boating or other marine activities during operations at the port.*

**Comment 167**

Whilst there is some indication of the exclusion zone around the proposed jetty, the detailed management of this area having regard to the frequency and size of the vessels involved (cape sized) and thence the propeller wash generated by these vessels and associated vessels and the shipping channel, together with the already declared aquaculture exclusion zone, needs to be articulated in order that the public have a full understanding of the restrictions to be imposed.

A comparison with the exclusion zone proposed for the proposed Port Spencer project would suggest more details are clearly warranted.

*Establish real-time dust monitors at government approved locations*

**Comment 168**

Given the paucity of real time dust and noise monitoring at the so called 'receptor sites' outlined in the application, it is RECOMMENDED that all receptor sites become government monitoring sites for the purpose of determining noise and air quality levels during both construction and operation phases of the project.

It is RECOMMENDED that the cost of such monitoring be borne by the applicant, given that it has failed to undertake such baseline studies for the purpose of this application.

Given the potential hazards identified in this response with respect to fugitive dust and noise (including infrasound) the conclusion that 'some inconvenience' may result over the lifetime of the project is clearly not acceptable in terms of achieving a social licence to operate.

*Low residual impact from the loss of agricultural land within the mine footprint, assuming that fair agreements and compensation are negotiated with directly affected landholders.*

**Comment 169**

As mentioned previously in this response, the question of fairness is academic in the context of potential compulsory acquisition of property under the Development Act (s78) and under the threat of legal action (ERD Court).

The conclusion of low residual risk is clearly not credible.

**Mine and Village conclusions**

"Some workers may visit nearby townships to purchase goods or for recreation and leisure activities, demands on social services and infrastructure are expected to be limited". (page 159)

**Comment 170**

What is the predicted demand upon medical (including dental) services arising from the construction camps at Wudinna and Cape Hardy?

What is the capacity of the services in Wudinna and Tumby Bay to meet this need?

"Population modelling indicates that the mine’s operation could potentially result in growth of between 260 and 960 people, if 20% to 60% of workers and their families chose to relocate to the Wudinna DC."

**Comment 171**

The operative words are "'could' and 'if'... workers and families migrate..."
What incentives exist to encourage such migrations to occur? In the event that these estimates were taken up, where is the resultant needs analysis for family services and educational services in the township of Wudinna (and an equivalent series of questions for Tumby Bay and Pt Neill)?

The education facilities available would be a major issue in the decision to choose to migrate. The long term educational plan for the town (and for other affected towns) is not disclosed.

**Cape Hardy and DC Tumby Bay**

"A workforce of approximately 100 people would be required during the operations. It is anticipated that the majority of the operational workforce would live locally in nearby towns, including Port Neill and Tumby Bay."

**Comment 172**

As described in this response, the assumption appears to be the local housing stock can accommodate the operational workforce for the Port. It is strongly suggested that this assumption is without foundation.

**Transport corridor**

"There are 66 sensitive receivers located within 2 km of the proposed infrastructure corridor and 26 located within 1 km of the infrastructure corridor. All but one of the sensitive receivers is believed to be a residential house."

**Comment 173**

Further to previous commentary on hazardous associated with noise and fugitive dust, it appears that none of the 66 identified receptor sites within the transport corridor have had baseline noise and dust measurements undertaken. That being the case, the affected landowners have no basis for complaint unless they actually fund the taking of baseline noise and dust measurements.

Baseline noise and dust measurement is essential to ensure public health safety standards are met as a consequence of the potential impact of the applicant's activities. Such measurements must include baseline measurements for diesel particulates.

It is noted that some road re-alignments may be required at rail crossings. It is RECOMMENDED that an assessment of each crossing be undertaken to determine the impact of the angle of the sun on visibility at the crossing, especially where the line is in a north-south aspect to the passage of the sun. It is on record that sun blinding upon the approach to a railway crossing has been a cause of death in train/vehicle accidents at such crossings.

It is unclear as to whether all crossings will have flashing lights and appropriate line of sight upon approach to the crossings.

**Population Scenario Modelling**

"Around 100 workers would also be required for the operation of the port, who would reside locally. The construction and operations workforce for the proposed port are unlikely to impact on the population or demography of the DC of Tumby Bay". (page 166)

**Comment 174**

It is assumed that the 100 or so can actually be accommodated in the local community, an assumption that is without empirical evidence to support it.

"In order to plan for potential population increases in Wudinna, Iron Road will provide further information on the workforce and timing as detailed planning progresses, and participate in planning initiated by the South Australian Government, Wudinna District Council and other service providers as appropriate.” (page 176)
Comment 175
Given that this is an application for a mineral lease and that this is the only document that is subjected to public scrutiny, the afore mentioned statement provides little confidence to the community that the modelling, in the context of significant downturn in mining across the State (as evidenced by retrenchments at Roxby Downs; Leigh Creek, Prominent, Valance (Uley Graphite)) and that seen in the economic downturn of commodity prices across the world, the question is whether the modelling provided above accurately reflect to reality of the current situation and the availability of a significant experienced work force (as a consequence of the retrenchments).

The reliance upon 2011 data is of concern, given that it is four/five years out of date.

The reliance on the use of the 'Roxby Downs' model is to be questioned in the context of the very different economic circumstances surrounding the establishment of the Roxby Downs venture, including the creation of the Indenture Bill and the financial credibility of BHP.

It is RECOMMENDED that the Australian Institute be engaged to undertake a peer review of the modelling undertaken in this application.

It is noted in the population data (triangle at top of page 174) that the figures appear to include the District of Le Hunte. The question is simply why, when it is the population of Wudinna that is under examination?

Appendix MLP – I
Traffic Impact Assessment
"Iron Road intends to use modular construction methods for large scale infrastructure and buildings at the mine site and port site. This method will involve performing the majority of the construction work at an off-shore preassembly yard and shipping the substantially completed assemblies to the proposed module offloading facility at the port site. The large modules will be transported from the port site to the proposed mining lease using public roads during the construction phase of the CEIP. This pathway is called the module delivery route for the purposes of this report". (underlining added)

Comment 176
It is noted that the bulk of construction will be in a module form, BUT that it will be constructed "offshore".

The only inference that can be drawn from this statement is that Australian workers and Australian suppliers will NOT be involved in the manufacture of these components, despite the so called agreement supposedly entered into with Australian authorities (as suggested in the applicant’s non-disclosed Australian Industry Participation Plan).

It can be inferred, in the absence of evidence to the contrary, that all infrastructure associated with the Port, and rail corridor will also be manufactured off-shore.

What, therefore is the economic value to South Australian Industry and for that matter, Australian industry, if this is correct?

The value of any economic consideration to the Eyre Peninsula, the State and Australia should therefore be discounted accordingly.

Transport Assessment
"Existing roadway level of service was calculated using the Highway Capacity Manual (HCM) volume 2, chapter 15 methods for analysis of two lane highways (TRB 2010)."

Comment 177
It can be inferred from this statement that the assessment was a desk top assessment. The question being was it verified through actual vehicular counts undertaken over a period of twelve months, having regard to the cyclic regime of the agricultural industry?
Comment 178
The question being was the assessment conducted in the presence of the works managers (or equivalent) of the various District Councils whom have responsibility for some of the roadways?

"The bulk of rural movements on the Eyre Peninsula, including most road and all rail movements, are for freight transport"

Comment 179
There appears to be an inconsistency with this conclusion and that presented in Table 3-3 where the % of heavy vehicle movements do not reflect 'the bulk'.

"3.1.5 State Road Seasonal Variation of Vehicle Movements
An assessment was carried out on traffic count data from 12 locations across the Eyre Peninsula. This assessment involved looking at yearly traffic data to see if there was any season variation in traffic volumes. Of the 12 locations, five of them only had a week long traffic count data (which doesn’t indicate any seasonal variations) and therefore were discarded. Of the remaining seven, for any traffic count locations which were situated above Goyder’s Line there was no obvious seasonal variation. Above Goyder’s Line crops generally don’t grow, therefore there would be no seasonal variation in vehicle trips due to grain carting. Below Goyder’s Line however there were increased vehicle trips in November and December. This increase in vehicle trips can be attributed to crop harvesting. Therefore there would be an increased number of commercial vehicles on the roads below Goyder’s Line during November and December as farmers cart grain to silos in nearby towns. A map giving an indication of where Goyder’s Line passes through South Australia (as there is no definitive location and it is very slowly moving further south) is given in Figure 3-2".

Comment 180
It is assumed that the veracity of the above statement has been confirmed by consultation with the Agricultural Industry and PIRSA. Perhaps the authors of this section of the application actually visit the area to verify their ‘assumptions’. The farmers of the Kimba area would not necessarily support their contention.

Desktop surveys are not necessarily reflective of reality.

"3.1.7 State Road Asset Condition
Data on existing pavement asset condition was requested from DPTI but detailed data was not available externally when requested."

Comment 181
Given that this report was generated in 2013 leaving all of 2014 and 2015 to obtain the updated material, the question is upon what basis were the roads assessed?

"3.2.4 Module Route Local Road Network
During construction of the proposed mine site, modules of the mine plant arriving at the module offloading facility would travel to the proposed mine site via the haul route. The haul route consists of the following roads:

- North Coast Road
- Port Neill Access Road
- Lincoln Highway (Port Neill Access Road to Balumbah-Kinnard Road)
- Balumbah-Kinnard Road
- Birdseye Highway (Rudall to Lock)
- Tod Highway (Lock to Warramboo)
- Kimba Road (Warramboo to proposed mine site)

As transport of the modules along the haul route will be at low speeds (between 1 km/h and 40 km/hr depending on the size of the module), traffic will be detoured on to local surrounding roads which are generally unsealed, one lane each way roads."
Comment 182

It is noted that the Kinnaird Road has a 50-50 sealed non sealed surface.

It is also noted that this road will be a significant roadway for the transportation of the 'modules'.

That being the case, what is the assessment of this road to actually meet the requirements for the load capacities anticipated, together with the Kinnaird Road- Lincoln Highway intersection and the section of highway from the intersection travelling south towards Pt Neill.

Visibility at this intersect is restricted whether travelling north or south on Lincoln Highway.

"3.2.5 Proposed Port Site Local Road Network

The proposed port site would be accessed via the Lincoln Highway. Vehicles accessing the proposed port site would turn off the Lincoln Highway on to Port Neill Access Road, and then travel along Coast Road to the proposed port site entrance. North Coast Road traverses through the middle of the proposed port site from north to south. Brayfield Road crosses the proposed port site from the west before ending in a T intersection with Coast Road. A third local road, Kiandra Road is located at the southern boundary of the proposed port site."

Comment 183

It is noted no vehicle use rates are available.

It is noted these roads are under the control of the District Council of Tumby Bay.

What appears to be missing is the 'condition assessment and construction details' of these roads.

4.1.3 Vehicle Types

"Road restrictions are currently in place on roads on the Eyre Peninsula for certain vehicles. A-triple road trains are not currently allowed on Eyre Peninsula roads, however Performance Based Standards (PBS) vehicles are allowed which could carry the same amount of load as the A-triple road trains. This means that fuel delivery will have to be from a PBS vehicle."

Comment 184

What appears to missing from the application is the risk assessment of the proposition of having the equivalent of A-triple road trains on the Lincoln Highway carrying fuel.

4.1.8 Modularised Load Delivery

"These modules are due to arrive in a concentrated 3 to 4 month window, starting around month 18 of the construction period. They would travel along the haul route at different speeds, varying between 1km/h and 40km/h taking between one and fourteen days to reach the proposed mine (assuming 12 hour driving shifts). This would require pullover sites approximately every 12 km along the module delivery route clear of the public road carriageway. These pullover sites would need to be at least 12 m wide, allow for access for largest size module (53 m long x 13 m wide x 45 m tall) and would be required to be paved to take the modules weights (up to 3000 tonnes).

The exact locations of module pullover sites will be discussed and agreed with DPTI and the relevant District Council prior to construction." (underlining added)

Comment 185

Given the estimated size of the modules and the required pullover site requirements, where are the MoU or Heads of Agreements with the various District Council concerning the (a) construction and thence removal of the pullover area and (b) costs associated with same?
Without such MoU or agreements, the inference is that the local Councils will fund the construction of the pullovers as well as remediying any impact upon the said roads.

The estimated average volumes of traffic that would enter the proposed port site during operation of the facility are shown in Table 4-3 for each activity stream.

### Table 4-3 Port operational traffic Vehicle Movement Type Quantity

- **Day Shift Start (light vehicles)**  8/day
- **Shift personnel changeover - Bus**  2/day
- **Night shift change over**  8/day
- **Nightshift personnel changeover - Bus**  2/day
- **A-Double (PBS Level 2 vehicle) - Fuel**  1.5/week
- **A-Double (PBS Level 2 vehicle) - Supplies**  1/week
- **Maintenance Personnel**  1/day
- **Maintenance Deliveries (light vehicles)**  1/day
- **Maintenance Deliveries (trucks)**  1/week
- **Cranes & maintenance equipment (truck)**  1/month
- **Cranes & maintenance equipment (other)**  1/month
- **Customs Officers**  2/day
- **Frana (site based crane)**  1/day
- **Visitors**  1/day
- **Emergency vehicles (maximum)**  1/week
- **Waste disposal**  2/week

#### Comment 186

The underlying assumptions do not appear to meet those in other places in this application.

It is stated that 100 operational personnel will be required for port operations. Table 4-3 accounts for 8 light vehicles (assumed cars) per day and a bus.

Given that the residential addresses of the operational staff are assumed to be Pt Neill and Tumby Bay (in the majority), an explanation of the requirement of a ‘bus’ at change of shift is in order. A bus to and from where?

It appears that the port will be operated on a twelve hour shift basis.

It is noted two waste disposal vehicles per week. It is assumed that this contract already has an Head of Agreement or MoU with the service provider, being the District Council of Tumby Bay.

**4.2.4 - Consumables Delivery are not accounted for.**

#### Table 4-5 Yearly two-way CEIP traffic assigned to each State road in operation phase.

**Comment 187**

The table identifies significant increase in heavy vehicle use on the Eyre Highway ex Pt Augusta. There does not appear to be any discussion on the increased risks to road users of this increase, given that the Eyre Highway ex Pt Augusta does not have any slip lanes.

It is 'assumed' that DPTI has undertaken an appropriate increased risk assessment of the applicant's proposal. Unfortunately this is not included in the application nor appears to be available for public consideration at this time. It may be revealed when all commentary is posted on the DSD website as issues requiring to be addressed.

Given the very significant increase in traffic on the Wudinna to Warramboo to Nantuma Road components, the question is whether, in the interest of public safety, a series of slip (passing) lanes will be constructed on this section of highway?
Comment 188

Diversion routes ex port facility
It is noted (figure 5-1) that a series of diversions will be in place to facilitate the movements of modules from the port facility.

Of particular concern is the proposed diversions involving the Lincoln Highway and thence the significant disruption to normal traffic on this section of the road way.

A question therefore surrounds the state/condition of the proposed diversion roads to cater for such traffic.

The supplementary question being who assesses these diversion roadways to ensure they are safe to take the required traffic demand and who funds to cost of upgrading of the roads as a consequence of this proposal?

Comment 189

The Module Transporter
It is noted that the module transport will require specific turning circles and speed restrictions.

It is further noted that there will be significant traffic impacts within Port Neill, entrance off Lincoln Highway and entrance to Coast Road.

The issue being, whether this impact has been conveyed to the residents of Port Neill and their reaction to such restrictions being imposed as a consequence of the vehicular traffic and the 'transporter'. It is suggest that this has not been so conveyed.

Port Neill access to Coast Road.

Fig 5-6 Coast Road access  All traffic will come through this point.

Changes to road alignment etc due to module transporter
"Existing culverts and pipelines along the haul route may need to be widened in some locations to allow for the module width of 12 m. For example, the culvert length under an unsealed section of Balumbah-Kinnard Road is approximately 9 m (refer to Plate 5-5)."
Comment 190
As indicated previously, questions arise concerning the cost of road re-alignments or associated works, including the removal road side of native vegetation.

To date, and in the absence of any MoU to the contrary, the inference is that the local Council will be responsible for such costs.

If it the intention of the applicant to fund these costs, then where are the terms and conditions/heads of agreements outlining this intent or is this ‘future work’ that will not be subject to public scrutiny?

Traffic Impact
"The estimated increase in daily axle loadings (Equivalent Standard Axles or ESAs) from heavy commercial vehicles (HCVs) on the haul road pavements varies from negligible (0%) to considerable (1866%, but again from a very small base) over the same period. The impact of this additional loading on pavement condition is unknown and will depend on the existing condition and remaining life of the pavement. Iron Road will undertake pavement deflection (strength) testing on haul route pavements before and after the construction period to determine whether any remedial pavement rehabilitation treatment is required as the result of the CEIP construction." (page 69)

Comment 191
As indicated, the applicant will undertake future work (testing) on the haul routes.

Once again the application is devoid of critical information pertaining to the construction and condition of the roads under consideration and thus the potential cost to local government (in the absence of any Heads of Agreement on these matters) leaving the ratepayers with the potential unknown costs for such improvement works to be undertaken.

It is understood these costs are not insignificant.

Given the declared disadvantage of some of the LGA's in the project zone, any cost to the ratepayers is clearly represented by a denial of a community licence to operate.

Comment 192
Table 5-8 Summary of proposed infrastructure corridor level crossings and control measures
As mentioned previously in this response, one of the issues that appears not to have been taken into consideration is that the rail corridor is North-South orientated and the roadways East-West, with the issue being sun in a road users eyes in early morning and late afternoon posing a safety threat when approaching a railway crossing, especially a passive crossing.

Road Closure etc.
"The proposed road closures and alignments will be reviewed and confirmed in consultation with the District Council of Tumby Bay, District Council of Cleve and Wudinna District Council as detailed design progresses (page 81)"

Comment 193
Yet again more future work not subject to public scrutiny.

It is noted that MoU's or Heads of Agreement with local Council for these closures do not exist.

What therefore is the economic cost to the ratepayers?
6. Impact Management

"However, Iron Road will implement a traffic management strategy and road maintenance plan for public roads used by the CEIP".

Comment 194

More management plans that are not subject to public scrutiny.

Clearly the baseline work for this application appears to be deficient in yet another major aspect.

6.2

"The large heavy vehicles proposed for use during the construction phase may result in incidental damage to the road pavement and/or road furniture. Iron Road will develop a construction phase pavement management plan to manage these impacts. This will identify different types of possible road and pavement damage, inspection frequencies, intervention levels and required treatments. As part of the management plan, Iron Road will undertake pavement deflection (strength) testing on haul route pavements before and after the mine construction period to determine whether any remedial pavement rehabilitation treatment is required as the result of the mine construction".

Comment 195

This information should have been provided together with the cost sharing or otherwise agreements so that the community is fully informed of the impacts. Not just statements about 'future work'.

Omissions:

It is unfortunate that there is no detailed examination of the impact of the proposed traffic and rail on school bus routes operating in the Districts.

It is RECOMMENDED that all bus routes that cross the rail corridor have active warning systems.

It is noted that the inconvenience of the closure of the Warramboo to Kimba Road occupies little discussion time, other than the road users can travel on the Nantuma Roadway.

What is missing is the impact of the road closure upon emergency services (CFS and Ambulance) that operates out of Warramboo.

CHAPTER 23 Economics

23.3.1 Overview of Existing Economic Environment in Regional and Local Study Area

Given that the application was lodged late in 2015, the question of why the economic data used relates to 2010/2011 and 2012/2013?

Table 23-4 State, Regional and Local GRP and Employment in 2012/2013

Top contributors to GRP:

“for Tumby Bay

- Agriculture and fishing (42 per cent)
- Mining (20 per cent)
- Construction (7 per cent)
- Ownership of dwellings (6 per cent)
- Health care and social assistance (5 per cent)"

Comment 196

It must be noted that there are NO operating mines in the District Council of Tumby Bay.

It is true significant exploration activity (Eyre Iron/Centrex and to a lesser extent, Lincoln Minerals Limited) was occurring in the period 2012/13, but this activity has all but ceased with Project Fusion (Eyre Iron/ Centrex) not proceeding and some properties associated with this activity being sold.
What was the basis of the 20% contribution of mining to GRP for the nominated period?

What is the current contribution of mining to the GRP (2014-2015)?

23.3.2

"District Council of Tumby Bay

The DC of Tumby Bay has a population of approximately 2,586 (ABS 2011e) and is a largely rural, agricultural area. The local economy is predominantly based on the farming of cereal crops and sheep, with mining and fishing also being significant contributors.

GRP in Tumby Bay in 2012/13 is estimated to be $154 million comprised of $145 million in total value added and $9 million in net taxes. Agriculture and fishing is the major economic activity, contributing 42% to value added in 2012/2013.

Agriculture and fishing is the greatest contributor to employment with 971 FTE jobs in Tumby Bay in 2012/2013 (approximately 41%)."

Comment 197

As mentioned above the contribution of mining to the GRP for the District Council of Tumby Bay appears to be a gross exaggeration given the significant decline in mining activities in the District and the fact there are no operating mines or mines with mining lease approvals.

It remains true that a provisional development authority exists for the construction of Port Spencer (Lipson Cove), but all the evidence would suggest (Australian Securities Exchange reporting CXM) the Company is divesting its interest in iron ore in the region inclusive of the write down of the approved Wilgerup Mine (Lock) to possible land value only. Assumptions with respect to the GRP of mining for the Tumby Bay District require significant modification. to reflect the reality of today and not of 2-3 years ago and the advent of the demise of mining.

23.3.3

"The Wudinna DC is the LGA in closest proximity to the proposed mine and agriculture and fishing play a vital role in the local economy contributing close to 53% of the total value added". (underling added)

Comment 198

Clearly the geographical location of Wudinna would mitigate against the existence of a fishing industry.

What is the component that ‘fishing’ contributes to the GRP of Wudinna District?

Comment 199

23.5

Potentially Impacting Events

The assumptions made herein clearly discount the influences of the global market, noting that the mining boom is over; the global supply and demand equation is very much one of over supply; the influence of the China economy and ultimately the price of the ore (currently approx $US40/tonne).

The investment in iron ore has declined significant, giving rise to the potential lack of investors to fund the capital expenditure being identified to start this project.

Each of these events taken either singularly or collectively have a significant impact upon the viability of the project.

Table 23.5

"A Memorandum of Understanding (MOU) has been entered into with a global grain handling organisation. This MOU provides for both parties to jointly investigate the export of grain via the proposed port (subject to necessary upgrades and regulatory approvals)"
Comment 200
Evidence has been provided in this response in regard to the known risks associated with common export facilities (grain and ore) giving rise to contamination (or perceived contaminated) grain and the economic consequences thereof.

The impact of contaminated grain for the export of Australian clean green product is clearly not taken into account in this assessment.

23.7.2 Construction

"Iron Road will spend an estimated total of $4.8 billion during construction of the CEIP. The approximate breakdown of area where spend will occur across study areas is outlined in Table 23-7.

Table 23-7 Breakdown of Spend During Construction

<table>
<thead>
<tr>
<th>Local Study Area</th>
<th>Percentage of spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wudinna DC</td>
<td>11%</td>
</tr>
<tr>
<td>DC of Kimba Less than 1%</td>
<td></td>
</tr>
<tr>
<td>DC of Cleve</td>
<td>4%</td>
</tr>
<tr>
<td>DC of Tumby Bay</td>
<td>5%</td>
</tr>
</tbody>
</table>

Comment 201
The assumption being that approx $52.8M would be spent in the Wudinna District and approx $24M in the Tumby Bay District with the obvious question, on what? The application is very short on details in this regard.

Following this theoretical spend, the assumption of impact upon the GRP is assessed as of high benefit.

The problem being, the credibility of the assumptions made and the figure thus presented given the issues raised in our response.

The applicant continues to indicate the annual average benefit to local government will be $300000 (but it is assumed this is collectively for the LGA's concerned and not individually) thus raising the real question of what is the economic benefit to Councils in the absence of MoU's or Heads of Agreements with respect to Council infrastructure and services affected by the proposal. Again, the applicant is short on detail as to what the $300000 per annum is for.

It is noted a contribution to State finances of the order of $4M during construction, without explanation as to how this would be calculated as the applicant would not be generating income that would produce royalties during this period.

Whilst it is acknowledged that there may be employment opportunities as a consequence of the proposal, the true nature of the growth of employment must be measured against the loss of employment in the mining industry as previously submitted (Roxby Downs, Leigh Creek, Prominent, Valance to name a few).

Comment 202
Loss of agricultural land and potential production losses
What is not accepted by the applicant is the risk of loss of production due to contamination of agricultural land as a consequence of fugitive dust associated with the mine, its infrastructure; the transport corridor and the port.

The applicant has also failed to consider the economic loss due to contaminated grain being rejected by exporters.

The associated problem with the analysis is that whilst the percentage of agricultural ground lost, what is not recognised by the mining industry is the accumulated loss of the food bowl not only locally, but across Australia as a consequence.
A review of the fundamental assumptions used in the economic analysis should be undertaken in light of the information contained in TREND- A bulletin of economic developments in South Australia; December 2015: BankSA, and in light of: --

"The South Australian Government has nominated the export of premium food and wine as one of its top 10 economic priorities. As a result, a number of initiatives are being put in place to support the industry’s growth and to increase the international exports of food and wine from South Australia."

and

"Data from the 2011 Census shows that employment in food and beverage product manufacturing in South Australia accounted for around 19,500 workers, or about 25% of the total manufacturing workforce in South Australia. When we add employment in primary production – agriculture – of around 27,500 workers, a total of roughly 47,000 workers are employed in South Australia’s food industry, comprising about 6.5% of the State’s total workforce. (page 3)"

"But remember what South Australia has in particular abundance. Sure we have some great agricultural land, some of which ranks with the best in the world (page 10)"

"But we have even more poor dry soils. And that is exactly where agri-scientists expect the biggest advances in food production to come from in the decades ahead. Indeed, it has been true for some years now that new technologies (including new strains of crops) have coaxed relatively greater increases in food production out of the world’s poorest and driest soils. (page 11)"

Comment 203

The suggestion that the land may be rehabilitated to agricultural productivity is clearly not demonstrated by the applicant.

It is noted that the project is based upon a 'conservative ore value of between $75 -175A. As previously pointed out in this response, those figures are highly speculative given current market values.

Increased Labour Competition for Existing Industries

"The CEIP has the potential to increase competition for workers, attracting them from other sectors of the economy, including agriculture and fishing. Experiences in other rural areas suggests the mining industry can compete with other industries for employees and drive up wages that other industries may find difficult to match (Haslam McKenzie 2002, 2009; Lockie et al. 2009; Brasier et al. 2011; House of Representatives Standing Committee on Regional Australia 2013). This can also generate competition between industries for products and supplies.

The assessment of potential impacts to workforce availability for existing industries shows that the CEIP would have a medium impact."

Comment 204

For small communities that exist on Eyre Peninsula the impact of increased labour competition will be significant, not 'medium', given the disparity in wages attributed to mining vs agriculture.

Farmers will not be able to compete in the new labour market.

What is the impact upon the agricultural industry in the four local government areas affected by the proposal?

Comment 205

Conclusion

It is RECOMMENDED that the economic analysis pertaining to this application be subject to peer review (e.g. Australian Institute) in light of the significant variations to the fundamental assumptions made in light of current world economic factors.
It is interesting to note the top five employment categories include "agriculture, forestry and fishing" etc.

It is assumed that the forestry component is a matter of terminology as there appears to be no designated/operational forests in the so called 'study area'. It is suggested that the inclusion of 'forestry' is misleading as is the use of 'fishing' when considering employment at Wudinna and Cleve.

This response has focussed on information provided in MLP 23. It is noted that information leading to this Chapter is contained in MLP-R (Economic Impact Assessment). No specific comment will be made on MLP-R.

A final word from BankSA

"South Australia is a State with a farm sector half as big again as its mining sector. In fact, that ratio of farm-to-mining sectoral size favours South Australia more than any other State except Tasmania, and is a reason why the series of falls in the Australian dollar in the last couple of years points to more positives than you might otherwise initially recognise.

Cyclical drivers are now favouring the sector, and the longer term outlook is bright too. With continued strong population growth, there will be growing demand for food from the domestic market. In addition to staples there is likely to be demand for more health and premium foods as incomes rise and consumer preferences shift.

The opportunities in selling to Asia’s rising middle class are enormous, and they have been enhanced by recent Free Trade Agreements." (page 13, TRENDS Dec 2015)

South Australia’s meat producers and aquaculture industry are particularly well placed to tap into the rising demand for protein as incomes rise in Asia, and capitalise on our well-earned reputation for quality produce.

2.3 Iron Road’s Competitive Advantage: (from EIS document)

"In addition to the geological advantages at the mine site . . ."

Comment 206

It is noted that mining costs are significant and these are directly related to the geological structure of the ore body, noting some 60-70 metres of over burden has to be removed before commencement of mining the actual ore body.

In addition, the environmental issues of dewatering hyper-saline salt water has not been adequately addressed in the accompanying Mineral Lease Application, nor has the issue of uranium and similar material been adequately dealt with from an environmental perspective of what happens to these 'waste products' when placed on the waste rock dump.

The so called competitive advantage needs to be put in context of the world markets.

It has been reported (20 Jan 2016) that Rio Tinto 2015 production figures of 336Mtonnes narrowly missing market expectations.

It is reported that Rio Tinto's production for the December quarter rose by 11%.

It is reported that Rio Tinto's forecast production figure for 2016 is 350Mt.

It is noted that Rio Tinto’s production cost is $A16 per tonne.

It is noted that Brazil has announced iron ore production cuts.

Current iron ore price $US40 per tonne.

The proposed annual production ratio of Iron Road to Rio Tinto is 21:336 (1:16), hardly a 'competitive advantage'!
REFERENCE AND READING LIST Used in the preparation of this response

Reading material:
Hazards of Heavy Metal Contamination http://www.ncbi.nlm.nih.gov/pubmed/14757716
http://bmb.oxfordjournals.org/content/68/1/167.full

Heavy metals and food contamination
http://ec.europa.eu/food/food/chemicalsafety/contaminants/cadmium_en.htm

Toxic Effect of Heavy Metals in Livestock Health: Veterinary World, Vol 1(1) 28-32, 2008

(Google: Heavy metal contamination in animals)


The Senate: Community Affairs Reference Committee: Impacts on health of air quality in Australia, August 2013

Best Practice Environmental Management in Mining, Dust Control: Environment Australia, Department of Environment, 1998.

TRENDS: A bulletin of economic developments in South Australia: December 2015, "Premium food for thought", BankSA
RESPONSE TO

IRON ROAD LIMITED CENTRAL EYRE IRON PROJECT

ENVIRONMENTAL IMPACT STATEMENT
EIS Response Limitations

Due to the constrains as identified in the introductory letter a number of sections of the EIS, including a detailed discussion not able to be undertaken in relation to the impact of the miners village at Wudinna, herein could not be subjected to detailed examination such as to be able to provide credible comment.

It remains of considerable concern that:

- The majority of the approach used in several sections is founded upon data remote from the site.
- Numerous assumption without technical or scientific qualification and thereupon estimations have been presented primarily due to the proponent not undertaking the necessary field research and testing to establish baselines. These include:
  - Issues at the port
  - Issues along the corridor,
  - Issues at the mine site,
  - Issues at Wudinna

Responses provided for:
EIS - 01
EIS - 05
EIS - 06
EIS - 07
EIS - 08
EIS - 10
EIS - 12
EIS - 13
EIS - 14 (partial)
EIS - 15 (partial)
EIS - 16 (partial)
Social Factors
Relationship:
  a) Community Social Licence to Operate,
  b) District Council of Tumby Bay
  c) Iron Road Limited
CEIP EIS RESPONSE

EIS - 01

1.2.1 Environmental Policy

“Iron Road is committed to managing the environmental and social components of the CEIP and the health and safety of their employees in an industry leading manner.”

Comment: E001

That being the case, there are significant deficiencies in the approach undertaken with respect to the establishment of baseline data that would underpin the environmental, social and public health issues pertaining to those residents directly affected by the proposal and the community at large.

Several sections of the Associations’ response to the Mineral Lease Application will be replicated in this response to demonstrate the position held.

1.3 CEIP Overview

Comment: E002

It is unfortunate that the comparison chart fails to recognise that Centrex Metals Ltd approved mine at Lock (Wilgerup) is non producing and in fact has been written off by the company (refer Australian Securities Exchange code CXM).

Whilst the information presented in Figure 1-1 may provide a view of the resources available, it is completely misleading respect to production figures as the CEIP is not producing any ore.

1.4.2 Commonwealth Approvals

“A separate referral for the mine was submitted on 30 September 2014 and the mine was determined not to be a controlled action.”

Comment: E003

The Associations will draw attention to this assessment and its failure to consider the issue of the protected species Malleefowl which has been sighted in the district.

EIS - 2

"2.2 Market Demand and Supply for Iron Concentrate

The global demand for raw materials, services and infrastructure has grown significantly in the last decade and although this trend is anticipated to continue into the foreseeable future, there has been inconsistency in the demand and price of commodities and in particular for iron ore over the 2013-14 period. This has largely occurred due to increases in iron ore supply combined with slower growth in China’s steel production. Although softness in commodity prices is predicted to continue in the short term, world iron ore trade is forecast to grow by 4.2 per cent to 1.38 billion tonnes in 2015 (Bureau of Resources and Energy Economics, 2014).

Much of the future growth in demand for raw materials is attributed to the ongoing economic development and urbanisation of developing countries, particularly those located in Asia.”

Comment: E004

Recent global events (the commencement of 2015), particularly in China would suggest that the conclusions drawn in the aforementioned paragraph are clearly not applicable at this time.

The commodity prices have fallen significantly from the high’s of $US175 (as used in the economic impact assessment for the MLA) to the current price of approximately $US40 per tonne.

It is noted that world demand for iron or (irrespective whether it is haematite or magnetite) has diminished significantly.

It is noted that the $A has contracted significantly over recent months and that the Chinese currency has undergone significant re-valuation.
It is noted that the forecast for iron ore supply, as presented by the applicant may well have reached the 4.2% growth (but not verified) but the reality of today would suggest the project is not financially viable.

Weight is added to this suggestion by the increased production of BHP and Rio Tinto in Western Australia to compensate for lower prices.

*Figure 2-1 Projected iron ore demand* forecasts an optimistic growth in the commodity, which is clearly not the commentary of the economists or of the Federal Government at this time.

### 2.3 Iron Road's Competitive Advantage

"In addition to the geological advantages at the mine site . . ."

**Comment: E005**

It is noted that mining costs are significant and these are directly related to the geological structure of the ore body, noting some 60-70 metres of over burden has to be removed before commencement of mining the actual ore body.

In addition, the environmental issues of dewatering hyper-saline salt water has not been adequately addressed in the accompanying Mineral Lease Application, nor has the issue of uranium and similar material been adequately dealt with from an environmental perspective of what happens to these ' waste products' when placed on the waste rock dump.

The so called competitive advantage needs to be put in context of the world markets.

It has been reported (20 Jan 2016) that Rio Tinto 2015 production figures of 336Mtonnes narrowly missing market expectations.

It is reported that Rio Tinto's production for the December quarter rose by 11%.

It is reported that Rio Tinto's forecast production figure for 2016 is 350Mt.

It is noted that Rio Tinto's production cost is $A16 per tonne.

It is noted that Brazil has announced iron ore production cuts.

Current iron ore price $US40 per tonne.

The proposed annual production ratio of Iron Road to Rio Tinto is 21:336, hardly a 'competitive advantage'!

### 2.4 Consequences of Not Proceeding

"A 'missed opportunity', with demand for the product possibly being fulfilled by another development."

**Comment: E006**

The reality of a 'missed opportunity' is not relevant to the EIS. The reality is whether the Project has financial viability overall and satisfies the environmental constraints placed upon it in the ' approval' process.

"The trend of population decline on the central Eyre Peninsula may continue, threatening the viability of businesses and social services such as police, health and education."

**Comment: E007**

The reality of population decline on Eyre Peninsula in general and those communities likely to be affected by the proposal, has been and will continue to be a feature of the agricultural industry; the aging population and the advent of technology in farming.
This needs to be balanced by the argument of potential destruction of the food bowl (no matter what % is put forward to diminish the impact) and developments in grain production as described in the December 2015 edition of TRENDS: A bulletin of economic development in South Australian: BankSA.

“• Loss of third party access to the CEIP Infrastructure and subsequent loss of potential benefits across multiple industries, including: Potential shared usage of the proposed port for other mining companies or as an alternative export pathway for the grain industry.

*Potential shared usage of the proposed railway line as a route to market for other mining developments and grain on the Eyre Peninsula.”

Comment: E008
Much has been said about the third party use of infrastructure, but little or no details have eventuated. Figures suggesting a transport cost saving of $A10 a tonne for grain have been put forward, but again no details.

It is known (as evidenced by information obtained under FOI) that the Barley Board has raised significant concerns with respect to contaminated (or perceived contaminated) grain by exporters using joint loading facilities (see details in MLA response).

It is known that should a joint user be identified then a separate EIS would be required. Unfortunately previous experience with such eventualities (Port Spencer PER etc) would suggest the process of assessment lacks transparency and completeness let alone community confidence in the outcome.

“*Recycled stormwater and wastewater from the proposed long-term employee village for irrigation purposes (landscaping and ovals) within Wudinna.”

Comment: E009
Whilst recycling is to be applauded, the reality is that the quantity of water required to sustain the proposed accommodation infrastructure would not be required if the project does not succeed.

To suggest a project of the proposed magnitude could stand or fall on the provision of recycled water to a town oval is somewhat bemusing and suggests a degree of intellectual contempt the applicant has for the community.

“• Airport upgrade at Wudinna and establishment of a regular commercial air service.”

Comment: E010
What is not disclosed is the content of the MoU between the applicant and Council. If the agreement is that the applicant is paying all construction costs etc and using the Council to avoid GST payments, then this matter requires investigation from another authority.

“• Local road upgrades (e.g. those required for the module haul route) facilitating the movement of agricultural machinery or stock in the region.”

Comment: E011
In the absence of any MoU’s or heads of agreements as to the who is responsible for the cost of the upgrades and the continuing maintenance of the road network for the life of the mine, then clearly using this as a consequence of not proceeding appears to be misguided.

There is of course, no mention of the inconvenience and economic disruption caused to the existing agri-businesses affected by the proposal.

2.4.1 Specific Benefits Forgone
“Development of both the CEIP Mine and supporting infrastructure will provide a number of benefits to the local and regional communities, including:

• Job opportunities during construction and operation”
Comment: E012
Much has been said about the employment opportunities that may arise as a consequence of the proposal. It is not until a close examination of the actual proposal is undertaken that it becomes evident that in the first instance (the construction phase) the greater majority of employees will be FIFO or LDC on the stated basis that the workforce numbers are not available locally.

The option of using off-shore (457 Visas) labour has not been dispelled.

It is also stated that a significant number of operational employees will be engaged from the local pool. Unfortunately the actual job profiles have not been disclosed. This is further complicated by the significant numbers of skilled retrenched employees from Leigh Creek, Roxby Downs, Prominent and Valence Graphite that have come onto the labour market in recent times mirroring the down turn in the mining industry. The boom is over.

The un-answered question is what is the benefit to the communities on Eyre Peninsula in real terms?

“• Improved regional infrastructure providing a catalyst to additional development on the Eyre Peninsula.”

Comment: E013
The reality is Eyre Peninsula has required a power upgrade for some time as the existing network is at capacity. The upgrade is proceeding. The applicant will benefit from the upgrade.

It is noted that a 'privately owned' power line will be constructed in the transport corridor to service the needs of the port.

This power line will not benefit the residents of Port Neill with a stable power supply.

The hypothesis that the rail infrastructure could (would) support further development is problematic in today's economic climate.

“• Increased royalty payments to the State Government.”

Comment: E014
It is noted that royalties are payable to the State Government. What has not been identified is the actual amount over time.

It is also known that Governments discount royalty payment for a short period of time. What is not declared is the government subsidy (taxpayer's funds) provided to the applicant via this discount.

2.4.2 Strategic Opportunity Costs
Comment: E015
The opportunity costs are borne at this stage by the applicant and would be the potential loss of the exploration capital invested in the venture to date.

The applicant is presenting a case primarily to protect his interests and investment to date and to thence create a project that results in a projected profit. The usual business model.

However, in instances such as this, the applicant requires a 'community licence' to operate, a licence that requires the community benefits to be clearly articulated and environmental risks etc identified and mitigated against with complete transparency.

However, it has been the position of the Associations that the CEIP is not a single project based upon the information provided by the applicant to the Australian Securities Exchange (ASX) over a period of time. It is known that there are significant ore reserves within the existing Exploration Licence area and it is noteworthy that the applicant has now admitted officially that expansion (should approval be given) is highly possible.
“the CEIP mine already shown to have a minimum 25 year mine life, with a high possibility that it will extend beyond that time.” (underlining added)

Comment: E016
The question is, therefore, has full disclosure of the intent of the applicant been made or is this an interim application to which additional mines would be added thus increasing the potential viability of the Project?

The answer to this question is essential in determining the impacts of fugitive dust and noise upon the community and environment over time.

3.1.1 Existing Export Facilities
“In addition to these four ports, two other port facilities were proposed on the eastern Eyre Peninsula:

• SeaTransport is proposing a Bulk Shipping Port at Lucky Bay to provide a facility to export iron concentrate from Iron Clad’s proposed Wilcherry Hill mine and improve the integration of facilities for the Spencer Gulf ferry service.

• Centrex Metals is proposing a greenfield port facility at Port Spencer to export iron ore and/or concentrate from the proposed Wilgerup, Fusion, Carrow, Bungalow and Greenpatch projects.”

Comment: E017
It is noted that the aforementioned locations have been rejected. It is also noted that Lucky Bay is not being developed as an export facility for Iron Clad as alternate arrangements have been entered into to transport the ore to Whyalla.

It is unfortunate that the reasoning behind the rejection of Port Spencer does not give the actuality of the situation as conveyed in the ASX reports pertaining to Centrex Metals Ltd.

3.1.8 Greenfield Location at Cape Hardy
Comment: E018
It is noteworthy that the chosen sites is immediately adjacent an aquaculture zone

3.3 Mine Site Water Supply
Comment: E019
It is assumed that the applicant will be required to source (through desalination) its own water supply to meet its unstated requirements in this regard. To not do so would potentially place the current supply at risk of water restrictions.

The construction village would potentially draw at least as much water as the township of Tumby Bay.

3.4 Power Supply
Comment: E020
It is noted that the discussion in this section relates to the power supply for the mine site, NOT the transport corridor (pumping stations) or for the port facility.

Where is the power supply for the port coming from?
Will the additional drain upon the network place power supplies in the local communities at risk of blackouts or brown outs?
Given the amount of power anticipated to be required, coupled with the fact that Pt Augusta power station will cease operations, will the additional demand place a price premium on users on Eyre Peninsula, especially community users?

4.2 Infrastructure corridor:

"The infrastructure corridor will therefore range in width from approximately 60 m in the south to approximately 110 m in the north depending on which components are present (refer to Figure 4-4 and Figure 4-5). However additional width will be required in some locations to provide for two rail sidings, a pump station and for earthwork embankments with a maximum width of approximately 150 m."

Comment: E021
It is noted that the dimensions listed above represent the final dimensions of the corridor. What is not disclosed is the dimensions of land required from the landowner to enable the corridor to actually be constructed and its consequential impact to the landowner.

Much has been said about the function of the corridor, but what appears to be missing is the process under which the land is to be acquired.

It is noted that the corridor is governed by major project status assigned under s46/48 of the Development Act. Such an assignment provides for the compulsory acquisition of land under s78 of the Act.

It has been stated that fair negotiation will be entered into with respect to the acquisition of land, except in these circumstances the threat of compulsory acquisition is hardly conducive to fair negotiations.

It is noted that individual negotiations will be entered into with landowners concerning crossing to enable landowners access to property divided by the corridor. It has been stated that permission to cross the line will be required at least half an hour in advance.

Two issues arise:
- a) communications given the poor mobile phone reception in some parts, and
- b) compensation for lost time as a consequence of the intrusion of the line and procedures to cross.

These are real time economic costs to the landowner.

Figure 4-10 provides a cross section of the construction of the rail track including the water drainage requirements. The question arising is where do the water generated by this infrastructure drain in the event of rain (or excessive rain)?

Table 4-1 provides an overview of rail/road crossings. What appears to be missing is a conversation of where school buses cross the railway and the nature of the crossing. It is RECOMMENDED that all crossings involving school buses be active (flashing lights and boom gates) crossings.

**Waterway Crossings and Stormwater Management**

“The proposed railway line will cross the Driver River, Dutton River and a number of smaller unnamed creeks. These watercourses are ephemeral in nature and are dry for the majority of the year. Bridges are proposed for the Dutton River crossing and one unnamed watercourse (refer to Table 4-2 and Figure 4-8). For other watercourses and overland flow paths, the proposed rail design includes culverts under the rail line which would maintain surface water flows by allowing water to pass under the infrastructure (refer to Figure 4-13). The rail design also takes into account the additional weight of the railway line, formation and train to ensure loads are spread, reducing ground compression thus allowing uninterrupted groundwater flow at the water crossings. Culverts will be designed to accommodate a minimum of 1 in 20 year rainfall flows.”
Comment: E022
It is noted that a significant number of water courses of various sizes have been identified as crossing the rail corridor.

What is not identified is the actual nature of the 'ephemeral water course' and their function in the environment. These streams allow the environment to remove excess salt and to disperse floodwaters in the event of major rain (storm) occurrences. Thunderstorms do occur in this area and it is known considerable rainfall is generated resulting in floods. These events are not necessarily recorded by BoM as the recording stations are at Wudinna, Cleve and Port Lincoln.

This is why site specific weather data is critical to the project.

The issue of compaction is real and its effect upon the flow of salt in the water courses (or ground water below the water course) identified appears to be dismissed.

4.2.3 Power line (to mine)

“Clearance of vegetation within the easement will be undertaken where required to ensure that adequate safety clearance is maintained to the energised transmission line. To minimise clearance, only vegetation which infringes on, or is likely to infringe on, the safety clearance area will be removed or trimmed.”

Comment: E023
It is assumed all clearance of native vegetation will have the proper authorization under the Native Vegetation Act and EPBC (Federal) Act where listed species especially native grasses are involved.

Figure 4-18 Port Operating size

Comment: E024
It is apparent that the port operating area is approximately 4 kilometres wide. What is not shown on this map are the aquaculture zones known to exist in the area.

It is noteworthy that these features are not shown here, but are shown on documentation presented for the MLA. It is also noteworthy that the port was chosen because of the lack of conservation zones, parks or aquaculture zones. There appears to be an obvious contradiction.

Storm water

"Rainfall running off the stockpile, module laydown areas and hardstand at the rail unloading facility will be directed to sedimentation basins (as shown in Figure 4-34) which will allow any mobilised concentrate and suspended solids to settle and water to evaporate rather than being discharged to the environment."

Comment: E025
Whilst the sedimentation basin is acknowledged, one of the issues not dealt with is the nature of the contaminant that may be in the sedimentation facility, contaminant arising from leaching of the ore stockpile.

It is noted that the stockpile will be treated with a dust inhibiting substance. The MSDS of this product does not appear to be in the application.

"These swales have been shown to capture and retain suspended solids, which are considered likely to constitute the majority of the contaminants from this run-off."

Comment: E026
What is the nature of the contaminants in this 'run-off'? How will these contaminants be monitored?

Electricity (port site)

“Power will be provided to the port site by a 132 kV transmission line to be built and operated by ElectraNet, which is not subject to this EIS.”
Comment: E027
If this is new infrastructure, the question is why isn’t it subject to an environmental impact assessment if it is essential to the project?

Water Supply Infrastructure

“SA Water will provide a water supply to the proposed port site from the existing water pipeline adjacent to the Lincoln Highway though a new connection along Brayfield Road. Water demand for the port site will be approximately 224 ML per year.”

Comment: E028
It is known that this added drawdown on the supply has NOT been taken into consideration in the development of the new Water Allocation Plan. Whilst it might be a commercial decision of SA Water to supply the nominated amount of water, the reality is whether the water is available.

"The header tank for the construction camp water supply will be connected with the existing SA Water pipeline at the Lincoln Highway through the new water supply pipeline along Brayfield Road."

Comment: E029
The figure quoted is taken as the water required to operate the port and NOT the additional water required for the construction village.

What is the demand for potable water at the village?

4.5.2 Temporary Laydown Areas

“Temporary laydown pads will be provided at the port site and along the infrastructure corridor for use during construction. These hardstand areas will be paved using crushed rock and provided with temporary access to accommodate construction traffic.”

Comment: E030
Given that no MoU or heads of Agreement exist with local Council affected by the project, questions of native vegetation surveys and rehabilitation of native vegetation destroyed in the construct of the lay over facilities and the obvious damage to existing Council infrastructure and costs associated with the rehabilitation of Council roads, appears to be missing.

In the absence of these agreements, the assumption is that the ratepayer may well have to stand the costs.

That being the case, clearly the community would suggest there exists no 'community licence’ to operate. It is noteworthy in this matter to state that the position of the District Council of Tumby Bay in respect to MoU’s is simply that they do not believe they are worth the paper they are written on, a position put to a recent Council meeting attended by members of the Association.

4.5.6 Modules

“Iron Road intends to use modular construction methods for large scale infrastructure and buildings at both the mine site and port site. This method involves performing a majority of the construction work at an off-shore pre-assembly yard and shipping the substantially completed assemblies to the proposed module offloading facility at the port site using lift on/lift off and roll on/roll off ships.”

Comment: E031
What is clear is the terminology of off-shore, clearly indicative of overseas construction/manufacture of the so called modular plant inclusive of cement and railway components

What benefit is derived for Australian Manufacturers in this scenario?

4.5.7 Construction Water Supply

"Saline ground water supplied from two water supply wells (one in the Kielpa geological domain, and one in the Verran geological domain) will be used for earthworks, dust suppression and material placement at the port site and along the infrastructure corridor."
and

"Potable water for the port site construction camp and for concrete batching would be supplied from the new SA water connection”.

**Comment: E032**
It is noted that saline water will be used for construction purposes outside except for the preparation of concrete.

It is noted a pipeline carrying saline water will be constructed to provide saline water to the south and north on the corridor and the port.

The issues being the transporting of saline water through an agricultural area and the real risk of saline scalding of agricultural land due to leaching from the construction of the corridor or pipe leakages.

A similar comment only on a larger scale can be made with the proposal to pipe significant quantities of saline water for mine processing through agricultural land. The risks in this case are ever greater should there be a leak in the pipeline.

What is the estimated potable water use for concrete batching and for the construction village?

**4.5.10 Construction Waste Management**

“Iron Road will develop a waste management plan.”

**Comment: E033**
The applicant is engaging further in future work, work that will not be available for public scrutiny.

**4.6.2 Railway Line Operations**

"The bottom dumping rail wagons will be covered"

**Comment: E034**
Considerable debate has ensured over the definition of 'covered'. Experience on the Peninsula with 'covered' transport trucks results in the escape of some of the contents. The issue is concern surrounding fugitive dust escaping from the so called covered wagons, given the reluctance of the applicant to fully disclose the chemical composition of the ore, noting that free silica is present and an unknown concentration of other impurities associated with the ore body inclusive of heavy metals.

The community is concerned about the cumulative effect over 25 years of fugitive dust on the environment inclusive of agricultural land, especially in the context that background dust data has not been collected at all possible receptor sites.

‘Covered’ versus ‘sealed’ is the question.

Attention of the applicant has been drawn to the potential impacts of contaminated agricultural land through correspondence to the CEIP CCC and directly to the General Manager.

It is noted "with the lids remaining on during the unloading procedure (4.6.4)", inferring that the lids would seal the contents in the wagon. Clarification is required.

**Port Approaches**

"Subject to agreement with DPTI, the proposed port operating limit would be designated as the limit of jurisdiction of the port operator. It is anticipated that this will encompass the waters in the immediate area of the port site, but may not encompass the anchorage area as well (refer to Figure 4-44). The port operator will ensure that vessels bound for Port Neill or other destinations can freely pass the port site."

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Comment: E035
It was noted on previous maps, a significant area was designated a controlled area. What is missing from the maps contained here is the location of the aquaculture zones which further complicate access arrangement in the area.

It is unclear as to whether ships approaching the berth will be under power or presumably under the control of tugs. Not with standing this, the question is what is the impact upon the marine environment of propeller wash from either tugs or the Cape size vessels entering or leaving the confines of the port?

4.6.5 Waste Management
“All recyclable waste will be separated into different streams to facilitate recycling and removed by a licensed contractor. Iron Road will liaise with the Wudinna and Tumby Bay Councils to develop or upgrade transfer facilities for recyclable waste that can be shared with the community. A composting facility will be established for putrescible waste for the construction camps. Other inert waste will be disposed of in the Wudinna and Tumby Bay landfills with the facilities upgraded if necessary, in consultation with the Council.”

Comment: E036
Given that absolutely nothing has been in the public arena with respect to consultation etc between the District Council of Tumby Bay and the applicant, anything to do with Council is highly speculative and clearly not in the category of a community licence to operate, despite the obvious benefit of waste recycling.

Unfortunately more future work for which the public does not have the opportunity to comment upon.

CHAPTER 5 Legislative Requirements
5.2.2 Other Legislation
“Foreign Acquisitions and Takeovers Act 1975; Foreign Investment Policy 2013
All land within the CEIP footprint is rural land;

• Iron Road is considered a Foreign Owned Entity and must comply with the Act and Policy.
• Approval for acquisition of any land within the CEIP footprint required from the Foreign Investment Review Board. The
• Commonwealth Government must be notified and give approval for the acquisition of rural land.”

That being the case, where is the Commonwealth approval for the purchase of all land subject to this proposal?

Comment: E037
That being the case, where is the Commonwealth approval for the purchase of all land subject to this proposal?

5.3.5 State’s Strategic Framework:
“Growing advanced manufacturing
The CEIP mine includes on-site processing of the resource, representing a significant local investment in advanced manufacturing, which supports additional employment and builds technical capability”

Comment: E038
There is an obvious contradiction in goals achieved in this project to those stated in the Strategic Plan. The applicant has indicated the construction of all plant (in modules) will be offshore. The question being how does this project justify the claim significant; local investment in advanced manufacturing . . . and builds technical capability, when it is done offshore?

“Approved clearance of native vegetation requires achievement of a Significant Environmental Benefit (SEB) offset. Dialogue with the Eyre Peninsula Natural Resources Management (NRM) Board is ongoing regarding the potential environmental programmes which would be suitable to offset the impact from clearance of native vegetation and promoting a clean environment.”
Comment: E039
The approving authority for Native Vegetation offsets is the Native Vegetation Council, not the local EPNRM Board.

"District Council of Tumby Bay
To identify the priorities and strategic direction for Council, including:

- Development and improvement of infrastructure to meet Council’s needs
- Preservation of Council’s unique heritage and natural environment
- Sustainable economic development
- Provision of quality community services

The proposed port will employ 100 persons during operations. In addition, 650 persons will be based at the port camp during construction. Staff based at the proposed port will support suppliers of goods and services in the Port Neill area."

Comment: E040
Clearly this is a mis-representation of the actuality of the Tumby Bay District and that of Port Neill.

There has been no public discussion of the potential impacts of the proposal on the District of Tumby Bay as evidenced by an examination of the formal Minutes of Council Meetings. There has been no public debate of the issues raised in the MLA or the EIS as evidence by the Agenda and Minutes of Meetings for December 2015 and January 2016.

Where is the 'needs analysis' supporting the contention that the services available at Port Neill could sustain the 650 construction camp or the 100 port operational workers?

Where is the impact assessment upon services available in the Tumby Bay District as a consequence of the application?

5.4.2 Development Plan Framework

"The majority of the CEIP Infrastructure is located significantly more than 500 m from any conservation parks or wilderness protection areas. The exception to this is at the northern end of the proposed infrastructure corridor which is proposed to run parallel to the northern boundary of the Hambidge Wilderness Protection Area (WPA), which is seen as a sensible compromise between the ongoing protection of the WPA and avoiding isolating large parcels of existing farmland to the detriment of existing landowners and the general economy."

Comment: E041
Where is the risk assessment with respect to fire and weed and potential contamination of the native vegetation in the WPA vs a greater separation distance?

It is assumed that the whole of the transport corridor will be vegetation free and maintained in that state to remove any threat of bushfires created by the movement of the trains. That being the case, then the suggested route on the northern boundary of the Hambidge WPA appears to be sensible. Clarification is however sought on the maintenance of the corridor in a zero fire fuel zone.

Port Site

"The proposed port is located within the General Farming Zone and Coastal Zone of the Tumby Bay Development Plan and within an unzoned area of the Land Not Within a Council Area (Coastal Waters) Development Plan. The key objective of the General Farming Zone is the long-term protection of the land for primary production purposes, reinforcing the existing rural character of the region."
Comment: E042
It is interesting to note that the Tumby Bay Coastal Zone was Gazetted on 3rd December 2015 to take effect from 25th November 2015. This application was open for public consultation from 17th November 2015.

3 December 2015 THE SOUTH AUSTRALIAN GOVERNMENT GAZETTE 5133
DEVELOPMENT ACT 1993, SECTION 25 (17): DISTRICT COUNCIL OF TUMBY BAY GENERAL AND COASTAL DEVELOPMENT PLAN AMENDMENT FOR APPROVAL
Preamble
1. The General and Coastal Development Plan Amendment (the Amendment) by the District Council of Tumby Bay has been finalised in accordance with the provisions of the Development Act 1993.
2. The Minister for Planning has decided to approve the Amendment.
NOTICE PURSUANT to Section 25 of the Development Act 1993, I—
(a) approve the Amendment; and
(b) fix the day on which this notice is published in the Gazette as the day on which the Amendment will come into operation.
Dated 25 November 2015.
JOHN RAU, Deputy Premier, Minister for Planning

Comment: E043
Perhaps the applicant can explain how this application contained a definitive statement as to the existence of the Tumby Bay Coastal Zone prior to its Gazettal?

“Development of an industrial nature should only occur where it can support primary production. The ability of the port to be readily expanded for third party usage provides the opportunity to support the export of produce, such as grain, from a facility based on the central Eyre Peninsula. A future expansion of the proposed port (subject to necessary approvals) to support grain export would provide an efficient pathway to the market, capable of servicing Capesize vessels at a closer distance to many of the suppliers.”

Comment: E044
The assumption held throughout this application and that of the MLA is that the infrastructure has the ability to accommodate a third party, eg a grain exporter, thereby ‘satisfying the condition the development should support primary industry’.

The application is devoid of any detail as to the third party that supports primary industry.

The application is devoid of any debate of the KNOWN risks of contamination of primary products (grain) OR the perception of contamination of grain at a ‘multi-user’ port facility.

Evidence as to the economic impact of contaminated grain obtained under FOI District Council of Tumby Bay is outlined in the extract from the ‘Centrex Metals Mineral Export Facility Application Submission’, Eyre Regional Development Board Inc, April 2009, as follows:

“Grain export markets are particularly sensitive to contamination of iron ore, whereby cargoes that have either been directly contaminated or perceived to be contaminated through either being shipped through a combination of iron ore and grain facility, or the ship has not undergone thorough cleaning prior to loading with grain.”
The application is devoid of commentary from the Commonwealth Department of Agriculture in respect to proposed joint ore/grain export facilities and the issues of contamination (perceived or otherwise).

The application is devoid of any cost benefit analysis undertaken by a third party in support of the suggested joint use facility.

It is noted that an estimated $10 tonne 'saving' in freight costs for grain growers has been suggested, but not substantiated.

There is no evidence in this application that the proposal 'can support' primary production. In fact, the mine destroys primary production and the question of grain and pasture contamination has not been resolved to the satisfaction of the community.

The assumption by the applicant is purely speculative and self supporting.

"Land within 500 m of the coast is considered to be within the Coastal Zone in the Tumby Bay Development Plan. The Coastal Zone has similar objectives to the General Farming Zone in that it envisages the long-term protection of primary production land and rural support infrastructure. However, greater emphasis is also placed on the retention and protection of the coast, including native vegetation, as well as the need to maintain public access to the coast and to protect other industries in the region including aquaculture."

Comment: E045
The question arising is will the 500 metre Coastal Zone be respected in the planning of the location of facilities (roadways and access to the jetty obviously excluded as this is not apparent on the plans provided.

It is noted that the 1100 hectare property that is the proposed port facility is also a further loss of primary production land.
"The proposed port will restrict public access to the coast due to safety and security requirements during both construction and operation."

Comment: E046
What is not detailed here is the potential restrictions upon access to the marine environment in the port.

Reference to these restrictions can be found in MLP-Q, Social Impact Assessment Figure 4-10 Proposed port operational limits and anchorage, p 137/201, but definitive restricted areas are not shown.

What is the extent of any restricted zone as a consequence of the port activities and neighbouring aquaculture activities?

Long-Term Employee Village (Wudinna)
Comment: E047
It should be noted that the actual design of the village etc is approved under the auspices of the S46 of the Development Act. The District Council of Wudinna does not have any 'approving role' in this regard. The local community has no say in the approval process for the village EXCEPT through submissions made as a response to the EIS.

It is suggested that the view of the community is not necessarily represented by this application.

"Wudinna DC is undertaking a structure planning process for the Wudinna township to support the establishment of the proposed long-term employee village which is being funded by Iron Road and will determine:

- Any infrastructure upgrades required to support the village"

Comment: E048
It is noted that a planning process is being undertaken by the DC Wudinna with respect to the long term village.

It is assumed that Council is funding the structure plan as it is unclear in the statement made.

It is noted that the 'plan' will identify infrastructure upgrades required. What is not clear is who funds the upgrades as any development outside of the boundaries of the land assigned for the village (and hence covered by the Major Development Status (s46) is the responsibility of Council and hence ratepayers.

It is noted that no MoU's exist other than that applicable for the airport upgrade.

It is assumed, therefore, in the absence of evidence to the contrary, all infrastructure upgrading costs associated with the village will be met by Council and therefore ratepayers.

It is assumed that ratepayers have been well informed of this eventuality and thence their financial support for the mine through increased rates in order to pay for the infrastructure costs. It is noteworthy that these costs have not been included in this application.

Clearly the application is lacking in transparency in this regard to this issue.

"Mineral Extraction
The sustainable growth of the mining industry is a consistent objective in each council Development Plan. In achieving this sustainable growth, the minimisation of environmental impacts, protection of scenic areas and groundwater resources, and adequate site rehabilitation are all identified as key considerations for new mining developments.

This EIS does not incorporate the extraction of mineral resources. The CEIP Mine and any other mining approvals required will be applied for and assessed under the Mining Act 1971."
Comment: E049
Given the significant quantities of material required for the construction of the port and transport corridor, it is noted that these materials require licensing under the Mining Act. Where is the reference to these licence requirements in the MLA?

“5.4.3 Changes to Zoning Required to Support CEIP Infrastructure
The proposed long-term employee village will be located within the Rural Living Zone adjacent to Wudinna.”

Comment: E050
What is not declared to date is the rating arrangement between Council and the Company.

“The proposed port is located in the General Farming Zone and Coastal Zone in the DC of Tumby Bay.”

Comment: E051
What is not declared to date is the rating arrangement between Council and the Company.

CHAPTER 6 Stakeholder Engagement:
6.3 Engagement and Consultation Approach
Claimed framework:
“Iron Road’s engagement strategy is considered on a whole of project basis, therefore all engagement activities have included conversations about the proposed CEIP Mine and all infrastructure components.

Iron Road was one of the first industry signatories to the South Australian Chamber of Mines and Energy (SACOME) Code of Practice for Stakeholder and Community Engagement (SACOME 2012) and the principles of the Code, outlined below, also underpin the approach.

1) Inclusive - the engagement process identifies, reaches out to and includes, participants who clearly represent all stakeholder groups including community, government, business and industry.
2) Transparent and Accountable - the engagement process is transparent and it is clear who is responsible and accountable for its implementation.
3) Clear and Informed - the engagement process provides timely, balanced and objective information and promotes shared understanding between and within stakeholder groups. Issues on which stakeholder groups are to be engaged are clearly scoped and the factors that can or cannot be influenced by their input are clear.
4) Accessible and Timely - the engagement process is accessible to stakeholder groups. Time to deliberate is provided and an appropriate tone is created to encourage deliberation and the forming of informed opinion.
5) Meaningful - The engagement process and outcomes are considered by decision makers and can influence the decisions made. The engagement process provides feedback to stakeholder groups on how their input influenced the outcome. (5.3)”

Comment: E052
The reality
Given the significant development of mining activities within agricultural lands on Lower Eyre Peninsula in particular, the Port Lincoln Residents & Ratepayers Association Inc. and the Tumby Bay Residents and Ratepayers Association Inc. undertook an education program to advise interested landowners of the issues that they potentially faced with the onset of such activities by the various mining companies.

At the same time a small sub-committee of the Tumby Bay Residents and Ratepayers Association Inc. (TBRARA Inc.) was formed to manage the process. The Eyre Peninsula Community Mine to Port Consultative Committee was duly constituted under the TBRARA Inc.
A series of public meetings were held at Warramboo, Rudall, Port Neill and Tumby Bay to raise awareness of those attending in issues related to mining.

The Associations have been actively involved in issues pertaining to mining and the potential impacts upon the environment and community alike. In this instance questioning the Definitive Feasibility Statement which was actively promoted by the Company in early 2014 and responding to the EPBC referral for Cape Hardy and the transport corridor.

The Association also provided an input into the Agriculture Competitiveness White Paper with a specific focus on the impact of mining within agricultural land and the subsequent destruction of food producing land for short term gains arising from mining.

In this respect, the Associations questioned a number of issues contained in the DFS document and requested a public meeting be held in Tumby Bay in order that the issues be dealt with in the public forum.

This request was denied and statements of misunderstanding and misrepresentation were levelled at the Association by the Iron Road’s General Manager.

A response to the letter was provided to the Company as well as additional correspondence entered into with the CEIP CCC through its Chairperson.

To this day, the issues raised in the original correspondence have not been responded to by the Company.

The Company attempted to respond to some of the issues raised through an article in the Wudinna Granite (May 2014)

The Association responded to the inadequacies inherent in the article through the CEIP CCC. It should be noted that no response has been received from the CEIP CCC on the issues raised.

It should be noted that the letter to the CEIP CCC apparently disappeared as the Association’s Information Officer was contacted by the General Manager seeking a copy of the correspondence. A copy was duly provided. Importantly the correspondence raised issues pertaining to the impact of fugitive dust on agricultural land and provided a series of international references on the issue.

In summary the activities of the Associations with respect to progress of the CEIP Project include:

- Experience with the DFS L Ingle response to questions asked (and not answered) Threat of legal action. PLR&RA website article.
- Requests for Public Meeting(s) in Tumby Bay.
- Liaison with CEIP CCC Chairperson.
- Response to articles in the Granite.
- Provision of a copy to General Manager of correspondence to CEIP CCC that apparently not recorded in the Minutes of CEIP CCC.
- Association member attendance at Iron Road meetings.
- Information provided to TBCCC questions raised, not answered.
- Quality of advice provided to CCC.
- Raising the issue of the loss of agricultural land to mining in the Federal Government White Paper on Agriculture.

It is noted the position of the CEIP CCC was to represent the interests of the local communities of Wudinna and Warramboo, not the communities of the whole project. In this regard the Company failed to create appropriate CCC’s in all areas that were likely to be affected by the CEIP project, in short it did not comply with the Code of Practice it sought to uphold.
It is noted that the Company claims a ‘loose’ relationship with the Port Neill and Tumby Bay groups rather than a formal CCC designation. The issue therefore is one of credibility in claiming ‘public’ consultation as having occurred in these circumstances.

The reality of this relationship has been tested through the lodgement of a series of questions through the Secretary (with an apology for non-attendance at the meeting) to be asked of Iron Road representatives who were to be in attendance. It appears the questions were not asked (or referred to the representatives to be answered at a later convenience).

The level of understanding of the issues by the chair could be illustrated by a response to a question regarding the sealing of the Kinnaird Road which was referred to the local Mayor for an answer, completely missing the point that the transport corridor is subject to an EIS under Section 46/48 of the Development Act and thus requires an answer from the applicant (the Company), not the local Council.

As the correspondence from the Association shows, there was a significant reluctance to entertain the suggestion of holding ‘public’ meetings in Tumby Bay, indeed, every effort appears to have been made to thwart such an event occurring.

The position of the Association was made clear from the outset that a ‘public’ meeting was just that, public. A one on one scenario as constantly proposed by the Company is not a ‘public’ meeting.

It is for this reason that the Association states categorically that the Company does not have a social licence to operate as it has failed in all respects with respect to its held position as outlined in its Code of Practice.

The one on one approach is NOT public consultation.

Without prejudice to the individuals who attended the CEIP and Tumby Bay CCC meetings, the issue to address is the so called independence of the chairpersons.

In the case of the Tumby Committee a representative from Regional Development Australia, a Board that actively promotes mining development (clearly at the expense of the agricultural industry) is hardly deemed an independent chairperson.

In a similar manner, the Chairperson of the CEIP CCC is not seen as an independent chairperson, given the formal association (employee/contracted) with the Department of State Development and the policies of the Department at the time.

A critical examination of the minutes of meetings of these ‘representative bodies’ would also show failure on the part of the Company to comply with the so called code of practice. A simple example to illustrate the point is why did the Company not advise the Committees of the lodgement of the EPBC referrals nor did they offer to discuss the content of the referrals with the members of the Committees. Openness and transparency clearly did not occur.

The Claim

**Table 6-2 Stakeholder Groups and Engagement**

*Local Government*

- *DC of Cleve*
- *DC of Tumby Bay*
- *DC of Elliston*
- *DC of Kimba*
- *Wudinna DC*
- *25 formal meetings with District Council executives and councillors*
- *Weekly / monthly / bi-monthly informal meetings to provide updates and gain feedback*
Comment: E053
An examination of the Minutes of Meetings (and Agenda) of the District Council of Tumby Bay as it is affected by the proposal indicate:

- No MoU exists with Council in regard to roads.
- No MoU exists re the provision of services in support of construction camp at Cape Hardy.
- No MoU exist with respect to infrastructure demands at Port Neill as consequence of activities of operations. It must be recognised that the DCTB has initiated a common effluent scheme throughout the township of Port Neill despite overwhelming objection by the ratepayers and at significant costs to the ratepayers. A cynic would suggest that the timing of the approval for this scheme may be co-incidental to the lodgement of the EIS by the company and the anticipated accommodation requirements at Port Neill.
- No MoU exists with respect to loss of rate revenue at Cape Hardy (primary production) or for rates potentially to be gained from the industrial site of 1100 hectares.
- No MoU exists with respect to non complying activity (the port and land based infrastructure) and its environmental impact measured against the DCTB Development Plan, noting that the project is governed by the Section 46/48 of the Development Act which over-rides local government.

It is true a number of meetings have occurred between Tumby Bay Council and the company, but the process is completely non transparent. No minutes of meetings are kept. No items listed on the agenda for discussion in a public forum.

No mention of receipt of the MLA/EIS application at December 2015 Council meeting. (Notice of MLA and EIS existence posted on Council website on 15 Dec 2015) It can only be assumed that the attitude of Council as expressed by the CEO is that mining is purely speculative and will not occur, and or, the Council has neither the expertise nor resources to respond.

Clearly Council is failing to undertake its responsibilities in accordance with the Local Government Act, thereby not representing the views of the community it purports to represent.

Point of fact
Kinnaird Road is subject to current Provisional Development Authority for the Centrex/Port Spencer project. It is noted that Centrex is progressively liquidating its iron ore assets in the area, BUT the PDA has not been removed. Council, on the other hand, is planning to spend $800000 plus of ratepayer’s funds to seal the road. It is further noted that no cost benefit analysis statement has been provided to ratepayers for the expenditure of these monies. The assumption being, the beneficiaries are the mining companies per se.

Given that the company has stated that its consultation program has not separated the two components, it is assumed that issues pertaining to road infrastructure and the relationship with the DCTB as outlined will be taken up under the auspices of the Development Approval. The discussion is included here as an example of the lack of transparency in the consultative process claimed by the company.

Copies of the Agenda and Minutes of Meeting of the District Council of Tumby Bay for the months December 2015 and January 2016 are attached demonstrating no community engagement with the issue at Council level.

It is noted that a period of twelve weeks is considered to be adequate to consider BOTH the MLA and AIS applications which total some 4880 pages.

It is also noted that hard copies of the documentation can be purchased from DSD at a significant cost to the public.
It is noted that an electronic form of the document (in a secured pdf file) and or a downloadable file from the DSD website is available.

The Department and by default the Company clearly has failed to recognise the difficulties of (a) assessing such a large document on a computer screen and (b) that internet access on the Eyre Peninsula is marginal, effectively ruling out access via this medium.

In addition, a secured pdf file does not allow the respondent the option of 'cut and paste' into a response.

Clearly the unwritten aim of the Department and of the Company is to stifle public commentary on these applications again contrary to the stated code of conduct expressed above.

The following correspondence is provided in support of the Associations' position as outlined above.

EXHIBIT

EYRE PENINSULA COMMUNITY MINE TO PORT CONSULTATIVE COMMITTEE

PO Box 95
Tumby Bay
SA 5605

Mr Larry Ingle
General Manager
Iron Road Ltd

With reference to: IRON ROAD'S CENTRAL EYRE IRON PROJECT DFS INVITATION

Dear Mr Ingle,

I am in receipt of an invitation over the hand of Mr Tim Scholz relating to a number of Public Meetings and Open Day seminars to be offered to the communities of Warramboo, Cleve, Wudinna and Tumby Bay during the week commencing April 7th.

I am also in receipt of an email invitation to the Port Neill reference group and the Tumby Bay DCCC group for a round table meeting Wednesday 9th April, 2014.

With respect to the information sessions planned for the week of 7th April 2014 in relation to the recent release of the Company’s Definitive Feasibility Study, can you please explain why the citizens of the District Council of Tumby Bay are not afforded the same opportunity to attend a PUBLIC MEETING in Tumby Bay as offered to the communities of Warramboo and Cleve.

A round table meeting with the Port Neill reference group and the TBDCCC is NOT a public meeting of the citizens/ratepayers of the District Council of Tumby Bay community.

Given the fact that the Company’s proposal affects all ratepayers in the District Council of Tumby Bay, the ‘information session’ proposed is NOT a public meeting whereby the Company’s proposal can be put and questioned.

An information session is a one way event, the company’s position and not a forum in which the community can debate the pros and cons of the proposition.

An information session is not considered to be an appropriate method in this instance, to seek a social licence for the proposal.
We therefore request that the information session planned for Tumby Bay becomes a PUBLIC MEETING of two hours in the same manner as proposed for Cleve and Warramboo.

The following questions and comments are placed on notice for answers at the public meeting.

Thanking you for your consideration of our request.

Yours faithfully,

Brian R March
B.Ed, DipT(Sec), Grad Dip Management OHS
Information Officer/Spokesperson
Eyre Peninsula Community Mine to Port Consultative Committee
(a sub-committee of the Tumby Bay Residents and Ratepayers Association Inc)

Copies for information have been forwarded to:
- Elected Members, District Council of Tumby Bay
- Mr T Smith, CEO, District Council of Tumby Bay
- P Treloar MP - Member for Flinders
- Mr G Knight, CEO, DMITRE
- Ms E Scholz, Mayor, Wudinna District Council
- Mr T Scholz - Iron Road
- Ms H Baldock - EPNRM Board
- Ms S Richardson, Tumby Bay District CCC
- Ms H Lamont, CEIP CCC

Hydrogeology and Hydrology

“The ore body is contained within gneissic bedrock. Hyper saline groundwater is contained in fractures within the bedrock and the volume of water that seeps into the open pits is controlled by the degree of fracturing and the interconnection between fractures. Bedrock is overlain by 10 to 40 metres of sediments (sands, silts, and clays) that yield small volumes of saline water.

Calculated groundwater seepage rates to the open pit and dewatering bores range from 12 to 23 megalitres/day, dependent on the depth and size of the open pits at each stage of operation. Some of this water will be lost to evaporation within the open pits; the remainder will be recycled for use in dust suppression and the process plant.”

**QUESTION 1**

Given the volume of hyper saline water estimated to enter the pit(s), it has been reported that in the order of 400+ million tonnes of salt will be brought to the surface as a consequence of this activity. However, based upon a daily dewatering figure of 12-23 Million litres per day, the quantity of salt brought to the surface would be of the order:

Assumptions

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDS sea water</td>
<td>35 gms per litre</td>
</tr>
<tr>
<td>LOM 1</td>
<td>20 years</td>
</tr>
<tr>
<td>LOM 2</td>
<td>25 years</td>
</tr>
<tr>
<td>Dewatering rate 1</td>
<td>12 megalitres per day</td>
</tr>
<tr>
<td>Dewatering rate 2</td>
<td>23 megalitres per day</td>
</tr>
</tbody>
</table>

**Salinity of mine water**

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDS seawater x3</td>
<td>105 gms per litre</td>
</tr>
<tr>
<td>TDS seawater x4</td>
<td>140 gms per litre</td>
</tr>
<tr>
<td>TDS sea water x5</td>
<td>175 gms per litre</td>
</tr>
</tbody>
</table>
Salt generated

<table>
<thead>
<tr>
<th>Total salt per day</th>
<th>TDS =105</th>
<th>TDS=140</th>
<th>TDS=175</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume 12Ml/day</td>
<td>1,260 tonnes/day</td>
<td>1,680 tonnes/day</td>
<td>2,100 tonnes/day</td>
</tr>
<tr>
<td>Volume 23Ml/day</td>
<td>2,415 tonnes/day</td>
<td>3,220 tonnes/day</td>
<td>4,025 tonnes/day</td>
</tr>
<tr>
<td>LOM1 tonnes</td>
<td>9,198,000</td>
<td>12,264,000</td>
<td>15,330,000</td>
</tr>
<tr>
<td>LOM2 tonnes</td>
<td>22,036,875</td>
<td>29,382,500</td>
<td>36,728,125</td>
</tr>
</tbody>
</table>

To these figures must be added salt derived from sea water or from bore water.

Notwithstanding which calculation is correct, will the Company explain the environmental impact of this quantity of salt spread over the mine footprint and the steps it intends to take to restore/rehabilitate the mine site to agricultural productivity at the conclusion of its mining activities?

**Water**

“During the course of the study, there has been significant reduction in the volume of water required for the mine operations (from 45 gigalitres per annum to 14 gigalitres per annum).

Water supply investigations along the utilities corridor identified a high yielding saline aquifer located west of Kielpa, 56 kilometres from the mine site.

Studies are continuing to verify the capacity of this aquifer with a view to meeting the entire CEIP water demand with saline groundwater, supplemented by water recovered from open pit dewatering.”

**QUESTION 2**

What is the regional hydrological impact of (a) dewatering the Warramboo pits to the extent of 12-23 million litres per day and (b) the proposed extraction of water from the proposed Kielpa bore field? What is the impact of dewatering at Warramboo and Kielpa in terms of water required to sustain the environment?

Notwithstanding the fact that the proposed Kielpa bore field is extracting saline water, what is the long term economic impact of reducing the water reserves that may become available for agricultural or human use due to advances in solar distillation technologies that could be applied to this water reserve?

This is the future generational impact of what is being proposed to quote ‘benefit the short term aspirations of the mining company’.

**Port Facilities**

“The Cape Hardy bulk commodities port is planned to have an initial capacity of 70 million tonnes per annum with the main export wharf capable of handling Panamax and Capesize vessels. Two shipping berths for bulk iron ore carriers will be serviced by a travelling/slewing ship loader. Heavy-lift ships and geared Handymax vessels will be accommodated in the inner harbour. The port precinct includes 1,100 hectares of land to enable future expansion and to offer export solutions to third parties for a range of commodities.

The inner harbour may be used for the import and export of low-volume high-value cargoes, including the import of machinery, cement and fertiliser and the export of copper concentrates, grain and other containerised cargoes.

The port site concentrate handling system consists of a receivals (in loading) circuit and an out loading circuit. The in loading circuit is designed to receive concentrate from the rail system via a bottom discharge dumper.”

**QUESTION 3**

Nowhere in the DFS is reference drawn to the mining of copper at Warramboo. Furthermore, no reference has been made to the toxicity of copper in sea water, especially in light of the fact that Cape Hardy is on the
migratory path of the Southern Wright Whale, a totally protected species. Are we to assume one of the undisclosed outputs from the mine is copper?

**QUESTION 4**
Given the quantities of fuel likely to be consumed, does the proposed port have the capacity to receive and store fuel?

**QUESTION 5**
It is noted that the ore will be transported from the mine in covered bottom dump wagons. Are the wagons sealed to prevent the escape of fugitive dust? Are the wagons decontaminated (cleaned) before leaving the port facility on the return to the mine?

**QUESTION 6**
Fugitive dust is of significant concern. The DFS is very short on information relating to the potential risks associated with fugitive dust contamination, indeed, the JORC statement on the environment failed to mention the potential risks due to contaminated pastures, cereal grain, wool, meat and rain water, not to mention potential health risks to humans. Is it a matter of convenience to overlook the accumulative impact of the 4% free silica contained in the final ore concentrate and the health effect of continued exposure over a significant period of time? Is it a matter of convenience to not make scientifically supported (including independent peer review) of all chemical analytical results pertaining to the presence or otherwise of heavy metals (Chromium (VI); Cadmium; Arsenic; Uranium and other radioactive substances (Thorium, Strontium [87], Radon) that are known to occur in deposits of this nature in the Gawler Craton and or the Paleochannels known also to exist within the region?

**QUESTION 7**
It is noted that the proposed port is listed as an export port for copper concentrate. This the first occasion that the export of copper has been raised, therefore what are the environmental impacts of copper in the proposed project? Firstly what risk assessment has been undertaken to determine the impact of copper (at levels greater than those considered to be trace levels for the purpose of agriculture) on the farming community both in and around the proposed mine, the corridor and at Cape Hardy, especially in the context of copper toxicity in sea water and the very probable environmental damage arising?

**QUESTION 8**
Where does the copper come from?

"**Workforce**

**Construction**

During construction the CEIP is expected to have a nominal peak workforce of approximately 1,950 people.

**Operations**

CEIP operations are expected to directly employ approximately 700 people. The mine, rail and port will run on a continuous 24/7 basis. Most employees will be engaged on continuous shift rosters, although there will be a smaller number employed on a day shift only basis or a normal five day working week. Iron Road will seek to employ a large portion of its operational labour force locally and from regional centres near the mine and port. Additional personnel will be sourced from Adelaide. As a result, the workforce is expected to be a mixture of residential, drive-in, drive-out (DIDO) and fly-in, fly-out (FIFO)."

**Comment: E054**
The demographic probability of this occurring is remote. If one examines the workforce profile for the Hillside Mine (Ardrossan) it is obvious that the greater proportion of the workforce will be sources on a fly-in fly-out basis. In addition employees taken from the local districts will place current employers in an untenable position due principally their inability to match the salaries on offer from the mining company. This comment would
apply equally to local Councils and their ability to retain the services of heavy machinery operators and truck drivers in particular.

The employment 'carrot' is not as one expects!

Construction Camps
“The CEIP will utilise two construction camps to house the construction workforce over the Project’s duration. A camp of approximately 1,300 rooms will be located within the mine site footprint east of Warramboo and a camp facility containing approximately 650 rooms will be located within the Port precinct at Cape Hardy. Both construction camps will be modular constructions and provide serviced facilities including kitchen/dining facilities, wet messes, administration buildings and recreational facilities.”

QUESTION 9
Given that both of these facilities are included in the Major Project Development application and therefore come under the auspices of the Minister and Planning SA for ultimate approval, what financial liability has the District Council of Wudinna in the meeting of Council controlled infrastructure (roads, water and waste water) to service these camps, or will the Company totally finance this aspect of the development?

Accommodation Village
“The CEIP long-term operations village, to be situated in Wudinna, will house approximately 250 to 300 employees. The village will feature a modular built central hub with single and double room housing, reception and dining facilities. The village will be landscaped with native plants and winding pathways, creating a modern yet welcoming ‘home-away-from-home’ facility for the CEIP workforce.”

Comment: E055
This facility is included in the major development application and hence all approvals pertaining to the village will be the province of the Minister and Planning SA.

Question: What financial liabilities has the Wudinna District Council in meeting Council controlled infrastructure (roads, water, waste water etc) connections to the village boundary, noting every other aspect of the village is the province of Planning SA and the developer, given that there is (in the absence of evidence to the contrary) no memoranda of understanding or Deeds of Agreement between Council and the Company on these matters? The rate payers are at this point in time exposed to unknown liabilities.

Local Roads
“The District Councils of Cleve, Tumby Bay and Wudinna are being consulted on possible road modifications required in their respective areas and some have submitted estimates for proposed upgrades and alterations.”

QUESTION 10
Given the proposed development ant the volume of heavy trucking required has the Company entered into any Memoranda of Understandings (as a precursor to formal Deeds of Agreements) with the various Councils concerned with respect to the construction (fit for purpose), maintenance and rehabilitation of the said roads over the life of the project(s)?

It is understood that most of the identified roads are not of a suitable standard to cater for the anticipated heavy loads. Has the Company sought application of the Transport Division (DPTI) for assessment of these roads to ensure that they are capable of safely handling the proposed traffic?

Regulatory Approvals
“The proposed mine at Warramboo will be subject to both a Mining Lease and a Program for Environmental Protection and Rehabilitation pursuant to the Mining Act, 1971. Lodgement of the Mining Lease application to the State Government for assessment is anticipated during Q3, 2014.
The infrastructure components of the CEIP such as the port, rail, power and a long term accommodation village at Wudinna will be subject to a Development Approval under the Development Act 1993.

The expected assessment level for the Development Approval is an Environmental Impact Statement, the highest level of assessment for developments in South Australia. The initial Development Application is scheduled for submission to the State Government during Q1, 2014.

Referrals under the Federal Government’s Environmental Protection and Biodiversity Conservation Act 1999 will be submitted during Q1, 2014 to determine if further assessment is required. A range of other State and Federal Government approvals will be sought during 2014.”

Note: It should be recognised that NO approvals exist at this point in time.

The DFS is in fact a speculative document and is very much subject to the receipt of the above approvals.

Environment and Community

“Environmental and social impact studies, including baseline technical surveys and meetings with community groups and government agencies have ensured that Iron Road understands the potential benefits and impacts of the CEIP.”

Note: It should be recognised that no environmental or social impact statement have been released therefore the content of these studies HAS NOT BEEN SUBJECTED to any PUBLIC or third party scrutiny.

No clearly defined statement as to the impacts, social or economic, have been released to the public, hence the veracity of these reports remain subject to review.

‘JORC Code 2012 Table 1’ Section 2 Reporting of Exploration Results

Sampling Techniques:

Samples were also analysed for As, Sn, Ba, Sr, Cl, Ni, V, Co, Zn, Cr, Pb, Zr and Cu

It is noted that uranium, thorium and other radioactive elements were not included in the analytical work, therefore the following questions remain unanswered:

Given the known presence of uranium, thorium and other radioactive materials in the Gawler Craton bedrock and associated Paleochannels in the district, why are these substances precluded from any analytical results?

Given the inclusion of Lead [Pb] in the analytical data, which isotope of lead was reported on, given that lead is the end product of various decay sequences for radioactive elements? Was it Pb 214; Pb 211; Pb 210; Pb 209; Pb 207 or Pb 206?

Was lead therefore used as a marker for the presence of uranium?

What was the concentration of the lead in ppm?

Given that strontium was reported in the analytical result, what isotopic form of strontium was identified? If it were Sr87 (the radioactive isotope) was this used to determine the geologic age of the deposit using the Sr87/Rb87 dating procedures? If not, what was the concentration of the strontium sample in ppm?

It is noted that the analytical work sought to determine the presence of arsenic and chromium. That being the case, what was the concentration of arsenic in ppm?

With respect to the chromium, was the sample tested for hexavalent chromium (Cr(VI))? If so, what were the concentrations in ppm?

It is noted that no mention in the analytical work was made of the presence or otherwise of cadmium.
Given that Boron is an issue for the agricultural industry, why wasn’t an analysis for the determination of existence and concentration of boron in the samples undertaken? The issue being, if boron rich soil/overburden is brought to the surface as a consequence of mining and this material drifts onto neighbouring properties, agricultural yields could well be affected.

It is noted that samples were analysed for the presence of copper. What concentrations of copper occurred in the samples in ppm?

Environmental factors or assumptions

- Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.

  While at this stage the determination of potential environmental impacts, particularly for a Greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.

- No environmental assumptions have been considered in the estimation

Comment

As alluded to earlier in this response, the issue of the presence of radioactive material is of considerable concern, given that the MLP is proposed for the mining of iron ore and does not include the mining of radioactive material. It is therefore assumed that if said materials are present then the disposal plan is for this material to be deposited on the waste rock heap. That being the case (and clearly in the lack of evidence to the contrary) the material will be exposed to wind and water migration. Wind will result in the transportation of the material into neighbouring farming properties potentially contaminating pastures, grain, and through the food chain meat. Rain will potentially leach the material from the waste dumps into the underlying and surrounding environment.

The issue of radon gas which is a characteristic of mining deposits such as that proposed is not dealt with.

The environmental impact of significant quantities of diesel fumes and particulates emanating from the mine is not dealt with.

The real issue of fugitive dust which contains not only iron ore dust but potentially significant quantities of free silica as a consequence of the mining process is of a major concern. Added to this is the issue of fugitive dust arising from the transportation of the refined ore from the mine to the proposed port some 145 kilometres through prime agricultural land. The processed ore is reported to contain up to 4% silica and a non disclosed amount of other material, some of which may well be heavy metals.

The inference is that there are no environmental impacts from dust.

It is claimed that some 12 to 23 megalitres of water will be removed from the mine as a consequence of the dewatering process and that this water will be primarily used to control dust and other components of the process. It has been conceded that this water is hyper saline and one estimate is in the order of 400 million tonnes. A calculation based upon the dewatering rate would suggest a lower figure, but none less significant in its environmental impact. The inference being that this does not constitute an environmental impact!

As mentioned previously, the dewatering of the mine and the drawing of water from the proposed Kielpa bore field has a hitherto unknown regional impact both for water security and the environmental impact of such large scale dewatering.
Environmental

- The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.

- Iron Road will require approval under the Mining Act (1971) which includes the approval of a Mining Lease Proposal (MLP) and a comprehensive Program for Environment Protection and Rehabilitation (PEPR).

- All baseline environmental surveys have been completed. The preliminary impact assessment did not categorise any potential Project impacts as 'High'. Detailed impact assessments are on-going in areas including air quality, groundwater, surface water, flora, fauna, noise, social, visual, and heritage.

- It is expected that all predicted impacts may be adequately mitigated and/or managed and that the MLP and PEPR will be subsequently approved by the State Government.

Note: In addition to the previous comments, the report fails to acknowledge the presence of protected species in the proposed project area (the Mallee Fowl and the Southern Right Whale).

The report fails to acknowledge the health impact of the proposal.

The report indicates the need to prepare a PEPR, but in the absence of evidence to the contrary, this document to date is not for public knowledge. In short, the environmental performance criteria for which compliance is required is contained in a non-disclosed document.

The environmental and economic impact of the transport corridor appears not to have been included in any risk assessment pertaining to this disclosure document.

The rehabilitation of the mine footprint and hole at the end of life, given the quantity of salt deposited on the footprint, is a significant undeclared environmental risk, given the expectation that the land will be returned to current use, ie agricultural land.

- The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.

- Iron Road will require approval under the Mining Act (1971) which includes the approval of a Mining Lease Proposal (MLP) and a comprehensive Program for Environment Protection and Rehabilitation (PEPR).

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The environmental and economic impact of the transport corridor appears not to have been included in any risk assessment pertaining to this disclosure document.

The rehabilitation of the mine footprint and hole at the end of life, given the quantity of salt deposited on the footprint, is a significant undeclared environmental risk, given the expectation that the land will be returned to current use, ie agricultural land.

Comment: E056
The benefit to the State through royalties is zero for the first 4 years (the life of the current parliament) and a concessional rate for the next 5 years presumably based upon an official agreement (Memorandum of Understanding or Deed of Agreement) with the State Government.

Given that no formal assessment processes have commenced or applications lodged, the start timeline is non-achievable, and yet "Iron Road has no reason to believe that the necessary Government approvals will be received within the timeframes anticipated in the DFS"?

Comment: E057
Much has been said with respect to the economics of the Warramboo mine, note singular mine. Yet the DFS continues with respect to providing what is irrelevant information pertaining to the potential ore reserves for the remainder of the tenement as quoted hereunder.

It is noted that the life of the mine varies from 25 years (page 3 of release) and 20 years in the JORC statement, but the CEIP offers a potential operating life in excess of 25 years.

“Based on regional exploration work completed to date and increased ore body knowledge, there is an estimated to be a further 10 to 21 billion tonnes at 14% to 20% iron of resource potential within EL4849.”

The DFS relates to one mine which has been estimated to cost some $US3.9B within an initial capital expenditure of $US5,217M with a LOM capital cost in the vicinity of $US7,502M. The figures do not add up so to speak, unless of course the differing amounts relate to the bringing on line of the remaining prospects in the tenement, ie the project is NOT a single mine, but an undisclosed number of mines across the region as illustrated on the map.

Is it not true that the DFS is a document to the market place (being the Australian Securities Exchange) designed to attract financial support for the Central Eyre Iron Project, which is inclusive of the Warramboo mine and the remaining identified potential mines with an estimated 17Bt ore resource/reserve?
The assumption that the Australian dollar exchange rate of $0.85 is very optimistic (currently 0.91) as is the statement that the mining tax and the carbon tax will be repealed. These issues will have significant impact upon the economic viability of the project.

Social

- The status of agreements with key stakeholders and matters leading to social licence to operate.
- A baseline social impacts and benefits study has been completed and results discussed with stakeholders.
- Various Community Consultative Committees have been formed for the purpose of consultation, information and feedback.
- Community engagement events and public meetings are regularly held to keep communities informed.

Comment: E058
That being the case, why is the company NOT conducting public meetings in the township of Tumby Bay, given that a significant component of the project resides within the District Council of Tumby Bay and potentially impacts on the ratepayers of the District.

With respect to the community consultative committees, the question of community representation given that the Company invited certain members to the table, versus a truly independent community based (elected) committee without formal members being employees of the mining company needs to be examined in detail.
Experience has shown the current committees to be an avenue for the company to provide its point of view, not for a robust debate of the merits or otherwise of the proposals.

Other

- “To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:
  
  o Any identified material naturally occurring risks.
  
  o The status of material legal agreements and marketing arrangements.
  
  o The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.
  
  o No significant (high) naturally occurring risks were identified during a whole of project risk assessment.
  
  o Iron Road Limited has not yet entered into any formal marketing arrangement for the sale of iron concentrates and is currently progressing this area.
  
  o The Exploration Licence is in good standing with all legal obligations met. Regular meetings with state and federal Government agencies occur for the purposes of discussing required approvals and facilitating meetings with other stakeholders.
  
  o A Mining Lease and Program for Environmental Protection and Rehabilitation (PEPR) must be approved before the reserve can be extracted and are dependent on the approval of the Minister for Mineral Resources.
  
  o Iron Road has no reason to believe that the necessary Government approvals will be received within the timeframes anticipated in the DFS.”

Comment: E059

As mentioned previously there are at least four naturally occurring risks which the Company has failed to recognise:

a. the habitat of the protected Mallee Fowl,
b. the habitat of the Southern Right Whale,
c. the presence of radioactive materials and or heavy metals,
d. Regional ground water impacts.
Our Ref: E-F-32-LTR-0014.0

3 April 2014

Mr Brian R March
Information Officer/Spokesperson
Eyre Peninsula Community Mine to Port Consultative Committee
PO Box 95
TUMBY BAY SA 5605

Dear Mr March

I refer to your letter dated 28th March 2014 emailed to both myself and Tim Schoiz in relation to Iron Road’s upcoming information sessions on the Eyre Peninsula.

The purpose of these sessions is to provide community members with an update on the results of our recently completed Definitive Feasibility Study (DFS). This purpose was clearly outlined in our letters of invitation to residents and the corresponding advertisements in various Eyre Peninsula newspapers.

Iron Road implements various forms of communication in order to keep our stakeholders informed about the Central Eyre Iron Project (CEIP) and has hosted numerous public events on the Eyre Peninsula since 2011, including both information sessions and public meetings within the Tumby Bay District Council area. Open Day information sessions, where interested community members can ‘pop in’ to a venue and ask questions of the Iron Road staff in attendance, have proven to be both very popular and successful. We will have the same level of information available at these information sessions including fact sheets, maps and copies of the presentation given at the public meetings.

Finally, I note the numerous questions and comments you included with your letter. You appear to have misinterpreted and/or misunderstood the bulk of the information outlined in the company’s ASX announcement dated 26th February 2014 in relation to the DFS. Misinterpretation may cause unnecessary anxiety and fear in the community and I therefore encourage you to attend one of our planned sessions. You will be able to receive the facts directly from Iron Road which in turn will assist you in providing correct information to your members. Alternatively, I understand that you reside in Adelaide and you may find it more convenient to schedule a meeting with the Iron Road team in our Currie Street office.

Thank you for your interest in Iron Road and the CEIP.

Yours sincerely,

[Signature]

General Manager

CC
Mr Trevor Smith, CEO, District Council of Tumby Bay and elected members
Mr Peter Treloar MP, Member for Flinders
Mr Geoff Knight, CEO, DMITRE
Ms Eleanor Schoiz, Mayor, Wudinna District Council
Ms Heather Baldock, EPNRD Board
Ms Sally Richardson, Tumby Bay and District Community Consultative Group
Ms Helen Lamont, Independent Chair, CEIP Community Consultative Committee
4th June 2014

Ms Helen Lamont
Independent Chairperson
CEIP Community Consultative Committee

Dear Ms Lamont and Members of the CEIP CCC,

Further to my recent correspondence raising questions in relation to the recently released Iron Road Definitive Feasibility Study (DFS), I note in the May edition of “Granite” some attempt has been made to answer some of the concerns raised.

Prior to addressing the specifics, it is appropriate to provide the context in which the questions were asked.

The DFS document is simply a prospectus issued by the Company to the market with the view of attracting investment dollars to further the project. The document is what is called a ‘price sensitive document/announcement’ on the Australian Securities Exchange (ASX), a document which is issued under the rules and conventions of the Exchange et al.

What it is not is a formal application for project assessment under the Development Act (Section 46 Major Development) i.e. it is not an Environmental Impact Study; it is not an application for a Mining Lease under the Mining Act, 1971, nor is it a referral to the Commonwealth under the Environmental Protection and Biodiversity Conservation Act (commonly known as an EPBC referral).

All of the above processes require full scientifically based evidence in support of the contentions made in the applications and all are subject to public scrutiny.

Given the publicity surrounding the DFS, it is not unreasonable to review its content and to raise issues accordingly. It is called due diligence.

For the Company to claim misinformation and misrepresentation is to be expected in light of the fact that no scientific data to verify or dismiss the questions/issues has been provided to the public or to the CEIP CCC.

The questions raised have legitimacy in the absence of scientific evidence to the contrary.

On the issue of regional hydrology, the fact remains no evidence has been provided to substantiate the claim made in the recent article. No evidence has been released that has been subjected to peer review and or Government scrutiny other than some assertions made about the hydrology around the perimeter of the proposed mine site at Warramboo. In addition, no official evidence has been provided to support or deny environmental impacts associated with the now proposed bore field in the Kielpa region or its impact upon the regional hydrology associated with the Eyre Peninsula Water Allocation Plan currently under review by the Eyre Peninsula Natural Resource Management Board (EPNRMB) in association with SA Water and the Department of environment, Water and Natural Resources (DEWNR). Until such evidence is released the credibility of the statements made by a public relations officer(s) are without foundation.

The DFS identified the presence of heavy metals, copper and manganese in the ore body. Given the fact that no EIS has been provided for public scrutiny, the questions therefore remain valid. In the absence of scientific evidence to the contrary, the risk to public health and to employee health (under the SA Work, Health and Safety Act, 2012) let alone the wider environmental risks remain unanswered. Claims by the public relation officer(s) are again not credible.

The question posed, on the basis that heavy metals are synonymous with the geology of the Gawler Craton, was simply what are the concentrations of the metals so identified?

The rationale behind asking the question was based upon the knowledge that Arsenic and Chromium (VI) are known carcinogens; “some studies of environmental exposure to manganese have suggested possible links to
neurodegenerative disease" (Lazenby D: Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Headland, pp52, 2007); the known toxicity of copper in concentrations above trace levels in cereal production land and its significant toxicity in the marine environment. It is noteworthy that no reference to the presence or otherwise of Cadmium was reported in the aforementioned document.

The identification of Lead and Strontium leads to the question of what isotopic form of Lead and Strontium were identified as both Lead and Strontium have radiogenic properties arising from various radioactive decay sequences indicative of the presence of Uranium and other radioactive materials?

It is reasonable to seek a scientific response to these questions given that the Gawler Craton has known occurrences of Uranium and other similar materials within its geological makeup. It is also known that Uranium exists in a nearby paleochannel thereby strengthening the argument for full disclosure with respect to the presence of radioactive materials in addition to the Radon and daughters of Radon known to be released in mining activities within the Gawler Craton.

The significance of these questions lie in the fact there is the real possibility of these materials being deposited on the waste rock dumps thereby exposing these chemicals to leeching following rain or dust suppression with (hyper-saline) water and or windblown onto neighbouring properties. The potential contamination pathways need to be identified and mitigated against.

It is understood (but not confirmed) that landowners are not able to obtain insurance in the event Uranium or other radioactive materials being present on their properties.

There are also significant questions to be asked with respect to the delivery of contaminated (be it radioactive material, heavy metals or iron ore dust) grain to a silo for export.

In the worst case scenario, who stands the economic loss?

**The potential iron ore dust in sheep wool which can greatly devalue the product;**

The Iron Road response "The potential for this to occur is not credible", needs to be reviewed in light of the findings of the State Government’s Natural Resource Committee report on dust associated with the mining activities around Iron Duke and the impact upon the environment, including impact upon wool production.

This view was further supported by Senator Xenophon 20 May 2014.

“Iron ore dust will get into the wool, making it unsaleable – ask the farmers adjacent to Iron Duke about their wool; they can’t sell it and you could scour pots with it. Iron ore dust will taint our wheat, lowering its value. Iron ore dust will get into our waterways affecting our underground water supply.”

**The potential ingestion of heavy metal laden dust by grazing stock which can cause significant health problems and additionally a problem for sale at market, etc.**

Iron Road’s response "The dust is nontoxic and the potential for this to occur is not credible" is contestable.

There is a real need to identify the contamination cycle arising from fugitive dust be it generated from the activities associated with the mining process; the crushing and separation processes; the dumping of rock onto the waste rock piles; the transportation of the ore to the port and the handling of the ore within the confines of the Port, and its impact on nearby agricultural land/pastures/crops.

The potential exists (in the absence of scientific evidence to the contrary) for the pastures to be contaminated by iron ore dust and whatever else is contained in the dust (depending upon the location). In the event that the dust contains elevated concentrations of heavy metals what are the implications for grazing stock in the contaminated area where these animals may ingest contaminated pastures over a significant period of time?
Heavy metal contamination can be detected and with the market place expecting clean green produce, contamination of this kind would not be tolerated.

In a similar manner, the DFS identifies that fact that there is a residual amount of silica in the processed ore. The fact remains that silica exposure is a public (and employee) health risk and recognised in legislation. Again the publicist view is not credible.

The argument is also true for the issue of the impact of fugitive dust from the mine; from the transportation of the ore and ultimately at the port storage facility. The loose covering of the transport wagons from the mine to the port storage facility is not the solution, sealing the containers is, thereby providing an engineering solution to removing the identified risk. Significant bodies of evidence exist to support our contentions of the health risk associated with iron ore dust and its contaminants.

It is assumed that appropriate site specific meteorological studies have been (or will be) undertaken over a period of one year (notable the mine site, the processing site, the port storage facility) to determine the dust dispersion associated with each activity, modified accordingly as the waste rock dumps gain height and so affect the dust distribution pattern (and potentially the rainfall pattern alike).

In a similar manner, the management of the impact of an estimated reported 400M tonne of salt brought to the surface over the life of the mine needs to be addressed through the EIS process where the scientific and engineering details of how the Company intends to mitigate against the potential migration of salt (in solution or in dust) to neighbouring properties, will be disclosed.

The DFS includes the statement "various community consultative committees have been established" (underlining added). In the absence of evidence to the contrary, there is only one CCC, despite having drawn attention to the fact that the existing Committee’s sphere of influence is confined to the area within Wudinna and Warramboo. The Company is required to seek a community (social) licence for the project, the project being the complete proposal not just that confined to Wudinna and Warramboo. The occasional information forum as conducted recently is not a replacement for a duly constituted Community Consultative Committee(s) in the transport corridor or the Port Neill/Tumby Bay precincts.

The serious questions surrounding the rehabilitation of the proposed Warramboo mine need to be raised. Experience has shown this is one of the most contentious issues of mining approvals. Examples exist where the miner has gone and the resultant problem has become the province of the Government (ie the taxpayer) to rehabilitate (the Barunga Mine near Nairne) which is an ongoing project a significant cost ($millions) to the taxpayer.

In the case of the Warramboo mine(s), the rehabilitation programme will need to be significant, given the size of the actual mine hole, the height of the overburden/waste rock dumps and the contamination of the site with the estimated 400M tonnes of salt, not to mention the volume of water that will eventually fill the hole from the aquifer (assuming of course, some water actually remains in the aquifer despite the dewatering programme). This water will be hyper-saline and will have the added problem of being contaminated by materials exposed as a consequence of the mining activity. It is highly probable that the concentration of dissolved salts will now contain increased levels of heavy metals, increased concentrations of copper and manganese and potentially increased concentrations of dissolved uranium or daughter nucleides. A conservative estimate of the volume of water required to fill the hole over time would be some 4 SydHarbs.

Finally, the DFS provides an indication of the future through the identification of the ore reserves across the tenement thereby providing a future guarantee for the investor. Is this a single mine proposition?

In conclusion, the focus on the DFS has provided the opportunity to raise significant questions with the expectation that answers based upon scientific and engineering evidence will be provided.

The answers to the questions raised before are still to be provided.

Your assistance is sought in encouraging the Company to provide the evidence behind the responses made to date in the Granite, thereby providing credible responses to the public as opposed to spin.

We thank you for your consideration of the issues raised.
Yours sincerely,

Information Officer
Eyre Peninsula Community mine to Port Consultative Committee
a sub-committee of the Tumby Bay Residents and Ratepayers Association Inc. and in consultation with the Port Lincoln Residents & Ratepayers Association Inc.

FOOT NOTE: A copy of this correspondence has been sought by the Managing Director, Iron Road. Apparently he original went 'missing' from the CEIP CCC files. (20-01-2015)

Reading material:

Hazards of Heavy Metal Contamination

http://bmb.oxfordjournals.org/content/68/1/167.full

Heavy metals and food contamination
http://ec.europa.eu/food/food/chemicalsafety/contaminants/cadmium_en.htm

Toxic Effect of Heavy Metals in Livestock Health: Veterinary World, Vol 1(1) 28-32, 2008

Determination of contaminant levels in forage grasses, Dareta Village, Nigeria: Archives of Applied Science Research, 2013, 5(3):229-236

(Google: Heavy metal contamination in animals)


The Senate: Community Affairs Reference Committee: Impacts on health of air quality in Australia, August 2013

Best Practice Environmental Management in Mining, Dust Control: Environment Australia, Department of Environment, 1998.
Iron Road appreciates that Eyre Peninsula communities want to understand the CEIP and how it will affect everyone's lives.

Our community team members, Tim Scholz and Tilly Smart, have worked hard to provide as much information as possible to develop district-wide understanding as well as to seek input on the CEIP.

Significant matters need to be discussed with any major development. Project impacts must be taken seriously and addressed through a process of credible scientific assessment, evidence-based decision-making and respectful discussion.

Furthermore, studies and history indicates that mining and agriculture can co-exist. But we should want more than coexistence; we should aim for appreciation and understanding of all industries.

We are concerned that the 'publishing' of inaccurate or misleading information by parties other than Iron Road may cause unnecessary anxiety. Therefore, this month we address some of the assertions that have been made.

The CEIP development will result in the destruction of a sustainable agricultural industry

The development of an open-pit mine cannot avoid some land disturbance. In the case of the CEIP, inclusive of the mine, infrastructure corridor and port, the loss will be approximately 0.4% of agricultural land available across the Eyre Peninsula.

However, the CEIP also includes the creation of a new standard gauge rail and port logistics system.

A globally significant grain handler has taken up the opportunity for potential third party access and in doing so signed a memorandum of understanding with us to examine grain exports through our planned system. Initial discussions indicate that savings to farmers may be in the region of $10 per tonne of grain.

The CEIP development will result in the destruction of, if not a major disruption to, the regional hydrology of the area

The hydrology (surface water movement) will be modified in the immediate area of the mine due to the open-pit mine and stacked waste rock/failings. Iron Road has designed these structures so that no surface water run-off will leave the mining lease.

We believe the statement is meant to discuss 'hydrogeology', which is the study of underground water movement. Extensive groundwater investigations by experienced hydrogeologists, coupled with sophisticated, regulator approved computer models, clearly demonstrate that there will be no impact to any potable water sources such as the Policake Basin (a subset of the Musgrave Prescribed Well Area).

Much work has been completed in this area and detailed information on those studies will be provided to the regulator in our approval applications.

The CEIP development has the potential for contamination of 150km of prime agricultural land adjacent to the transport corridor through fugitive dust containing free silica (a known carcinogen of...
Table 6-5 Talking Topic Details.
Comment: E060
It is noted that a number of round table talking topic sessions have been held. What is not revealed in the table is the number of attendees at each session thereby gauging the effectiveness of this strategy.

Local Government (p6-14)

“In addition to the above, Iron Road has requested each of the four impacted District Councils to give consideration to entering into a Memorandum of Understanding (MoU) prior to the EIS being determined. The EIS Guidelines refer to setting out details of Management Agreements between Iron Road and each impacted District Council, but the CEIP has not progressed sufficiently enough at this stage to enable Management Agreements to be negotiated.

In lieu of Management Agreements, the proposed MoU’s will set out that the parties will work together to achieve mutually beneficial outcomes and to discuss other matters of importance. Such matters would include, but not be limited to, roads, rail, commercial opportunities, the use and/or sale of community land, rates, and possible third party access to power and water.

It is intended that the MoU’s continue until individual Management Agreements are negotiated with each of the four District Councils”

Comment: E061
It is understood no such MoU exists with the District Council of Tumby Bay, and given the position of Council on MoU’s (they are not worth the paper they are written on, claimed at November Council Meeting in presence of a number of Members of the Association, they probably will never exist.

No formal reference to such instrument has been made in Council Minutes over recent times so the question becomes what is the level of consultation/engagement being undertaken with the District Council of Tumby Bay in this matter?

In the absence of any visible documentation, is the consultation being undertaken in a non-transparent manner?

6.7 Conclusion

“...underpinned by engagement that is inclusive, transparent, accountable, clear, informed, accessible, timely and meaningful.”

Comment: E062
From the Associations' perspective the process has not been inclusive and accessible given that the requests for public meetings in Tumby Bay have been denied; clear and informed clearly not as evidenced by the material presented in the Granite, being flawed and questions not answered and critical of anyone whom actually has the temerity to ask a question and expect an 'informed answer'.

EIS CHAPTER 07 Environmental factors

7.2

“The physical environment relevant to the CEIP was identified through a desktop assessment of existing databases and information sources.”

7.3.1 Climate

Comment: E062
It is noted that the discussion of climate is confined to a discussion of climatic conditions pertaining to Wudinna, Kimba and Port Lincoln.

"Although the nearest weather station to the northern end of the infrastructure corridor is the Kyancutta station, hourly data is not available, with the next nearest station providing hourly data located at Wudinna. As such, the data recorded at the Wudinna station is preferred for providing a complete set of data at the northern end of the infrastructure corridor. All other stations utilised also
provide hourly data which can be used as a comparison between meteorological conditions at the various locations.

Comment: E064

The obvious question relating to site specific meteorological data is simply where is it, or has all the factors that are dependent upon site specific meteorological data been mathematically derived from remote data?

7.3.2 Wind
Comment: E065

The relevance of wind data from Wudinna and Port Lincoln, both located at significant distances from the main infrastructure (noting the exception for the Wudinna accommodation village) is questioned.

Clearly, the applicant is pursuing a minimalistic approach to this application with the expectation that the public will accept mathematical modelling based upon ir-relevant data.

When will the sit specific 12 month weather monitoring be undertaken in order to verify the guessitimates portrayed in the application.

The assumption that weather conditions in Port Neill (vide Cape Hardy) are the same as Port Lincoln is fallacious. Such a position reflect a degree of contempt the applicant has for the local community.

7.3.3 Natural Hazards

Droughts
Comment: E066

The commentary on droughts as expressed in this section is stating the obvious to those on Eyre Peninsula. There are seasonal variations in rainfall.

The question here is what is the relevance of this section of the application, other than to provide an 'apparent justification' for the applicant's position that the proposed infrastructure may provide an alternative, an alternative to what given the breadth of agriculture on the Peninsula, including the Kimba region which is above the Goyder Line?

Fire

"Remnant vegetation coverage on the Eyre Peninsula is patchy, predominantly limited to designated conservation areas, with the majority of the region cleared for agricultural purposes. As such, there are predominantly low fuel loads, resulting in quick burning grass fires in the agricultural regions."

Comment: E067

It is obvious that the applicant has little knowledge of fire in agricultural areas. The lessons of the Pinery and Wangarry fires clearly are not appreciated in the commentary.

The two quoted fires in the Hambidge WPA burnt a total of 40,000 hectares.

The again obvious question is whether the applicant intends to operate the mine and or transport corridor on fire ban days?

Experience has shown trains do start fires as does machinery.

Given that the rail corridor is some 135-140 kilometres in length, what fire prevention strategy exist to ensure that no fire emanates from the corridor, given that the activities taking place within the corridor are potentially foreseeable fire initiators?

7.3.5 Soil and Geology
Comment: E068

It is noted that geotechnical information has been obtained over sections of the corridor.
Given that the corridor is situated in agricultural land, were the soil samples analysed for their boron content?

In the event that they were, what are the results of the analytical work? What measures will the applicant take to not spread high boron content soils over existing agricultural land, given the known growth inhibiting properties of boron.

If the soil sample were not analysed, when will this work be undertaken and the results made publicly available for the consideration of landowners and the community?

This section of the application does not make any reference to the existence of acid soils in the corridor or to the impact upon those soils as a consequence of the activities planned for the corridor.

7.4.1 Climate Change Predictions
Comment: E069
Apart from presenting a chart of predictions for the Eyre Peninsula, the question of relevance to the actual port site and corridor requires to be stated, especially in light of the fact no site specific meteorological data exists.

Is this a space filler, or does it actually have relevance in respect to possible significant variations in fugitive dust and noise dispersion associated with the proposal?

Rainfall and Surface Water
Comment: E070
If the position presented is accepted, what are the actual implications for the proposal? Local experience with flash flooding as a consequence of storms (summer downpours) provides the answer in relation to the creek network in this region of the Peninsula.

These unique weather events have been known to deposit anywhere from 4 inches to 13 inches of rain in a day leading to flash flooding. Given that there are no weather recording stations (BoM) in the area of the port or corridor, such events are not officially recorded.

Does the application take into consideration these unique weather events? Of particular concern is the construction of the rail corridor and its performance under these conditions. Where does the water go?

CHAPTER 8 LAND TENURE
"Hambidge Wilderness Protection Area
Hambidge WPA (Plate 8-2) is located approximately 3.8 km southeast of the mine site boundary and adjacent to the northern extent of the infrastructure corridor. It covers approximately 38,000 ha and was proclaimed a WPA under the Wilderness Protection Act 1992 in 2004, one of the first to be proclaimed on mainland South Australia.

The vegetation of the Hambidge WPA is dominated by mallee communities, with small areas of woodland and shrubland. Several species of conservation significance are known to occur within the WPA, including the Malleefowl (Leipoa ocellata) which is vulnerable at both national and state level."

Comment: E071
The following commentary has been extracted from the Associations' response to the Mineral Lease Application. It is considered appropriate to repeat the commentary here.

CHAPTER MLP11
"As mentioned above, fauna surveys were undertaken at five sites across the mine site providing a representative snapshot of the habitat types across the site. Sites were selected as representative of the best habitat condition within the mine site rather than typical habitat across the site to maximise survey return for effort and to highlight the presence of ecological values.  (p11-5)

It is unlikely that the Lake Warramboo Complex provides critical habitat to common fauna or conservation significant fauna.” (s11.3.7, p 11-21)
Comment: E072
Given the extent of the proposed Mineral Lease, the question is why only 5 survey sites within a very limited area, 3 of which surround the HA 869 Heritage Reserve?

The limited view provides no confidence in the detection and identification of fauna that exists over the balance of the proposed lease, especially the southern aspect that is in the near vicinity of the Hambidge WPA. The limitation of the survey is due to the fact that the majority of the land in question is Exempt Land (sect 9(1), Mining Act 1971) and no waiver of exemption exists granting access to undertake mining activities thereon?

The question therefore being, when will the comprehensive fauna and flora survey relevant to the whole site be undertaken and the results subject to public scrutiny?

A desktop review is just that, a literature review of probable species likely to be in the habitat of interest. The application must be supported by empirical evidence to substantiate claims made over the whole lease area, not assumptions made on limited surveys.

It is noteworthy that the Application is devoid of any reference to the East meets West Naturelink policy launched by the then Minister for the Environment, J Weatherill, MP.

"Target 3.2 of South Australia’s Strategic Plan outlines the government’s commitment to establish five biodiversity corridors linking public and private lands across the state by 2010. Our long term vision is to have five extensive corridors of healthy and diverse habitat across land and sea in 100 years time. The East meets West NatureLink is the crucial first step in achieving that goal.

The East meets West NatureLink spans three of South Australia’s biomes, across which species and ecological processes function. It is important that connectivity is conserved both within and between the Arid, Mediterranean and Marine biomes"

The proposed mining lease imposes a significant physical barrier between the Warramboo Lakes network and the Hambidge WPA.

Clearly the Application is deficient in its presentation in this regard.

11.3.4 Desktop Survey
Comment: E073
It is noteworthy that no mention has been made of a reported Mallefowl sighting in the desktop survey.

It is noted that the data contained in Fig 11-2 is not dated, so its currency is questioned.

It is noted continued reference to the Lake Warramboo complex is made. It is unfortunate that the application lacks specificity in this respect, given the considerable area occupied by the lake system. The southern extremity of the system is located a short distance (1.2km) to the north of the proposed Mineral Lease.

11.3.7
"The majority of vegetation within the mine site is moderate to poor condition".

Comment: E074
The assessment is based upon what empirical evidence, given only 5 sites identified on Fig 11-1. Clearly this is not a representative sample of some 1118 hectares of vegetation identified over the site (of 8,000Ha)?
What the satellite image shows is that there are significant pockets of ‘native vegetation’ together with large tracks of vegetation on top of sand ridges dispersed over the proposed mine site.

What is significant is that the tracks of vegetation provide wildlife corridors from the North West to the South East, the latter being in the direction of Hambidge WPA. As mentioned in this response, the mine will provide a significant barrier to animal migration from the Warramboo Lakes area to Hambidge.

Figure: Nantuma Road in foreground with Kimba-Warramboo Road in top third of image.

Figure: More detailed view of clusters of vegetation and of the tracks of vegetation across the ridges.
It is also noteworthy that significant blocks of vegetation will be covered by the waste rock dump (IWl), creating a further barrier for animal migration across the site.

The minimalistic approach is clearly insufficient to allow an 'informed decision/view' to be achieved.

It is RECOMMENDED that the field survey be extended to a representative number of sites across the whole of the proposed Mineral Lease and especially in a number of sites on the southern boundary given the proximity to the Hambidge WPA. Such a survey would provide a degree of confidence that the objectives of the East meets West Naturelink policy are addressed and met.

11.5
"For native fauna and pest species, a number of potential impact events (listed below) are not considered further as there is no confirmed linkage between source, pathway and receptor, as demonstrated in Appendix C. These include:

- Loss of habitat at the Lake Warramboo complex as a result of reduced groundwater elevation due to pit dewatering, as this is not expected to harm the limited environmental values (PIM_11-14). This is discussed further below.

- Stress or mortality of native fauna as a result of poor water quality within eventual pit lake, as the water within the pit lake will not contain any contaminants of concern (PIM_11-20, Chapter 19)"

Comment: E075
The first ‘assumption’ concerning the reduced ground water elevation due to pit dewatering is not expected to harm the limited environmental value is based on what long term research program?

What fails to be recognised by the applicant in presenting the last comment "as the water in the pit lake will not contain any contaminants of concern", is to consider the toxicity of the hypersaline water that will eventually fill the ‘lake’ AND the potential heavy metal contamination arising from the exposure of ore containing heavy metals etc as disclosed elsewhere in this report.

In addition, the applicant fails to consider the weathering of the exposed rock face which may well produce acid which will contribute to accelerated weathering of the rock face as well as contaminating the water.

11.6.1 Dust (Chapt 15) and Noise (Chapt 16) impacts
Comment: E076
It is noted that additional work regarding these specific issues is scheduled for 'future work'. As mentioned previously ALL 'future work' is not subject to public scrutiny. In this respect the application is INCOMPLETE and should be returned to the applicant to be completed.

It is noted the risk assessment with respect to the reduction of habitat is claimed to be of low risk. The problem with this assessment is that it is based upon a very limited analysis of the vegetation across the proposed site. There is no confidence in the 'assumption' that it is applicable across the 8000 ha site.

The issue of fugitive dust impact upon native vegetation is basically dismissed at this point in time, although it is raised to a limited extent in Chapter 15.

The outstanding question being what is the long term impact of fugitive dust upon native vegetation remaining within the mine site and that impacted by dust outside of the boundary, given that the dust has a very high probability of containing significant concentrations of salt, heavy metals including copper etc which are known growth inhibitors?

11.7.1 Unauthorized clearing of vegetation:
Comment: E077
There should be zero tolerance to unauthorized vegetation clearance.
The risk assessment therefore is reflective of the contempt the applicant shows towards any approval given when it considers unauthorized activities as 'low to medium' risk.

The next question is who audits the applicant with respect to compliance with the provisions of the approvals granted in this respect?

11.7.2
Comment: E078
This section fails to recognise the presence of Malleefowl in the area. The risk assessment has no credibility given the very limited area of the survey.


11.7. and 11.7.8 Rehabilitation impacts
Comment: E079
It is proposed to rehabilitate some 3000Ha of the waste rock facility (IWL), but, having regard to the dust suppression methodology and the salt content of the process tailings, confidence in what is being suggested is very low. Significant salt scarring is anticipated to the point where growth is not sustained. Added to this is the potential for copper present in the waste to also inhibit growth.

The proposed future work (trial and error) on the rehabilitation plan does not engender any heightened level of confidence in a solution being found and implemented. Further, future work is not subject to public scrutiny.

It is RECOMMENDED that the application be not approved until a satisfactory solution is devised to meet the rehabilitation requirements (including the potential to return to agriculture) is verified (and peer assessed).

This will ensure that native flora and fauna species will be sustained.

8.2.3 Mineral Resource Exploration and Extraction
“The Eyre Peninsula is considered highly prospective for mineral exploration and extraction. There are currently a number of advanced mining projects proposed on the Eyre Peninsula including Wilcherry Hill, Middleback Ranges (Iron Chieftain and Iron Duke) and Wilgerup. A number of developing projects and prospects have also been identified by the Department of State Development (DSD) on the Eyre Peninsula by the Regional Mining and Infrastructure Planning (RMIP) project, including the CEIP (Plate8-4), Fusion, Gum Flat, Uley and Poochera (Deloitte 2013).”

Comment: E080
A number of significant issues appear to have been missed in the statement presented above:

a) Wilgerup (near Lock) owned by Centrex Metals is an ‘approved’ iron ore mine. Centex Metals have advised the ASX it has written down this project to site value only. The company is examining its options with respect to iron ore on Eyre Peninsula.

b) Centrex Metals/Eyre Iron Ltd Project Fusion and the associated Port Spencer Development is not proceeding with the Carrow prospect being sold and doubts over the Bungalow prospect, together with issue in relation to the various agreements with Chinese interests. (as per ASX announcements).

c) The Port Spencer project has a Provisional Development Authority in existence until December 2016.

d) It is known that nothing has eventuated in furthering this project.

e) The Gum Flat prospect (Lincoln Minerals Ltd has been terminated and the property sold.

f) Uley Graphite (Valance) has ceased operations and is facing significant financial issues.
g) Iron Clad, whilst operations are continuing, are not shipping ore from Lucky Bay.

The picture painted by the applicant is clearly misleading.

"As at August 2015, the proposed CEIP Infrastructure traversed six exploration licences (EL) including Iron Road’s EL 4849 and three exploration licence applications (ELA) as detailed in Table 8-1, which comprises the area to be subject to the CEIP Mine (SARIG 2015). Petroleum Exploration Licence (PEL) 153 held by Energy Exploration Pty Limited is also crossed by the CEIP infrastructure. The location of ELs intersected by the proposed CEIP Infrastructure is shown on Figure 8-3."

Comment: E081
It is assumed, in the absence of evidence to the contrary, that all necessary agreements are in place between the applicant and those parties identified above.

It is assumed that failure to secure said agreements would mean the project is not able to progress.

There does not appear to be any reference to this significant risk in the application.

Is this not yet another example of 'future work' that exists throughout the two applications?

Marine Parks
"No components of the CEIP Infrastructure are located within, or propose to utilise, any marine parks."

Comment: E082
What is not clear at this point in time is the location of the shipping lane(s) to be used and the location of Joseph Banks Marine Park to the South and the Pt Neill aquaculture zone to the north.

8.2.6 Existing Land Use of the CEIP Infrastructure Sites
Port Site
“The proposed port is located within the General Farming Zone and Coastal Zone of the Tumby Bay Development Plan and within an unzoned area of the Land Not Within a Council Area (Coastal Waters) Development Plan. The key objective of the General Farming Zone is the long-term protection of the land for primary production purposes, reinforcing the existing rural character of the region.”

Comment: E083
It is interesting to note that the Tumby Bay Coastal Zone was Gazetted on 3rd December 2015 to take effect from 25th November 2015. This application was open for public consultation from 17th November 2015.
Comment: E084
Perhaps the applicant can explain how this application contained a definitive statement as to the existence of the Tumby Bay Coastal Zone prior to its Gazettal?

Long-Term Employee Village
"Wudinna DC is undertaking a structure planning process for the Wudinna township to support the establishment of the long-term employee village. That process is funded by Iron Road."

Comment: E085
The question is why the District Council of Wudinna is undertaking a planning process for the long term on behalf of the applicant, when the development application is in the name of Iron Road, not Council?

An examination of the funding arrangement may also be in order given that an issue of GST may be involved.

8.2.7 Land Tenure
Table 8-4 Property Ownership

a) Port Site

District Council of Tumby Bay

CT Volume 5884 Folio 461 Allotment 10 DP60630 Runs south along the coast from Brayfield Road to Kiandra Road and is crossed by the jetty

Comment: E086
It is noted that the above mentioned asset of the District Council of Tumby Bay is identified within the Port complex.

In the absence of evidence to the contrary, and especially the complete lack of transparency on this matter on behalf of the District Council of Tumby Bay, and the non existence of any MoU’s on the matter, can the applicant provide an explanation as to how this property is to be acquired (sale or compulsory acquisition).

It is assumed that the property will be assigned a market value and the applicant will be required to purchase it at that value plus all fees

Failure to meet this expectation is inferred as a gift to the applicant at ratepayer’s expense.

In the absence of evidence to the contrary, and the non existence of any MoU’s on the matter, can the applicant provide an explanation as to how this property is to be acquired from the Crown?

It is assumed that the property will be assigned a market value and the applicant will be required to purchase it at that value plus all fees.

Failure to meet this expectation is inferred as a gift to the applicant at taxpayer’s expense.

"Iron Road will commence discussions with both the DC Tumby Bay and Minister for Sustainability, Environment and Conservation in relation to the proposed port development on Section 104 and Allotment 10, DP 60630 respectively.

Two easements exist on land at the port site, both of which are for water supply purposes. The easements vary between 6 m and 26 m in width, and travel through the southern portion of the port site (CT 5884/452 and CT 5884/457).

A land management agreement (LMA) has also been registered over the southern portion of the port site (CT 5884/452 and CT 5884/457) which was established to promote the development of low intensity rural living activity in a manner so as to retain existing native vegetation and maintain the existing rural and natural character.
Iron Road will discuss the easements and the LMA with the relevant parties and authorities with the objective to have them all either varied, moved or extinguished prior to construction of the port.”

b) Minister for Sustainability, Environment and Conservation

CR Volume 5768 Folio 546 Section 104 Runs north along the coast from Brayfield Road to the northern boundary of the port site

Comment: E087
These are known events and clearly should have been advanced prior to the lodgement of the application. 'Future work' as this becomes, is not subject to public scrutiny.

Infrastructure Corridor

"Iron Road does not currently have ownership or the right to access all the property within the proposed infrastructure corridor or long-term employee village and will seek to negotiate the acquisition of portions or whole sections of land with each affected landowner in due course."

Comment: E088
What is not being declared is that the land can be compulsorily acquired under s78 of the Development Act, given that the project has major development status (s46)

Clearly access to land is a major outstanding issue. This is seen as a considerable risk to the project unless Government intervenes and acquires any outstanding land.

A further risk to the project is court action surrounding such acquisitions.

The political reality/risk is the Government may be required to acquire land for a private commercial entity.

Yet again, the applicant is putting forward 'future work' that is not subject to public scrutiny.

Infrastructure Corridor

“Impact Management Plans (IMP) will be developed in conjunction with each landowner and set out what infrastructure would be required to assist farmers continue on with their business (such as stock crossings and culverts) and which can then be utilised in the engineering design of the Infrastructure Corridor.”

Comment: E089
What are the risks to the project if these issues are not developed to the satisfaction of the property owner?

More 'future work' that potentially has a significant impact upon the project.

Long-Term Employee Village

“As previously stated, the long-term employee village is proposed to be located northwest of Wudinna on an area of up to 5 ha immediately adjacent to the town, with the exact location and final layout of the village to be determined in consultation with Wudinna DC. The investigation area incorporates two separate private freehold land parcels that are both currently utilised for agricultural purposes, with small strips of linear vegetation along property boundaries and at road frontages.”

Comment: E090
More speculation with respect to the acquisition of property. The risk to the project if this not successful is not included here.

More 'future work'!

Chapter 10 Air Quality

Limitations of this response
Given the time constraints placed upon the public in order to deliver a response, the remainder of Appendix ‘J’ was not subject to a detailed examination.

Issues of concern have been raised opening page of this EIS pertaining to this section. It is however of considerable concern that the majority of the approach used in this section is founded upon data remote from the site. Various assumptions and estimations, without any technical or scientific basis, have been presented as relied upon instead of undertaking the necessary field research to establish the baselines applicable to the issues at hand in the port; along the corridor and at Wudinna.

A detailed discussion of the impacts of the miner’s village at Wudinna is not undertaken in this response. For this reason a copy of the Association’s response to the Mining Lease Application (MLA) is attached to ensure all concerns are documented, noting the tendency of the applicant to include the same discussion in both the MLA and the EIS.

10.1 Applicable Legislation and Standards

Comment: E091

Of concern is the use of the words ‘adopted standard’, given that this State does not appear to have appropriate air quality standards for projects of this nature, despite the fact approval has been given for the Roxby Down project and the Rex Minerals, Hillside project.

There appears to be no formal authorization of the use of the ‘adopted standards’ by the Governing body(ies) responsible for the project

The inference being, 'pick a standard that suits the applicant'.

Table 10-2 Adopted Project Criteria for the Protection of Human Health from Airborne Particles (NEPC 2003)

Comment: E092

Of concern here is the lack of information with respect to the precise nature of the airborne particles being measured.

It is noted reference is made to gaseous emissions associated with diesel fumes. However, there appears to be no reference to the assessment of particulate matter form diesel combustion being the known carcinogenic component of exhaust gases.

What therefore, is the baseline measurement of diesel exhaust particulates (carcinogens) prior to construction and thence during construction and operation, given the reliance upon diesel fuel based machinery?

10.2 Assessment Method

“Air quality assessments were undertaken for the CEIP Infrastructure components which included:

- Air quality modelling of dust emissions and qualitative assessment of gaseous emissions (e.g. emissions from diesel engine powered equipment) associated with the proposed port operation.

- Air quality modelling of locomotive combustion emissions at a single indicative location along the proposed infrastructure corridor and qualitative assessment of dust emissions from the proposed infrastructure corridor.

- Qualitative assessment of the potential air emissions from construction works.”

Comment: E093

The applicant undertook modelling of air quality based upon what baseline data?

As mentioned previously, there is no baseline meteorological data for the port site, only remote data from distance sources whose weather conditions DO NOT replicate those found at the proposed port site.
Qualitative assessments of gaseous and particulate emissions do not provide baseline quantitative emission assessments and their consequential health impacts over the life of the facility in question.

Air quality modelling of emissions of locomotive emissions at a single site hardly provides any confidence to the residences impacted along the length of corridor, having regard to the variation of meteorological data over the 145 kilometres of the track. A single sample is not representative of the impact across the corridor.

Qualitative assessment of dust emission from the proposed corridor should read quantitative assessment of dust emissions from the corridor to establish a baseline and thence modelling for the proposed operational phase and monitoring for verification of impact under actual operational conditions.

10-3
Comment: E094
More assumptions, the relevance of which, given the locations identified, is questioned.

"The EPA provided background particulate levels to be used in the air quality modelling based on monitoring data for two sites:

- Schultz Park, Whyalla for PM10 particulate concentrations
- Netley, Adelaide for PM2.5 particulate concentrations.

No data is available for total suspended particulates (TSP) at the two monitoring sites. Typically, for rural areas, TSP is approximately twice the concentration of PM10 based on the PM10 and TSP emission factors outlined in the NPI EETM for Mining (DSEWPAC 2012a)"

Comment: E095
What is the legislative authority underpinning the 'adoption' of what appears to be arbitrary data points?

Then the additional assumption, in the absence of data for TSP at the two monitoring points.

The credibility of the modelling based upon such questionable data, has to be questioned.

Table 10-4 then outlines the 'selected' criteria for input into the modelling.

One of the critical factors in air quality monitoring is the concentrations of polyaromatic hydrocarbons associated with diesel combustions. These and other VOC are known carcinogens and baseline and actual levels of such MUST be included in the determination of air quality at the site, at Port Neill, and at all receivers identified in the application.

These data constitute evidence for future claims for health impacts arising from the activities of the applicant.

The latter being particularly noteworthy with the very significant increase of vehicular traffic through the township of Port Neill as identified in the Traffic Management section of the application.

This further supports the necessity to have actual data relevant to the site and its impact area used in any 'modelling'.

Attention is drawn to the finding of the Senate Enquiry

Community Affairs Reference Committee: Impacts on health of air quality in Australia, August 2013

2.2 It was clear throughout the inquiry, however, that air pollution is still a significant problem for certain parts of the Australian population. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) provided a definition of air pollution for the committee:
Air pollution refers to the presence in the atmosphere of chemicals, particulates, or biological materials that cause discomfort, disease, or death to humans, damage other living organisms such as food crops, or damage the natural environment or built environment. Examples of air pollutants include particulates, oxides of sulphur and nitrogen, carbon monoxide, volatile organis compounds, toxic metals (such as lead), ground-level ozone, and odours.

Health impacts of poor air quality

2.13 There is a substantial body of evidence indicating that particulate matter has negative impacts on human health – regardless of the size of particulates. A study published in the Lancet in 2012 found ‘ambient particulate matter pollution’ to be the ninth leading cause of global disease burden. The National Health and Medical Research Council-funded Centre for Air Quality and Health Research and Evaluation (CAR), reported to the committee that:

People exposed to the short-term bursts or long-term higher levels of particulate pollution suffer a renage of adverse effects, including:

- Increased risk of deaths, particularly due to heart and lung diseases’
- Increased risk of hospitalisation for heart and lung disease; and
- Increased risk of asthma attacks.

Safe levels of exposure

2.20 The committee heard, that at least for some pollutants, there is no safe level of exposure: Of importance is that the new evidence not only supports the previous scientific conclusions but also indicates that the effect can occur at air pollution concentrations lower than those used to establish the existing WHO health guidelines, particularly into relation to PM 2.5 and PM 10. So far no limit of exposure where there is no impact has been identified.

PM – particulate matter 0.0025mm or 0.01mm

Populations most at risk

2.23 The health impacts of air quality are not shared equally by all people. Certain groups of people, and certain geographies, are at a greater potential risk than others. The populations who are at the greatest risk are those who are exposed to the largest quantity of harmful particulates, and those who are inherently more susceptible to exposure.

2.24 Populations most exposed to particulate matter are those people living in close proximity to transport corridors and industrial and agricultural pollution sources.

2.25 While air pollution is often considered to be an urban problem, rural communities are also exposed to PM due to wind-blown dust smoke from controlled burning, bushfires, wood heaters, and PM from mining and other activities.

3.50 As a result of the use of ambient standards, the committee heard that many communities that are collocated with industrial sites, mines, or major transport routes and infrastructure are being exposed to air quality that does not meet the NEPM standard's object of protecting health, and that currently 'monitoring of pollution and health impacts locally is unsatisfactory and a cause for concern among the local community.' Representatives from Moranbah in Queensland argued that the lack of information about population exposure is as much a concern for residents as the exposure itself.
Committee view

3.67 Industry monitoring of emissions is an important tool in ensuring compliance with licensing conditions and protecting human health. As the creators of potentially harmful pollutants, industry has a responsibility to ensure that human health is preserved and the reliable and regular data is collected. The committee is of the view that this information should be made available to the public in as close to real-time as possible. (underlining added)

Health impacts of diesel emissions

5.2 The potential negative health impacts of diesel emissions are now well known. The WHO has listed diesel emissions as a Group 1 carcinogen. The International Agency for Research on Cancer (IARC), a WHO body that coordinates and conducts research on the causes of human cancer, reclassified diesel engine exhaust as a Group 1 carcinogen based on extensive evidence that exposure is associated with increased risk of lung cancer. The committee heard from the ILAQH that '[diesel] is not a likely cause – it is a cause of cancer.'

5.3 Diesel exhausts release benzene, sulphur dioxide, carbon monoxide, nitrogen dioxide, polycyclic aromatic hydrocarbons and particulate matter, all of which have known adverse health effects.

Comment: E096
Whilst not legislation per se, the applicant's attention is drawn to the known facts listed in evidence in the Enquiry. These facts are foreseeable and are required to be mitigated against, and that industry has a responsibility to ensure that human health is preserved and the reliable and regular data is collected.

10.3.2 Sensitive Receivers
Comment: E097
It is noted that only 30 of the 66 residences along the corridor have been identified as 'sensitive receivers' being within 1 kilometre from the corridor.

It would appear that the selection of the 'receivers' is one of convenience to suit the 'modelling' process.

The argument is all properties affected by the corridor are potential receivers and must be considered as fugitive dust and emissions will travel over these properties potentially having an impact. Either on agricultural productivity or health impacts for both persons and stock.

Attention is drawn to correspondence provided to the CEIP CCC on this matter as provided earlier in this response.

10.4 Design Measures to Protect Environmental Values

“● The loaded rail wagons are proposed to be covered prior to leaving the proposed mine to prevent loss of the iron concentrate.” (underlining added)

Comment: E098
Considerable public concern has been expressed with respect to fugitive dust emanating from the mine, corridor and the port, the composition (chemical analysis) of which has not been fully disclosed.

The issue here (as already described in the Associations' response to the MLA, is the interpretation of the word 'covered'.

In order to prevent fugitive dust from the wagons, the word 'sealed' must be employed. Then the issue becomes the effectiveness of the seal over time, hence the necessity for continuous monitoring of the corridor in addition to continuous monitoring at the port facility.
"An automatic wagon vibrator will detect if iron concentrate is hanging on to the side of a wagon and use a mechanical arm to vibrate the affected wagon to ensure the contents are emptied completely before leaving the enclosed facility."

Comment: E099
Whilst the above statement deals with any residue within the wagon, what steps are taken to ensure any residual ore on surfaces outside of the wagon are removed before the return journey. (The same question applies at the loading end where ore may reside on the outside flat surfaces of the wagon) It is this ore that potentially creates fugitive dust (noting the previous comments about sealing of the wagons)?

“Application of water onto the stockpile by spray cannons mounted on water trucks will be undertaken as required to maintain the moisture content of the stockpile.

• An organic veneering agent will be added to the water sprayed by the water trucks to bind and stiffen the surface of the stockpile to create a cohesive layer over the surface of the concentrate and reduce the emission of wind generated dust.”

Comment: E100
The above mitigation measures are noted in addition to those applying to the physical infrastructure, however:

a) application of water to the stockpile as required assumes that the moisture level will be maintained at the desired (monitored) level.

The question here being the source of the water used for dust suppression. Is this potable water sourced from SA Water and the Prescribed Wells at Port Lincoln?

b) The Material Safety Data Sheet for the additive appears not to have been provided.

Conveyors and Transfer Stations
“• The conveyor systems will be fully covered.”

Comment: E101
Perhaps a better description of this mitigation measure is ‘fully enclosed’ (dust proof).

10.5 Impact Assessment
“Air Emissions from Rail Transport of Iron Concentrate Potential air emissions associated with operation of the proposed infrastructure corridor are likely to be associated with:

• Wheel-generated dust from light vehicles travelling along the rail maintenance track

• Residual dust from the empty rail wagons and from the external walls of the train

• Gaseous emissions from the locomotives. The primary pollutants would be volatile organic compounds (VOCs), oxides of nitrogen (NOx), carbon monoxide (CO), sulfur dioxide (SO2) and particulates (PM2.5 and PM10).”

Comment: E102
As mentioned previously in this response these two sources of emissions are of concern for the reasons outlined.

Gaseous emissions from diesel need to include a full analysis of the VOC including the range of carcinogenic substances known to exist in diesel fumes.

What are the actual baseline levels of emissions and thence the impact of the proposed project, having regard to actual meteorological conditions that prevail at the port and along the corridor?

Table 10-7 Estimated Emission Rates from Locomotives.

Comment: E103
The key word being 'estimated'. More assumptions being made in the so called 'modelling'. Where is the actual data relevant to the type and size of the diesel locomotives that will be used in this project?

The hazards arising from Diesel locomotives are clearly identified in the following extract:-

**Locomotive Emissions Project Scoping Study of Potential Measures to Reduce Emissions from New and In-Service Locomotives in NSW and Australia**

Prepared for:
NSW EPA
Prepared by:
ENVIRON Australia Pty Ltd
Date:
March 2013

4.1 Overview of Diesel Exhaust Emissions and Related Impacts

“Diesel engine and equipment exhaust consists of hundreds of gas-phase, semi-volatile and particle phase organic compounds that are produced through fossil fuel combustion. **Emissions of primary and secondary particulate matter (PM) are of specific concern** due to air quality criteria for fine PM being exceeded within several Australian metropolitan and rural areas. Oxides of nitrogen (NOx) and volatile organic compound (VOC) emissions released from engine/equipment exhausts are of interest individually and due to their being precursors of photochemical smog including ozone.

Other emissions associated with non-road diesel engines and equipment include carbon dioxide (CO2), carbon monoxide (CO), carbonyl compounds (e.g. formaldehyde, acetaldehyde), polycyclic aromatic hydrocarbons (PAH), dioxins and furans, and a range of individual volatile and semi-volatile organic compounds including toxics such as benzene, toluene and 1,3-butadiene.

**Fine particles with an aerodynamic diameter of under 10 micron (PM10) are small enough to be inhaled and remain within the respiratory system. Very fine particles of 2.5 microns or less (PM2.5) have been found to pose the greatest health risk as these particles are more readily deposited in, and damaging to, the lower airways and gas-exchanging portions of the lung. Adverse health effects related to fine particulate matter inhalation include exacerbation of existing pulmonary disease, oxidative stress and inflammation, changes in cardiac autonomic functions and reduced defence mechanisms and lung damage** [46]. **Significant health costs are associated with inhalation exposures to fine particulate matter** [47].

**Diesel particulate matter (DPM) is considered to comprise a particularly significant health risk due to the particle size distribution and chemical composition of such particulates. DPM is dominated by fine and ultra-fine particles, the composition of which may include elemental carbon with adsorbed compounds such as organic compounds (including potentially carcinogenic organic compounds such as PAHs), sulphate, nitrate, metals and other trace elements. The International Agency for Research on Cancer has recently concluded that diesel engine exhaust is classifiable as being carcinogenic to humans (Group 1), based on sufficient evidence that exposure is associated with an increased risk for lung cancer** [48]. It was also noted to have a positive association (limited evidence) with increased risk of bladder cancer.

**NOx emissions from non-road diesel engines contribute to photochemical smog and notably ozone. Ozone exposures can induce serious respiratory tract responses including lung function reductions, aggravation of pre-existing respiratory disease (such as asthma), increases in daily hospital admissions, emergency department visits for respiratory causes, and excess mortality** [49].

**Environmental impacts associated with particulate** and ozone concentrations include visibility reduction, **impacts on crop productivity and ecosystem integrity, and damage to buildings and property (e.g. soiling of surfaces; deterioration of rubber, fabric, masonry and paint).** *(pp51-52)*

**Comment: E104**

Benchmarking the actual air quality having regard to existing levels of dust and particulates over which is superimposed the impact of the proposal is critical to the health and safety of all concerned as well as the health of the environment and what it sustains in the agricultural arena.
10.5.2 Predicted Emissions during Construction of CEIP Infrastructure

"Wind-blown dust emissions become more of a concern when surface wind speeds are greater than 5 m/s (18 km/hr), which would often be the case within the proposed CEIP Infrastructure construction footprint, particularly at the proposed port site."

Comment: E105
The veracity of the statement is challenged given that NO on-site meteorological data exists as outlined elsewhere in this response.

It is true that wind blown emissions become of a concern and the frequency of such conditions needs to be assessed on-site not at Port Lincoln.

Qualitative Dust Impact Assessment for Construction of the Proposed Port

“During construction at the port site, the likely air quality effects will be predominantly from dust generating activities, including vehicular movement in and around the construction zones, earthworks and excavation activities, and exposure of loose materials to wind erosion such as stockpiles.

A Construction Environmental Management Plan (CEMP) will be implemented at the port site to minimise and monitor dust emissions during the construction period.

It is expected that the impact of dust emissions on surrounding sensitive receivers during construction of the proposed port will be low.”

Comment: E106
It is noted that a CEMP will be implemented in the future, but such a plan is in the category of 'future work' and is not subject to public scrutiny.

It is noted that the expectation of dust impacts on sensitive receivers will be low with the assessment being based upon the normal criteria, with the notable except of wind factors that are not known due to the base data being relevant to Port Lincoln and not Cape Hardy.

Given that Lower Eyre Peninsula has a history of wind, it is RECOMMENDED that the air quality 'modelling' be revised using data pertaining to the actual port site.

Qualitative Dust Impact Assessment for Construction of the Proposed Infrastructure Corridor

“Clearing, grubbing, stockpiling, blasting and excavation associated with construction of facilities within the infrastructure corridor (railway, power transmission line and water pipeline) will create sources of emissions.

Construction activities are not expected to generate significant quantities of dust, based on the relatively low levels of ground disturbance and short-term duration of construction along the corridor.

A CEMP will be implemented along the infrastructure corridor to minimise dust emissions during the construction period.

The closest sensitive receiver is located 140 m from the infrastructure corridor.

The impact of construction dust emissions is considered to be low based on the transient nature of construction along the infrastructure corridor, limited scale of planned earthworks at any particular site, the separation distance between construction activity and sensitive receivers, the short-term nature of construction works and implementation of standard construction dust control measures.”

Comment: E107
It is noted there are some 66 sensitive receivers on the transport corridor. Whilst it might be true that the big picture assessment of the impact of dust over the 140 kilometre corridor may be considered to be low, the
reality is, what is the impact on the individual receptors for the period of time that the construction work is in their vicinity?

The phrase ‘relative low levels of ground disturbance’ is somewhat misleading given the specifications of the corridor and the work required as described elsewhere in the EIS.

What appears to have been overlooked in the assessment is the fact that the majority of the sensitive receivers rely on rain water catchment. The issue being, what impact does the construction work have on their catchment facilities, apart from any nuisance generated?

Qualitative Assessment of Exhaust Emission Impacts from CEIP Infrastructure Construction

“Diesel exhaust emissions would arise from the use of any construction machinery operating on site, and vehicular movements in and around the site. Combustion emissions include SO2, NOx, PM10, and CO. The effects of these gaseous emissions are expected to be insignificant and localised around the emission sources only. Therefore, the impact of these emissions at sensitive receivers is considered to be negligible.”

Comment: E108

In light of the information presented above with respect to diesel emissions, the conclusion drawn here is not credible.

No baseline has been established at each receptor site, and in light of the hazards identified, and the qualitative nature of the modelling with all the flaws identified in this response, potentially exposes those at the receptor sites to the known hazards.

No reference is made to PM2.5 or to the known carcinogenic components of diesel fumes.

In the absence of the baseline data and site specific meteorological data, it is recommended that these conclusions be put aside and any future modelling be based upon site specific information.

10.5.3 Predicted Emissions during Operation of the CEIP Infrastructure Corridor

“The only potential sources of dust emissions during operation of the infrastructure corridor are associated with the potential lift-off of dust from rail wagons and wheel-generated dust from light vehicles travelling along the rail maintenance track. Dust generation from corridor operations is expected to be minimal, as the rail wagons containing the iron concentrate will be covered during railway operation.”

Comment: E109

As previously mention residual dust on the wagons is a potential source of fugitive dust. Elsewhere in this response, the issue of covered versus sealed wagons has been discussed. The reality is that there will be fugitive dust generated from the operation of the corridor. The unknown being the quantity of the dust; the chemical composition of the dust and the long term impact upon agricultural land and agricultural activities upon the land; water catchment (noting that the receptor sites are dependent upon rain water) and the potential health impacts due to exposure to the hazards.

It is noteworthy that the assessment is devoid of mention of the impact of particulates from diesel emissions across the corridor over the long term (25 year LOM).

The application is deficient in its examination of the potential health and agricultural impacts of fugitive dust and emissions as a consequence of the operation of the corridor.

10.5.4 Predicted Emissions during Operation of the Port Development

“Operations will be adjusted, as and if required, based on forecasting of unfavourable climatic conditions and real-time dust monitoring to manage air emissions within air quality criteria levels.”

Comment: E110

The modelling has been based upon a significant number of assumptions pertaining to climatic conditions.
Now the public are being advised that operations will be 'adjusted' based on forecasting of unfavourable climatic conditions. Issues arising:

a) Clearly the modelling does not appear to cope with 'unfavourable climatic conditions.'

b) What are unfavourable conditions?

c) Where will the forecasting originate, given that the modelling has been based upon remote sites and not representative of the actual climatic conditions encountered at Cape Hardy?

d) If unfavourable conditions are present at Cape Hardy, it is assumed, in the absence of evidence to the contrary, that operations will be adjusted on the corridor.

e) The introduction of real time air quality monitoring at the 'operational' stage, noting that the model is devoid of real time baseline site monitoring.

**Figures 10-5 to 10-9:**

**Comment: E111**

Given the baseline data used in the modelling the dispersion models depicted are for an area with the characteristic climatic conditions of Port Lincoln using deposition data relevant to Whyalla and data pertaining to diesel emissions for Netley in metropolitan Adelaide, the relevance of the modelling is questionable in the context of Cape Hardy.

When will the modelling be revised to represent the actuality of Cape Hardy and the 140 kilometre transport corridor?

**Appendix J**

“*In the absence of available local climatology and air quality data, the existing environment was described based on the nearest coastal Bureau of Meteorology observing station at Port Lincoln (North Shields) and particulate data provided by EPA South Australia.*”

**Comment: E112**

This statement confirms the Associations’ position that the modelling is fundamentally flawed as it is using non-site specific data to create a 'best guess' model, one which provides little community confidence in its reliability to establish a baseline pertaining to air quality at the port as it actually exists today; a dispersion model reflecting the actuality of the site today and a similar scenario for all receptors (read residences/families) along the corridor.

The methodology can be summarized as pick a location that has BoM data, add some data from EPA which may or may not be relevant to the actual location (eg diesel particulates measured at Netley in Adelaide) and make the rest up.

We are dealing with potentially known hazards and yet it is considered by the applicant that some 'model' having no relationship the existing environment is good enough for this application.

“The case study year selected for the assessment was 2009, considered to be representative of a wide range of weather conditions for South Australia”.

**Comment: E113**

Here again, the project is not considering a whole of South Australia but climatology relevant to the site on Eyre Peninsula.

The 'assumption' of year 2009 is not credible.

**1.2.3 non-dust) emissions from port operations**

“Air pollutant emissions from the non-dust sources at the port site were *not* included as part of the quantitative (air dispersion modelling) component of the assessment.”
Comment: E114
The problem with this 'assumption' is that there is virtually zero gaseous emissions in the area at this point in time. What the community requires is the cumulative impact of all sources of air quality pollutants which may become a health hazard over the life of the port.

Exposure to hazards, as no doubt the applicant is aware, depends upon the nature of the hazard; the concentration of the hazard; the exposure route and the time exposed.

1.2.4 Infrastructure corridor
"An air quality impact assessment was undertaken for activities associated with the operation of the infrastructure corridor. This included a review of combustion emissions from locomotives and air dispersion modelling was undertaken for four receptor sites used to represent locations adjacent the railway line experiencing worst case air quality impacts."

Comment: E115
The question being is four a statistically significant sample given the length of corridor and the varying meteorological conditions over that distance?

Where is the baseline data for all receptors?

The community is well aware that dust 'travels', the issue being how fr and what

1.2.5 Construction CEIP infrastructure
"Construction works at the port site, the long term employee village, the bore field, and the infrastructure corridor will cause dust emissions from, for example, the movements of heavy earth moving equipment. However these dust emissions are expected to be mitigated by the implementation of dust emissions controls such as the use of water carts. Details of the dust controls will be set out in the future as part of a construction environmental management plan."

Comment: E116
Given the specification of the transport corridor, dust control is critical given the proximity of the corridor to productive agricultural land, a factor that appears to have been completely ignored.

This is dust over and above the normal agricultural dust generation.

What is the impact of this dust upon crop growth and or the efficiencies of agricultural sprays?

The reality also being, in some cases the corridor will be considerably more complex where there are twin tracks being laid and hence exposure times greatly increased.

"The air pollutant emissions from other air emissions sources during construction; e.g., vehicle and machinery engine exhausts are expected to be insignificant with respect to potentially causing exceedances of ambient air quality standards. This is due to the relatively small fleet of vehicles and diesel fuel powered equipment associated with construction. Also, the existing (background) concentrations of the criteria pollutants, e.g. carbon monoxide, nitrogen dioxide etc., are expected to be very low. A qualitative assessment of the potential air emissions from construction works is set out in Section 5."

Comment: E117
More assumptions and expectations, hardly a scientific approach to the establishment of baselines and potential impacts.

What are the background concentrations inclusive of particulate matter from diesel combustion (especially the known carcinogens)?

Having regard to the equipment used and the hours employed, what is the cumulative concentrations of hazardous material for the duration of exposure at each and every receptor site.
These are the required baselines against which compliance can be measured and disputes resolved in the future. No baseline, no evidence in court to resolve a dispute.

Is this the position the Company wishes to employ? If so, then it is suggested it does not have a community licence to operate.

2.2.1 Rail operation

“Each wagon (width 3.2 m and length 9 m) is to be fitted with a full cover to prevent dust emissions off the loaded concentrate.”

Comment: E118
Yet another description of the covering of the wagons. The community’s position is ‘sealed wagons’ to prevent fugitive dust.

3. Port Facility Air Quality Assessment

“The adoption of these standards for the Iron Road project was in accordance with discussions held between EPA, DMITRE, Iron Road and SKM throughout 2013.”

Comment: E119
It is noted that in accordance with the APA directives, the NSW standards have been adopted. In a document such as this where compliance with standards is critical, it is suggested that the instrument of agreement between the parties mentioned above is included in the application should such standards be subject to Court proceedings.

“The ambient air quality standards adopted for the Project are set out in Table 3-1 (NEPC, 2003); and Table 3-2 (DEC, 2005).”

Table 3-1: Adopted project criteria for the protection of human health from airborne particles (NEPC, 2003)

Comment: E120
For the lay person reading this application, precisely what does this standard measure, noting the concern surrounding the presence of carcinogenic substances as the consequence of burning diesel and the potential for the cumulative impact to drift over nearby receptors, including the township of Port Neill.

It is noted that Table 3-2 adopts a standard for nuisance dust. The question being does the composition of the nuisance dust include fugitive iron ore (and whatever else is contained in the ore, given that its actual chemical composition including silicon dioxide (silica) has not been disclosed)?

3.2.3 Climatological summaries

“Although the Cape Hardy port site is located 73 km north of Port Lincoln, and in the absence of other quality datasets, the BoM Port Lincoln weather station (North Shields) was considered to provide the highest quality meteorological data most representative of conditions that would be experienced at the port site. There are similarities in the geographical settings between Cape Hardy and Port Lincoln; both are on the south-eastern coastline of Eyre Peninsula, and they have similar land use.”

Comment: E121
Clearly the applicant has not undertaken any meteorological studies at the port site, but rather based all modelling on the ASSUMPTION that Port Lincoln and Cape Hardy are essentially the same. Local knowledge would suggest the assumption is without foundation.

All dispersion modelling lack credibility.

It is RECOMMENDED that a 12 month site specific climate study be undertaken in order to assess the actual climatic conditions applicable to the site.

This theme is repeated given the ‘assumptions made’ with respect to climate over the corridor and the mine site (as outlined in the Associations response to the MLA).
The climatic data provided gives an excellent picture pertaining to Port Lincoln (or more correctly Northern Shields) not Cape Hardy.

The simple conclusion being that cost saving mathematical models based upon remote data is acceptable in the application.

Community expectations are to the contrary.

3.2.4 Existing air quality

"No air quality monitoring data were available for near Cape Hardy. As such, estimates for background particle levels for the study area were obtained from Tapered Element Oscillating Microbalance (TEOM) 24-houraverage data provided by EPA South Australia. The data used to determine background estimates for Cape Hardy were: (1) PM\textsubscript{10} data from Schultz Park, Whyalla; and (2) PM\textsubscript{2.5} data from Netley, Adelaide."

Comment: E122

The applicant has not provided site specific data for the modelling, instead relying upon remote data applicable to Whyalla and a suburb of Adelaide, Netley.

Clearly all mathematical modelling based upon this data is not relevant to Cape Hardy.

The baseline data is required to be collected, but clearly, the applicants position is imported data is good enough.

Community expectations are that site specific data is used to provide credible results.

The TSP background concentration was estimated by doubling the concentration of the 50\textsuperscript{th} percentile PM\textsubscript{10} dust concentration.

Comment: E123

One of the critical baseline data 'was estimated' to be...." The question being, what is the TSP background concentration at the site? Clearly this requires to be measured over a period of time not guessed!

CHAPTER EIS-12 NOISE & VIBRATION

12.1.4 Rail Noise Criteria

Figure 12-2 Visualisation of Proposed Railway and Adjacent Power Transmission Line

Comment: E124

The impression portrayed by the 'generated graphic' leads the reader to believe that transport corridor is screened with trees, which, of course is far from the reality and can be taken as further mis-information on the part of the applicant.

12.3 Existing Environment

"Background noise-level measurements were performed on the south-west boundary of port land owned by Iron Road.

Due to the agricultural use of the proposed infrastructure corridor and port site, sensitive receivers are sparse. Isolated sensitive receivers near the proposed CEIP Infrastructure enjoy a high level of amenity due to minimal human-induced noise sources.

The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification."

Comment: E125

It is noted that a background noise survey has been undertaken at the port site.

It is noted that a significant number of receptor sites have been identified (but not verified) along the transport corridor and surrounds, including the township of Port Neill.
It is noted that the applicant uses the word 'isolated' to describe the location of the receptor sites (some 66 or so).

It is noted that the applicant recognizes the existing amenity of the area having **minimum human induced noise sources.**

**It is noted that the location of the receptor site has not been verified.**

*"The focus of the noise and vibration assessments was on the closest sensitive receivers because the further away a receiver is located from the noise and vibration source, the lower the noise and vibration level."*

**Comment: E126**

Clearly the impact assessment is but a partial study as indicated by the above statement. **In addition, the assumption of distance and impact being made is devoid of any reference to the impact of infrasound generated by the machinery proposed to be used.**

As mentioned previously, what is the baseline noise level at each and every receptor identified, thereby the establishment of an actual baseline against which additional noise can be measured.

The actual noise generated as a consequence of the activity should include load and unloaded trains as well as the construction noise.

Of concern is the additional noise associated with traffic entering and leaving Port Neill, given the anticipated increase due to construction and operation of the port.

*"As sound power levels for track-laying equipment were not available, the sound power levels generated by earth moving equipment were used for the purpose of the noise level prediction modelling; it has been assumed that the track-laying equipment will have a similar noise level and character."*

**Comment: E127**

More assumptions to be added to the 'mathematical model!'

**Construction Blasting**

*"Construction of the proposed port development may extend to 18 months, however blasting works are expected to be completed within 5-6 months. Although blasting requirements along the infrastructure corridor are not fully defined, it is most likely to be completed within 12 months. Blasting will be completed at regular times during the day."*

**Comment: E128**

Clearly insufficient work has been undertaken to assess the environment when 'assumptions' of 5-6 months can extend to 18 months with respect to blasting.

The geology of the corridor is also relatively unknown as indicated by the last sentence above. More guess work, or is this another case of 'future work' which will not be subject to public scrutiny?

It is assumed that a temporary explosives magazine will be established at the port site to cater for storage and preparation of explosives. What appears not the addressed is the potential blast radius in the event of a catastrophic explosion.

**Further, given the port site location, the question of security of the explosive store needs to be raised, including consultation with SAPOL and Australian Federal Police given the nature of the explosive (AMFO).**

**Railway Operation**

*"The train pass-bys would generate very short periods of noise (when compared to the background noise levels), intermittently during the day and night, separated by long periods of quiet."*
Comment: E129
What are the anticipated lay times as well as the time taken for a train (loaded v unloaded) to pass a given receptor?

“Ship and tug noise were not included as noise sources as noise level is low.”

Comment: E130
What is missing is a determination of the infrasound generated by these entities as well as that from machinery on land.

“Based on historical wind data it was determined that the prevailing wind direction was dependent on the season.”

Comment: E131
It has already been noted that the 'historical data' is not data relevant to the port site but from Port Lincoln some 80 km to the south.

When will the actual meteorological data relevant to the port site and infrastructure corridor be collected by the applicant to enable 'predictions' having credibility to be undertaken?

CHAPTER EIS - Appendix 'L'

Figure 4-1: Existing ambient noise levels at the proposed port facility

“It can be seen that the background noise levels (LA90) varied significantly from levels as low as 25 dB(A) during the night time period up to approximately 50 dB(A) during the day time period.”

Comment: E132
It is noted that a baseline study was undertaken for background noise.

5. Meteorological conditions

“In determining the likely acoustic impact due to the operation of the proposed port facility, the weather conditions in the area were investigated to determine if there was a prevailing weather condition. The following wind data was obtained from the CEIP Infrastructure Air Quality Assessment Report prepared by Jacobs.”

Comment: E133
The remote data syndrome is perpetuated in the consideration of climatic conditions at the site.

As mentioned previously site specific data is what he community expects, not some mathematical approximation.

6.5 Operatioanl equipment and sound power levels

“The sound power level data used in the computer modelling was determined from noise level surveys performed at other iron concentrate loading facilities.”

Comment: E134
It is assumed the comparisons made are like for like, otherwise the validity of the comparison is subject to credibility issues.

Table 6-4.

Comment: E135
It is noted that the minimum frequency considered in the analysis is 1KHz.

It is also noted that no reference to the issue of infrasound emanating from the machinery identified in Table 6-4 is made.

The community has considerable concerns that this issue is ignored in the determination of noise impacts arising from the port.
The Association draws the applicant's attention and that of the regulating authority to the series of articles on infrasound as attached.

Low frequency noise has a characteristic of being able to travel significant distances over terrain and water.

Given the topography of the port and that relevant to the loading and berthing facility (jetty) and the distance to Port Neill Township, an assessment of the impact of low frequency noise on all receptors in the 7km radius of the Port is suggested mandatory.

DISCUSSION ON INFRASOUND

Comment: E136
The application is devoid of mention of the existence of infrasound arising from the activities pertaining to the port and infrastructure.

Whilst it may be a matter of inconvenience to the applicant, infrasound does exist and its physiological impact upon human health is becoming more accepted in the medical and scientific arena.

Plant and machinery (as proposed in this application) produce infrasound.

The suppression of the distribution of infrasound in air is low. The long wavelengths involved mean screening has little impact on noise reduction.

Given the 24/7 operation of the port and associated infrastructure proposed, the occurrence of infrasound and the risks associated with it need to be documented and mitigated against.

Failure to do so, in light of a known hazard, would, in the view of the Association, constitute a failure to achieve a social licence to operate.

The following articles and references point to the known body of information pertaining to infrasound and its physiological effects.
3.1.4 Infrasound and ultrasound

Frequencies below 16 Hz are referred to as infrasonic frequencies. Perception of sound from 100 Hz down to about 2 Hz is a mixture of aural and tactile sensations. For example, frequencies around 10 Hz, can cause discomfort through a modulation of the vocal cords. Reactions caused by extremely high levels of infrasound can resemble those of mild stress reaction and may include bizarre auditory sensations, describable as pulsation and flutter. High levels of infrasound can cause resonance responses in various organs in the human body, although the long-term effects of such stimulation are not known (Johnson, 1973).

![Graph of sound pressure level vs. duration parameter]  
**Fig. 6.** Comparison of various damage risk criteria for impulse noise with equal energy curves for $L_{eq} = 90$ dB (A) (From: Martin, 1978).

The effects of high intensity ultrasound (above 20 kHz and 105 dB SPL), which will be discussed in a separate document, are reported to be similar to those observed during stress. However, these effects may be partly due to associated high (but less than ultrasonic) frequency sound (Acton, 1967). Although it is usually accepted that levels below 105 dB SPL have no adverse effects, there is evidence from one experiment, that physiological changes can occur at lower levels (98-102 dB) (Lisickina, 1968).
A Review of Published Research on
Low Frequency Noise and its Effects

Report for Defra by Dr Geoff Leventhall
Assisted by Dr Peter Pelmear and Dr Stephen Benton

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1. Preamble

Low frequency noise causes extreme distress to a number of people who are sensitive to its effects. Such sensitivity may be a result of heightened sensory response within the whole or part of the auditory range or may be acquired. The noise levels are often low, occurring in the region of the hearing threshold, where there are considerable individual differences. There is still much to be done to gain a fuller understanding of low level, low frequency noise, its effects, assessment and management. Survey papers of low frequency noise and its occurrence include (Backteman et al., 1983a; Backteman et al., 1983b; Backteman et al., 1984a; Backteman et al., 1984b; Berglund et al., 1996; Broner, 1978a; Hood and Leventhall, 1971).

Historically, early work on low frequency noise and its subjective effects was stimulated by the American space programme, a source of very high levels of low frequency noise. The launch vehicles produce their maximum noise energy in the low frequency region. Furthermore, as the vehicle accelerates, the crew compartment is subjected to boundary layer turbulence noise for about two minutes after lift-off. Experiments were carried out, in low frequency noise chambers, on short term subjective tolerance to bands of noise at very high levels of 140 to 150dB in the frequency range up to 100Hz. It was concluded that the subjects, who were experienced in noise exposure and wearing ear protection, could tolerate both broadband and discrete frequency noise in the range 1Hz to 100Hz at sound pressure levels up to 150dB. Later work suggests that, for 24 hour exposure, levels of 120-130dB are tolerable below 20Hz. These limits were set to prevent direct physiological damage (Mohr et al., 1965; von Gierke and Nixon, 1976; Westin, 1975). It is not suggested that the exposure was pleasant, or even subjectively acceptable, for anybody except those who might have had a personal interest in the noise. The levels used in the experiments are considerably higher than the exposure levels of people in their homes, arising from environmental, traffic, industrial and other sources.

The early American work was published in the mid 1960's and created no great sensation, but a few years later infrasound entered upon its "mythological" phase, echoes of which still occur. Infrasound - the "silent sound" - was blamed for many misfortunes for which another explanation had not yet been found (e.g., brain tumours, cot deaths, road accidents). A selection of some press headlines from the early years is:

- *The Silent Sound Menaces Drivers - Daily Mirror, 19th October 1969*
- *Does Infrasound Make Drivers Drunk - New Scientist, 16th March 1972*
- *Brain Tumours 'caused by noise' - The Times, 29th September 1973*
- *Crowd Control by Light and Sound - The Guardian, 3rd October 1973*
- *Danger in Unheard Car Sounds - The Observer, 21st April 1974*
- *The Silent Killer All Around Us - Evening News, 25th May 1974*
- *Noise is the Invisible Danger - Care on the Road (ROSPA) August 1974*
Blatantly incorrect claims were made in the book 'Supernature' by Lyall Watson, first published in 1973 as 'A natural history of the supernatural' and which had large sales as a paperback. For example, it stated that, in an experiment with infrasonic generators, all the windows were broken within a half mile of the test site and further, that two infrasonic generators "focused on a point even five miles away produce a resonance that can knock a building down as effectively as a major earthquake".

Those who were investigating low frequency noise problems at this time were often asked "It's dangerous, isn't it?" Public concern over infrasound was one of the stimuli for a growth in complaints about low frequency noise during the 1970's and 1980's and may still have lingering effects.

However, infrasound has long been a respected area of study in meteorology, where the frequencies range from as low as one cycle in 1000 seconds up to a few cycles per second. Large arrays of infrasound microphones detect low frequencies originating in atmospheric effects, meteorites, supersonic aircraft, explosions etc. There is also a worldwide system of about 60 infrasound arrays, which are part of the monitoring for the Nuclear Test Ban Treaty.

It is a big step from the American endurance exposures and the exaggerated effects of infrasound to the very real low frequency noise difficulties faced in a number of environmental noise problems, where low frequency noise occurs at low levels, often in the region of an individual's hearing threshold. The noise, typically classed as "not a Statutory Nuisance", causes immense suffering to those who are unfortunate to be sensitive to low frequency noise and who plead for recognition of their circumstances.

The World Health Organization is one of the bodies which recognizes the special place of low frequency noise as an environmental problem. Its publication on Community Noise (Berglund et al., 2000) makes a number of references to low frequency noise, some of which are as follows:

- "It should be noted that low frequency noise, for example, from ventilation systems can disturb rest and sleep even at low sound levels"
- "For noise with a large proportion of low frequency sounds a still lower guideline (than 30dBA) is recommended"
- "When prominent low frequency components are present, noise measures based on A-weighting are inappropriate"
- "Since A-weighting underestimates the sound pressure level of noise with low frequency components, a better assessment of health effects would be to use C-weighting"
- "It should be noted that a large proportion of low frequency components in a noise may increase considerably the adverse effects on health"
- "The evidence on low frequency noise is sufficiently strong to warrant immediate concern"

This present study considers some properties of low frequency sounds, their perception, effects on people and the criteria which have been developed for assessment of their effects. Proposals are made for further research, to help to solve the continuing problems of low frequency environmental noise.
References


1 The internet links given as references were last checked on 20 March 2003


Reference threshold of hearing under freee-field and diffuse-field listening conditions.


Maguire, E. A., Gadian, D. G., Johnsrude, I. S., Good, C. D., Ashburner, J.,


A-2

Human Effects of Infrasound: U Landstrom; presented at Inter.noise 2000: The 29th International Congress and Exhibition on Noise Control Engineering.

The article presents the following:

- The number of infrasound sources has increased markedly in recent years. Infrasound is in most cases an undesirable sound and is therefore classified as noise.

- Through turbulent currents . . . infrasound can be spread from a number of different sources. The suppression of its distribution in air is low. The long wavelengths also mean screening can only to a small extent prevent the spread of infrasound.

- Examples of common infrasound sources are . . . vehicles, diesel engines, compressors, machines with rocking parts . . . The acoustic pressure levels in the environment around plant of this type are strongly affected by resonances produced.

- Among the physiological effects of infrasound which have been the main object of discussion in recent years is changes to wakefulness. Studies have shown an increased risk of drowsiness during exposure to infrasound.
Conference on Low Frequency Noise and Hearing

7-9 May 1980
at Aalborg University Centre
Aalborg, Denmark
Proceedings edited by Henrik Møller and Per Rubæk

THE EFFECTS OF HIGH LEVEL INFRASOUND

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INTRODUCTION

This paper will attempt to survey our current knowledge on the effects of relatively high levels of infrasound on humans. While this conference is concerned mainly about hearing, some discussion of other physiological effects is appropriate. Such discussion also serves to highlight a basic question, "Is hearing the main concern of infrasound and low frequency exposure, or is there a more sensitive mechanism?" It would be comforting to know that the focal point of this conference is indeed the most important concern.

Therefore, besides hearing loss and auditory threshold of infrasonic and low frequency exposure, four other effects will be provided. These are performance, respiration, annoyance, and vibration.

AUDITORY THRESHOLD

A most common misconception about infrasound is that it cannot be heard. A glance at the results of various investigations1,2,3 summarised in Figure 1 shows that infrasound can be heard (at least down to 1 Hz). Single frequencies of infrasound are not perceived as pure tones. Instead they are described as more of a chugging or motorboating sound. This leads one to the conclusion that what a person really hears is not a pure tone of infrasound, but instead the harmonics generated by the distortion from the middle and inner ear.
THE EFFECTS OF INFRASOUND IN HUMAN HEALTH

by

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Abstract

Infrasound is defined as sound with a frequency less than 20 Hz. It is produced by both natural and man-made sources, although very high levels of infrasound must be artificially produced. A number of early papers suggested that infrasound may produce very serious adverse effects on human functioning such as the impairment of task performance, including driving. This paper assesses the literature published since those early reports. Auditory, physiological, and performance effects are discussed. The more recent studies show much less severe effects than those suggested in the first studies. Methodological considerations indicate that the recent studies are much more reliable than the earliest reports.

Introduction

The effects of infrasound on human health became a cause of concern during the mid 1960's when astronauts involved in the U.S. space program were found to be exposed to high levels of infrasound (in excess of 150 dB) for short periods during launch. Much of the work examining the effects of infrasound was done in response to this concern. However, infrasound is found in everyday life as well, most commonly in motor vehicles (especially trucks). In this context, infrasound is a concern because it penetrates walls and barriers with less attenuation than higher frequency sound.

Infrasound is defined as sound of a frequency less than 20 Hz. This definition was accepted at the international Colloquium on Infrasound in Paris in 1973, and has been commonly used since that time.

Naturally occurring infrasound (thunderstorms, etc.) is usually in the frequency range below 2 Hz, while infrasound due to manmade sources is normally above this frequency. Levels of infrasound between 75 and 95 dB are common, while levels up to 120 dB may be produced in motor vehicles. Higher levels of infrasound must be artificially produced. These figures may be compared to a threshold of perception of 90 dB at 20 Hz. As is suggested by the threshold of perception, infrasound is not in fact inaudible, as is commonly believed.

The higher frequencies in the infrasound range are audible, although it is not the pure tones which are heard, but rather harmonics generated by distortion from the middle and inner ear.

Many of the early papers which examined the effects of infrasound were alarmist, causing a great deal of excitement about possible effects. For instance, Gavreau (1968) warned of "profound effects on both men and buildings". Bryan and Tempest (1972) gained considerable newspaper publicity for their paper entitled "Does Infrasound Make Drivers Drunk?" They claimed that infrasound in motor vehicles could be the cause of many unexplained highway accidents. Close examination of these papers reveals that there is little or no scientifically derived data to support these claims. The publicity accorded these papers has had the effect of predisposing many people to believe that infrasound must have a deleterious effect, and to some extent this has hindered an accurate assessment of how hazardous it really is.

A number of papers, however, are designed to measure the health effects of infrasound using accepted scientific methods. A literature search using computerized bibliographies was conducted to find all papers relating infrasound to human health. After deleting those papers which used animal subjects, and those
which were not in English (due to the limited budget for this effort, precluding translation), 19 papers
remained: 7 reporting original research, and 12 review papers. These 19 form the basis for this study. The
papers dealt with three aspects of health: auditory, physiological, and performance effects.

Each paper was examined to identify what information it contributes to the body of knowledge concerning
infrasound and human health. In addition, each paper which contains original research was subjected to a
critical appraisal designed to assess the validity of its conclusions, based on the strength of the analytical
^techniques used, and possible biases or confounders in the design or analysis.

This paper has three sections. The first describes the criteria used to evaluate the literature. The next
assesses the literature on the effects of infrasound, on the basis of those criteria. The final section reports
our conclusions.

Assessment Criteria

In other reports (Taylor et al., 1980) we have used both methodological and epidemiological criteria to
assess the evidence that noise causes health problems. For infrasound, however, there are too few empirical
studies to warrant using the epidemiological criteria for causation (see Sackett, 1976). Most of the
methodological criteria can be applied, and provide a valuable framework for judging how much is really
known about the effects of infrasound. The seven criteria used for the present study are as follows.

1. Is the problem statement clear?
2. What is the sample size?
3. How was the exposure measured, and what is the level and duration of exposure?
4. Is the outcome considered a health outcome or a physiological change?
5. Is the outcome measurement objective or subjective? Were the measurements taken in a vigorous
   manner?
6. Was any statistical analysis performed, and are the statistics appropriate?
7. Are there any confounding factors which will interfere with the direct relationship between exposure and
   outcome, or any biases in the way the sample was selected?

No matter how good each study might be individually, when judged on these criteria the overall
generalizability of the results must necessarily be limited because of the limited number and scope of the
studies. In order to present infrasound as the only noise source, most of the work on the effects of
infrasound is conducted in a laboratory with an artificial noise source. The length of exposure to infrasound
during the experiments is quite short. Also, the number of subjects in each experiment is small.

Further, because the literature was largely a response to a particular exposure problem, the findings may
not be applicable to some critical issues.

For instance, there are no studies which directly examine the effects of infrasound from transportation
sources on health, because infrasound here occurs only in combination with higher frequency sound. In
addition, the existing studies are an inadequate indicator of the possible effects of exposure to low level
infrasound over long periods of time, such as in an industrial setting.

Assessment of Studies

For the seven papers reporting original research, summaries in terms of the assessment criteria are given in
Table 1. The dominant impression from the table is of very small samples (only one study has more than 30
subjects), and, perhaps as a consequence, an absence of statistical tests of results. For simplicity of
presentation the papers will be discussed under three headings: auditory; physiological; and performance
effects.
1. Auditory Effects. Three papers discuss the auditory effects of infrasound.

All of the papers used temporary threshold shift as the outcome measure; no paper examined the possibility of permanent threshold shift.

Jerger et al (1966) exposed 19 subjects to infrasound levels up to 144 dB for three minutes (ear only exposures). 8 of the subjects showed no TTS, while the remainder exhibited TTS of 10-22 dB in the 3-8 kHz range. All of the subjects experienced full recovery, and there was no accumulation of TTS during successive exposures.

Mohr et al. (1965), as part of an experiment designed to study various effects of noise at frequencies between 1 and 100 Hz, exposed 5 subjects to infrasound at levels up to 150 dB for a minimum of 2 minutes (6 different frequency ranges). Some of the experiments were conducted using hearing protectors, although those tests are not identified. The authors provide only a summary of their findings but say that they found no statistically significant objective effect of infrasound. They state that no shifts in hearing threshold were detectable one hour after exposure. It should be noted here that the authors utilized only noise experienced personnel (Air Force officers) in the tests, which may be a source of bias.

One review paper also contributes additional data about the effect of infrasound on temporary threshold shift. von Gierke (in Tempest, 1976, chapter 6) reports on Johnson's work presented at the International Colloquium in Paris. The work involved two parts; whole body exposure and ear only exposure. The subjects for the whole body exposure experiment were exposed to the same levels as those of Jerger et al (120-144 dB), but for 8 minutes. There was no effect on TTS for this exposure. In the ear only exposures, the subjects were exposed to higher levels of infrasound (up to 171 dB) for periods ranging from 26 seconds to 30 minutes. Temporary threshold shift of 8 dB was measured after exposure to 140 dB for 5 minutes, and of 14-17 dB after 30 minutes exposure to the same level. All subjects recovered fully within 30 minutes after exposure.

The studies examining the auditory effects of infrasound all agree that exposures of relatively short duration result only in temporary threshold shift, which disappears - within 30-60 minutes after exposure. Levels of approximately 140 dB were necessary to produce TTS, and the degree of effect was a function of the duration of exposure.

2. Physiological Effects. Because the middle ear is the most susceptible part of the body to infrasound, it has been suggested that the physiological tolerance limit to infrasound will be determined by the middle ear.

The pain threshold for the middle ear is 140 dB at 20 Hz. Perhaps for this reason many of the experiments which study the physiological effects of infrasound use noise levels around that threshold. Three papers examine the physiological effects of whole body exposure to infrasound including one (Mohr et al, 1965) previously discussed under auditory effects. Using 5 noise-experienced personnel, Mohr et al measured a number of physiological changes, both objectively and subjectively. They detected no significant objective effects, but point out that the objective tests were gross and would not necessarily be able to measure small changes which would not be noticed subjectively. Some subjects reported experiencing middle ear pressure build-up (which could be alleviated using valsalva), mild abdominal wall vibration, and at the extreme levels, chest wall vibration, voice modulation (although no change in speech intelligibility), mild middle ear pain, visual field vibration, and a Jreeking of gagging. None of these symptoms were experienced when ear protectors were worn. The authors concluded that although the subjects felt that the exposures were "unpleasant", none of the levels experienced exceeded the voluntary tolerance limit.

The second paper (Slarve and Johnson, 1975) also examined the effect of infrasound on a number of physiological parameters. Four subjects were exposed to infrasound with a maximum level of 144 dB for 8 minutes. The authors found no effect on respiration rate, pulse rate and the general condition of the eardrum. They did find effects of middle ear pressure build-up (above 126 dB) and voice modulation and chest vibration (above 135 dB).

Again, one review paper (Johnson, 1975) provides details from a study not otherwise available to us. This is the study by Borredon (Centre de Recherches de Medecine Aeronautequique, 1973), in which 42 subjects were exposed to infrasound (7.5 Hz) at 130 dB for 50 minutes. In this study a small increase in minimum arterial
blood pressure was noted, although the effect was not statistically significant. In addition, some subjects reported feeling "drowsy", although there was no objective measurement to back this up as a definite effect.

In general, the papers examining the physiological effects of noise appear to be well done, with the conclusions well supported. All 3 studies seem to be in agreement that no serious physiological effects can be measured at levels which are most commonly experienced. The most important effects noticed were subjective ones, which were found in each experiment.

3. Performance Effects. Six papers examined the effect of infrasound on either balance or other tasks (Table 1). The first paper (Green and Ihjnn, 1968) examined the effect of naturally occurring infrasonic waves (from weather systems) on the incidence of automobile accidents and school absenteeism.

It differs from the rest of the papers as it examines the effects of infrasound which is theorized through the examination of historical weather records rather than actually measured. Although the authors found some evidence of increased accidents and absenteeism during periods of supposed infrasonic activity, there are many possible biases, including the effects of local weather conditions themselves on the outcomes measured.

The next paper (Evans and Tempest, 1972) measured visual nystagmus (involuntary eye movement in a horizontal, vertical or rotary direction) as well as reaction time and visual acuity for 25 subjects who were performing a shape recognition task. Evans and Tempest claim that the experiment measures the effect of transporation sources, but in fact the levels they use (130-146 dB) are above those normally found in motor vehicles. The authors report a significant nystagmus effect. However, this is refuted by Harris et al (1976), who state that examination of sample charts reveals that much of the eye movement can be accounted for by normal eye blinks.

Evans and Tempest found no effect on visual acuity, but report a 30% increase in reaction time at levels of 115-120 dB. Unfortunately, this assertion in the text is not supported by any table or figure, and no statistical test of the change is reported, so it is impossible to assess the validity of their conclusion.

One review paper (von Gierke and Parker, 1976) reports additional data from experiments which further refute Bryan and Tempest’s claim of nystagmus.

The authors report on a number of experiments which measured visual nystagmus in both humans (142-155 dB exposure) and animals (158-172 dB). In no case was visual nystagmus observed.

In another review paper, Johnson (1975) reports on a rail balancing task in which subjects were exposed to infrasound of various frequencies at levels up to 140 dB. There was no significant effect on rail task performance.

In addition, Johnson reports personal experimentation with a balancing task at levels of 165 and 172 dB, and found no effect.

Two papers deal with the effect of infrasound on task performance.

Harris and Johnson (1978) examined cognitive performance using serial search and complex counting tasks. They found no significant effect for exposure lengths of 15 and 30 minutes, for various levels of infrasound. They conclude that very high levels of infrasound are necessary to produce effects on performance. Kyriakides and Leventhall (1977) compared the effects of infrasound, audible sound and alcohol. They utilized a high priority pointer-following task in conjunction with both central and peripheral components of a secondary task. The subjects were exposed to a level of 115 dB for 36 minutes while performing the task. The authors found that this level had no significant effect on performance of either the primary or secondary tasks. However, they observed a difference in performance over time between the infrasound and audible sound conditions. In the presence of audible sound, performance was maintained over time, while a degradation of performance was evident when infrasound was present. This led the authors to conclude that there may be an effect on performance if the time of exposure were increased.

An effect of infrasound on task performance has not been established in the literature. The one paper which reports an effect (Evans and Tempest) has serious flaws in the measurement of the outcome parameters.
The last two papers, which were well conducted and documented, show no significant effect of infrasound on performance. However, both of those papers suggest that an effect may be present at longer exposure durations.

**Conclusions**

From the literature reviewed here, we may make the following conclusions about the effects of infrasound:

1. **whole body effects**
   - middle ear pressure build-up at 130 dB
   - no subjective effects until > 150 dB.
2. **auditory**
   - some TTS for exposures > 137 dB
   - if exposure > 30 minutes, TTS 14-17 dB
   - full recovery within 30 minutes.
   - 51 -
3. **respiratory**
   - rhythm change at 130 dB.
4. **performance**
   - limit not reached
   - may be an effect if time of exposure > 40 minutes.

The authors of the review papers examined come to roughly the same conclusions, with a few additions. As far as auditory effects are concerned, they conclude that 150 dB is acceptable if exposure time is kept below 30 minutes (Johnson, 1980, p. 11). In addition, they report a definite effect on respiration at 166 dB from animal experiments (Johnson, 1980, p. 8). For performance effects, below 142 dB the only effect of infrasound is on speech interference (Johnson, 1980, p. 7). Finally, there is no vestibular effect up to 155 dB (Johnson, 1976, p. 8).

From the papers examined, we can conclude that infrasound must be regarded as at worst a small part of the problem of the health effects of noise. The literature has demonstrated that objective effects of infrasound are found only at quite high noise levels. The early reports of drastic effects were greatly exaggerated, a conclusion we share with most of the review papers examined. It is necessary to keep in mind, however, that these findings are applicable only to specific, short-term exposures. There has been no attempt to quantify the effects of low-level infrasound when exposure is of longer duration. Therefore, the question of possible effects of industrial exposure or exposure in motor vehicles remains unanswered.

**Bibliography**


Borredon, P. (1972). Reaction physiologiques des sujets humains exposes a des infrasons. Centre de Recherches de Medecine Aéronautique, _ _ _ _ _ _ _ _ _ Report


CHAPTER EIS- 13

13.2 Assessment Method

"Ecological studies involved both desktop review of flora and fauna records, as well as rapid field survey to determine vegetation type and habitat condition."

Comment: E137

Given that the transport corridor exact location has not been established by actual survey, the question requiring answer is what constitutes a rapid field survey as noted above?

Given the known fact that access to the corridor land has not been granted by all landowners, what proportion of the corridor was actually subjected to detailed flora and fauna assessment, or is this report merely an academic review of the literature?

Flora and Fauna Field Survey

“A field survey at the proposed port site was undertaken from 5 – 9 November 2011”

Comment: E138

The 'study' being of five day duration in November 2011 is considered by the applicant to be an adequate assessment of the fauna and flora for the port site.

Condition

"A number of vegetation patches at the port site were not specifically assessed in the field because they were either inaccessible during the time of the survey or alternative representative patches were targeted during the survey. The condition of these native vegetation patches was inferred.” (underlining added)

Vegetation Condition (p13-19)

“Condition ratings have been estimated, using data collected in the field and from inference.”

Comment: E139

The community can infer that these studies are less than adequate to represent the actuality of the port and corridor sites.

The issue being, when will the actually flora and fauna survey over a period of 12 months, thereby covering the normal yearly cycle, be undertaken?

Flora of Conservation Significance

Comment: E140

Given the paucity of field survey work undertaken and the fact that the 'recorded records' of lifted species is notoriously inaccurate as no definitive long term study has occurred across the area in question, the question to ask must be how reliable are the 'observations' and 'conclusions' presented in the application, given these limitations; the rapid survey methodology employed and the lack of access to land over which the proposed corridor is to pass?

Native Fauna and Habitats

"No fauna surveys have been undertaken in the proposed infrastructure corridor footprint. (p13-30)

A likelihood assessment . . .”

Comment: E141

Given the paucity of field survey work undertaken and the fact that the 'recorded records' of lifted species is notoriously inaccurate as no definitive long term study has occurred across the area in question, the question to ask must be how reliable are the 'observations' and 'conclusions' presented in the application, given these limitations; the rapid survey methodology employed and the lack of access to land over which the proposed corridor is to pass?

“no flora species listed under the EPBC Act were observed at the site during the field survey.” (p13-48)
Comment: E142
If as inferred in the application, the field study was 'rapid' and for 5 days in November, then the obvious conclusion concerning expressed are true, except for the simple fact that the survey should have been over an extended period of 12 months to verify the existence or otherwise of listed species in their growing seasons.

The reliance upon desktop analyses of species occurring or not occurring is dependent upon the veracity of the data contained in the data bases. It is acknowledged that the desktop survey is INDICATIVE of species being present, but NOT CONCLUSIVE.

The reliance upon desktop analyses as it appears in the application without verification over the twelve month (or more) is indicative of the short cuts being presented by the applicant in seeking approvals.

It is RECOMMENDED that twelve month flora and fauna studies are undertaken on the port site and across all properties associated with the corridor (noting this will require all landowners to grant access to their land for the purpose of the survey)

It is RECOMMENDED that the results of these surveys are available for public scrutiny prior to any approval being granted.

It is noteworthy the existence of mallee fowl is not acknowledged given the reported sighting of the species in 2014 in the vicinity of the proposed mining lease/corridor area.

It is noted that the survey appears to have omitted reporting upon the presence of native grasses within the bounds of the corridor.

It is noted that the presence of the white bellied sea eagle is questionable in the location of the port. It is however known that the area is frequented by breeding pairs with their territory ranging from Lipson Cove to Cape Hardy.

13.5.5 Effects on Fauna
“• If there are impacts to individuals or populations, they are likely to be short term (e.g., construction phase) as fauna will move away from the area and return when disturbance has reduced or offset habitat has been established.”

Comment: E143
Given the fact that white bellied sea eagles have been observed in the area, will the applicant provide a detailed plan of how they proposed to protect these birds and or provide an ‘offset habitat’ given the port will operate on a 24/7 basis.

The assumptions pertaining to the critically endangers hooded plover species on Eyre Peninsula clearly represents the attitude of the applicant to the conservation of listed species.

13.6.1 Environmental Offsets
“The SEB offset for the project would be subject to final approval from the Native Vegetation Council.

Ongoing discussions with the Native Vegetation Management Unit (DEWNR) are occurring in parallel to this EIS process.”

Comment: E144
It is noted that parallel discussions are occurring with the appropriate authority concerning SEB offsets. Unfortunately these discussions are not in the public arena or subject to public scrutiny.

It is RECOMMENDED that all discussions with respect to SEB Offsets be made public prior to any approval being given.

Bushfire
“Similarly, in the event that a bushfire did occur as a result of construction and operation of the infrastructure corridor, the consequences to significant areas of native vegetation, such as Hambidge WPA would be minor to moderate.”
Comment: E145

Given the previous occurrence of bushfire in the Hambidge WPA where tens of thousands of hectares were destroyed, the risk assessment assigned appears to be a significant understatement.

Fires as a consequence of railway operations do occur and hence the damage could be attributed to the applicant.

It is assumed that the corridor will be maintained in a condition that prevents bushfire.

To provide additional commentary upon environmental impacts posed by this application, the Association has included a copy of the submission provided to the EPBC, hereunder.

TO: The Hon Greg Hunt MHR
    Federal Minister for the Environment

RE: Response to the call for Public Submissions to EPBC Referral 2014/7285
    Iron Road Central Iron Ore Project Infrastructure Corridor and Port Facility

This submission has been prepared by the Tumby Bay Residents and Ratepayers Association Inc (TBRARA), its sub-committee, Eyre Peninsula Community Mine to Port Consultative Committee (EPCMPCC) and in consultation with the Port Lincoln Residents & Ratepayers Association Inc. (PLRARA).

The submission raises concerns about the claimed consultation processes undertaken by the Company; the paucity of scientific data as a consequence of 'rapid' environmental survey of the corridor and port site; the almost complete reliance upon literature surveys; the lack of site specific meteorological studies and the non disclosure of the chemical composition of fugitive dust associated with the mine, the transport corridor and the port facility and thence the impact upon the environment and listed and endangered species within that environment, both terrestrial and marine.

BACKGROUND

Claimed credibility of the Consultation process:

"Iron Road has been implementing a comprehensive and ongoing community and stakeholder engagement program since 2011 in the CEIP Mine area."

Iron Road publicly announced Cape Hardy to be its preferred locality for a deep sea water port in December 2012 and commenced comprehensive engagement with stakeholders and communities in March 2013.

Engagement with these parties has taken many forms including:

- one on one meetings with affected landowners along the proposed infrastructure corridor
- meetings with all relevant local Councils
- meetings with groups of stakeholders with a common interest on issues, such as access arrangements in the infrastructure corridor, to encourage an exchange of ideas
- attendance at community group meetings
  involvement with both the Port Neill Community Reference Group and the Tumby Bay and District Community Consultative Group, combining stakeholder and community representatives
- drop in sessions/open ‘houses’
- public meetings
- attendance at regional events (e.g. local agricultural shows)
- information and frequently asked questions sheets.

Issues raised during public consultation have included loss of rural land and impacts on amenity and land values, additional services required for an increased population, maximising economic and employment benefits from the project, dust from mining and loading operations and stockpiles, operational noise from land and sea based facilities, traffic management, groundwater impacts to agricultural land and regional water supply, impacts to limited mains water supply and cumulative impacts from the various port proposals in the Spencer Gulf."
The reality
Apart from a concerted Company advertising programme in the press announcing progress on the Definitive Feasibility Study, to which no detail was forthcoming, stakeholder consultation comprised of Company spin.

The comprehensive engagement with stakeholders in 2014 comprised of a concerted market campaign in April to sell the virtues of the recently released Definitive Feasibility Study. A series of public meetings and drop in sessions was organized across the affected communities, with public meetings held in Warramboo and Rudall and drop in sessions at Wudinna, Port Neill and Tumby Bay.

An approach was made by the EPCMPCC, a sub-committee of the Tumby Bay Residents and Ratepayers Association Inc, seeking to have the drop in one on one session at Tumby Bay changed to a public meeting whereby the Public had the opportunity to ask questions of the Company and the Public to hear the answers accordingly.

To assist the Company in this approach a series of questions on notice relating specifically the Definitive Feasibility Study (DFS) were provided with the request letter.

The Company's response to the request, under the hand of the General Manager was to decline and state:

"Finally, I note the numerous questions and comments you included with your letter. You appear to have misinterpreted and/or misunderstood the bulk of the information outlined in the company's ASX announcement dated 26th February 2014 in relation to the DFS. Misinterpretation may cause unnecessary anxiety and fear in the community and I therefore encourage you to attend one of our planned sessions. You will be able to receive the facts directly from Iron Road which in turn will assist you in providing correct information to your members".

No attempt was made to respond to the questions asked, or to hold a public meeting in Tumby Bay, noting that a significant portion of the proposal lies within the District Council of Tumby Bay.

The Association made a submission to the Federal Governments White Paper on Competitiveness in Agriculture. The submission focussed upon the impact of mining on agriculture with reference to a number of mining proposals on Eyre Peninsula, including Iron Road.

The Company responded to this submission:

"I note that the White Paper has been commissioned by the Australian Government to boost agriculture’s productivity and profitability. The Paper’s intention is to identify pathways and approaches for growing farm profitability and boosting agriculture’s contribution to economic growth, trade, innovation and productivity.

The EPCMPCC’s submission however appears to concentrate on scare mongering based on ill informed opinion or possibly deliberate misinformation. Moreover, your submission contains numerous errors of fact. (General Manager: E-F-LTR-0018_0)."

Unfortunately, the Company failed again to take the opportunity to address the issues raised either through a public meeting or through a detailed explanation as to where the Committee or Associations were ill informed.

The Association’s response to this included

"It is our contention that this is a major deficiency in the Company’s quest for a social licence for the project, one which could be overcome through the formation of a Tumby Bay and District CCC specifically to address the issues of the CEIP project, especially in light of the forth
coming public consultation processes surrounding the approval processes, thereby affording this community the same opportunity as has been the case for Wudinna and Warramboo.

It is noted that a copy of your letter has been forwarded to the Agricultural Competitiveness Taskforce. In line with the Government’s offer to get involved with matters that influence the competitiveness of Australian Agriculture, the Associations responded accordingly, highlighting the issues of mining in agricultural areas as being a confounder to growth and sustainability of the industry.

We note that the Company, through an article in the Granite (May 2014) has made an attempt to respond to some of the issues raised. Unfortunately our concerns remain and we have taken the opportunity to raise them again through the CEIP CCC as per the attached copy of a letter to Ms Lamont and the Committee."

In the June edition of the Wudinna Community Newsletter, the Granite, the Company provided an article supposedly to dispel what it perceived as misinformation in the community. Apart from the disparaging remarks that certain sections of the community were ill-informed and scaremongering, the information was factually incorrect. Your attention is drawn specifically to the information pertaining to iron ore dust.

"The mineral and geochemical composition of the magnetite deposit and surrounding rock is benign"

"The dust (CEIP iron ore dust) is non toxic and the potential for this to occur is not credible".

The Association provided a response to this article to the Central Eyre Iron Project Community Consultative Committee (CEIP CCC). The response pointed out the misleading and inaccurate information provided by the Company supported by a number of references attesting to the health hazards of iron ore dust and its impact upon pastures.

"The question posed, on the basis that heavy metals are synonymous with the geology of the Gawler Craton, was simply what are the concentrations of the metals so identified.

The rationale behind asking the question was based upon the knowledge that Arsenic and Chromium (VI) are known carcinogens; "some studies of environmental exposure to manganese have suggested possible links to neurodegenerative disease"(Lazenby D: Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Headland, pp52, 2007); the known toxicity of copper in concentrations above trace levels in cereal production land and its significant toxicity in the marine environment. It is noteworthy that no reference to the presence or otherwise of Cadmium was reported in the aforementioned document.

The identification of Lead and Strontium leads to the question of what isotopic form of Lead and Strontium were identified as both Lead and Strontium have radiogenic properties arising from various radioactive decay sequences indicative of the presence of Uranium and other radioactive materials.

It is reasonable to seek a scientific response to these questions given that the Gawler Craton has known occurrences of Uranium and other similar materials within its geological makeup. It is also known that Uranium exists in a nearby paleochannels thereby strengthening the argument for full disclosure with respect to the presence of radioactive materials in addition to the Radon and daughters of Radon known to be released in mining activities within the Gawler Craton.

The significance of these questions lie in the fact there is the real possibility of these materials being deposited on the waste rock dumps thereby exposing these chemicals to leeching following rain or dust suppression with (hyper-saline) water and or windblown onto
neighbouring properties. The potential contamination pathways need to be identified and mitigated against."

Whilst the response focussed on dust at the mine site, the broader issue also remains unanswered, that is the impact of fugitive dust on the environment outside the mine, the transport corridor and the port facility with the environment being defined as inclusive of the habitats of listed and endangered species.

The correspondence has been tabled at the CEIP CCC July meeting. It is understood no response has been forthcoming from the Company.

Further, the 'questions on notice' provided to the Company in April were also provided to the CEIP CCC for their information and action. Again, no answers to the questions have been received.

The Association forwarded through the EPCMPCC, a detailed letter raising issues associated with mining in the Tumby Bay District to the July Annual General Meeting of the Tumby Bay District Community Consultative Group (TBDCCG). This correspondence included the 'questions on notice' provided to Iron Road for the TBDCCG's consideration. To date, no response to this correspondence has been received. It should be noted that the TBDCCG has been identified by Iron Road as one of the community stakeholder groups.

The Association and its sister Association, the Port Lincoln Residents & Ratepayer Association publish regular articles concerning mining on Eyre Peninsula, inclusive of articles relating to the proposed Iron Road project with specific reference to the identification of potential environmental impacts, especially in relation to ground water and fugitive dust.

In recent correspondence to the EPCMPCC, the Company criticized a couple of website articles on ground water and dust and provided the Company's view of groundwater and dust. The correspondence accused the article of inaccuracies and claimed:

"These are basic principles which high school geography students would be aware of and understand. The incorrect and misleading nature of the Drainage Graphic accordingly suggests that the creator of that image has an extremely poor and naive understanding of groundwater, or, alternatively, a deliberate intent on the part of the creator of the graphic to manipulate the data and create misinformation.

As such, the Drainage Graphic is nothing more than a colourful cartoon, and of no utility or relevance in reflecting actual scientific data, or informing readers of the same".

The correspondence also made reference to errors in relation to dust:

"The publishing or distribution of misleading statements presented as fact, including the depiction of data and figures with no scientific basis, or in a manner which misrepresents the data, is misleading and deceptive. It has the real potential to cause confusion and alarm in the community, to without foundation misrepresent the intent and integrity of Iron Road Limited, and to cause significant reputational and commercial damage to the Company.

As you will appreciate, Iron Road Limited must reserve all of its rights to take such action as it sees fit to prevent the publication and dissemination of material that is misleading and deceptive, is included for the completeness of the record." (General Manager, ref E-F-32-LTR-0023_0)

In all of this, the Company has not responded to the questions on notice submitted in April.

The 'questions on notice' that have specific relation to the EPBC referral include:
Salt
Calculated groundwater seepage rates to the open pit and dewatering bores range from 12 to 23 megalitres/day, dependent on the depth and size of the open pits at each stage of operation. Some of this water will be lost to evaporation within the open pits; the remainder will be recycled for use in dust suppression and the process plant.

It has been reported that in the order of 400+ million tonnes of salt will be brought to the surface as a consequence of this activity (CEIPCCC meeting notes).

Water
During the course of the study, there has been significant reduction in the volume of water required for the mine operations (from 45 gigalitres per annum to 14 gigalitres per annum).

Question: What is the regional hydrological impact of (a) dewatering the Warramboo pits to the extent of 12-23 million litres per day and (b) the proposed extraction of water from the proposed Kielpa bore field? What is the impact of dewatering at Warramboo and Kielpa in terms of water required to sustain the environment? Notwithstanding the fact that the proposed Kielpa bore field is extracting saline water, what is the long term economic impact of reducing the water reserves that may become available for agricultural or human use due to advances in solar distillation technologies that could be applied to this water reserve? This is the future generational impact of what is being proposed to quote 'benefit the short term aspirations of the mining company'.

The Port
The inner harbour may be used for the import and export of low-volume high-value cargoes, including the import of machinery, cement and fertiliser and the export of copper concentrates, grain and other containerised cargoes.

Question: Nowhere in the DFS is reference drawn to the mining of copper at Warramboo. Furthermore, no reference has been made to the toxicity of copper in sea water, especially in light of the fact that Cape Hardy is on the migratory path of the Southern Wright Whale, a totally protected species. Are we to assume one of the undisclosed outputs from the mine is copper?

Question: Given the quantities of fuel likely to be consumed, does the proposed port have the capacity to receive and store fuel?

Question: It is noted that the ore will be transported from the mine in covered bottom dump wagons. Are the wagons sealed to prevent the escape of fugitive dust? Are the wagons decontaminated (cleaned) before leaving the port facility on the return to the mine?

Question: Fugitive dust is of significant concern. The DFS is very short on information relating to the potential risks associated with fugitive dust contamination, indeed, the JORC statement on the environment failed to mention the potential risks due to contaminated pastures, cereal grain, wool, meat and rain water, not to mention potential health risks to humans. Is it a matter of convenience to overlook the accumulative impact of the 4% free silica contained in the final ore concentrate and the health effect of continued exposure over a significant period of time? Is it a matter of convenience to not make scientifically supported (including independent peer review) of all chemical analytical results pertaining to the presence or otherwise of heavy metals (Chromium (VI); Cadmium; Arsenic; Uranium and other radioactive substances (Thorium, Strontium [87], Radon) that are known to occur in deposits of this nature in the Gawler Craton and or the Paleochannels known also to exist within the region?

Question: It is noted that the proposed port is listed as an export port for copper concentrate. This is the first occasion that the export of copper has been raised; therefore what are the environmental impacts of copper in the proposed project? Firstly what risk assessment has been undertaken to determine the impact of copper (at levels greater than those considered to be trace levels for the purpose of agriculture) on the farming community both in and around the proposed mine, the corridor and at Cape Hardy, especially in the
context of copper toxicity in sea water and the very probable environmental damage arising? Where does the copper come from?

**Environment and Community**

Environmental and social impact studies, including baseline technical surveys and meetings with community groups and government agencies have ensured that Iron Road understands the potential benefits and impacts of the CEIP.

*Note:* It should be recognised that no environmental or social impact statement have been released therefore the content of these studies HAS NOT BEEN SUBJECTED to any PUBLIC or third-party scrutiny.

No clearly defined statement as to the impacts, social or economic, have been released to the public, hence the veracity of these reports remain subject to review.

‘JORC Code 2012 Table 1’ Section 2 Reporting of Exploration Results

**Sampling Techniques**

Samples were also analysed for As, Sn, Ba, Sr, Cl, Ni, V, Co, Zn, Cr, Pb, Zr and Cu

It is noted that uranium, thorium and other radioactive elements were not included in the analytical work; therefore the following questions remain unanswered:

Given the known presence of uranium, thorium and other radioactive materials in the Gawler Craton bedrock and associated Paleochannels in the district, why are these substances precluded from any analytical results?

Given the inclusion of Lead [Pb] in the analytical data, which isotope of lead was reported on, given that lead is the end product of various decay sequences for radioactive elements? Was it Pb 214; Pb 211; Pb 210; Pb 209; Pb 207 or Pb 206?

Was lead therefore used as a marker for the presence of uranium?

What was the concentration of the lead in ppm?

Given that strontium was reported in the analytical result, what isotopic form of strontium was identified? If it were Sr87 (the radioactive isotope) was this used to determine the geologic age of the deposit using the Sr87/Rb87 dating procedures? If not, what was the concentration of the strontium sample in ppm?

It is noted that the analytical work sought to determine the presence of arsenic and chromium. That being the case, what was the concentration of arsenic in ppm?

With respect to the chromium, was the sample tested for hexavalent chromium (Cr (VI))? If so, what were the concentrations in ppm?

It is noted that no mention in the analytical work was made of the presence or otherwise of cadmium.

Given that Boron is an issue for the agricultural industry, why wasn’t an analysis for the determination of existence and concentration of boron in the samples undertaken? The issue being, if boron rich soil/overburden is brought to the surface as a consequence of mining and this material drifts onto neighbouring properties, agricultural yields could well be affected.

It is noted that samples were analysed for the presence of copper. What concentrations of copper occurred in the samples in ppm?
Environmental factors or assumptions

- Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.

While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.

- No environmental assumptions have been considered in the estimation

Comment: As alluded to earlier in this response, the issue of the presence of radioactive material is of considerable concern, given that the MLP is proposed for the mining of iron ore and does not include the mining of radioactive material. It is therefore assumed that if said materials are present then the disposal plan is for this material to be deposited on the waste rock heap. That being the case (and clearly in the lack of evidence to the contrary) the material will be exposed to wind and water migration. Wind will result in the transportation of the material into neighbouring farming properties potentially contaminating pastures, grain, and through the food chain meat. Rain will potentially leach the material from the waste dumps into the underlying and surrounding environment.

The issue of radon gas which is a characteristic of mining deposits such as that proposed is not dealt with.

The environmental impact of significant quantities of diesel fumes and particulates emanating from the mine is not dealt with.

The real issue of fugitive dust which contains not only iron ore dust but potentially significant quantities of free silica as a consequence of the mining process is of a major concern. Added to this is the issue of fugitive dust arising from the transportation of the refined ore from the mine to the proposed port some 145 kilometres through prime agricultural land. The processed ore is reported to contain up to 4% silica and a non disclosed amount of other material, some of which may well be heavy metals.

The inference is that there are no environmental impacts from dust.

Environmental

- The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.
- Iron Road will require approval under the Mining Act (1971) which includes the approval of a Mining Lease Proposal (MLP) and a comprehensive Program for Environment Protection and Rehabilitation (PEPR).
- All baseline environmental surveys have been completed. The preliminary impact assessment did not categorise any potential Project impacts as 'High'. Detailed impact assessments are on-going in areas including air quality, groundwater, surface water, flora, fauna, noise, social, visual, and heritage.
- It is expected that all predicted impacts may be adequately mitigated and/or managed and that the MLP and PEPR will be subsequently approved by the State Government.

Note: In addition to the previous comments, the report fails to acknowledge the presence of protected species in the proposed project area (the Mallee Fowl and the Southern Right Whale).

The report fails to acknowledge the health impact of the proposal.

The report indicates the need to prepare a PEPR, but in the absence of evidence to the contrary, this document to date is not for public knowledge. In short, the environmental performance criterion for which compliance is required is contained in a non disclosed document.
The environmental and economic impact of the transport corridor appears not to have been included in any risk assessment pertaining to this disclosure document.

The rehabilitation of the mine footprint and hole at the end of life, given the quantity of salt deposited on the footprint, is a significant undeclared environmental risk, given the expectation that the land will be returned to current use, i.e. agricultural land.

**DISCUSSION**

Without full disclosure the 'assumptions' alluded to in the Referral with respect to impacts upon listed species et al, are somewhat meaningless.

The environment requires appropriate levels of ground water to survive. Clearly there is an ecological balance in existence in the areas under question, i.e. the Warramboo area and the proposed Kielpa bore field.

The referral does not provide any consideration of the impact of dewatering of the proposed Warramboo Mine at the rates suggested in the DFS and it certainly does not make any reference to the impact on the environment of the potential for 400+ million tonnes of salt (over the life of the mine) to be spread over the footprint of the mine (as claimed by a company employee at a CEIP CCC meeting earlier in 2014). This salt in now mobile to both wind and rain and free to impact upon the environment.

Furthermore, there has not been full disclosure as to the nature of fugitive dust from the mine, the transport corridor or the port facility.

The statement made by the Company that iron ore dust is non toxic is not only without scientific foundation, but totally misrepresenting the real hazards to the environment that fugitive iron ore dust brings.

Depending upon the actual composition of the ore body, in this case a banded iron formation within the Gawler Craton, an ore body with a high probability of containing heavy metals (arsenic, cadmium and hexavalent chromium) together with manganese and uranium and thorium (or daughters thereof) given that these substances are known to exist in Craton deposits as well as evidence of uranium within paleochannels in the area, the composition of fugitive dust could contain various concentrations of these substances. Whilst they may be claimed to be low concentrations, the problem is that the environment containing not only the listed species under consideration, but all species of plants and animal, including humans could be exposed to cumulative doses of these contaminants over the proposed 25 year life of the mine.

It is well documented as to the health implications of heavy metals and uranium on the human species, but what is the case for exposure to these contaminants with listed species (plant of animal)?

If the debate puts aside the immediate location of the mine and focuses on the transport route and the port facility, the position is clearly that of a contamination pathway of some 130 kilometres with what distribution pattern having regard to local meteorological conditions along the transport corridor and the contamination pattern associated with the activities of the port and its storage and loading facilities, again having regard to the actual meteorological conditions of this location, not some assumed conditions relevant to Cleve some 60 kilometres away?

Clearly the referral is deficient in addressing the impact of fugitive iron ore dust of undisclosed composition upon the environment under consideration, the same environment in which the flora and fauna reside.
The proposed Port Spencer site

The debate needs to extend from the terrestrial environment to the marine environment.

By design, the concentrate stockpile provides for storage of approximately 660,000 tonnes of concentrate. The stockpile will be around one kilometre long, 44 m wide and 30 m high.

Whilst it is stated the stacker will have dust suppression capabilities, the issue goes beyond the actual dumping cycle to the impact of wind on the stockpile. What is not disclosed in the referral is the impact of the prevailing winds on the stockpile and the impact of fugitive dust rising from the stockpile and being transported into the marine environment (which from a starting point of view could be the proposed 'declared port operating limit' outlined above)

What is the dust dispersion profile from the stockpile (approximately 1,000 metres long and 30 metres high) with winds from the south-west, west, north-west and north? To answer this question, meteorological studies need to be site specific, not a hypothetical model based upon weather observations at Cleve, some 60 km away or Kyancutta some 140 - 150 km to the north.

There is no disclosure in the referral as to the composition of the fugitive dust being deposited neither along the transport corridor nor at the port facility.

Given that iron ore dust potentially contains heavy metals, manganese and uranium et al products as well as the identified copper, the referral is deficient in its discussion of the impact of this dust on both the terrestrial environment, especially that hosting listed species, as well as the marine environment.

Based upon the information contained within the Definitive Feasibility Study which clearly suggests the possibility of exporting copper from the facility, clearly the referral is deficient in its discussion of the impact of copper in the marine environment and its significant toxic impact upon seagrasses.

The desktop analysis of a multitude of databases provided a view of what possible listed or endangered species may be at the proposed site. What appears to be deficient in the referral is the actual evidence/research that has been undertaken to confirm the presence or other wise of the species identified in the literature.
What surveys were undertaken over a twelve month period of the marine habitat enclosed by the proposed 'operating limit of the port'?

Having confirmed the presence of listed or endangered species and their location within the marine environment relative to the proposed infrastructure and operating zones, the question remains, what is the impact of the proposed action on these species and the environment that sustains them?

The specific questions take the form of:-

- What impact has copper on the marine environment in which the listed species, southern right whale resides for a period of time?
- What impact has copper on the marine environment and the feeding habits of the white bellied sea eagle which is known to habit this area?
- What impact has copper on the marine environment and the survival of leafy sea dragons which are known to exist in the region, although not recognised within this report?

A similar set of questions can be asked with respect to the other undisclosed components of fugitive iron ore dust, given that the contamination pathway will operate for the life of the proposed mine (25-30 years) and beyond, if the action were to include mining of the remaining identified prospects in the tenement EL4898?

The Company claimed, in the Definitive Feasibility Study, "The preliminary impact assessment did not categorise any potential Project impacts as 'High'."

Public credibility of this statement is very low.

**The methodology employed**

Upon reading the referral, one important observation is the extensive use of desktop analyses or literature searches from which assumptions are made as evidenced by the following:-

"The species is known to be present in Rudall Conservation Park, Darke Range Conservation Park and Carapee Hill Conservation Park, however, there are no records of this species within 5 km of the infrastructure corridor. Whilst it is possible that individual plants may occur along the corridor, the remnant vegetation patches are too fragmented and disturbed to support viable populations of these species. Given the absence of records near the corridor, and failure to identify this species in field investigations, it is highly unlikely the corridor supports a population of this species or habitat critical for its survival. A significant impact to this species from the proposed action is unlikely."

The field investigations, namely the "rapid methodology referred to", undertaken over five days to 'survey' 130 kilometres of corridor, assuming access has been granted to the full 130 kilometres, in November and or December is hardly evidence of a detailed environmental impact study upon which an investment the size of the CEIP is proposing depends.

This leaves the unanswered question; what about the remaining 51 weeks of a year?

"Given the absence of records near the corridor" implies, of course that the transport corridor has been known for eons and that a formal reporting process has been in place to 'report' occurrences of listed species thereon. Clearly the authors of the document do not expect such comments to hold any credibility with the public.

**Consideration given to the white bellied sea eagle**

Apart from the observed fly over by the 'survey team', what investigations were carried out to determine the population of white bellied sea eagles in the vicinity of the proposed port and storage facility, given the knowledge that these birds are somewhat territorial and do have a significant hunting range?
What research was undertaken to determine the presence or other wise of breeding pairs in the vicinity of the facility?

What research was undertaken with respect to the presence or otherwise of the dietary requirements of the eagle within the vicinity of the proposed facility?

What research was undertaken with respect to the potential impact upon that food source by fugitive dust emanating from the facility?

What research has been undertaken to determine what other factors (light, noise) would impact upon the habitat of the eagle and as a consequence, and an appropriate risk assessment made?

It is known that the sea eagle habitat extends over this area and that there are known breeding site(s) within the area.

The referral appears to be deficient in its investigation of the occurrence and potential impact upon the sea eagle.

Consideration given to the Mallee fowl
The presence of Mallee fowl on Eyre Peninsula is well known, but Freeman, et al (Mallee fowl (*Leipoa ocellata*) Conservation on Eyre Peninsula, South Australia: Andrew Freeman; Paula Peeters; Graeme Tonkin) writes:

"Mallee fowl continue to survive on northern Eyre Peninsula (EP) in isolated patches of habitat both in the reserve scheme and on private land. However, information on the viability of these scattered populations remains limited.

To assess the success of Mallee fowl conservation programs on Eyre Peninsula, population trends need to be monitored. As Mallee fowl density is difficult to measure directly, changes in the number of active mounds over time are being used as an indicator of changes in Mallee fowl density, as recommended by Benshemesh (2000).

*Five survey grids (2 km x 2 km) have been established in Munyaroo, Pinkawillinie and Hincks Conservation Parks as well as in two heritage agreements one just north of Cowell and one just north of Lock (Fig. 6)."


Nonetheless, there is insufficient information available to accurately assess the conservation status of Malleefowl across Australia except in broad terms. This is primarily because little is known of the population dynamics of the species, or its current distribution and population trends in many areas. Despite these uncertainties, there is no doubt that Malleefowl are currently threatened by a range of factors, and in many areas there has been such loss and fragmentation of their habitat that remaining populations are small and isolated, and prospects for their long-term conservation are poor. Detailed and extensive monitoring of Malleefowl populations in Victoria, SA and NSW have shown steep declines in breeding densities over the past decade, and the past five years in particular (Priddel & Wheeler 2003; Gates 2004; Benshemesh 2005).

(pp10: Underlining added)

No particular populations or general areas can be described as being of greater importance for the long-term survival of Malleefowl than any other at this stage. Malleefowl still occur over most of their range, and although populations tend to be sparser in areas with low or highly variable winter rainfall, this is compensated by these areas being extensive. Conversely, Malleefowl densities are highest in remnants of habitat within the wheatbelts, but these areas are usually small and fragmented and will require intensive management in the long term to retain the species. (pp18-19)
Some forms of mining involve the removal of all vegetation at a site and causes major disturbance to the substrate which may have long lasting effects despite efforts at revegetation. Such destructive mining should be prohibited in areas that support remnant vegetation and relatively high densities of Malleefowl unless clear long term gains for Malleefowl can be demonstrated. (pp 25)

Table 2.
Number of Malleefowl records (to 2005) in the NRM areas across Australia sorted by time periods that contain similar numbers of records across Australia. Shaded rows indicate a total of less than ten records in an NRM. Numbers are indicative only and may contain records duplicated across different databases. Data sources are shown in Table 1.

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Table 3.
Number of Malleefowl records (to 2005) in the biogeographical regions across Australia (Environment Australia 2000) sorted by time periods that contain similar numbers of records across Australia. Shaded rows indicate a total of less than ten records for a Bioregion. Data sources are shown in Table 1. Numbers are indicative only and may contain records that are duplicated across different databases.
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<td>BRT Burt Plain (NT)</td>
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<td>CAR Carnarvon (WA)</td>
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<td>9</td>
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<td>8</td>
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<td>CR Central Ranges (NT,SA,WA)</td>
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<td>-</td>
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<td>CP Cobar Penaneplain (NSW)</td>
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<td>50</td>
<td>67</td>
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<td>3</td>
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<td>COO Coolgardie (WA)</td>
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<td>12</td>
<td>36</td>
<td>14</td>
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<td>5</td>
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<tr>
<td>DRP Darling Riverine Plains (NSW)</td>
<td>4</td>
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<td>8</td>
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<td>-</td>
<td>21</td>
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<td>ESP Esperance Plains (WA)</td>
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<td>8</td>
<td>21</td>
<td>23</td>
<td>187</td>
<td>46</td>
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<td>EYB Eyre Yorke Block (SA)</td>
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<td>23</td>
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<td>FIN Finke (NT)</td>
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<td>-</td>
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<td>4</td>
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<td>GAS Gascoyne (WA)</td>
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<td>-</td>
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<td>4</td>
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<tr>
<td>GAW Gawler (SA)</td>
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<td>1</td>
<td>3</td>
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<tr>
<td>GS Geraldton Sandplains (WA)</td>
<td>4</td>
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<td>22</td>
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<td>8</td>
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<tr>
<td>GD Gibson Desert (WA)</td>
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<td>-</td>
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<tr>
<td>GSD Great Sandy Desert (NT)</td>
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<td>-</td>
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<tr>
<td>GVD Great Victoria Desert (SA,WA)</td>
<td>21</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td>20</td>
<td>10</td>
<td>35</td>
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<tr>
<td>HAM Hampton (WA)</td>
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<td>3</td>
<td>36</td>
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<td>JF Jarrah Forest (WA)</td>
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<td>KAN Kanmantoo (SA)</td>
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<td>-</td>
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<td>MAC MacDonnell Ranges (NT)</td>
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<td>MAL Mallee (WA)</td>
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<td>MUR Murchison (WA)</td>
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<td>15</td>
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<td>6</td>
<td>5</td>
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<tr>
<td>MDD Murray Darling Depression (NSW,SA,VIC)</td>
<td>195</td>
<td>189</td>
<td>311</td>
<td>200</td>
<td>107</td>
<td>187</td>
<td>270</td>
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<tr>
<td>NCP Naracoorte Coastal Plain (SA,VIC)</td>
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<td>19</td>
<td>20</td>
<td>48</td>
<td>3</td>
<td>54</td>
<td>20</td>
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<td>NSS NSW South Western Slopes (NSW)</td>
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<td>15</td>
<td>14</td>
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<tr>
<td>NUL Nullarbor (SA,WA)</td>
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<td>2</td>
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<tr>
<td>RIV Riverina (NSW,SA,VIC)</td>
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<td>25</td>
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<td>SEH South Eastern Highlands (NSW)</td>
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<td>STP Stony Plains (SA)</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>SWA Swan Coastal Plain (WA)</td>
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<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>8</td>
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<tr>
<td>SB Sydney Basin (NSW)</td>
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<td>1</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
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<tr>
<td>TAN Tanami (NT)</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>VM Victorian Midlands (VIC)</td>
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<td>-</td>
<td>2</td>
<td>5</td>
<td>1</td>
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<td>-</td>
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<tr>
<td>VVP Victorian Volcanic Plain (VIC)</td>
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<td>-</td>
<td>1</td>
<td>-</td>
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</tr>
<tr>
<td>WAR Warren (WA)</td>
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<td>-</td>
<td>3</td>
<td>2</td>
<td>-</td>
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<tr>
<td>YAL Yalgoo (WA)</td>
<td>13</td>
<td>23</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>11</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>587</strong></td>
<td><strong>569</strong></td>
<td><strong>658</strong></td>
<td><strong>635</strong></td>
<td><strong>535</strong></td>
<td><strong>549</strong></td>
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<td><strong>4148</strong></td>
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</table>

Figure 2.
Records of Malleefowl in the Northern Territory and South Australia. Records are grouped in time periods that contain similar numbers of records across Australia. More recent records overlie older records. Data sources are shown in Table 1. (pp113)
The information contained in the two reports discussed above would suggest serious deficiencies potentially leading to inaccurate conclusions being drawn, especially in light of the Rapid assessment undertaken over a period of five days for the 130 kilometre corridor.

"Targeted searches for Mallee fowl or evidence of Mallee fowl (active, disused or abandoned mounds) were undertaken in areas likely to contain Mallee fowl habitat. No evidence of Mallee fowl was found." (EPBC Referral)

The question being, will the proposed action exasperate the decline assuming the empirical evidence confirms a decline?

The following sighting was sourced from the Australian Living Atlas website: www.ala.org.au
Leipoa ocellata
Malleefowl

Observation: 2013-11-14 13:39
Added: 8 months ago

Nantuma Road, Warramboo SA 5650, Australia
Lat: -33.2908861
Lng: 135.6928556
Coord source: camera/phone

Consideration given the southern right whale.

“There are no known current or historical aggregation areas within the South Australian gulfs (Kostoglou and McCarthy 1991; DSEWPaC 2012).

The SRW are easily identifiable by the general public and highly conspicuous during their nearshore mother-calf aggregations. As such, a single individual (or mother and calf) may be sighted on numerous occasions as they move east to west from one aggregation area to another, as evidenced by South Australian Whale Centre records (2013-4). Despite historic infrequent sightings of SRW within Spencer Gulf, the gulf is not part of any established or historical migration path or aggregation area.

Given the tendency of SRW to show high fidelity to existing aggregation areas, the likelihood of large numbers of SRW using the gulf in future is considered highly unlikely. Individual SRW (or mother and calf pairings) that visit Spencer Gulf are likely moving from one aggregation area to another (Victoria to Encounter Bay to GAB) and not using the area for foraging or nursery grounds.

Arup (2013), using data from the South Australian Whale Centre, list eleven possible sightings of SRW (the species was unidentified in two of those sightings) between 1997 and August 2012 with a combined total of 19 whales sighted. Since then, two SRW were sighted at Point Lowly in September 2012. From 5 - 11 July 2013, there were seven separate sightings of up to four whales near Port Neill (SA Whale Centre 2013). It is likely that most, if not all,
Of these sightings involved the same whales. Sightings in the Whale Centre’s database are predominantly from the Victor Harbour region.

There were no recorded boat strikes in the Spencer Gulf and only one in the general area of the gulf (at Cape Jervis). (underlining added)

Arup (2013) also notes that a deep water facility has operated at Port Bonython (Santos refinery) in the Upper Spencer Gulf for the last 30 years with no recorded incidents of whale strike."

Unfortunately, the records consulted were not up to date. A fatal ship strike occurred just south of Tumby Bay in 2013 with the cause of death being confirmed by the SA Museum.

With the proposed increase in shipping through Port Bonython, Whyalla, Pt Pirie, the proposed Braemar Development just north of Wallaroo, Lucky Bay, cape Hardy and Pt Spencer, the probability of increased ship strike on whales increases.

This probability increases with the increasing incidence of whale movements in the lower Spencer Gulf region as observed and reported in recent times.

A singular reference point of the Whale Centre in Victor Harbour is hardly evidence of whale movements in the Spencer Gulf.

Is this action part of other actions?
The answer to this question has been sought but avoided by the Company. The reality being the DFS document, a document put to the market outlining the benefits of investing in the CEIP project. The document contains statements as to the reserve ore bodies, giving a total ore reserve of some billions of tonnes thereby providing evidence of a potentially economic ongoing mining proposition, albeit with some caveats included.

The Company has identified and listed a number of additional prospects together with an estimate of the ore reserve.

The extent of the prospect is outlined in table A3, pp 25 Definitive Feasibility Study.
This information is that which was posted on the Australian Securities Exchange (ASX code IRD). The inference being, the tenement has potential for expansion, and by definition implies it is part of a further action.

In addition, the transport corridor and port is dependent upon an addition action, being the mine or mines.

The bigger picture is neither disclosed nor assessed in this referral.

**Indigenous Culture and Heritage**

Eyre Peninsula has been home to Aboriginal people for thousands of years, with the Nauo (south western Eyre), Barngarla (eastern Eyre), Wirangu (north western Eyre) and Mirning (far western Eyre) being the predominant original cultural groups present at the time of the arrival of Europeans (Tindale 1974 in DEH 2004a; SATC 1999).

All Aboriginal groups on Eyre Peninsula are known to have used a wide variety of native plant and animal (including fish) species for food and other resources.

The Lake Newland area is traditionally associated with the Nauo Barngarla and Wirangu peoples with visits by the desert Kokatha peoples. The Barngarla/Nauo people are the traditional owners of the land of Lincoln National Park (DEH 2004b). The Gawler Ranges to the north of Eyre Peninsula are thought to have been part of the boundary of Barngarla and Kokatha territories (DEH 2006a). This area is thought to be rich in cultural sites.

An archaeological survey along the Anxious Bay coast from Elliston to Fowlers Bay yielded important information about the use of coastal areas and Lake Newland during day-to-day life, through a number of camp sites and midden finds (Nicholson 1991 in DEH 2003).

The area around Lincoln National Park has a rich Aboriginal cultural heritage with a number of sites of Aboriginal significance having been described, including fish traps in Porter and Proper Bays (DEH 2004b). The most comprehensive archaeological study undertaken to date on lower Eyre Peninsula and surrounding areas was a fish trap study by Sarah Martin in 1988 (Welz 2002).

A number of surveys and research recorded 87 fish traps, as well as a number of campsites and soakages (Welz 2002). In 1999, Eddie Munro was commissioned by the (then) Australian Heritage Commission to conduct an archaeological and anthropological survey of lower Eyre Peninsula. Munro reviewed data collected from past studies to establish a database of over 145 sites, including burials, stone arrangements, middens and fish traps.

Other archaeological/anthropological studies on Eyre Peninsula were predominantly commissioned by companies or agencies in response to proposed developments. No comprehensive, wide ranging or exhaustive study has been undertaken for Eyre Peninsula to date.

Many sites of cultural significance are recorded under the State Heritage Register but there are many unrecorded sites of major significance to Aboriginal people.

The majority of registered and reported Aboriginal Heritage Sites in the Whyalla and Eyre Peninsula region occur along the coast, with clusters around the coastlines near Coffin Bay and Avoid Bay, Port Lincoln and Louth Bay, Cowell, Whyalla, the coastline west of Sheringa, Anxious Bay, Sceale Bay, Corvisart Bay and Streaky Bay, Smoky Bay, Ceduna, the coastline between Denial Bay and Point Bell, and Fowlers Bay. Inland sites include Lake Malata, Wanilla, Yalata Aboriginal Reserve and near Kimba.

An absence of registered or reported sites does not indicate an absence of sites or objects; it may simply indicate that an area has not been surveyed for Aboriginal cultural heritage sites.

**CONCLUSION**

The referral has been made in a climate of non disclosure to the public.
The evidence provided by an examination of the minutes of the two identified Community Consultative Groups, CEIP CCC and the TBDCCG would confirm this assertion.

The Company's dealings with the Port Lincoln Residents & Ratepayers Association Inc, the Tumby Bay Residents and Ratepayer Association Inc and its subcommittee, the Eyre Peninsula Community Mine to Port Consultative Committee is indicative of the contempt the Company holds to any party who seeks answers to real questions and whom are not prepared to accept company spin.

The declaration of climatic conditions based upon meteorological observations at Kyancutta and Cleve, both some distance from the actual transport corridor is also indicative of the approximations the company is putting forward. Where are the site specific data relating to wind, temperature etc for the port, for given points along the corridor and for the Warramboo dispatch point? Without this data, noise dispersion patterns, dust dispersion patterns have no credibility.

Clearly this referral indicates the company's position, that on the basis of limited field surveys (given that access to property was not granted by all whom are likely to be affected by this proposal) and significant desktop literature reviews, as opposed to a genuine longitudinal environmental study of at least twelve months across the designated area, a study that would actually establish a reasonable baseline upon which impacts could actually be measured in the future, lead to the conclusion:

"None of the 17 species of conservation significance with potential to occur in the study area are expected to be significantly impacted. If local individuals occur they may be displaced however all of the fauna species are highly mobile and unlikely to be solely reliant on habitat within the study area.

Mitigation activities to avoid impacts to fauna species during construction and operation that will be addressed as part of a CEMP for the proposed development are considered sufficient to reduce impacts to these species."

The Company, in presenting the case, has clearly not consulted with the local community with respect to the presence or otherwise of both the whale and sea eagle. Clearly the very limited on site survey of the habitat around the port is deficient, given that on site surveys could have been conducted in 2011, 2012 and 2013 during the whale migration period and throughout the year with respect to the sea eagle.

The reliance on desktop analyses in this case has been shown to be limited. The problem with whale sightings et al on this section of the coast is the lack of human occupancy to actually make the observations and to report them, in contrast to that which happens at Victor Harbour.

The report does not provide the public with the confidence that the habitat/environment within which the listed species reside will not be impacted to the extent of total displacement from an existing habitat.

The pristine environment which we enjoy has been degraded enough, without having the impost of heavy industry further degrading it to such an extent that listed species et al will no longer be present, and significant quantities of money being required to rehabilitate the environment at the completion of this action.

One only has to point to the port of Esperance and the reported $23M being spent to rehabilitate this area as a consequence of fugitive dust impacting upon humans let alone our natives species. The claim by the Company that this is not a controlled action is unsustainable.

Any decision as to the actual approval should be withheld until a detailed Environmental Impact Study is undertaken as a consequence of the Development Application that has been lodged with the South Australian Government and the submission of a Mining Lease application, or a full EIS required under the provisions of the EPBC Act is undertaken, given that this action is part of an action involving a mine, and potentially additional mines, as well as the transport corridor and port.
The Iron Road EPBC referral does not identify the Nauo, Barngarla, Wirangu and Mirning people as have been adequately engaged and the significant historical and cultural sites, such as women’s business and burial sites, which are not yet on the Aboriginal Register and have not been included and risk management determined.

APPENDIX

References:
Hazards of Heavy Metal Contamination

http://bmb.oxfordjournals.org/content/68/1/167.full

Heavy metals and food contamination
http://ec.europa.eu/food/food/chemicalsafety/contaminants/cadmium_en.htm

Toxic Effect of Heavy Metals in Livestock Health: Veterinary World, Vol 1(1) 28-32, 2008

Determination of contaminant levels in forage grasses, Dareta Village, Nigeria: Archives of Applied Science Research, 2013, 5(3):229-236

(Google: Heavy metal contamination in animals)


The Senate: Community Affairs Reference Committee: Impacts on health of air quality in Australia, August 2013

Best Practice Environmental Management in Mining, Dust Control: Environment Australia, Department of Environment, 1998.


Freeman, et al (Malleefowl (Leipoa ocellata) Conservation on Eyre Peninsula, South Australia: Andrew Freeman ; Paula Peeters ; Graeme Tonkin)

Google Earth


Link to Iron Road Definitive Feasibility Study (DFS) Report

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Catherine.Kemper@samuseum.sa.gov.au
www.samuseum.sa.gov.au

DATA SOURCED FROM THE AUSTRALIAN LIVING ATLAS WITH RESPECT TO SIGHTINGS OF SOUTHERN RIGHT WHALE

Location:
**Eubalaena australis**
Southern Right Whale
4 individuals recorded

Observation: **2013-07-07**
Added: 1 year ago

Lipson Cove, Spencer Gulf,
South Australia
Lat: -34.25579761767937
Lng: 136.26462936401367
Coord source: Google maps

---

**Eubalaena australis**
Southern Right Whale
4 individuals recorded

Observation: **2013-07-08**
Added: 1 year ago

Lipson Cove, Spencer Gulf,
South Australia
Lat: -34.2558685595284
Lng: 136.26402854919434
Coord source: Google maps
**Eubalaena australis**  
Southern Right Whale  
2 individuals recorded

Observation: **2013-07-10**  
Added: 1 year ago

Lipson Cove / Lipson Island  
Conservation Park  
Lat: -34.25480442551197  
Lng: 136.2656593322754  
Coord source: Google maps

---

**Eubalaena australis**  
Southern Right Whale  
3 individuals recorded

Observation: **2013-08-25**  
Added: 11 months ago

LOT 196 Swaffers Road,  
Lipson SA 5607, Australia  
Lat: -34.25501725339201  
Lng: 136.2656593322754  
Coord source: Google maps
Eubalaena australis
Southern Right Whale

Observation: **2014-06-01 16:53**
Added: 2 months ago

LOT 196 Swaffers Road, Lipson SA 5607, Australia
Lat: -34.25643609216708
Lng: 136.2637710571289
Coord source: Google maps

DATA SOURCED FROM THE AUSTRALIAN LIVING ATLAS WITH RESPECT TO SIGHTINGS OF THE WHITE BELLIED SEA EAGLE

Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle

Observation: **2014-07-04 10:00**
Added: 1 month ago

LOT 196 Swaffers Road, Lipson SA 5607, Australia
Lat: -34.253314615277446
Lng: 136.2637710571289
Coord source: Google maps
Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle
2 individuals recorded
Observation: 2014-06-16 11:48
Added: 1 month ago
Unnamed Road, Lipson SA 5607, Australia
Lat: -34.25480442551197
Lng: 136.26407146453857
Coord source: Google maps

Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle
Observation: 2014-06-15
Added: 1 month ago
LOT 196 Swaffers Road, Lipson SA 5607, Australia
Lat: -34.25343876713789
Lng: 136.2647795677185
Coord source: Google maps (no image)

Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle
Added: 2 months ago
LOT 196 Swaffers Road, Lipson SA 5607, Australia
Lat: -34.25178930604142
Lng: 136.2660026550293
Coord source: Google maps

Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle
2 individuals recorded
Observation: 2014-03-08
Added: 4 months ago
LOT 196 Swaffers Road, Lipson SA 5607, Australia
Lat: -34.25551384968507
Lng: 136.26583099365234
Coord source: Google maps (no image)
Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle

Observation: **2013-07-16**
Added: 1 year ago

Lipson Island Conservation Park
Lat: -34.26374273291649
Lng: 136.26651763916016
Coord source: Google maps

Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle

Observation: **2013-07-16**
Added: 1 year ago

Lipson Cove
Lat: -34.26175652445979
Lng: 136.26651763916016
Coord source: Google maps
Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle

Observation: **2013-06-26**
Added: 1 year ago

Lipson Cove
Lat: -34.25920275895473
Lng: 136.26102447509766
Coord source: Google maps

Haliaeetus (Pontoaetus) leucogaster
White-bellied Sea-eagle

Observation: **2011-07-20 04:45**
Added: 1 year ago

LOT 7 Lipson Cove Road, Lipson SA 5607, Australia
Lat: -34.26331712076712
Lng: 136.2587070465088
Coord source: Google maps
**Haliaeetus (Pontoaetus) leucogaster**
White-bellied Sea-eagle

Observation: **2011-01-08 06:15**
Added: 1 year ago

Between Lipson Cove and Rogers Beach
Lat: -34.248135545897526
Lng: 136.2682342529297
Coord source: Google maps

---

**Haliaeetus (Pontoaetus) leucogaster**
White-bellied Sea-eagle

Observation: **2011-01-08 05:26**
Added: 1 year ago

Rogers Beach
Lat: -34.244446151396026
Lng: 136.2685775756836
Coord source: Google maps
**Haliaeetus (Pontoaetus)**
leucogaster
White-bellied Sea-eagle

**Observation:** 2008-10-15 14:52

**Added:** 1 year ago

Lipson Cove
Lat: -34.26204027139666
Lng: 136.26617431640625
Coord source: Google maps

---

**DATA SOURCED FROM THE AUSTRALIAN LIVING ATLAS WITH RESPECT TO SIGHTINGS OF SOUTHERN RIGHT WHALE, WHITE BELLIED SEA EAGLE AND GREEN TURTLE AT THE ‘CAPE HARDY’ LOCATION**
Green Turtle
Scientific name: Chelonia mydas
Kingdom: ANIMALIA
Family: CHELONIIDAE
Data provider: Citizen Science - ALA Website
Longitude: 136.33359095332025, Latitude: -34.180974368017345 (zoom to)
Spatial uncertainty in metres: 1000 metres
Occurrence date: 02/2013

Southern right whale
Scientific name: Eubalaena australis
Kingdom: ANIMALIA
Family: BALAENIDAE
Data provider: undefined
Longitude: 136.33332824707, Latitude: -34.1833343505859 (zoom to)
Spatial uncertainty in metres: 500 metres
Occurrence date: 08/1983
Full record: View details

White-bellied sea eagle
Scientific name: Haliaeetus (Pontoaetus) leucogaster
Kingdom: ANIMALIA
Family: ACCIPITRIDAE
Data provider: BirdLife Australia
Longitude: 136.3, Latitude: -34.2 (zoom to)
Spatial uncertainty in metres: 10500 metres
Occurrence date: 11/2008
Full record: View details

Southern Right Whale Point Bolingbroke, South Australia 2013
(This is a summary of the information collected)

First seen washed up: 30 July 2013

Reported: 30 July 2013 by Nathaniel Staniford, Department of Environment, Water and Natural Resources, South Australia

Location: Point Bolingbroke, South Australia. Precise locality is 2.7 km NNE Point Bolingbroke, SA. 34º 31' 18.1" S, 136 º 06' 00.5" E

Collected: 2–8 August 2013 by David Stemmer, Ikuko Tomo, Mara Buss, Tania Cann, Garrie Rees, Sue and Robert Lawrie.

SA Museum temporary accession number: 13.057

Collected specimens: Full skeleton, two testes, left side of baleen, two ear plugs (formalin), kidney (formalin), cyamids (formalin), series of tissues fixed for pathology (liver, kidney, lung, skin wounds), series of tissues frozen for genetics, series of tissues frozen for toxic contaminants.

State of decomposition: probably Geraci 2 when first washed up but deteriorated to Geraci 3 by the time of necropsy.

Biological details
Total length: 11.2 m
Sex: male
Age: Juvenile (skeleton physically immature, testes small, ~30 cm long)
Callosity pattern: It was not possible to photograph the callosities until the carcass was pulled out of the water (numerous white pointer sharks around the carcass in the water!). The photos taken may not be adequate for individual identification because the skin/callosities were damaged.

Circumstance of death: Other Unintentional (vessel collision), according to SA Museum system for categorising circumstance of death for cetaceans. The circumstance of death was assigned based on the severe, deep sub-dermal haemorrhaging (blunt trauma) and deep parallel injuries possibly consistent with propeller wounds.

Pathology details
A detailed pathology report has been prepared by Ikuko Tomo (attached). This includes gross pathology findings and evidence for cause of death.

Post Mortem Examination
Southern right whale (*Eubalaena australis*) (SA Museum accession number 13.057)
Reported: 30 July 2013 by Nat Staniford (DEWNR)
Dissected: 3-8 Aug 2013
Place: Point Bolingbroke
Juvenile male, 11.2 m body length

Gross Macroscopic findings
*General body condition*
This juvenile male Southern right whale was in relatively good body condition. The blubber thickness on the dorsal surface was 15cm and 18cm on the ventral surface. Skin (epidermis) had started to peel off.

There were multiple linear lacerations on the ventral posterior surface and left ventral anterior surface. Width of posterior ventral lacerations were around 30-60cm, depth around 25-40 cm. Width of anterior ventral lacerations were around 30cm, depth around 40-50cm. Those lacerations were almost parallel.

There are multiple shark bites on the body. Sharks were around and an increase of bite marks had been observed by local people since the whale stranded on the beach.
Lateral view with ventral side uppermost showing posterior area, four yellow linear lacerations.

Parts of these wounds were probably caused by sharks.
Left lateral view with dorsal side up, showing two linear lacerations on the left ventral head anterior to the flipper, and several wounds on the left side of the caudal peduncle (arrow:lacerations)

**Sub dermal and musculoskeletal system**

The muscles had started to softened and a small amount of gas had accumulated.

The extensive subdermal haemorrhaging was found in the following places:

1. Centre of right mandible and maxilla (locally deep and severe) and from the occipital bone to anterior side of flipper (extensive and severe)
2. Left corner of mouth to blowhole (locally severe)
3. Dorsal side from posterior of the blowhole to near tail flukes (severe at anterior, mild towards posterior)
4. Left lateral side, from posterior of the flipper to near anus (extensive and moderate)

Some of the haemorrhaging extended as deep as bone

1. Centre of right maxilla (locally severe)
2. Centre of right mandible
3. Right side of occipital bone

Dorsal middle of the body, part of blubber shows the sign of redness with muscle that had begun decomposing.
Right mandible showing redness on the bone surface (arrows: focal haemorrhaging)

Right occipital posterior view, showing redness on the right ventral occipital bone surface (arrow: focal haemorrhaging)

**Body cavities**
Organ positions appeared normal.
The amount of fluid in the body cavities could not be determined because of seawater inflows.

**Liver**
No significant findings
Stomach and intestines
No significant findings
No stomach contents were found. The intestine contained small amounts of yellow slimy material.

Kidney
No significant findings
Lobular structure was good. Medulla cortex borders were defined. Interstitial connective tissues between lobes were slightly loose.

Testes
No significant findings
Parenchyma was slightly soft.

Trachea
Mucous membrane was red.

Lung
Generally lung parenchyma was sunken and dark red. There was no exudative fluid from parenchyma, and the lungs contained a small amount of air. There was no froth in the bronchi.

Heart
No significant findings
There was no blood in the heart.

Pancreas, Spleen, Adrenal, Thyroid and Brain
Not examined

Gross Macroscopic Diagnosis
- Centre of right mandible and rostrum: locally severe subdermal haemorrhaging extended to the bone surface
- Right occipital process to anterior side of flipper: locally extensive severe subdermal haemorrhaging
- Left maxillaries at the corner of mouth and near blowhole: locally extensive severe subdermal haemorrhaging
- Dorsal side of the body between blowhole and tail flukes: extensive mild to severe haemorrhaging, severe on anteriorly and mild on posteriorly
- Left lateral body: moderate to severe subdermal haemorrhaging

Comment
Based on the reproductive organ size (Moore et al. 2004) and skeletal development, this animal is classified as juvenile.

Multiple linear lacerations were found on the ventral posterior surface and left ventral anterior surface. Most of the laceration surfaces were scavenged and lost original shapes and size. The lacerations on the left neck area were associated with locally extensive subdermal haemorrhaging, indicating they may have occurred prior to death.

Blunt trauma on the mandible, dorsal to left lateral trunk, appeared to have occurred prior to death. Because of the decomposition of this animal, acute inflammatory reaction urged muscle break down quickly. Additionally it should be noted that strong force applied by front-end loader to place the whale on the beach prior to dissection, which may have caused further breakdown of the soft tissues.

The nature of this trauma is not evident, however a very strong impact including vessel collision should be considered a distinct possibility. Northern right whales were reported their mortality and serious injury were often caused by human activities, particularly commercial fishing and shipping (Knowlton and Kraus 2001).

Generally all organs I examined appeared to have no significant change. No infectious or inflammatory conditions were identified.
Selective tissues will be examined by histopathology.

**Cause of death**
Extensive severe blunt trauma
Ikuko Tomo B.V.Sc, M.V.Sc (Pathology)

**Literature cited**


“Whale Collisions Spark Calls for Ship Speed Limits in Australia
Instances of gruesome whale collisions have prompted a conversation about whether to impose speed limits for ships along Australia’s coast”
http://time.com/3021736/whale-collision-australia-humpbacks-strikes/

New ‘whale-spotting’ app created by marine scientists in hopes of helping cargo carriers avoid hitting sea creatures
'Whale Spotter,' a new iPhone app, allows commercial boat captains to track and follow the movement of whales.
The app was created in hopes of reducing the number of whales struck by vessels each year.
THE ASSOCIATED PRESS
Wednesday, September 18, 2013, 4:12 PM
The Hon. Mr G Hunt, MHR
Federal Minister for the Environment
GPO Box 787
Canberra ACT 2601

15th August 2014

RE: Iron Road Limited/Mining/Eyre Peninsula/SA/Central Eyre Iron Project, Eyre Peninsula, SA
Date Received: 29 Jul 2014 Reference Number: 2014/7285

Dear Minister,

Please find attached an addendum to the Associations' response to the call for public comment on the aforementioned EPBC Referral. The addendum is in the form of a letter forwarded previously to the Department in relation to water and mining on the Peninsula.

The addendum raises issues pertaining to the lack of knowledge in respect to regional hydrology on the Eyre Peninsula and thence the impact of mining and the planned activities of mining companies, in this instance, iron road, on environmental water flows that sustain the habitat of listed species in the transport corridor and the port facility under examination within this referral.

It should be noted that the above referral is part of another action, notably, the mine at Warramboo and the Company's stated intention to dewater the mine area. Also of note will be the drawdown on the bore field to be established in the Kielpa area.

Should there be any questions related to the submission, please contact:
The Secretary,
Tumby Bay Residents and Ratepayers Association Inc
PO Box 95, Tumby Bay, South Australia, 5605

Yours sincerely,

Milton Stevens
Chairperson
10th October 2013

RE: Matters relating to the assessment of mining proposals on Eyre Peninsula, South Australia.

Dear Sir/Madam

The South Australian Parliamentary Standing Committee, Natural Resource Committee has tabled its 85th Report on Eyre Peninsula Water Supply ('Under the Lens') on 24th September 2013, a copy of which is available on the following web site:


The Report addresses the management of all water supplies and a focus upon the credibility of the management capacity for the underground aquifers by the South Australia’s Department of Environment, Water and Natural Resources (DEWNR) and the Eyre Peninsula Natural Resource management Board (WPNRMB). There are no surface potable water storage facilities on Eyre Peninsula, given the Tod Reservoir supply is now not fit for human consumption.

2.4 Tod Reservoir mothballed

While for some years up to 3,000 ML/year of water was extracted from the reservoir for potable use, negligible water has been extracted since 2001/02 due to increasing salinity (SA Water 2012a, p23). There were also concerns about the level of agricultural chemicals in the reservoir (Treloar 2012, p37). The reservoir has been mothballed since that time; retained as a ‘contingency’ water supply measure (SA Water 2012a, p23). (p10)

Within the Report, many witnesses indentified scientific concerns regarding the potential impact dewatering of the aquifers as a consequence of mining.

The Committee accepted that within the quaternary limestone lenses themselves there is little connectivity, but connectivity via the underlying aquifers does occur, through Tertiary or Basement Aquifers. This may impact on the science underpinning the way in which the annual allowable extraction from the various lenses is applied to the water allocation plans, and consequently the formula used to determine licensed allocations will need to be reviewed (page 25)

Dr Adrian Werner agreed that some lenses in the Southern Basins PWA could be connected: “Everything has a degree of uncertainty about it, but I think that, based on the geology, Uley-Wanilla and Uley East, I think you could say that it is quite likely that they are connected to Uley South because there’s tertiary sand—there are two or three sands—that connects the two. Whether it is connected through the quaternary limestone directly, I don’t know, but I think the quaternary limestone and the tertiary sand in Uley South are connected. So, you have Uley-Wanilla, Uley East,
tertiary sand connected to Uley South, and the tertiary sand in Uley South is connected to the quaternary limestone in Uley South, so I think at least those three in the southern basins are connected. I think the degree of connection of other basins is more uncertain.” (Werner 2012a, p10) (p23)

It is the spectre of connectivity between the various systems which gives rise to the major concerns regarding dewatering as a consequence of mining activities. It would appear that the level of scientific evidence to prove or disprove this contention is not available, leading to the request that a regional, peer assessed, hydrological study be undertaken by the relevant Government authorities and supported by the mining interests in the said region, to answer these questions.

2.14 Mining proposals escalate
Mining proposals began to escalate from the mid-2000s with rapid increases in demand for iron ore, gold and other metals. A long battle has been fought over the proposal to upgrade the existing ore loading facility at Port Lincoln, opposed by local residents and the fishing industry. The Committee is aware of six active mines on the Peninsula. However, there are a significant number of mine proposals approaching operational phase and a large number of exploration licences. Lincoln Minerals alone has 28 mining tenements (Lincoln Minerals 2012b, p14) and more than 30 exploration licences (Lincoln Minerals 2012b, p2).

Water is required at both the exploration and operational stages of mining. At present water use is largely limited to dust control and road maintenance, with most water sourced from SA Water standpipes (see section 4.2.4). If mines become operational, dewatering will be required where the mine intersects aquifers. Lincoln Minerals is proposing recover this water and inject it into nearby lenses (see section 3.9). (p13)

The Committee further recommended:
10. The Minister for Mineral Resources and Energy and the Minister for Sustainability, Environment and Conservation should encourage Eyre Peninsula NRM Board, DEWNR, DMITRE, SA Water and DPTI to develop a mechanism for mining/exploration companies, industry, local government and landholders to access and share information about mining exploration and extraction proposals on Eyre Peninsula with a view to improving understanding of potential impacts of mining and management of mining water use (page 98);

Significant attention was given to the Lincoln Minerals' proposed mines at Gum Flat project and the Centrex Metals/Eyre Iron proposed 'Fusion' magnetite project.

Mention was also made of the recorded depletion of water reserves in Central Eyre Peninsula, particularly the closure of the Polda Basin. This region is geographically located adjacent to the proposed Centrex Metals' Limited Wilgerup Mine (approved but dewatering not commenced) and the proposed Iron Road Central Eyre Iron Project based initial at Warramboo, but stretching throughout the significant exploration tenement.

3.1.2 Musgrave PWA
As in the case of the Southern Basins PWA, the sustainable pumping limits for the lenses of the Musgrave PWA were initially over-estimated, but the consequences were even graver because the capacity of the lenses was much less than in the Southern Basins:

‘The water pumped from Polda lens augments the Tod Trunk Main, and in the past has supplied up to 43% of that supply (2,495 ML pumped in 1976/77). This high level of extraction reflects the understanding at that time of the available underground water. Current understanding of available long term sustainable extraction indicates that the Polda lens can support an average extraction of about 720 ML per annum. The level of storage within the aquifer influences this figure, such that, when underground water levels are low the annual extraction rate for SA Water is reduced and when levels are high this rate can be increased.’ (Department for Water Resources 2001b, p19)
Consequently, rates of extraction by SA Water had to be reduced by a significant amount. Figure 9 shows the stepped decline in extractions between 1975 and 2000:

![Figure 9: Annual Volume of Underground Water Extraction from the Musgrave PWA for Reticulated Public Water Supply (Department for Water Resources 2001b, p20)](image)

In hindsight even this dramatic decline in extraction volumes was insufficient to ensure the long term sustainability of the Polda Lens. A prohibition on pumping by SA Water was introduced in 2008. Furthermore, the Committee heard that community members had warned the level of extraction from Polda Lens was unsustainable:

The Committee concluded that extraction by SA Water together with drought and climate change was likely to have contributed to greatly reduced water levels in the Polda Basin. Members also noted that Polda Basin’s contribution to water supply was small compared with other water sources. Consequently the Committee has recommended that pumping from the Polda Trench for public supply should be permanently prohibited and the Basin used only to supply water for stock and domestic purposes, as well as fire-fighting (page 22);

Continuing the discussion of the potential extraction of water in a regional context, the Iron Road and Centrex Wilgerup mines lay outside of the imaginary lines that define the Musgrave Prescribed Water Area of which Polda is a part. Figures A, B and C (as attached) provide an overview of the relative locations of the prescribed water area with known bores and exploration holes identified. It is understood that Iron Road (CEIP) has had preliminary discussions with the Department as reported in the Annual Financial Statement of 2013 as presented to the ASX.

As mentioned earlier, the current public description of the CEIP focuses on the mine at Warramboo (figure D). However, a close examination of the information contained within the Company’s ASX reports reveals a contrastingly different picture. The project is in fact a collection of multiple mines/resources over the whole tenement as evidenced in figures E and F with figure G describing the potential strike lengths and depths of deposits amounting to an additional 31.2 kilometres over the declared lengths of the proposed Warramboo mines.
The question therefore arises as to the impact, or assessment of potential impact, of the mines on the regional ground water reserves, not just a claimed maximum 6 kilometre zone to the east from the Murphy South mine as currently being proposed.

The issue is further complicated by the fact that Lincoln Minerals holds the exploration rights to the adjacent tenement (to the west, see figure E) and has undertaken exploration activities on the iron ore reserves contained therein.

The region is serviced by a potable water supply emanating from the Southern Basin Prescribed Wells Are (lower Eyre Peninsula) as well as from the Musgrave Prescribed Wells Area including the now defunct Polda Basin.

Concern therefore exists that the dewatering of the proposed mines of the Iron Road CEIP and Centrex Metals' Wilgerup Mine, together with the prospect of further mines associated with the Lincoln Minerals Limited tenement, would have significant impact upon the groundwater stability and therein the potable water supply.

The question remains, what is the impact of dewatering the mines on the regional hydrology not just the limited studies carried out by the mining companies?

Representations have already been made (2nd September 2013) concerning the recent announcement by Centrex Metals/Eyre Iron of their return of their 'Fusion' magnetite project to pre-feasibility stage and the redefinition of the extent of Project Fusion across the tenement (approximately 50 x 10Kms, see figure I), not the three Koppio mines (approximately 11kms x 1.km: see figure H) referred to in the referral of 28 June 2013 (2013/6919).

However, evidence before the NRC Enquiry further supports the proposition that mining will have a significant environmental impact in the Koppio Hills. This contention will be further exacerbated with the redefinition of Project Fusion as indicated in the preceding paragraph.
Figure 39: Map (Schneider 2012b) showing tributaries (red arrows) of the Tod River that would be impacted by the proposed Koppio mine and would presumably have to be relocated. Landholders to the west of the watershed are also concerned about possible impacts on their watercourses.

Claimed potential contamination of west flowing watercourses
The Committee also took evidence from a farmer to the west of the proposed Koppio Mine concerned that the mine will contaminate groundwater in this area, which has no reticulated water supply. He claimed that landholders were totally reliant on bores and rainwater tanks for their water supply and these sources could be impacted by dust and contaminated groundwater from the mine:

“As you can see [Figure 39] all those waterways are where they start on the flow west, and that goes right down through Lake Wangary and out into Kellidie Bay, right by Coffin Bay, and probably from west of Edillillie down those people rely on a lot of bore water. So if our water is contaminated or anything like that, it will affect all that area right down through there.” (Schneider 2013a, p177)

“Salinity is a fairly big problem and we've got a fairly shallow soil and there's been a lot of time and money spent on re-establishing areas that have gone salty with puccinellia and different draining. It's with assistance from the department of agriculture (which it was then) and if anything upsets that system, well, its look out for a fairly big area.” (Schneider 2013a, p179)

At the southern extremity of the redefined Project Fusion lies the wetland of National Significance associated with the Tod Reservoir and the Big Swamp ecosystem, another wetland of National Significance. The impact of mining on these wetlands has not been addressed in the context depletion of either surface water or underground water.

Big Swamp
‘Big Swamp and its ecosystem is a wetland of national significance, and also has been identified as a wetland supporting international visiting avifauna (and therefore subject to International Treaties such as JAMBA, CAMBA, and ANZECC). Given this context, the lack of understanding of the hydrological connection between Big Swamp and the Uley Basin is important. If the hydrology of the Uley Basin is compromised and impacted, regardless of the statement by the mining companies of a
small “footprint: of dewatering” (using the traditional “cone of depression” model as the measure of the shape and size of the “footprint”), Big Swamp will be impacted because the shape and size of the “footprint” will be a metaphorical “octopus” with differing sizes and length of arms depending on the structural geology of the local terrain, and with one extra large “octopus arm” extending off the valley tract of the Big Swamp drainage complex.’ (Semeniuk 2012a, p3)

The NRC enquiry inferred there were significant holes in the knowledge base of the region’s hydrology. Accordingly we request the Department undertake strategic assessments on projects involving mining on Eyre Peninsula given the extent of mining company interest in the region (see figure J), specifically those involving Lincoln Minerals, Centrex Metals/Eyre Iron and Iron Road, given the uncertainties relating to:

- a) the region’s hydrology and its relationship to potable water supplies for approximately 35000 persons and 1.5M livestock, and
- b) the cumulative impact of the proposed ports of Cape Hardy, Port Spencer and Lucky Bay in Spencer Gulf and the marine habitats which involve a number of listed species.
- c) the extensive area of potential impact upon the existing communities, townships, agribusinesses and other existing commercial enterprises.

It is anticipated that the findings of the Natural Resource Committee will support our contention that all mining proposal on Eyre Peninsula, and in particular, those currently being developed by Centrex Metals Limited, Iron Road and Lincoln Minerals, will be subjected to strategic assessments given the significant impact the proposals will have on the region’s water supply in addition to the already recognised environmental impact on listed species and their habitats.

Yours faithfully,

Brian R March
Information Officer/Spokesperson
Attachments:
Figure A:

What is happening outside of the magic red line?

Figure B:
Figure C:

What impact has the mining exploration had on the prescribed wells?

What happens when the mines embark upon a dewatering program?

WILL THERE BE AN INDEPENDENT PEER ASSESSMENT OF THE DATA PROVIDED WITH RESPECT TO WATER SECURITY?

Figure D:
Figure E:

Mine footprint & tenement

Figure F:

Results of review of the potential for iron mineralization
Figure H:

FOR IRON ROAD – potentially, how big is big?

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<td>Hambidge</td>
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</table>

Total: 151.2 km

“...the interpreted exploration tonnage for the Ranked 1 & 2 targets is 78Bl to 138Bl. These targets account for 52.2 km in strike length.”
Figure I:

Figure: Location map showing high-resolution aero-magnetic image of Fusion.

NOTE: Project Fusion is the whole area, not just the Mines identified at Koppio.

ASX Jan 2013
The extent of mineral exploration interests/tenements

Central Eyre Iron Project - Public Submissions  03/09/2016  Page 806 of 917
Mining Interests On Lower Eyre Peninsula

There are Exploration Licences and Licence Applications covering 426,500 Ha of land across Lower Eyre Peninsula.
RESPONSE TO:

ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT (EPBC) REFERRAL 2014/7349

CENTRAL EYRE IRON PROJECT MINE SITE.

Submitted on behalf of:

Port Lincoln Residents & Ratepayers Association Inc.
Tumby Bay Residents and Ratepayers Association Inc.

Contact details:

The Secretary
Port Lincoln Residents & Ratepayers Association Inc.
PO Box 1948
Port Lincoln
South Australia 5606

The Secretary
Tumby Bay Residents & Ratepayers Association Inc.
PO Box 95
Tumby Bay
South Australia 5605
**The proposed Action:**

What is the Central Iron Ore Project?

“Iron Road Ltd (Iron Road) is proposing to develop the Central Eyre Iron Project (CEIP) – a long life iron (magnetite) mining, beneficiation and export operation on Eyre Peninsula in South Australia.”

“The CEIP is a collection of three deposits, namely Warramboo, Kopi and Hambidge” (Jacobs Ecological Survey, pp8)

“Considerable resource growth expected over conservatively modelled 25 year mine life based on significant additional Exploration targets already identified.

Base + Growth: “Assume initial base case production as above until the end of the fifth year of operations, where production increases to 24 million tonne per annum from additional resources and continues at that rate until the middle of the 28th year. This scenario is based upon future production being sourced from Inferred Resources and Exploration Target detailed in the Appendices of this Report.” Iron Road Definitive Feasibility Study Feb 2014 (as released to Australian Securities Exchange)

In answer to the question, the Central Iron Ore Project is not one mine, but a series of proposed mines across the tenement EL4849 as indicated in the following map.

Image constructed from Iron Road DFS and SARIG database

It should be noted that Iron Road has been granted an addition to the existing tenement being that section east of EL4588 to the boundary of the Hambidge Wilderness Area, an additional 30+ square kilometres in area.
**Item 2.6: Public Consultation.**

It is noteworthy of the range of consultation reportedly carried out by the Company over time. Unfortunately, the question of how effective has this consultation been in the community, needs to be addressed.

1. **The CEIP Community Consultative Committee (CEIP CCC).**

In recent times the minutes (and Terms of Reference) of the CEIP CCC have been posted on the Wudinna District Council website. An examination of the content of the minutes will lead to the conclusion that there has been a paucity of information made available by the Company and a reticence of the Committee to respond to issues raised by the community. ([http://www.wudinna.sa.gov.au/page.aspx?u=125&c=5008](http://www.wudinna.sa.gov.au/page.aspx?u=125&c=5008))

In February, Iron Road provided a range of information to the CEIP meeting, of which the following are relevant to this referral:

a) On the issue of salt: “in the most likely scenario of using a Borefield supply (the Kielpa borefield), the additional salt in the mining lease will be 6 million tonne (Mt) on top of the existing 480Mt which is an increase of approximately 1%”

The response continues with the calculation (“which will underestimate the volume of salt in the existing system”) in support of the 480Mt figure, inclusive of the assumptions made.

It should be noted that the calculation is devoid of the quantity of salt to be derived from the desalination plant to be located on site.

This gives rise to the environmental impact of such a huge quantity of salt to be deposited on the site especially in the context of seepage (especially from the rock dump) and salt laden dust as a result of evaporation and wind.

It goes further to question whether this site will be able to be rehabilitated with vegetation.

b) The Company presented the position (as at 20th February 2014) that the DFS document “is confidential and for investors only”, yet it was freely available on the ASX website and the reference was provided by the Company on 26th February 2014.

In response to a question about the physical nature of the surface soils compared to the mine rock, the response was “In the past we have heard some scaremongering by opponents of the project claiming that the mined rock is radioactive, contains acid forming materials and asbestos. It is important to note that the fresh rock and top soil is essentially quite similar (see table below) and shows the make up to be benign and containing insignificant amounts if any of the materials above.”

It is also reported that the Company claimed in a public meeting that the mined material dust is the same as that generated behind a tractor and cultivator.

It is unfortunate that the Company appears to lack the scientific background to differentiate between dust generated by cultivation of the top soil and that produced in the mining process which is the Precambrian formation (in the order of 4.5 Billion y.o.) being excavated and deposited upon the Quaternary strata (in the order of 2.6 M.y.o to present day)

The information provided goes on to claim that there are no significant concentrations of heavy metals such as Lead (Pb), Copper (Cu) and Zinc (Zn).

Again, it is unfortunate that the commonly referred to heavy metals are Cadmium (Cd), Arsenic (As) and hexavalent Chromium (Cr), not those listed above. It is known that in similar deposit in the Gawler Craton, these do exist.
The unanswered question being, to what concentration do they exist and thence the contamination pathway to the environment when the material is mined? In addition, it is reported that manganese exists in the assay results. It is known that manganese has neurotoxic properties. Again at what concentration does manganese exist in the ore body and what contamination pathway exists once mined?

These are the immediate questions. The longer term questions revolve around mine’s end and the release of heavy metals into the aquifers.

Following an article in the Advertiser, 11 October 2014, page 80 in reference to Oakdale Resources and their activities on Eyre Peninsula, research was undertaken to discover the nature and extent of this venture.

The Australian Securities Exchange provided the information that Oakdale Resources (OAR) were not currently trading as well as information pertaining to a share offer prospectus.

Of interest was the precise location of the Oakdale Resources tenements in relation to the Iron Road tenement and the information provided from their drilling program.

Oakdale Resources (OAR) provided drilling program data and detailed independent geological assessment in a share offer prospectus, available on www.oakdaleresources.com.au.

This Gawler Craton geological data is the same geological structure as the Iron Road deposit.

Pages 47-48 and Figures 5 & 6 detailed the findings of the Malache prospect drill holes BLDD04 and BLDD12 wherein, “The cordierite-sillimanite bearing gneisses, possibly altered and metamorphosed felsic volcanic, can contain up to 25% pyrrhotite, secondary pyrite and trace chalcopyrite”.

Such an inconsistency to the disclosures offered by Iron Road for the impacts to the environment and the EPBC listed flora and fauna obligates a question for the presence or otherwise of similar pyrite concentrations within the Iron Road Warramboo deposit.

It is these pyrite containing ores that upon decomposition give rise to environmental impacts from acid soil et al. An example of the environmental damage arising from the decomposition of pyrite ores can be found in the Adelaide Hill at the Naine Pyrite Mine (Barunga) rehabilitation site.

Information posted in the May 2014 edition of the Granite:

“The CEIP development has the potential for contamination of 150km of prime agricultural land adjacent to the transport corridor through fugitive dust containing free silica (a known carcinogen of...not only iron ore but also 3-4% the respiratory disease silicosis) across the seasonal prevailing wind dispersion areas (the community and towns)”

The response to which was:

“The potential ingestion of heavy metal laden CEIP dust by grazing stock, which can cause significant health problems and additionally a problem for sale at market etc:”

To which the response was: “The dust is non toxic and the potential for this to occur is not credible”.

A response to the Company claims, inclusive of evidence to the contrary, was provided to the CEIP CCC for their consideration. (Exhibit #1)

No response has been forthcoming from the CEIP CCC on these issues
There has been no inclusion of a study for the potential impacts to EPBC listed flora and fauna from these environmental pollutants.

It is noteworthy that the CCC does not represent the full extent of the CEIP Project. It does not represent those impacted by the transport corridor or the proposed port.

2. Tumby Bay District Community Consultative Group

There is a quasi-representation of the Tumby Bay community through the Tumby Bay District Community Consultative Group, but again, when questions have been presented to this group, the responses have not been forthcoming.

The Tumby Bay District CCG presents to be a commerce based interest group and not a broad based community representative group.

3. Eyre Peninsula Community Mine to Port Consultative Committee

In 2013 the Tumby Bay Residents and Ratepayers Association Inc in concert with the Port Lincoln Residents & Ratepayer Association Inc formed the Eyre Peninsula Community Mine to Port Consultative Committee (EPCMPCC). The role of the Committee was to raise community awareness on issues pertaining to mining et al. A series of four seminars were held in Warramboo, Rudall, Port Neill and Tumby Bay. All but the Port Neill seminars were well attended.

The Committee also undertook an analysis of documentation in the public arena (SA Government Gazette Notices; Australian Securities Exchange announcements; press statements etc) pertaining to mining companies active on Eyre Peninsula. Upon release of the Definitive Feasibility Study by the company in February, a detailed examination of its content was undertaken and a series of questions formulated. In April 2014, the Company embarked upon a series of public meetings and drop in sessions across the region.

The EPCMPCC Committee wrote to the Company (Exhibit #2) seeking that the ‘drop in session’ planned for Tumby Bay be changed to a full public meeting whereby the public could hear the questions and the answers provided by the Company representatives. In addition a series of ‘questions on notice’ were provided to facilitate the discussion. The Company refused the request. The questions on notice, to this day, have not been answered.

Around the same time, the Federal Government sought submissions to its white paper on Agricultural Sustainability. One of the issues for which information was sought related to impediments on agriculture. The Committee made a submission to the Enquiry based upon the impact of mining on the sustainability of agriculture, drawing upon three case studies, one of which was the potential impact of the Iron Road Central Eyre Iron Project. (Exhibit #3, pages 1 to 7/45)

The Company took exception to the submission and wrote to the Committee complaining to be misrepresented et al. The Company failed to address the issues raised yet again.

The Company did invite the Committee’s Information Officer to a private session in their Adelaide Office, which was declined on the basis that the questions asked were framed in the context of the public interest with the expectation that they would be answered in the public arena and thereby subject to public debate.

Item: 2.7 Staged Development or Component of Larger Project

The statements made by the company in Item 2.7 require clarification.

The Company states:

“The proposed CEIP mine is a component of the CEIP Project”, and “that the two referrals are geographically separated ensuring there is little potential for significant cumulative impacts”.”
Clearly this is disputable as the impacts arise from a single origin, namely the CEIP project.

Whilst the Company has declared that the action is a part of another action, namely the infrastructure corridor (EPBC referral 2014/7285), it is also part of a greater mining enterprise spanning some 700 square kilometres involving not only the Warramboo site, but also Kopi and Hambidge as detailed in the Definitive Feasibility Study (26 February 2014) as released to the Australian Securities Exchange.

Item 3.2: Nuclear Actions et al.

The Company in answering 3.2.1 is the action a nuclear Action has responded in the negative.

It is noted in the DFS document, no analytical work was reported on the presence or otherwise of uranium, thorium or similar nuclides. The presence of lead and strontium was reported.

The Company has repeatedly been asked through direct correspondence and through correspondence to the CEIP Community Consultative Committee and the Tumby Bay District Community Consultative Group, the two groups reportedly to be community consultation groups by the Company, without a response. (refer Exhibit #2)

In the absence of any specific information on uranium et al being declared in the DFS and accompanying JORC 2012 reporting documentation, the question has been asked to the relevance of the analysis of Strontium and Lead in the documentation.

It is well known that isotopes of lead and strontium are the decay products of uranium and thorium et al and can be used as markers for the existence of the radioactive substances. When asked questions on the presence of isotopic forms of lead and strontium, no answers were forth coming.

It is also known that the Gawler Craton, within which this deposit is located, hosts uranium.

In addition, there are paleochannels in the area and it is known that the paleochannels also host uranium et al.

The following illustrates the potential for uranium to be present in the area:

**Corrobinnie Palaeochannel Project – Uranium**

- **Location:** Wudinna District, Eyre Peninsula, South Australia
- **Geological:** Gawler Craton Archaean- Proterozoic basement and Tertiary Province: Palaeochannels
- **Commodity:** Uranium (Copper and Gold)
- **Ground:** 12 ELs totalling ~5,270 km²
- **Holding:**
  - (1) Adelaide Resources 40% and Quasar Resources earning 60% in Joint Venture over portion of the tenements.
  - (2) Adelaide Resources 90% of EL 3564 and option over remaining 10%.

**Project Summary**

The Corrobinnie Palaeochannel Project is a joint venture between Adelaide Resources and Quasar Resources, an affiliate of Heathgate Resources who operate the Beverley uranium mine in the Lake Frome region of SA. The joint venture applies to the Tertiary cover in 5265 sq kms of tenements containing sections of three palaeochannels, (Narlaby, Yaninee and Thurlga), with Quasar able to earn a 60% interest for $3 million expenditure over 4 years starting January 2007. The joint venture applies to only 3058 sq kms of the underlying basement, with the remainder retained 100% by Adelaide Resources, (or 90% in the case of EL 3564).
Exploration is targeting roll front uranium deposits developed at reduction-oxidation boundaries in palaeochannel fill sediments. The uranium is inferred to be derived from erosion of uranium-enriched Hiltaba Suite granites intruding the underlying basement. The Narlaby and Yaninee palaeochannels were explored for uranium in the late 1970s and early 1980s, and anomalous uranium was found to be widespread and associated with the mixed oxidised clays and sands and reduced sediments containing carbonaceous material making up the palaeochannel sediments. This early exploration phase was terminated prematurely in the early 1980s following Government policy change, but not before the discovery of the Yarranna uranium deposit in the Narlaby palaeochannel downstream and to the west of the Company’s tenements.

The Thurlga palaeochannel, draining to the north into Lake Gairdner, was recognised more recently, and has no history of previous uranium exploration.

Palaeochannel exploration under Quasar Resources management is proceeding, with initial reconnaissance drilling directed at both confirming the results reported by early exploration, and at mapping out the extent of the palaeochannel fill and the distribution of the favourable sedimentary facies within them. This work will have the benefit of Quasar’s proven exploration track record and will employ state-of-the-art technology such as the PFN (Prompt Fission Neutron) logging tool for direct in-situ uranium analysis. This will avoid the problems associated with using gamma probes for uranium estimation (or eU3O8) where there is radiochemical disequilibrium between uranium (U3O8) and its decay products.

Reference can also be made to the DIGIMAP00002 paleochannel map.pdf (EXHIBIT#4) which outlines the ‘Palaeodrainage and Cenozoic Coastal Barrier of South Australia’ (DMITRE August 2012).

Further, no reference has been made to the existence of radon arising from the actual mining operation.

ADDITIONAL INFORMATION FOR CONSIDERATION:

1. Attached is a copy of “Petroleum and Geothermal in South Australia – Polda Basin” (DMITRE). (Exhibit#6)

Your attention is drawn to the fact that the Petroleum Exploration Licence (PEL 126) overlays the Iron Road tenement EL4849 on the western side of the Hambidge Wilderness Park, further complicating the environmental impact in terms of habitat impact and potentially ground water impact. (Exhibit#6, figure 4)

Clearly what is not declared is the cumulative impact of the actions of Iron Road and of those undertaken within the PEL.
“Nature Links – East meets West Nature Link Plan, Implementing South Australia’s Strategic Plan”; Department for Environment and Heritage, South Australia.

“The East meets West Nature Link Plan outlines a bold direction to enable plants, animals and ecosystems to survive, evolve and adapt to climate change” (Jay Weatherill, MP)

The Referral fails to acknowledge the existence of this Plan and the potential impact the Central Eyre Iron Project would have upon EPBC listed flora and fauna.

In the absence of evidence to the contrary, the development of the Warramboo mine alone has the potential to change the climate in the immediate vicinity, given the creation of the 6.2km long by 2.5 km wide hole (which will ultimately fill with hyper-saline water at mine’s end, together with other contaminants such as heavy metals and or radioactive materials that leach from the exposed Precambrian rock) and the 3km+ long by 135 metre high rock dump.

There has not been modelling to recognise the climatic and environmental impacts generated by the creation of man made permanent lakes and elevated terrain.

Fugitive noise and dust generated and dispersed from elevated origins have not been modelled to determine EPBC listed flora and fauna impacts.

In addition, the mine would provide a physical barrier to any migratory fauna pathways that currently exist (but not identified) as well as a barrier to any wind borne seeds.

Additional impediments relating to the balance of the project (Kopi and Hambidge) are clearly not dealt with in the baseline study, thereby raising the question of the credibility of the current baseline study to adequately describe the project.


It is noted that the 2005 edition of the Plan is referenced in the Bibliography of the Report.

The Report has failed to give due recognition to the Recovery Plan, and in particular the activities that have been undertaken on Eyre Peninsula, especially the fox baiting programme.

Furthermore, the Report fails to acknowledge a recent sighting of Malleefowl in the Warramboo region, given that it appears to have been written in 2012 and not updated.

The following sighting was sourced from the Australian Living Atlas website:

www.ala.org.au
Leipoa ocellata
Malleefowl
Observation: 2013-11-14 13:39
Added: 8 months ago
Nantuma Road, Warramboo SA 5650, Australia
Lat: -33.2908861
Lng: 135.6928556
Coord source: camera/phone
Commentary on the ECOLOGICAL STUDY in support of the Referral (Jacobs)

Executive Summary:

This baseline study relies heavily on the ‘desktop’ analysis of various datasets and a field survey of 5 days in October, 2011.

It represents a snapshot pertaining to the Warramboo component of the Central Eyre Iron Project.

It makes NO reference to the total picture as described in the Definitive Feasibility Study (Feb 2014) as released to the Australian Securities Exchange.

The Environment:

"The vegetation condition across the study area is heavily influenced by significant clearance and agricultural practices immediately adjacent to, and often completely surrounding, each patch of native vegetation" (para 2, p6)

Comment: This is but stating the obvious, given the history of agriculture in this area. The remnant stands of native vegetation are being managed by the current farming community to avoid the complete destruction of this important habitat.

The report draws attention to the “salt affected vegetation where the saline groundwater table was elevated”. What appears to be overlooked in the discussion is the fact that area supports a number of significant wetlands, albeit, saline wetlands, with their own unique ecosystems.

The presence of the Heritage Agreement (869) stand is testimony of the community which continues today in the attitude of current farmers in the area.
It is noteworthy that this stand of some 250 hectares will be destroyed as a consequence of the proposed action. It is also noteworthy the conclusions drawn “vegetation observed throughout the study area was mature with little evidence of active recruitment” when a significant portion of the ‘study area’ was not accessible to the Company as access was denied by the property owners. The conclusions being drawn from a limited area of access and a drive around the roads circumnavigating the proposed site raise questions of credibility.

“Mining within the proposed Mining Lease (ML) is considered unlikely to have a significant impact upon the abundance, diversity, geographic distribution and productivity of flora and vegetation at species and ecosystem level” (para 4 p6)

Comment: It will simply deplete even further, the abundance, diversity of the flora and vegetation even more. The conclusion is inconsistent with the objectives of the Nature Link Plan. Diversity and Abundance of Species: Of particular note with respect to the ‘survey’ was its length of five days and the timing, being 10th-14th October 2011.

Whilst there is no argument with respect to the findings on the five days of the survey, the question remains what about the remaining 360 days of the year? Is 1.37% of the year a statistically representative sample of what is occurring in the environment?

Species, Communities and other matters of Significance:

“This study established a baseline of flora and fauna diversity and conditions at Warramboo CEIP project site but represents one snapshot in time. A comprehensive baseline provides a solid basis on which to frame future management and rehabilitation, and likewise against which to dismiss or confirm the influence of any particular activity on a particular species, community or environment.” (bolding and underlining added) (p7)

Comment: On the basis of a desktop analysis and a five day field survey in 2011, this document is the basis of an environmental impact assessment for a significant mining project, often touted as second only to BHP enterprises in this State, spanning some 700 square kilometres and bordering a major conservation park (Hambidge Wilderness Area) on three sides.

The use of the word ‘comprehensive’ is mis-leading, given that the focus of the limited study relates to Warrambo and NOT the Central Eyre Iron Project in its entirety.

The REPORT:

1. Introduction:

“This report also presents the outcomes of a detailed in-field flora and fauna survey of the site”.
Comment: Given the size of the CEIP project a five day visit to the area with limited access because of land owner denial of access, is hardly considered to be a “detailed...survey” as claimed.

1.1 Iron Road Deposits:

“The CEIP is a collection of three iron deposits, namely Warramboo, Kopi and Hambidge.” (p8)

Comment: Clearly the environmental impact assessment should be for the project, not a component thereof. What is the cumulative impact of the proposed mining activities as disclosed in the Definitive Feasibility Study (Feb 2014) and to the Australian Securities Exchange on listed EPBC species?

As mentioned above, the tenement (Mineral Exploration Lease EL 4849) is of some 700 square kilometres surrounding the Hambidge Wilderness Area on three sides.
CHAPTER EIS-14 MARINE ENVIRONMENT

14.3.4 Water Quality

The levels of metals in surface and bottom water samples taken within the marine study area were compared to the Environment Protection (Water Quality) Policy criteria for marine waters. Levels of metals were generally well below the criteria outlined in the guidelines, with the exception of copper which was at a level of 0.01 mg/L (approximately equal to the criteria).

Comment: E146

The level of copper is of concern, given the possibility that one of the contaminants in the ore is copper. Fugitive dust containing copper has the potential to raise copper concentrations and thus have a significant environmental impact upon marine grasses.

Two sample sites had concentrations above the Australian and New Zealand Environment and Conservation Council (ANZECC) guidelines for arsenic.

The water quality sampling at the marine study area detected levels of dissolved iron well above those present in true iron-limited HNLC systems. South Australia’s gulfs do not fit the definition of a HNLC system as waters are naturally low in nutrients (SKM 2011).

Comment: E147

If the water quality sampling in the study are returned high dissolved iron concentrations, then that is an established fact. Whether SKM considers the SA Gulf’s do not fit a definition is irrelevant. The fact remains the port site is high in dissolved iron.

It should be noted that in November 2013 the Posidonia seagrass meadows were nominated for protection as an “endangered” ecological community under the EPBC Act, despite several review periods a formal decision on this nomination has not yet been published by the Department of the Environment (DoE, 2015). Therefore for the purposes of this assessment we have only considered the level of protection under the Native Vegetation Act 1991.

Comment: E148

It is foreseeable that EPBC protection will eventuate. Is it the position of the applicant to accept a lower level of assessment in hope that the final decision on this matter does not occur prior to approval being given? Is this the action of an applicant seeking a community licence to operate?

14.3.8 Fish Species

Several fish were observed including a leafy seadragon (Plate 14-8), which is protected under both the Fisheries Management Act and the EPBC Act.

It should be noted that species listed as ‘marine’ under the EPBC Act are protected in Commonwealth waters only.

Comment: E149

If the position held by the applicant were correct, then why has the Commonwealth classified the infrastructure component as a “controlled action”?

The inference being that the remainder of the discussion in respect to compliance with EPBC provisions is not required.

The issue of turbidity created by prop-wash and the destruction of the leafy dragon habit has not been addressed.

Similarly, the port site is not within any known migration paths for whales.

Comment: E150

Perhaps it is an inconvenient truth, but whale migration does occur in this region. Whales are known to migrate north along this coast and return. Frequent whale sightings (in season) occur at Lipson Cove to the immediate south of the proposed port.
14.4 Design Measures to Protect Environmental Values

Vessel scour, prop-wash and anchoring can resuspend sediments and cause turbidity which would result in diminished water quality, coastal erosion and damage to habitats.

Comment: E151
This is a key area of concern, especially the impact of prop-wash not only in the construction phase but also in the operational phase.

It is noted in the commentary that the sensitive marine area is to the north of the proposed jetty, yet the proposal identifies this area as an area of significant ship movement with its consequential high impact prop-wash (especially from cape sized vessels).

There appears to be a contradiction in what is to be conserved.

Hollow piles will be utilised for construction of the jetty. The driving of hollow piles into the seabed results in significantly less sedimentation in comparison to solid piles.

Comment: E152
The issue here being the sediment produced in pile driving and the noise impact transmitted to the marine environment. Given the existence of bedrock beneath the layer of sand (sediment) the question arises how does the applicant intend to carryout pile driving into bedrock?

14.5 Impact Assessment
14.5.1 Habitat Clearance

As detailed in Table 14-5, 2.65 ha of seagrass is conservatively estimated to be cleared, with an additional 14.7 ha susceptible to periodic disturbance. As such, 17.35 ha of seagrass will experience some form of disturbance during construction and operation of the proposed port facility. The area to be disturbed is classified as sparse (<5% density) and represents less than 0.02 % of total known seagrass area within the Spencer Gulf

Comment: E153
The problem with the conclusions drawn here is that the area impacted is of the order of 17.35 hectares. Whether this is 0.02% of total known area of seagrass in Spencer Gulf is irrelevant. The applicant could well have used a percentage of all seagrass around Australia, the fact remains, in this location, the loss is 17.5 hectares as a consequence of the proposed action.
The additional concern is what loss will be attributed to propeller wash from cape size vessels entering and leaving the proposed facility, noting the proximity of the aquaculture zone and the Joseph Banks Marine Park?

Ship movements during both construction and operation will also disturb the seabed and habitats as a result of the installation of navigational aids, anchoring, prop-wash and vessel scour. Impacts from ship movements will be managed through the implementation of procedures, such as limiting ship speeds within the port site and utilising tugs to manoeuvre large vessels into place. As such, any activities disturbing seabed conditions or habitat will be localised, periodic and only effecting environments within the marine study area, and are therefore considered to represent a low impact.

Comment: E154

Given the depth of water cape size vessels draw when fully loaded, what is the extent of prop-wash when these vessels are under power? It is suggested that the impact, given the shallowness of the area, will be significantly greater than that estimated for the purpose of this application.

Sandy beaches represent coastal habitat for a number of important species such as the hooded plover and beach slider. No direct disturbance to sandy beaches is proposed as part of the construction or operation of the proposed port facility

Comment: E155

With the construction of the MOF and tug harbour complex extending from the shoreline and in the knowledge of the normal sand drift (migration) characteristics of beaches along this coastline and in particular those within the confines of the ‘study area’, it is anticipated the groyne effect of the man made structure will have a significant impact. It is this impact that may have an effect upon the breeding habitat of the hooded plover and beach slider that appears not to have been taken into consideration in the assessment.

14.5.3 Bathymetry and Hydrodynamics

Therefore, significant changes in broader coastal processes such as erosion or sediment dynamics are not expected.

Comment: E156

Local experience derived from long term observations of the behaviour of the coastline would suggest otherwise.

Experiences at Lipson Cove has demonstrated erosion of up to 1 metre can occur on a cyclic basis. There is no reason to suggest that a similar pattern of erosion would not occur at Cape Hardy.
Short term mathematical modelling provides a view that may not be representative of the long term reality.

*Approximately one cargo ship movement per day is anticipated during operation of the proposed port. As such, localised impacts to intertidal and subtidal flora within the port site as a result of sediment suspension will occur on a daily basis for the life of the port facility, and as such, this is considered to represent a medium impact (long term but localised to the project area).*

**Comment: E157**

The conclusion that some 365 (x2) ship movements if considered to have a 'medium' impact. Given the presence of listed species in the immediate vicinity of the proposed port, (whale and leafy sea-dragon) the impact of turbidity arising from this amount of ship (and tug) movements would suggest that a higher impact assessment is warranted. The finer the disturbed particles, the longer it takes for the water to clear, the greater the impact.

### 14.5.6 Fisheries and Aquaculture

*There are no aquaculture leases located within 30 km of the marine study area.*

**Comment: E158**

Whilst it may be true there are no leases, it appears to escape the applicant that the port facility is adjacent to an aquaculture zone, the future risk to the industry is real and un-accounted for. The assessment is not credible.

### 14.5.7 Release of Iron Concentrate into Marine Environment

*As such, the release of small amounts of iron ore through dust emissions or spillage is not anticipated to adversely affect marine flora or fauna within the study area and is considered to represent a negligible impact.*

**Comment: E159**

The applicant presents a case of insoluble iron ore as having little impact upon the marine environment.

The unknown factor in this position is the presence (or otherwise) of contaminant in the ore, being heavy metals, copper and the like.

Reference has already been made to the high presence of copper in the water. The issue now being, will contaminated ore containing copper increase the level of copper to a point where an environmental impact is seen?

In light of the unknown composition of the ore in relation to contaminant, the assessment requires further consideration, especially over a period of 25 years.

### 14.5.9 Surface Water Runoff

**Comment: E160**

It is noted that mitigation measures will be put in place to contain run off within the site.

What is not clear is whether the contaminants likely to be in this water will be monitored and in the event of the so called 1:20 year rain event, which locally have occurred more frequently than that, this water will be treated to avoid contamination of sae water.

Local experience has included a storm event dumping 13 inches or so (not officially recorded) of rainfall in a day at Wharminda. Other events resulting in 4 or so inches in a short period of time have occurred in the area.

The concern is that on site contaminants will potentially be concentrated in the catchment area. There is potentially an unknown concentration of heavy metals, copper PAH and the like being built up over time and released to the ocean in a flood event.

It is therefore RECOMMENDED that a monitoring program of contaminant concentrations be included in the Operational Management Plan and that this monitoring be available for public examination.
14.5.11 Invasive Marine Species

The possibility of management measures failing and IMS being introduced to the port site is not a planned event and is therefore discussed as a risk in Section 14.7.

Comment: E161

Experience in other ports around Australia would suggest that whilst not a 'planned event' as conveniently described by the applicant, the reality is IMS exist.

14.6.2 Construction and Environmental Management

To mitigate risks to marine parks, vessels will travel within the designated shipping channels and only anchor in designated areas. Vessels will avoid the Sir Joseph Banks Group Marine Park where possible, and remain outside habitat protection and sanctuary zones.

Comment: E162

A more effective management and socially responsible position would be "all vessels will avoid the Joseph Banks Marine Park" given that its location appears on all navigational charts.

A 'Marine Mammal Notice to Mariners’ system will be developed and will detail the following:

Comment: E163

The inclusion of such a Notice to Mariners is to be supported.

As with any operational port, all vessels accessing the wharf will be required to comply with IMO ballast water management plans and MARPOL controls for marine pollution.

Comment: E164

It is noted that a number of pieces of legislation are in place with respect to management of ballast water. Notwithstanding this, the issue is one of compliance and enforcement to ensure that our pristine waters are not polluted by foreign water and whatever it may contain.

What therefore is the compliance and enforcement regime that will be in place in the proposed port and who will be responsible for it?

- Shipping paths will avoid the Sir Joseph Banks Group Marine Park where possible.

Comment: E165

It appears to be a re-occurring theme ...'ships will avoid....where possible'. The rule is they will avoid the Marine Park.

Cumulative Ship Movements

A number of port developments have been proposed within Spencer Gulf that would result in a higher likelihood of ships striking marine fauna. Proposed port developments within Spencer Gulf include:

- Lucky Bay (12 additional Panamax vessels per year)
- Port Spencer (277 additional Capesize or Panamax vessels per year)
- Port Bonython (32 additional Capesize or Panamax vessels per year)
- Cape Hardy (i.e. the proposed port facility, 145 additional Capesize or Panamax vessels per year)

Comment: E166

It is unfortunate that the applicant has included these statistics (in yellow) in putting the argument forward. It is known that Lucky Bay will not be used to export ore as other arrangements have been put in place and that Centrex is reducing considerably its interest in iron ore in this State through property sales, write down of Wilgerup and absolutely no progress in three years on progressing the Provisional Development Authority granted for the development of Port Spencer.
The figures presented would be reduced by some 290 vessels. However, as quoted in this application at least one vessel per day would entering Cape Hardy or 365 per annum resulting in 730 ship movements per annum, presumably including the 147(x2) cape size vessels.

There appears to be some discrepancy in the figures put forward and hence the risk associated with marine animals, especially protected species.

14.7.2 Seagrass Loss or Gain

Comment: E167

Given the significant number of ship movements (turbidity and prop-wash) in the confined area of the port, concern is expressed that the impact upon sea grasses and their ecosystems has been under estimated.

Whilst minor spillage of magnetite concentrate is considered to be almost certain

Comment: E168

The operative word being 'minor'. What constitutes a minor spillage given that they are 'almost certain' to occur.

Attention is drawn to previous comments (14.5.7) pertaining to contaminants that are, at this point in time, undefined. The inference being that almost certain minor spillages will occur and have no impact is not credible.

14.7.1 Ship Strike

As there are no known whale aggregation areas within the Spencer Gulf, usage of the study area by whales is considered to be low. There are currently no recorded whale strikes within the Spencer Gulf; however in 2013 the carcass of a Southern Right Whale was found at Tumby Bay. The cause of death was attributed to a vessel strike but the location of the death was uncertain due to the level of decomposition and it may have drifted into the gulf from open water.

Comment: E169

Attention is drawn to the fact that there has been a ship strike in recent times and the autopsy report has been included in this response.

The conclusion offered is clearly one that suits the applicant. It is the view of the Associations, a ship strike is a ship strike the probability of death in Gulf waters is likely as a significantly long drift path in waters known for the presence of white pointer sharks, would further suggest drifting from outside of Gulf waters unlikely.

14.7.6 Marine Pests

Comment: E170

Given the tone of the discussion contained in this section of the application, it can be inferred that the applicant gives scant concern to the introduction of introduced species into the so called area of study (the port).

Apart from the obvious impact on marine flora and fauna in the 'study area', the applicant is clearly non committal about the impact to the adjacent aquaculture zone and the Joseph Banks Marine Park.

It is suggested that the claim any infestation will be contained within the study area is clearly a figment of the imagination of the applicant.

There is a sea current that flows north to south in this section of the Gulf. It is therefore a reasonable position to hold that anything released in the Cape Hardy environs will migrate.

Whilst it is the position of the applicant that ships entering/leaving this area will adhere to a set of rules, the question is whether the rules are enforceable at law and who will be the compliance officer to ensure the rules are upheld?

It is noted the Australian Quarantine Services will/should be one regulator. It is assumed there will be a permanent presence of this agency on site.
It is also assumed that bi-annual monitoring of the marine environment to ensure no infestations are occurring will be undertaken as a matter of course over the life of the port. These monitoring processes to be compliant with EPA standards and other applicable legislative requirements.

14.8.1 Findings and Conclusions on EPBC Matters

Consequently, CEIP Infrastructure is considered to be consistent with the Conservation Management Plan for the Southern Right Whale.

Comment: E171

It is noted that the project is a controlled action for the whales. However, what protection will be afforded the leafy dragon, a known protected species?

CHAPTER 15 Surface water

Comment: E172

It is noted no site specific rainfall measurements have been obtained.

All rainfall data is derived from remote sites, which for the purpose of determining actual run off for the site are irrelevant.

*The largest single rainfall event was recorded in February 1938 when 88.9 mm of rain fell in 24 hours and 114 mm fell in a 72 hour period (RPS 2013).*

Comment: E173

The issue being, where was this 'largest recorded rainfall event actually recorded? Not at Cape Hardy. Again relevance?

Local experience has included a storm event dumping 13 inches or so (not officially recorded) of rainfall in a day at Wharninda. Other events resulting in 4 or so inches in a short period of time have occurred in the area.

15.4.1 Port Site

Rainfall running off the stockpile, module laydown areas and hardstand at the rail unloading facility will be directed to sedimentation basins (as shown in Figure 4-34) which will allow any mobilised concentrate and suspended solids to settle and for water to evaporate, rather than being discharged to the environment.

Comment: E174

Whilst the catchment of sediment (wash) is required, a second component of the argument, namely dissolved salts etc., appears to have been overlooked, as pointed out earlier in this response.

What mitigation regime has the applicant in place to prevent dissolved substances (unidentified) to enter the marine environment?

15.4.3 Long-Term Employee Village

The long-term employee village is proposed to be located adjacent to the town of Wudinna and will utilise town water (SA Water) supplies, with sewage incorporated into the town Community Wastewater Management Scheme. Harvested stormwater and reused wastewater is utilised by Wudinna DC for irrigation of public open space (Wudinna DC 2013).

Comment: E175

The question here is whether or not the CWMS scheme has the capacity to cope with the additional load.

Further, the application appears to be silent on the financial implications of connecting the long term employment village to existing Council services.

In the absence of details in this regard, and the non-existence of any MoU with Council on this matter, the only conclusion at this point in time is that Council (hence ratepayers) are required to meet these connection costs.
It is RECOMMENDED that full disclosure of the financial implications for the Wudinna District Council with respect to the integration of the State approved accommodation village into local infrastructure be provided for public scrutiny.

16 Groundwater
This chapter presents an assessment of potential impacts to groundwater resources and existing groundwater users arising from interactions with groundwater associated with the proposed CEIP Infrastructure development.

Groundwater interactions associated with the proposed CEIP Infrastructure include:

- Short-term extraction from two saline groundwater wells located along the infrastructure corridor (within the proposed bore field area and near the Driver River). The wells would operate for two years to supply groundwater during construction.

4.5.7 Construction Water Supply
Saline ground water supplied from two water supply wells (one in the Kielpa geological domain, and one in the Verran geological domain) will be used for earthworks, dust suppression and material placement at the port site and along the infrastructure corridor. Groundwater will be transferred from these water supply wells to designated water points in the northern and southern sections of the infrastructure corridor and to the port site by 110 mm HDPE pipelines. Each well would operate continuously for two years and water demand at each water point would be 430 m3/day (GWS 2013).

Comment: E176
It is noted that a second pipeline carrying saline water will travel south to Cape Hardy through prime agricultural land.

The risk assessment of the use of saline water in the construction of the transport corridor has not received, in our opinion, the required depth of analysis.

The risk of saline water leaching into neighbouring properties adjacent to the corridor is real.

Potable water for the port site construction camp and for concrete batching would be supplied from the new SA water connection (refer to Section 4.3.3).

Comment: E177
AS mentioned previously, the issue here is the draw upon the potable water supply from the prescribed wells area near Port Lincoln, the only source of potable water on lower Eyre Peninsula, yet here we have a company using a significant amount of this scarce resource for concrete production.

The application fails to provide any discussion on the availability of this quantity of water or whether it will have an impact upon the Water Allocation Plan for this region.

For this reason, it is recommended that the desalination plant be constructed at Cape Hardy and the water used to supply the construction camp, the batching of concrete and construction work on the corridor and thence to supply potable water to the mine and its operations.

Appendix MLP-Q- SOCIAL FACTORS
3.5.1
“Similar characteristics and qualities were identified in Tumby Bay as part of the Centex Port Spencer proposal (Golder Associates 2009, Socio-Economic Baseline Study). These included the small town lifestyle, familiarity with community members, the quietness and visual amenity of the area, the low levels of crime and high levels of safety and the clean, relaxed and stress free environment.”

Comment: E178
It is interesting to note the reference to the findings related to the Port Spencer project included in this Report. Whilst the life style characteristic outlined are still characteristics to be cherished without the impost of mining companies, clearly the authors of the Report are unaware that the Centrex Port Spencer project and associated
prospects are being wound up by the said company (refer to releases in the Australian Securities Exchange ASX: code CXM). Assets are being either sold or written down. The Wilgerup Mine has been written down to land value only.

**pp61/201**

“the DC of Tumby Bay scores below the Australian mean on all four indices and is in the lowest 50% to 60% of South Australian LGAs. It is the most disadvantaged of the local study areas on three of the four SEIFA, and has smaller areas within the LGA that are significantly disadvantaged (i.e. where scores fall below 900) on all indices.”

**Comment: E179**

One might extrapolate from these results the conclusion that the community does not have the financial where-with-all to sustain Council’s involvement through the provision of infrastructure at ratepayer’s expense, as it appears to be the case with the recent approval for work to be done (at ratepayer expense) on the Kinnaird Road.

There are no Memoranda of Understanding between the applicant and the District Council of Tumby Bay suggesting any financial arrangement to the contrary.

It is the stated position of Council that MoU's are a waste of paper!

**Business opportunity (p100/201)**

“The Economic Impact Assessment estimated that around 24% of direct construction expenditure on the CEIP (approximately $286 million per annum) and 18% of direct operational expenditure (approximately $201 million per annum) would be spent in the Eyre and Western region, with the greatest expenditure occurring in the Wudinna DC.

Business opportunities would change over the construction and operation stages of the project and are likely to include fuel supplies, communications, transport and logistics (such as workforce transport, mechanical services for fleet maintenance), engineering and construction services (such as light earthworks, road maintenance), the supply of services, goods or consumables to camp and village accommodation, catering, training, and the provision of materials." (underling added)

**Comment: E180**

Whilst the above statement describes an ideal situation, the reality of purchases made by contracts would suggest that it most likely would not occur, unless, of course, a series of MoU of Deeds of Agreement with the prospective providers of services already exist. It is suggested that the figures do not reflect reality in the business world.

“A 2007 study of the impacts of coal mining in the township of Moranbah in the Bowen Basin in Queensland found that the average non-resident mining worker spent over $160 in Moranbah each week on key items including alcohol, fuel, food and entertainment related expenditures, or over $3,800 across 24 working weeks per year (Rolfe et al 2007). Based on an LDC workforce of 300 people, this would generate an equivalent total expenditure in Wudinna of over $1.1 m per year.”

**Comment: E181**

The relevance of this example needs to be challenged, given that the Wudinna accommodation village will be a self contained entity as is the construction village, some 45 kilometres away.

"Whilst the CEIP would result in some loss of agricultural land (see Section 4.2.5), the project represents an opportunity to diversify the economic base in the Eyre Peninsula, at the same time maintaining the agricultural viability of the local economy.”

**Comment: E182**

The conclusion drawn that maintenance of the agricultural viability of the community is achieved, the reality is that a number of successful agricultural enterprises will be lost and that a significant risk due to fugitive dust contamination of the surrounding wheat and barley belt and associated pastures most likely will result. Contaminated grain will potentially be an outcome of the claimed joint port facility despite the fact that previous experience has shown significant economic losses to grain producers and handlers as a consequence of contamination by ore dust.
In the absence of evidence to the contrary and advice from the Federal Government Department of Agriculture with respect to contamination issues and the impact upon Australia’s clean grain export credentials, and claim that mining and agriculture can co-exists escapes reality.

The risks are significant.

*pp 101/201: “Iron Road is committed to providing opportunities for local and regional contractors and businesses to participate in the project wherever practicable and would:

- develop an Australian Industry Participation Plan to maximise opportunities for Australian businesses to participate in the CEIP
- work with the Industry Capability Network (ICN) South Australia, Regional Development Australia Whyalla and Eyre Peninsula (RDAWEP) and other regional development organisations to promote the participation of local, regional and South Australian businesses in the project
- work with business groups to identify local business opportunities; provide information on the CEIP business opportunities, tendering and procurement processes and standards to facilitate the prequalification of local and regional businesses
- work with government, education and training programs and Regional Development Australia to enhance business capacity among local and regional suppliers.
- maintain the existing register of businesses with an interest in supplying goods and services to the project
- identify contract packages that could potentially be let locally or regionally
- work with other members of the Eyre Peninsula Mining Alliance to create long term business benefits to Eyre Peninsula communities. ”*

**Comment: E183**

Again the applicant is proposing future work which is outside the scrutiny of the public. Where are the Heads of Agreement with the entities identified above and the associate key performance indicators or goal so that transparency in the approach and desired outcomes are clearly identified and thus the applicant is accountable to achieve same. In the absence of these performance criteria, the statement can be interpreted as a mere page filler.

*"The construction workforce would typically comprise young single men, who would be made up largely of FIFO and DIDO workers. As a consequence, no long-term change in the population or demography of local areas is anticipated.

Wudinna and Tumby Bay police stations are staffed by one officer."*

**Comment: E184**

What representation has been made to SAPOL for the assignment of additional Police resources at Wudinna and Tumby Bay to cope with the significant influx (1950) of single men in the respective Cape Hardy and Warramboo mine camp sites?

Any suggestion that there will be no social problems associated with this influx is clearly a figment of the applicant’s imagination.

In the absence of evidence to the contrary, the applicant’s alcohol and drug policy does not appear to be attached to the application. It is assumed a zero tolerance to alcohol and drugs in line with the SafeWork Act is the accepted code of behaviour whilst on the job. The question being, does accommodation in the company provided camp constitute being on the job?

*"The construction camp at the port site would be in use for approximately two and a half years, with the accommodation units being decommissioned and removed after the completion of the*
construction activities. During operations, Iron Road anticipates that the workforce for the port would live locally in residential housing and commute to work on a daily basis (p113/201)"

The assessment of available accommodation includes:

"Around 100 operational workers would be required for the proposed port development. It is Iron Road’s expectation that the majority of the operational workforce would live locally, in townships or surrounding rural areas. These workers would be drawn from existing local residents or people who choose to relocate to the lower Eyre Peninsula to live and work. Assuming that half of the 100 operational workers were new residents, this would potentially equate to 50 new households. As discussed in Section 4.2.2, towns that can be reached within 45 minutes by car of Cape Hardy include Port Neill, Tumby Bay and Arno Bay, while Cowell, Cleve, Cummins and Port Lincoln can be reached within an hour or so, from where it would be possible to commute daily for work. In addition, some workers may choose to work on a FIFO basis, and would be accommodated in local short-term / visitor accommodation, as Iron Road does not intend to maintain long term accommodation at the port." (p117)

Comment: E185
The assumption that the workforce for the Port would be drawn locally is just that, an assumption. Where is the evidence to support the assumption?

What is the workforce profile for the port and how does this match the skills of locally available candidates?

"An assessment of the housing market in the DC of Tumby Bay suggests a relatively high proportion of dwellings (around 30%) were unoccupied at the 2011 Census (ABS 2012a), including close to 200 dwellings in the township of Tumby Bay and over 100 dwellings in Port Neill. Almost 90% of dwellings in Port Neill and 70% of dwellings in Tumby Bay are owned or being purchased. This includes a number of shacks and holiday homes, with a ‘significant proportion of dwellings in the township occupied predominantly on a seasonal basis’ (DC of Tumby Bay 2013c, Port Neill Sustainable Future Structure Plan). The Port Neill Structure Plan further notes that the ‘unoccupied nature of two thirds of the existing dwellings within the township means that the township could theoretically accommodate a tripling (or slightly greater with an increase in the average household size from 2.0 to 2.2) of the population without requiring the construction of any additional dwellings. This would take the population in the current dwelling stock [of around 136 people] to something in the order of 400persons’." (p118)

Comment: E186
The depth of research analysis in relation to the available accommodation in Tumby Bay and Port Neill is indicative of the minimalistic approach taken by the applicant in this application. Clearly the reason for the 200 (if accurate) and 100 (if accurate) supposedly vacant premises is that these houses are owned by locals and are most likely, holiday houses which is characteristic of the lifestyle of these communities.

The assumption or inference that there is a wealth of available housing is misleading, leading to the question what accommodation will the applicant provide for long term employees associated with the operation of the port?

It is noted that building approvals in Tumby ay have declined to the period 2013. What is the current level of building approvals and then the trend over the past five years to 2015, given that the final version of this component of the report was signed off 4 Nov 2015?

"Residual impact
Given the size of the operational workforce, the availability of housing for rent and purchase in townships within commuting distance of Cape Hardy, and existing structure plans for Tumby Bay and Port Neill, the impacts on housing are predicted to be negligible" (p118)

Comment: E187
Given the lack of understanding as to the true nature of the so called vacant housing in Tumby Bay and Port Neill as described, the conclusion lacks credibility.
"In addition, the development of the long term employee village on the perimeter of town could potentially lead to perceptions of an ‘enclave’ of highly paid workers, living in separate facilities ‘outside’ of the residential community, who support the town’s economy but have a limited sense of connection to it, and do not participate in, or contribute to the functioning of the community." (p119)

Comment: E188
It is noteworthy that the applicant has identified one of the most significant social cohesion problems that most likely will arise not only in Wudinna, but potentially across all sections of the project and more-so where FIFO or DIDO employees are involved.

Significant research has been undertaken as to the social impacts upon communities involved with FIFO and DIDO workforces. Clearly these impacts have not been brought to this discussion.

"The use of local services and facilities by the LDC workforce would also increase opportunities for interaction between non-resident workers and local residents, and promote a greater sense of familiarity and belonging. Directing." (p120)

Comment: E189
Unfortunately the opposite conclusion is also a distinct possibility, namely resentment at the increased competition for existing services.

"the operation of the port is not expected to affect the sense of community or impact people’s way of life in the long term, and residents, workers and visitors would be able to continue to live and use the local area in the same way they currently do." (p120)

"Negligible residual impacts on social character and well-being are predicted from the operational workforce in the DC of Tumby Bay." (p120)

Comment: E190
The reality of course is the use of the marine environment will now be severely restricted as a consequence of the port facilities. In addition the impact of the port upon the marine environment will be significant despite contentions of the applicant to the contrary.

The impact of the construction workforce for the two and a half years is not well articulated. There will be potentially a significant impact upon the services provided by Tumby Bay (given the paucity of services available in Port Neill).

What is the predicted impact upon medical, dental, community health pharmaceutical ambulance, emergency services of an additional 600+ construction workforce available in Tumby Bay?

It is noteworthy also that the description of the airport facility at Tumby Bay is inaccurate. The airstrip is sealed and has pilot operated lighting system for night time use. It is frequently used by the Royal Flying Doctor Service.

The conclusions presented are not credible.

Cost of Living: (p121)

"Negligible residual impacts on cost of living are predicted within the DC of Tumby Bay."

Comment: E191
Given that no discussion of the potential impact of significantly differing wage/income profiles between company workers and that of the District, and in particular, the township of Tumby Bay or Port Neill, the conclusion appears to lack credibility.

Safety and Security: (p122-3)

"a LDC workforce provides companies with considerable control over the labour force as accommodation and work sites are usually ‘closed’, the supply of alcohol is regulated, and worker behaviour is closely monitored, with minimal opportunities for negative interactions with the broader community."
Comment: E192
If this is the management plan for the Wudinna Accommodation Plan, then it would appear to contradict to ‘integration’ of the workforce with the local community model espoused by the applicant. The question being, which model is to be recognised as that applying to this application?

“The design of the construction camps at both the port site and the mine site includes a gatehouse and security systems at the entrance to monitor and control access to the camps

Workers would be required to sign a ‘Code of Conduct’, linked to their employment contract, outlining behavioural expectations applicable at workforce accommodation and in local towns. Contractors as well as employees would be required to adhere to the code of conduct and Iron Road’s policies regarding drugs and alcohol.”

Comment: E193
The proposed management criteria for the camps and obligations of the employees is noted.

It is also noted the very limited Police presence in both Wudinna and Tumby Bay. The application is deficient in detail as to how this Police presence will be supplemented should the project be approved and implemented.

Public safety is a major concern, and with both Police Stations only offering 9-5 services, the concern is enhanced.

This question also goes to the provision of a safe work environment for the Police Officers assigned to Wudinna and Tumby Bay, by SAPOL.

“Negligible residual impacts on safety and security are predicted within the DC of Tumby Bay.” (p123)

Comment: E194
Clearly the applicant, in drawing this conclusion with respect to Tumby Bay has total disregard to the potential social impact of an itinerant workforce, predominantly single males (located at Cape Hardy) as raised by the community of Tumby Bay.

The assessment is not credible.

Critical Population Groups:

"Negligible residual impacts on critical population groups are predicted within the DC of Tumby Bay." (p124)

Comment: E195
Given the arguments and population/economic profiles presented in this report, the above conclusion appears to contradict the evidence presented.

Another interpretation of the data relating to Cape Hardy workforce may well be, "it's not on the townships doorstep, therefore out of sight and out of mind, and they will not complain anyway!"

"Iron Road would also be required to pay rates on land within the proposed mining lease.”
(p128/201)

Comment: E196
It is the understanding of the Associations that Mining Lease holders do not pay rates to Local Government. They are required to pay royalties to the State Government under the provisions of the Mining Act.

The question being, therefore, what is the loss of revenue to the Wudinna District Council as a consequence of granting the Mineral Lease?

The potential loss of Council revenue is a cost to the community, one which no doubt will be passed on to those remaining, this being a significant social impact that appears not to have been accounted for.
The loss of agricultural land is being considered in the context of a micro study. What is being ignored is the loss of sustainable food producing land per se, i.e. the bigger picture and the potential contamination of a significant footprint outside the actual mine footprint as a consequence of fugitive dust and the contaminants it contains.

(i) Loss of agricultural land:
“The residual impact is predicted to be low in the short term, assuming that fair agreements and compensation are negotiated with directly affected landholders.” (p128)

Comment: E197

There are some substantial assumptions being made in the so called 'residual impacts'.

The applicant has threatened legal action in the ERD Court should there be resistance to purchase of property. The application to date has not mentioned the potential for compulsory acquisition of property under the Development Act (s26/48 Major Development status assigned to project and s78 compulsory acquisition powers under the Act).

The question of fairness appears to be a one sided process. The applicant requires the land, but the landholder loses a business, so what value is to be placed upon the land? Its income producing capacity as an agricultural enterprise or simply the land value. Livelihoods apparently are not included in the negotiations. So what is ‘fair’?

Perhaps there should be Government Policy developed for inclusion in the Mining Act/Regulations that determines what is ‘fair’ in these circumstances.

It is suggested that the market value of the property pre any indication of mining (ie normal market value) should be the benchmark, to which is added a compensation allowance of 85% which has been used in other 'negotiated' situations, plus all legal fees and charges to be met by the applicant.

Such a benchmark position would clearly resolve the social issues of stress, anxiety, depression etc associated with the impact of a mining application over the family business which appear to commence from the time it becomes known that an Exploration Licence has been issued over their property (ies).

(iii) Amenity
Comment: E198

It is significant that dust (fugitive dust) is of high concern. Dust from the proposed mine will pose issues with visual amenity, nuisance and health impacts.

As outlined in this response, there are significant issues relating to the Air Quality assessment provided in the application.

It is significant that the health issues associated with fugitive dust are simply not dealt with as the position of the applicant is that there are none as 'ore dust is non-toxic' Granite May 2014). Research would suggest otherwise.

The health impacts of fugitive dust has been brought to the attention of the applicant, but answers have not been forthcoming.

The question therefore becomes, what is the health impact of fugitive dust (and it unknown/undisclosed contaminants) upon the community at large, having regard to the longevity of the mine and the fact that this might not be the only mine given the disclosures of reserves provided to the ASX.

Again, this section refers to 'future work' vide the dust management plan which is clearly out of the realm of public scrutiny (transparency). The application is clearly deficient in identifying the risks and appropriate mitigation measures.

The arguments presented in this section and the conclusions drawn are refuted based upon the responses previously made to the air quality and noise assessments.
Road closures:
"The residual impact is predicted to be medium as a result of the increased travel time and inconvenience for local residents, landholders and other road users from the permanent closure of public roads around the mine site"

Comment: E199
The assessment appears to be devoid of consideration as to the economic and social impact of the said road closures on the community per se, not just those surrounding the proposed mine site.

It appears no consideration has been given to the increased travel time for emergency services to reach the eastern side of the mine. This becomes a significant issue in the case of a bushfire, and given the stated dismissive position of the applicant with respect to bushfires, significant concern has been expressed as to access for CFS facilities in such circumstances. Travel times are critical but only considered a 'medium' inconvenience for the next 25 years or so by the applicant.

Clearly this attitude is not consistent with a social licence to operate.

Cape Hardy
"social impacts associated with the proposed deep sea port facility at Cape Hardy including altered access to coastal areas, changes to land and marine-based activities, and altered land and seascape affecting local land values and amenity" (p132)

Comment: E200
It is not made clear to date of the exclusion zone on the marine environment surrounding the port infrastructure, including the shipping lanes.

These exclusion zones will have an impact upon local and possibly commercial fishing.

(i) Access
Several changes are proposed to the public road system near the port site. These will be subject to further consultation with the DC of Tumby Bay as detailed design progresses and include:

- the construction of new bridge over rail for the existing North Coast Road at the northern port site boundary
- the closure of Brayfield Road on the eastern side of North Coast Road and upgrade of Brayfield Road between North Coast Road and Lincoln Highway
- a minor realignment and upgrade to sections of the Port Neill Access Road, including the Port Neill Access Road/North Coast Road intersection and Port Neill Access Road/Lincoln Highway intersection.

Comment: E201
The changes to access are noted.

However, an examination of the Minutes of Meetings of the District Council of Tumby Bay do NOT disclose that any of the above have been formally brought before a meeting of Council, let alone brought to the attention of the community of the District and its ratepayers.

"In addition to the above, Iron Road has requested each of the four impacted District Councils to give consideration to entering into a Memorandum of Understanding (MoU) prior to the EIS being determined. The EIS Guidelines refer to setting out details of Management Agreements between Iron Road and each impacted District Council, but the CEIP has not progressed sufficiently enough at this stage to enable Management Agreements to be negotiated" (EIS:6-14)

Comment: E202
It should be noted that the publicly held position of the District Council of Tumby Bay is that MoU are "not worth the paper they are written on" as stated in the Council Meeting of November 2015 at which members of the Association were in attendance.
“A suitable port boundary would be designated as the limit of jurisdiction of the port operator (see the proposed port operating limits (marine waters) on Figure 4-10).

During construction activities, appropriate exclusion zones would be established to ensure public safety for people on land and on or in the water, and to protect marine life. There would also be some restrictions on boating, swimming, diving, skiing, mooring or anchoring in the vicinity of the wharf and jetty, and during loading and unloading of vessels to ensure public safety. These restrictions would be determined by the South Australia Department of Planning, Transport and Infrastructure and would form part of a port operating agreement.”

Comment: E203
Clearly the application is lacking in detail (and hence transparency) to enable the community to make appropriate commentary upon the social impact when the impact cannot be realistically assessed. It is agreed, there will be impacts, but to what extent?

Impacts on the basis of public safety are not disputed, provided they are articulated. This is not apparent herein.

The assessment of negligible impact is clearly contestable and not credible in the absence of definitive information.

It is noted some restriction (50m) would apply around the jetty complex. A more definitive position with a legislative base is required given the frequency of vessels to be arriving and departing and the size of these vessels (cape class) so that the public can assess the actual impact.

(iii) Amenity

“Local residents and visitors may experience some disturbance, inconvenience and loss of amenity associated with the construction and operation of the proposed port. Technical assessments of noise and vibration, air quality, traffic and visual amenity are contained in the CEIP EIS. This section deals with associated effects on amenity in terms of people’s experience and enjoyment of the local environment.

Construction activities at the proposed port would take place over a period of approximately two and a half years, 7 days per week, and up to 12 hours per day. Blasting would occur over a period of approximately 5 to 6 months as part of construction of the port infrastructure. Personnel would be on site between 6am to 6pm, with construction occurring between 7am and 5pm. The majority of the construction workers would fly-in and fly-out from Port Lincoln, and would be bussed to the onsite accommodation camp and work sites at the port.”

Comment: E204
It is noted that a discussion of the compliance with the District Council of Tumby Bay Development Plan (as amended) is not a feature of this application and so comparisons with the existing requirements for all other residents of the District Council are not included.

This of course arises from the fact that the project has major development status. It is noted that compliance with the recently Gazetted Council’s Coastal Zone is not required, however other are forced to accept the impost.

It is noted that a number of roads will disappear, whilst other will require significant upgrading. The future of the coast road (track - unmade road) along the coastline is not made clear in the application at this point. If this is to be subsumed by the project, then this is clearly a loss of amenity for the community, one which has not been broadcast by the applicant or Council.

Further, the loss of designated roadways and unmade road assets of Council have not been made public prior to the release of this document. What therefore is the economic loss to Council and thus the ratepayers as a consequence of the proposed action?

It is noted that blasting will occur over a 5-6 month period. It is assumed the impact assessment of this occurs with the EIS document for the infrastructure corridor. However what is the impact upon the residents of Port Neill and the local resident?
Again, it is noted that the majority of the work force will be FIFO ex Pt Lincoln. The question of the oft touted 'local employment pitch' that was a feature of presentations of the applicant, are clearly not credible.

Para 1, p231 introduces a discussion of noise with the claim that construction noise will be within acceptable limits. It continues to discuss vibration levels and their predicted impact of operations of the train etc. It is suggested that whilst vibration might be an issue, the real issue is noise transmission from the site to the nearby township of Port Neill and those other receptors in the vicinity. Trains, whether loaded or unloaded, generate noise and infrasound. In addition heavy machinery associated with the complex also generates noise.

Comment: E205
The question being whether the application has addressed the level of noise transmission (inclusive of infrasound) emanating from the site, be it across the landform or across the water to Port Neill and other nearby receptors?

Noise transmission is also dependent upon meteorological conditions. It is understood that no site specific meteorological observations exist. Port Lincoln BoM is some 80 kilometres to the south. It is known weather observations vary considerably the further north one travels.

"There is no existing wind monitoring station at Port Neill. The nearest coastal monitoring station is at Port Lincoln." (EIS 7.3.2)

Comment: E206
Given that the nearest BoM weather station is Port Lincoln and that no site specific meteorological data has been collected, the noise and dust dispersion models clearly lack credibility.

Figure 4-14 Sensitive receivers within 2 km of the infrastructure corridor (south)
Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

Comment: E207
The problem with the Figure 4-14 is the missing information between Cape Hardy and the Mount Hill Coomaba Road. The applicant is therefore NOT providing a complete picture with respect to the corridor and the potential impact it would have upon the families not identified.

This is a significant omission when consideration needs to be given to the impact of noise and fugitive dust upon these unidentified receptors as well as other 'factors identified' in this Report.

"Iron Road is committed to negotiating consistently and sensitively with directly affected landholders to achieve agreements with all parties." (p146)

Comment: E208
Whilst this appears to be a reasonable corporate goal, the reality is that the corridor is subject to major project status under s46/48 of the Development Act. As such, s78 of the Development Act Compulsory acquisition, may come into play. There does not appear to be any recognition of this fact nor the social consequences arising there-from.

The spectre of compulsory acquisition has been present since the Government declared the major project status of the CEIP.

The corridor may have significant management impacts for those affected. These include re-alignment of fences, water reticulation, crossing points and the potential to not access part(s) of the property. The question being, who bears the expense of these management impediments, given that they are for all intensive purposes permanent?

It has been suggested that crossing points on private property will be limited to one. An assessment of such a limitation would suggest that it is unworkable in reality. In one instance a limit of one crossing for a property containing several kilometres of corridor is totally impracticable.
The social impacts (including mental health) of these impediments do not appear to be recognised in the application.

The overarching threat of compulsory acquisition is not a basis for ‘fair’ negotiations as claimed by the applicant.

"The assessment of noise and vibration noted the high level of acoustic amenity enjoyed by rural residents with minimal human induced noise sources. It found that construction works undertaken on a Sunday or a public holiday or during the night time (if required) would require a separation distance of at least 1-1.5 km between the construction work and a sensitive receiver in order to meet the requirements of the Environment Protection (Noise) Policy 2007 (Noise Policy). However, if the separation distance cannot be achieved, specific environmental management controls would be implemented to ensure Noise Policy criterion are met. These controls would be detailed in a construction environmental management plan." (P148)

Comment: E209
The question being what the baseline noise levels are at each receptor site against which any impact (perceived or real) can be measured. Given the use of heavy machinery, what are the levels of infrasound transmitted to the receptor sites?

It is noted the intention to include specified environmental management controls in a construction management plan, the details of which constitute ‘future work’ not subject to assessment or review by the public.

Clearly, the minimalistic approach continues.

"the assessment found that gaseous pollutants were unlikely to exceed relevant air quality standards at distances of 140 m or more from the railway line, with the closest sensitive receptor located 140 m from the proposed railway line". (p149)

Comment: E210
The problem being the baseline testing for air quality is flawed. In the first instance the baseline must be recorded at each and every receptor on the corridor. Secondly the meteorological data must be site specific. Thirdly the collected sample must be analysed for PM10 and PM 2.5 inclusive of the analysis for diesel particulates.

Having obtained the baseline data, then a predictive model can be generated with air pollutants characteristic of that from Diesel trains and all diesel powered machinery operating in the immediate vicinity. Having established a normal baseline (no port) and a predicted model (more representative of the area) actual monitoring can continue at all receptor sites to ensure that the predicted value and the actual value are below the accepted level.

Such a program will also provide benchmarking in the event of claimed poor air quality arising from some activity being undertaken by the applicant, leading to virtually immediate mitigation.

All air quality and noise measurements must be available in real time to the public.

The health and welfare impacts of noise and fugitive dust appear not to be addressed to the level that establishes an appropriate baseline from which real time impacts can be determined.

*Changes to transport networks (p149)*

"operation of the infrastructure corridor would also require the realignment and upgrade of several local roads which will be reviewed and confirmed in consultation with relevant DCs."

Comment: E211
Given that the proposed changes involve expenditure of an hitherto undisclosed sum of money, the lack of transparency with this non-disclosure, when couple with the socio-economic structures of the various District Council (as outlined in the Report) in absence of evidence to the contrary, potentially places additional burden upon the ratepayers of these District to meet the costs.
It has been noted that the applicant sought to have a variety of MoU’s with Councils on a variety of road matters, but that these have not eventuated.

As mentioned in the case of the District Council of Tumby Bay, such documents are considered a waste of paper. Notwithstanding this position, the application is devoid of a cost estimate of such upgrades, particularly in Council areas where there is a significantly low socio-economic position, leading to the question of whether ratepayer funds will be used in this regard.

This apparent undisclosed cost to ratepayers needs to be determined before any approval is given. The right of ratepayers to object to the costs must be upheld. Ratepayer funds are not there for the benefit of the applicant.

Another significant question that remains is the safety of various intersections affected by the proposed construction and operation of the facility/

Of particular concern is the intersection of Kinnaird Road and the Lincoln Highway.

It should be noted that the speed limit on the Highway is 110km per hour.

The approach to the intersection when travelling towards Pt Neill (south bound) is concealed as indicated in the following image.
Once through the intersection, motorists are confronted with a reasonably steep incline upon crossing the river floodway, as indicated in the following image.
There are no slip or passing lanes on this roadway.

“A construction traffic management plan would be prepared to minimise potential impacts on the community and the operation of the road network.” (p150)

Comment: E212
Given the nuisance value of road works and the inconvenience caused, the so called 'future work, the construction management plan' needs to be included in this application. Further, the plan needs to be compliant with the District Council of Tumby Bay's heavy vehicle requirements.

Transparency is required on all factors likely to impact the social fabric of the area in question.

Table 4-7
"Increased competition for workers and resources, attracting them from other sectors of the local and regional economy, including agriculture and fishing"

Comment: E213
As mentioned elsewhere in this response, the competition for workers and resources is considered a major disincentive to the 'economic benefit' to the community. The resultant situation being increased costs for existing industries.

Population increases and demographic change in Wudinna • Reduction or reversal of population losses in local and regional areas, by attracting and retaining families and young people

Comment: E214
Population increases as a consequence of FIFO and DIDO alter significantly the socio-economic mix of the towns impacted. Experience in other places would suggest the impact is negative (Pilbara region).

Statistically there may be a population increase, but it is not a sustainable increase in the long term.

The retention of families and young people has not been established in the application.

Potential population increases bring a critical mass to:

- sustain services and businesses in Port Neil
Comment: E215
The 'evidence to support this contention' is not presented.

The assumption that the so called un-occupied residences in Pt Neill will be available to potential employees is without foundation. The greater majority of these houses are 'holiday residents' owned by persons in the District and beyond.

*Expanded membership base for volunteer organisations*

Comment: E216
Experience in other places would suggest this is not a credible assumption.

*Increased demand for, and utilization of social and community infrastructure in Wudinna as a result of the operational LDC workforce and population increases*

Comment: E217
It is recognised there will be an increased demand for services not only in Wudinna but also other communities impacted by the number of persons as a consequence of the proposal.

The information provided with respect to the employee profile is devoid of detail with respect to families and the number of children involved.

The provision of health services (and allied fields) and education facilities do not materialize over night. What therefore is the predicted impact upon these facilities as a consequence of the proposal? The lack of assessment of need is a major flaw in the application.

*Increased demand for housing and accommodation in the DC of Tumby Bay affects local supply and affordability Negligible residual impact on housing from:*

- the port’s operational workforce given the availability of housing in the DC of Tumby Bay and surrounding areas.

Comment: E218
The conclusions drawn here appear to contradict the reality. The assumed availability of some 200 residences in Tumby Bay is without foundation. As in the case of Port Neill, most of the identified 'vacant' residences are owned by persons within the District and beyond and are holiday homes. Some may be available for short term rental, but the reality is, most will not.

Clearly more work needs to be undertaken with respect to the availability of housing in the local areas in order to address the supply and demand equation that will eventuate if the proposal is approved.

In the event the supply is deficient, what is the applicant’s position with respect to the provision of long term housing in Tumby Bay, Pt Neill, and Cleve, and to a lesser extent, Wudinna?

*Potential impacts on critical population groups who may be more susceptible to adverse impacts, including women, children, older people and people on low incomes Negligible residual impact on social character and wellbeing in DC of Tumby Bay from the construction or operational workforce.*

Comment: E219
The reality for Tumby Bay and Pt Neill with respect to the construction workforce is the potential competition for services provided in Tumby and the perceived threat associated with large numbers of itinerant workers descending upon the township (especially the hotels).

Outside of the normal sporting clubs, there is limited facilities in the entertainment category, i.e. no cinema or Clubs (vide the City Clubs scene).

The appears to be no needs analysis of the impact of the work force upon health services in Tumby Bay, noting there are no health services available in Pt Neill. A simple question being is there enough doctors in Tumby Bay to cater for the proposed construction work force impact?
The conclusion is not credible.

**Safety and security**
- Heightened concerns about crime among residents *Negligible residual impact* in DC Tumby Bay from the construction or operational workforce.

**Comment: E220**
The reality for Tumby Bay and Pt Neill with respect to the construction workforce is the potential competition for services provided in Tumby and the perceived threat associated with large numbers of itinerant workers descending upon the township (especially the hotels).

Outside of the normal sporting clubs, there is limited facilities in the entertainment category, ie no cinema or Clubs (vide the City Clubs scene).

This is further exacerbated by the fact there is a single Police Officer stationed in Tumby Bay (none in Port Neill) on a 9 to 5 basis, with emergency support from Pt Lincoln some 50 kilometres away.

The conclusion is not credible.

*Minor impacts on recreational, boating or other marine activities during operations at the port*

**Comment: E221**
Whilst there is some indication of the exclusion zone around the proposed jetty, the detailed management of this area having regard to the frequency and size of the vessels involved (cape sized) and thence the propeller wash generated by these vessels and associated vessels and the shipping channel, together with the already declared aquaculture exclusion zone, needs to be articulated in order that the public have a full understanding of the restrictions to be imposed.

A comparison with the exclusion zone proposed for the proposed Port Spencer project would suggest more details are clearly warranted.

*Establish real-time dust monitors at government approved locations*

**Comment: E222**
Given the paucity of real time dust and noise monitoring at the so called 'receptor sites' outlined in the application, it is RECOMMENDED that all receptor sites become government monitoring sites for the purpose of determining noise and air quality levels during both construction and operation phases of the project.

It is RECOMMENDED that the cost of such monitoring be borne by the applicant, given that it has failed to undertake such baseline studies for the purpose of this application.

. Given the potential hazards identified in this response with respect to fugitive dust and noise (including infrasound) the conclusion that 'some inconvenience' may result over the lifetime of the project is clearly not acceptable in terms of achieving a social licence to operate.

*Low residual impact from the loss of agricultural land within the mine footprint, assuming that fair agreements and compensation are negotiated with directly affected landholders*

**Comment: E223**
As mentioned previously in this response, the question of fairness is academic in the context of potential compulsory acquisition of property under the Development Act (s78) and under the threat of legal action (ERD Court).

The conclusion of low residual risk is clearly not credible.

**Mine and Village conclusions:**

"some workers may visit nearby townships to purchase goods or for recreation and leisure activities, demands on social services and infrastructure are expected to be limited" (p159)
Comment: E224
What is the predicted demand upon medical (including dental) services arising from the construction camps at Wudinna and Cape Hardy?

What is the capacity of the services in Wudinna and Tumby Bay to meet this need?

"Population modelling indicates that the mine’s operation could potentially result in growth of between 260 and 960 people, if 20% to 60% of workers and their families chose to relocate to the Wudinna DC."

Comment: E225
The operative words are "‘could’ and ‘if’... workers and families migrate..."

What incentives exist to encourage such migrations to occur? In the event that these estimates were taken up, where is the resultant needs analysis for family services and educational services in the township of Wudinna (and an equivalent series of questions for Tumby Bay and Pt Neill)?

The education facilities available would be a major issue in the decision to choose to migrate. The long term educational plan for the town (and for other affected towns) is not disclosed.

Cape Hardy and DC Tumby Bay

"A workforce of approximately 100 people would be required during the operations. It is anticipated that the majority of the operational workforce would live locally in nearby towns, including Port Neill and Tumby Bay."

Comment: E226
As described in this response, the assumption appears to be the local housing stock can accommodate the operational workforce for the Port.

It is strongly suggested that this assumption is without foundation.

Transport corridor:

"There are 66 sensitive receivers located within 2 km of the proposed infrastructure corridor and 26 located within 1 km of the infrastructure corridor. All but one of the sensitive receivers is believed to be a residential house."

Comment: E227
Further to previous commentary on hazardous associated with noise and fugitive dust, it appears that none of the 66 identified receptor sites within the transport corridor have had baseline noise and dust measurements undertaken. That being the case, the affected landowners have no basis for complaint unless they actually fund the taking of baseline noise and dust measurements.

Baseline noise and dust measurement is essential to ensure public health safety standards are met as a consequence of the potential impact of the applicant’s activities. Such measurements must include baseline measurements for diesel particulates.

It is noted that some road re-alignments may be required at rail crossings. It is RECOMMENDED that an assessment of each crossing be undertaken to determine the impact of the angle of the sun on visibility at the crossing, especially where the line is in a north-south aspect to the passage of the sun. It is on record that sun blinding upon the approach to a railway crossing has been a cause of death in train/vehicle accidents at such crossings.

It is unclear as to whether all crossings will have flashing lights and appropriate line of sight upon approach to the crossings.
**Population Scenario Modelling:**

"Around 100 workers would also be required for the operation of the port, who would reside locally. The construction and operations workforce for the proposed port are unlikely to impact on the population or demography of the DC of Tumby Bay" (p166)

**Comment: E228**

It is assumed that the 100 or so can actually be accommodated in the local community, an assumption that is without empirical evidence to support it.

"In order to plan for potential population increases in Wudinna, Iron Road will provide further information on the workforce and timing as detailed planning progresses, and participate in planning initiated by the South Australian Government, Wudinna District Council and other service providers as appropriate." (p176)

**Comment: E229**

Given that this is an application for a mineral lease and that this is the only document that is subjected to public scrutiny, the afore mentioned statement provides little confidence to the community that the modelling, in the context of significant downturn in mining across the State (as evidenced by retrenchments at Roxby Downs; Leigh Creek, Prominent, Valance (Uley Graphite)) and that seen in the economic downturn of commodity prices across the world, the question is whether the modelling provided above accurately reflect to reality of the current situation and the availability of a significant experienced work force (as a consequence of the retrenchments).

The reliance upon 2011 data is of concern, given that it is four/five years out of date.

The reliance on the use of the 'Roxby Downs' model is to be questioned in the context of the very different economic circumstances surrounding the establishment of the Roxby Downs venture, including the creation of the Indenture Bill and the financial credibility of BHP.

It is RECOMMENDED that the Australian Institute be engaged to undertake a peer review of the modelling undertaken in this application.

It is noted in the population data (triangle at top of page 174) that the figures appear to include the District of Le Hunte. The question is simply why, when it is the population of Wudinna that is under examination?

**The Community, District Council of Tumby Bay and Iron Road Limited relationship.**

The following points are made:

**Local Government (p6-14)**

"In addition to the above, Iron Road has requested each of the four impacted District Councils to give consideration to entering into a Memorandum of Understanding (MoU) prior to the EIS being determined. The EIS Guidelines refer to setting out details of Management Agreements between Iron Road and each impacted District Council, but the CEIP has not progressed sufficiently enough at this stage to enable Management Agreements to be negotiated.

In lieu of Management Agreements, the proposed MoU's will set out that the parties will work together to achieve mutually beneficial outcomes and to discuss other matters of importance. Such matters would include, but not be limited to, roads, rail, commercial opportunities, the use and/or sale of community land, rates, and possible third party access to power and water.

It is intended that the MoU's continue until individual Management Agreements are negotiated with each of the four District Councils"

**Comment: E230**

It is understood no such MoU exists with the District Council of Tumby Bay, and given the position of Council on MoU's (they are not worth the paper they are written on, claimed at November Council Meeting in presence of a number of Members of the Association), they probably will never exist.

No formal reference to such instrument has been made in Council Minutes over recent times so the question becomes what is the level of consultation/engagement being undertaken with the District Council of Tumby Bay in this matter?
In the absence of any visible documentation, is the consultation being undertaken in a non-transparent manner?

**The Claim:**

**Table 6-2 Stakeholder Groups and Engagement**

**Local Government**

- DC of Cleve
- **DC of Tumby Bay**
- DC of Elliston
- DC of Kimba
- Wudinna DC
- **25 formal meetings with District Council executives and councillors**
- Weekly / monthly / bi-monthly informal meetings to provide updates and gain feedback’

**Comment: E231**

Given that the company has stated that its consultation program has not separated the two components, it is assumed that issues pertaining to road infrastructure and the relationship with the DCTB as outlined will be taken up under the auspices of the Development Approval. The discussion is included here as an example of the lack of transparency in the consultative process claimed by the company.

Copies of the Agenda and Minutes of Meeting of the District Council of Tumby Bay for the months December 2015 and January 2016 are attached demonstrating no community engagement with the issue at Council level.

It is noted that a period of 17 Nov 2015 to 2 Feb 2016 is considered to be adequate to consider BOTH the MLA and AIS applications which total some 4880 pages.

It is also noted that hard copies of the documentation can be purchased from DSD at a significant cost to the public.

It is noted that an electronic form of the document (in a secured pdf file) and or a downloadable file (approx 450Mb) from the DSD website is available. For many Eyre Peninsula residents internet access is not an option.

**Attitude towards MoU**

**Comment: E232**

The applicant has stated no MoU's or Heads of Agreements exist with Councils (future work).

District Council of Tumby Bay position on MoU's as stated by the CEO:

"MoU's are not worth the paper they are written on" and "Mining is purely speculative and it won’t happen”.

An examination of the Minutes of Meetings (and Agenda) of the District Council of Tumby Bay as it is affected by the proposal indicate:

No MoU exists with Council in regard to roads

No MoU exists re the provision of services in support of construction camp at Cape Hardy

No MoU exist with respect to infrastructure demands at Port Neill as consequence of activities of operations. It must be recognised that the DCTB has initiated a common effluent scheme throughout the township of Port Neill despite overwhelming objection by the ratepayers and at significant costs to the ratepayers. A cynic would suggest that the timing of the approval for this scheme may be co-incidental to the lodgement of the EIS by the company and the anticipated accommodation requirements at Port Neill.
No MoU exists with respect to loss of rate revenue at Cape Hardy (primary production) or for rates potentially to be gained from the industrial site of 1100 hectares.

No MoU exists with respect to non complying activity (the port and land based infrastructure) and its environmental impact measured against the DCTB Development Plan, noting that the project is governed by the Section 46/48 of the Development Act which over-rides local government.

It is true a number of meetings have occurred between Tumby Bay Council and the company, but the process is completely non transparent. No minutes of meetings are kept. No items listed on the agenda for discussion in a public forum.

**Financial impacts on Ratepayers re: Kinnaird Road**

Comment: E233

The Kinnaird Road is already subject to a Provisional Development Authority (PDA) pertaining to the development of Port Spencer (Major Development Status, Dec 2012 and renewed Dec 2014 until 2016). It is noted that Centrex is progressively liquidating its iron ore assets in the area, BUT the PDA has not been removed. Council is well aware of this PDA.

The DCTB 2015-16 Business Plan contains no reference to upgrading the Kinnaird Road.

The Long Term Financial Plan adopted by Council along with the 2015-16 Business Plan identified funds allocation to the upgrade on the road some 8 years hence.

September/October Council meetings, the upgrading of Kinnaird Road was brought forward at a cost of some $800,000 of ratepayers monies. The activity involved the lodgement of a Special Road Grant for the work and Council to do some preliminary work (Item 15c/112015).

No community consultation appears to have been entered into, yet the planned activity on this roadway includes:

- **Intersection upgrades would be required to allow the required turning circle room for a** 12 m wide x 52 m long module transporter as shown in Figure 5-5. The intersections that would require upgrading would be the North Coast Road/Port Neill Access Road intersection, Port Neill Access Road/Lincoln Highway, Lincoln Highway/Balumbah-Kinnard Rd,(p60)

- **These modules are due to arrive in a concentrated 3 to 4 month window, starting around month 18 of the construction period. They would travel along the haul route at different speeds, varying between 1km/h and 40km/h taking between one and fourteen days to reach the proposed mine (assuming 12 hour driving shifts).**

- **This would require pullover sites approximately every 12 km along the module delivery route clear of the public road carriageway. These pullover sites would need to be at least 12 m wide, allow for access for largest size module (53 m long x 13 m wide x 45 m tall) and would be required to be paved to take the modules weights (up to 3000 tonnes).**

- **The exact locations of module pullover sites will be discussed and agreed with DPTI and the relevant District Council prior to construction**

It is further noted that no cost benefit analysis statement has been provided to ratepayers for the expenditure of these monies. The assumption being, the beneficiaries are the mining companies per se.

**Council-Community - Applicant transparency**

Comment: E234

It is known that Departmental protocol is to invite comment from Council on both the MLA and the EIS. The documents contain a significant number of references to the District Council of Tumby Bay.
The DCTB has no official record (as disclosed in the Minutes of Meetings December 2015 and January 2016 as attached) pertaining to the discussion/debate or community consultation of the Mineral Lease Application or the Environmental Impact Statement for the proposal.

Freedom of Information enquiries have revealed that no Council records (notes of meetings or minutes of meetings) are kept when Council meets with officials of the application.

Despite being a local reference point for the availability of documentation related to the MLA and EIS, no notice of either was registered on the Council’s website until 15 December 2015.

**Council’s approach to the assessment of the MLA/EIS**
**Comment: E235**
Council has been advised of an approach used by the District Council of Yorke Peninsula in its assessment of the Rex Minerals’ Hillside Project. There is no evidence that the suggestion has been considered by Council.

**Council’s position on AGL Kookaburra Gully MLA**
**Comment: E236**
Council’s response to a recent MLA (of 1100 pages) was Council has neither the expertise of resources to comment upon the document. Given this application was not governed by Major Development Status (s46-48), it is contended that Council had a responsibility to consider in detail all aspects of the proposal, especially those relating to development activities in the Tod River Water Protection Zone; the upgrading of a proposed transport route and the installation of a pipeline carrying contaminated water from the Tod Reservoir on Council road reserves, but failed to do so, leaving the ratepayers exposed to considerable financial and environmental risks in the absence of any MoU's to the contrary.

The position of Council being we have neither the expertise nor resources to comment fully upon the document.

In the absence of evidence to the contrary, the same complaint can be laid in respect to the current proposal.

**Council’s position on Land Tenure**

**8.2.7 Land Tenure**

**Table 8-4 Property Ownership: Port Site**

*District Council of Tumby Bay*

*CT Volume 5884 Folio 461 Allotment 10 DP60630 Runs south along the coast from Brayfield Road to Kiandra Road and is crossed by the jetty*

**Comment: E237**
It is noted that the above mentioned asset of the District Council of Tumby Bay is identified within the Port complex.

In the absence of evidence to the contrary, and especially the complete lack of transparency on this matter on behalf of the District Council of Tumby Bay, and the non-existence of any MoU's on the matter, can the applicant provide an explanation as to how this property is to be acquired (sale or compulsory acquisition).

It is assumed that the property will be assigned a market value and the applicant will be required to purchase it at that value plus all fees

Failure to meet this expectation is inferred as a gift to the applicant at ratepayer's expense. What is the financial loss accrued by Council when this land is acquired for the purposes of the Port? When will ratepayers of the District be advised of this consideration and have input into the decision making process, or is it a fait complii, given that the proposal has major development status and s78 of the Development Act may be brought to bear?

**Road Closure etc:**

“The proposed road closures and alignments will be reviewed and confirmed in consultation with the District Council of Tumby Bay, District Council of Cleve and Wudinna District Council as detailed design progresses” (p81)
Yet again more future work not subject to public scrutiny.

What therefore is the economic cost to the ratepayers? The roads represent assets held in trust for the ratepayers of the various Councils impacted by the proposal. What appears to be missing is the financial and economic impact of the proposed road closures as listed in this application.

This is the reality of the loss of benefit to the community as a consequence of the proposal.

It is understood the roads are Council property, therefore Crown Land. The issue of the extinguishing of Native Title on these lands does not appear to be addressed.

For the DCTB there are a number of roads and the unmade road (North Coast Road) as well as a parcel of Council owned land in the port precinct.

What is the financial loss accrued by Council when this land is acquired for the purposes of the Port? When will ratepayers of the District be advised of this consideration and have input into the decision making process, or is it a fait compli, given that the proposal has major development status and s78 of the Development Act may be brought to bear?

Traffic Impact

"The estimated increase in daily axle loadings (Equivalent Standard Axles or ESAs) from heavy commercial vehicles (HCVs) on the haul road pavements varies from negligible (0%) to considerable (1866%, but again from a very small base) over the same period. The impact of this additional loading on pavement condition is unknown and will depend on the existing condition and remaining life of the pavement. Iron Road will undertake pavement deflection (strength) testing on haul route pavements before and after the construction period to determine whether any remedial pavement rehabilitation treatment is required as the result of the CEIP construction."

Given the declared disadvantage of some of the LGA’s (and especially the District Council of Tumby Bay) in the project zone, any cost to the ratepayers is clearly represented by a denial of a community licence to operate.

The applicant has provided considerable estimates of the traffic impact at key locations within the District Council of Tumby Bay. The issue here now being, what is the impact upon the community, especially the community of Port Neill, where a very significant increase in traffic and its consequential risks (accidents, noise, pollution etc) will occur?

The Council appears to be silent on this issue.

SOCIAL IMPACTS

Given the importance of the consideration of social impacts of introducing some 1000 itinerant construction workers into the local environment of the DCTB and thence a permanent workforce of 2-300, Council needs to address the consequences of this impact upon the services it ‘provides’.
Accordingly, the Association has replicated its response on social matters here with the note that the commentary whilst written for the Mining Lease Application applies equally to the infrastructure corridor and port facility.

The pressure of time did not permit the response to be written with specific reference to the mine and or the port/corridor.

**Appendix - MLP Q - SOCIAL FACTORS**

3.5.1

"Similar characteristics and qualities were identified in Tumby Bay as part of the Centex Port Spencer proposal (Golder Associates 2009, Socio-Economic Baseline Study). These included the small town lifestyle, familiarity with community members, the quietness and visual amenity of the area, the low levels of crime and high levels of safety and the clean, relaxed and stress free environment."

**Comment: E241**

It is interesting to note the reference to the findings related to the Port Spencer project included in this Report. Whilst the life style characteristic outlined are still characteristics to be cherished without the impost of mining companies, clearly the authors of the Report are unaware that the Centrex Port Spencer project and associated prospects are being wound up by the said company (refer to releases in the Australian Securities Exchange ASX: code CXM). Assets are being either sold or written down. The Wilgerup Mine has been written down to land value only.

**pp61/201**

"the DC of Tumby Bay scores below the Australian mean on all four indices and is in the lowest 50% to 60% of South Australian LGAs. It is the most disadvantaged of the local study areas on three of the four SEIFA, and has smaller areas within the LGA that are significantly disadvantaged (ie where scores fall below 900) on all indices."

**Comment: E242**

One might extrapolate from these results the conclusion that the community does not have the financial wherewith-all to sustain Council’s involvement through the provision of infrastructure at ratepayer’s expense, as it appears to be the case with the recent approval for work to be done (at ratepayer expense) on the Kinnaird Road.

There are no Memoranda of Understanding between the applicant and the District Council of Tumby Bay suggesting any financial arrangement to the contrary.

It is the stated position of Council that MoU's are a waste of paper!

**Business opportunity (p100/201)**

"The Economic Impact Assessment estimated that around 24% of direct construction expenditure on the CEIP (approximately $286 million per annum) and 18% of direct operational expenditure (approximately $201 million per annum) would be spent in the Eyre and Western region, with the greatest expenditure occurring in the Wudinna DC.

Business opportunities would change over the construction and operation stages of the project and are likely to include fuel supplies, communications, transport and logistics (such as workforce transport, mechanical services for fleet maintenance), engineering and construction services (such as light earthworks, road maintenance), the supply of services, goods or consumables to camp and village accommodation, catering, training, and the provision of materials." (underling added)

**Comment: E243**

Whilst the above statement describes an ideal situation, the reality of purchases made by contracts would suggest that it most likely would not occur, unless, of course, a series of MoU of Deeds of Agreement with the prospective providers of services already exist. It is suggested that the figures do not reflect reality in the business world.

“A 2007 study of the impacts of coal mining in the township of Moranbah in the Bowen Basin in Queensland found that the average non-resident mining worker spent over $160 in Moranbah each
week on key items including alcohol, fuel, food and entertainment related expenditures, or over $3,800 across 24 working weeks per year (Rolfe et al 2007). Based on an LDC workforce of 300 people, this would generate an equivalent total expenditure in Wudinna of over $1.1 m per year."

Comment: E244
The relevance of this example needs to be challenged, given that the Wudinna accommodation village will be a self contained entity as is the construction village, some 45 kilometres away.

"Whilst the CEIP would result in some loss of agricultural land (see Section 4.2.5), the project represents an opportunity to diversify the economic base in the Eyre Peninsula, at the same time maintaining the agricultural viability of the local economy."

Comment: E245
The conclusion drawn that maintenance of the agricultural viability of the community is achieved, the reality is that a number of successful agricultural enterprises will be lost and that a significant risk due to fugitive dust contamination of the surrounding wheat and barley belt and associated pastures most likely will result. Contaminated grain will potentially be an outcome of the claimed joint port facility despite the fact that previous experience has shown significant economic losses to grain producers and handlers as a consequence of contamination by ore dust.

In the absence of evidence to the contrary and advice from the Federal Government Department of Agriculture with respect to contamination issues and the impact upon Australia’s clean grain export credentials, and claim that mining and agriculture can co-exists escapes reality.

The risks are significant.

pp 101/201: “Iron Road is committed to providing opportunities for local and regional contractors and businesses to participate in the project wherever practicable and would:

- develop an Australian Industry Participation Plan to maximise opportunities for Australian businesses to participate in the CEIP
- work with the Industry Capability Network (ICN) South Australia, Regional Development Australia
- Whyalla and Eyre Peninsula (RDAWEP) and other regional development organisations to promote the participation of local, regional and South Australian businesses in the project
- work with business groups to identify local business opportunities; provide information on the CEIP
- business opportunities, tendering and procurement processes and standards to facilitate the prequalification of local and regional businesses
- work with government, education and training programs and Regional Development Australia to
- enhance business capacity among local and regional suppliers.
- maintain the existing register of businesses with an interest in supplying goods and services to the project
- identify contract packages that could potentially be let locally or regionally
- work with other members of the Eyre Peninsula Mining Alliance to create long term business benefits to Eyre Peninsula communities. "
Comment: E246
Again the applicant is proposing future work which is outside the scrutiny of the public. Where are the Heads of Agreement with the entities identified above and the associate key performance indicators or goal so that transparency in the approach and desired outcomes are clearly identified and thus the applicant is accountable to achieve same. In the absence of these performance criteria, the statement can be interpreted as a mere page filler.

"The construction workforce would typically comprise young single men, who would be made up largely of FIFO and DIDO workers. As a consequence, no long-term change in the population or demography of local areas is anticipated.

Wudinna and Tumby Bay police stations are staffed by one officer."

Comment: E247
What representation has been made to SAPOL for the assignment of additional Police resources at Wudinna and Tumby Bay to cope with the significant influx (1950) of single men in the respective Cape Hardy and Warramboo mine camp sites?

Any suggestion that there will be no social problems associated with this influx is clearly a figment of the applicant’s imagination.

In the absence of evidence to the contrary, the applicant’s alcohol and drug policy does not appear to be attached to the application. It is assumed a zero tolerance to alcohol and drugs in line with the SafeWork Act is the accepted code of behaviour whilst on the job. The question being, does accommodation in the company provided camp constitute being on the job?

"The construction camp at the port site would be in use for approximately two and a half years, with the accommodation units being decommissioned and removed after the completion of the construction activities. During operations, Iron Road anticipates that the workforce for the port would live locally in residential housing and commute to work on a daily basis” (p113/201)

Comment: E248
The assessment of available accommodation includes:
"Around 100 operational workers would be required for the proposed port development. It is Iron Road’s expectation that the majority of the operational workforce would live locally, in townships or surrounding rural areas. These workers would be drawn from existing local residents or people who choose to relocate to the lower Eyre Peninsula to live and work. Assuming that half of the 100 operational workers were new residents, this would potentially equate to 50 new households. As discussed in Section 4.2.2, towns that can be reached within 45 minutes by car of Cape Hardy include Port Neill, Tumby Bay and Arno Bay, while Cowell, Cleve, Cummins and Port Lincoln can be reached within an hour or so, from where it would be possible to commute daily for work. In addition, some workers may choose to work on a FIFO basis, and would be accommodated in local short-term / visitor accommodation, as Iron Road does not intend to maintain long term accommodation at the port.” (p117)

Comment: E249
The assumption that the workforce for the Port would be drawn locally is just that, an assumption. Where is the evidence to support the assumption?

What is the workforce profile for the port and how does this match the skills of locally available candidates?

"An assessment of the housing market in the DC of Tumby Bay suggests a relatively high proportion of dwellings (around 30%) were unoccupied at the 2011 Census (ABS 2012a), including close to 200 dwellings in the township of Tumby Bay and over 100 dwellings in Port Neill. Almost 90% of dwellings in Port Neill and 70% of dwellings in Tumby Bay are owned or being purchased. This includes a number of shacks and holiday homes, with a ‘significant proportion of dwellings in the township occupied predominantly on a seasonal basis’ (DC of Tumby Bay 2013c, Port Neill Sustainable Future Structure Plan). The Port Neill Structure Plan further notes that the ‘unoccupied nature of two thirds
of the existing dwellings within the township means that the township could theoretically accommodate a tripling (or slightly greater with an increase in the average household size from 2.0 to 2.2) of the population without requiring the construction of any additional dwellings. This would take the population in the current dwelling stock [of around 136 people] to something in the order of 400 persons."

(p118)

Comment: E250

The depth of research analysis in relation to the available accommodation in Tumby Bay and Port Neill is indicative of the minimalistic approach taken by the applicant in this application. Clearly the reason for the 200 (if accurate) and 100 (if accurate) supposedly vacant premises is that these houses are owned by locals and are most likely, holiday houses which is characteristic of the lifestyle of these communities.

The assumption or inference that there is a wealth of available housing is misleading, leading to the question what accommodation will the applicant provide for long term employees associated with the operation of the port?

It is noted that building approvals in Tumby ay have declined to the period 2013. What is the current level of building approvals and then the trend over the past five years to 2015, given that the final version of this component of the report was signed off 4 Nov 2015?

"Residual impact

Given the size of the operational workforce, the availability of housing for rent and purchase in townships within commuting distance of Cape Hardy, and existing structure plans for Tumby Bay and Port Neill, the impacts on housing are predicted to be negligible"

(p118)

Comment: E251

Given the lack of understanding as to the true nature of the so called vacant housing in Tumby Bay and Port Neill as described, the conclusion lacks credibility.

"In addition, the development of the long term employee village on the perimeter of town could potentially lead to perceptions of an ‘enclave’ of highly paid workers, living in separate facilities ‘outside’ of the residential community, who support the town’s economy but have a limited sense of connection to it, and do not participate in, or contribute to the functioning of the community."

(p119)

Comment: E252

It is noteworthy that the applicant has identified one of the most significant social cohesion problems that most likely will arise not only in Wudinna, but potentially across all sections of the project and more-so where FIFO or DIDO employees are involved.

Significant research has been undertaken as to the social impacts upon communities involved with FIFO and DIDO workforces. Clearly these impacts have not been brought to this discussion.

"The use of local services and facilities by the LDC workforce would also increase opportunities for interaction between non-resident workers and local residents, and promote a greater sense of familiarity and belonging. Directing."

(p120)

Comment: E253

Unfortunately the opposite conclusion is also a distinct possibility, namely resentment at the increased competition for existing services.

"the operation of the port is not expected to affect the sense of community or impact people’s way of life in the long term, and residents, workers and visitors would be able to continue to live and use the local area in the same way they currently do."

(p120)

"Negligible residual impacts on social character and well-being are predicted from the operational workforce in the DC of Tumby Bay."

(p120)
Comment: E254
The reality of course is the use of the marine environment will now be severely restricted as a consequence of the port facilities. In addition the impact of the port upon the marine environment will be significant despite contentions of the applicant to the contrary.

The impact of the construction workforce for the two and a half years is not well articulated. There will be potentially a significant impact upon the services provided by Tumby Bay (given the paucity of services available in Port Neill).

What is the predicted impact upon medical, dental, community health pharmaceutical ambulance, emergency services of an additional 600+ construction workforce available in Tumby Bay?

It is noteworthy also that the description of the airport facility at Tumby Bay is inaccurate. The airstrip is sealed and has pilot operated lighting system for night time use. It is frequently used by the Royal Flying Doctor Service.

The conclusions presented are not credible.

Cost of Living: (p121)
“Negligible residual impacts on cost of living are predicted within the DC of Tumby Bay.”

Comment: E255
Given that no discussion of the potential impact of significantly differing wage/income profiles between company workers and that of the District, and in particular, the township of Tumby Bay or Port Neill, the conclusion appears to lack credibility.

Safety and Security: (p122-3)
"a LDC workforce provides companies with considerable control over the labour force as accommodation and work sites are usually ‘closed’, the supply of alcohol is regulated, and worker behaviour is closely monitored, with minimal opportunities for negative interactions with the broader community."

Comment: E256
If this is the management plan for the Wudinna Accommodation Plan, then it would appear to contradict to ‘integration’ of the workforce with the local community model espoused by the applicant. The question being, which model is to be recognised as that applying to this application?

“The design of the construction camps at both the port site and the mine site includes a gatehouse and security systems at the entrance to monitor and control access to the camps

Workers would be required to sign a ‘Code of Conduct’, linked to their employment contract, outlining behavioural expectations applicable at workforce accommodation and in local towns. Contractors as well as employees would be required to adhere to the code of conduct and Iron Road’s policies regarding drugs and alcohol.”

Comment: E257
The proposed management criteria for the camps and obligations of the employees is noted.

It is also noted the very limited Police presence in both Wudinna and Tumby Bay. The application is deficient in detail as to how this Police presence will be supplemented should the project be approved and implemented.

Public safety is a major concern, and with both Police Stations only offering 9-5 services, the concern is enhanced.

This question also goes to the provision of a safe work environment for the Police Officers assigned to Wudinna and Tumby Bay, by SAPOL.

“Negligible residual impacts on safety and security are predicted within the DC of Tumby Bay.” (p123)
Comment: E258
Clearly the applicant, in drawing this conclusion with respect to Tumby Bay has total disregard to the potential social impact of an itinerant workforce, predominantly single males (located at Cape Hardy) as raised by the community of Tumby Bay.

The assessment is not credible.

Critical Population Groups:
"Negligible residual impacts on critical population groups are predicted within the DC of Tumby Bay."
(p124)

Comment: E259
Given the arguments and population/economic profiles presented in this report, the above conclusion appears to contradict the evidence presented.

Another interpretation of the data relating to Cape Hardy workforce may well be, "it's not on the townships doorstep, therefore out of sight and out of mind, and they will not complain anyway!"

"Iron Road would also be required to pay rates on land within the proposed mining lease."
(p128/201)

Comment: E260
It is the understanding of the Associations that Mining Lease holders do not pay rates to Local Government. They are required to pay royalties to the State Government under the provisions of the Mining Act.

The question being, therefore, what is the loss of revenue to the Wudinna District Council as a consequence of granting the Mineral Lease?

The potential loss of Council revenue is a cost to the community, one which no doubt will be passed on to those remaining, this being a significant social impact that appears not to have been accounted for.

The loss of agricultural land is being considered in the context of a micro study. What is being ignored is the loss of sustainable food producing land per se, i.e. the bigger picture and the potential contamination of a significant footprint outside the actual mine footprint as a consequence of fugitive dust and the contaminants it contains.

(i) Loss of agricultural land:
"The residual impact is predicted to be low in the short term, assuming that fair agreements and compensation are negotiated with directly affected landholders."
(p128)

Comment: E261
There are some substantial assumptions being made in the so called 'residual impacts'.

The applicant has threatened legal action in the ERD Court should there be resistance to purchase of property. The application to date has not mentioned the potential for compulsory acquisition of property under the Development Act (s26/48 Major Development status assigned to project and s78 compulsory acquisition powers under the Act).

The question of fairness appears to be a one sided process. The applicant requires the land, but the landholder loses a business, so what value is to be placed upon the land? Its income producing capacity as an agricultural enterprise or simply the land value. Livelihoods apparently are not included in the negotiations. So what is ‘fair’?

Perhaps there should be Government Policy developed for inclusion in the Mining Act/Regulations that determines what is ‘fair’ in these circumstances.

It is suggested that the market value of the property pre any indication of mining (i.e. normal market value) should be the benchmark, to which is added a compensation allowance of 85% which has been used in other ‘negotiated’ situations, plus all legal fees and charges to be met by the applicant.
Such a benchmark position would clearly resolve the social issues of stress, anxiety, depression etc associated with the impact of a mining application over the family business which appear to commence from the time it becomes known that an Exploration Licence has been issued over their property (ies).

(iii) Amenity
Comment: E262
It is significant that dust (fugitive dust) is of high concern. Dust from the proposed mine (and associated infrastructure) will pose issues with visual amenity, nuisance and health impacts.

As outlined in this response, there are significant issues relating to the Air Quality assessment provided in the application.

It is significant that the health issues associated with fugitive dust are simply not dealt with as the position of the applicant is that there are none as 'ore dust is non-toxic' Granite May 2014). Research would suggest otherwise.

The health impacts of fugitive dust has been brought to the attention of the applicant, but answers have not been forthcoming.

The question therefore becomes, what is the health impact of fugitive dust (and it unknown/undisclosed contaminants) upon the community at large, having regard to the longevity of the mine and the fact that this might not be the only mine given the disclosures of reserves provided to the ASX.

Again, this section refers to 'future work' vide the dust management plan which is clearly out of the realm of public scrutiny (transparency). The application is clearly deficient in identifying the risks and appropriate mitigation measures.

The arguments presented in this section and the conclusions drawn are refuted based upon the responses previously made to the air quality and noise assessments.

Road closures:
"The residual impact is predicted to be medium as a result of the increased travel time and inconvenience for local residents, landholders and other road users from the permanent closure of public roads around the mine site"

Comment: E263
The assessment appears to be devoid of consideration as to the economic and social impact of the said road closures on the community per se, not just those surrounding the proposed mine site.

It appears no consideration has been given to the increased travel time for emergency services to reach the eastern side of the mine. This becomes a significant issue in the case of a bushfire, and given the stated dismissive position of the applicant with respect to bushfires, significant concern has been expressed as to access for CFS facilities in such circumstances. Travel times are critical but only considered a 'medium' inconvenience for the next 25 years or so by the applicant.

Clearly this attitude is not consistent with a social licence to operate.

Cape Hardy
"social impacts associated with the proposed deep sea port facility at Cape Hardy including altered access to coastal areas, changes to land and marine-based activities, and altered land and seascape affecting local land values and amenity" (p132)

Comment: E264
It is not made clear to date of the exclusion zone on the marine environment surrounding the port infrastructure, including the shipping lanes.
These exclusion zones will have an impact upon local and possibly commercial fishing.
(i) Access
Several changes are proposed to the public road system near the port site. These will be subject to further consultation with the DC of Tumby Bay as detailed design progresses and include:

- the construction of new bridge over rail for the existing North Coast Road at the northern port site boundary
- the closure of Brayfield Road on the eastern side of North Coast Road and upgrade of Brayfield Road between North Coast Road and Lincoln Highway
- a minor realignment and upgrade to sections of the Port Neill Access Road, including the Port Neill
- Access Road/North Coast Road intersection and Port Neill Access Road/Lincoln Highway intersection.

Comment: E265
The changes to access are noted.

However, an examination of the Minutes of Meetings of the District Council of Tumby Bay do NOT disclose that any of the above have been formally brought before a meeting of Council, let alone brought to the attention of the community of the District and its ratepayers.

"In addition to the above, Iron Road has requested each of the four impacted District Councils to give consideration to entering into a Memorandum of Understanding (MoU) prior to the EIS being determined. The EIS Guidelines refer to setting out details of Management Agreements between Iron Road and each impacted District Council, but the CEIP has not progressed sufficiently enough at this stage to enable Management Agreements to be negotiated" (EIS:6-14)

Comment: E266
It should be noted that the publicly held position of the District Council of Tumby Bay is that MoU are "not worth the paper they are written on" as stated in the Council Meeting of November 2015 at which members of the Association were in attendance.

“A suitable port boundary would be designated as the limit of jurisdiction of the port operator (see the proposed port operating limits (marine waters) on Figure 4-10).

During construction activities, appropriate exclusion zones would be established to ensure public safety for people on land and on or in the water, and to protect marine life. There would also be some restrictions on boating, swimming, diving, skiing, mooring or anchoring in the vicinity of the wharf and jetty, and during loading and unloading of vessels to ensure public safety. These restrictions would be determined by the South Australia Department of Planning, Transport and Infrastructure and would form part of a port operating agreement."

Comment: E267
Clearly the application is lacking in detail (and hence transparency) to enable the community to make appropriate commentary upon the social impact when the impact cannot be realistically assessed. It is agreed, there will be impacts, but to what extent?

Impacts on the basis of public safety are not disputed, provided they are articulated. This is not apparent herein.

The assessment of negligible impact is clearly contestable and not credible in the absence of definitive information.

It is noted some restriction (50m) would apply around the jetty complex. A more definitive position with a legislative base is required given the frequency of vessels to be arriving and departing and the size of these vessels (cape class) so that the public can assess the actual impact.

(iii) Amenity
“Local residents and visitors may experience some disturbance, inconvenience and loss of amenity associated with the construction and operation of the proposed port. Technical assessments of noise and vibration, air quality, traffic and visual amenity are contained in the CEIP EIS. This section deals with associated effects on amenity in terms of people’s experience and enjoyment of the local environment.

Construction activities at the proposed port would take place over a period of approximately two and a half years, 7 days per week, and up to 12 hours per day. Blasting would occur over a period of approximately 5 to 6 months as part of construction of the port infrastructure. Personnel would be on site between 6am to 6pm, with construction occurring between 7am and 5pm. The majority of the construction workers would fly-in and fly-out from Port Lincoln, and would be bussed to the onsite accommodation camp and work sites at the port.”

Comment: E268
It is noted that a discussion of the compliance with the District Council of Tumby Bay Development Plan (as amended) is not a feature of this application and so comparisons with the existing requirements for all other residents of the District Council are not included.

This of course arises from the fact that the project has major development status. It is noted that compliance with the recently Gazetted Council’s Coastal Zone is not required, however other are forced to accept the impost.

It is noted that a number of roads will disappear, whilst other will require significant upgrading. The future of the coast road (track - unmade road) along the coastline is not made clear in the application at this point. If this is to be subsumed by the project, then this is clearly a loss of amenity for the community, one which has not been broadcast by the applicant or Council.

Further, the loss of designated roadways and unmade road assets of Council have not been made public prior to the release of this document. What therefore is the economic loss to Council and thus the ratepayers as a consequence of the proposed action?

It is noted that blasting will occur over a 5-6 month period. It is assumed the impact assessment of this occurs with the EIS document for the infrastructure corridor. However what is the impact upon the residents of Port Neill and the local resident?

Again, it is noted that the majority of the work force will be FIFO ex Pt Lincoln. The question of the oft touted 'local employment pitch' that was a feature of presentations of the applicant, are clearly not credible.

Para 1, p231 introduces a discussion of noise with the claim that construction noise will be within acceptable limits. It continues to discuss vibration levels and their predicted impact of operations of the train etc. It is suggested that whilst vibration might be an issue, the real issue is noise transmission from the site to the nearby township of Port Neill and those other receptors in the vicinity. Trains, whether loaded or unloaded, generate noise and infrasound. In addition heavy machinery associated with the complex also generates noise.

Comment: E269
The question being whether the application has addressed the level of noise transmission (inclusive of infrasound) emanating from the site, be it across the landform or across the water to Port Neill and other nearby receptors?

Noise transmission is also dependent upon meteorological conditions. It is understood that no site specific meteorological observations exist. Port Lincoln BoM is some 80 kilometres to the south. It is known weather observations vary considerably the further north one travels.

"There is no existing wind monitoring station at Port Neill. The nearest coastal monitoring station is at Port Lincoln." (EIS 7.3.2)

Comment: E270
Given that the nearest BoM weather station is Port Lincoln and that no site specific meteorological data has been collected, the noise and dust dispersion models clearly lack credibility.

Figure 4-14 Sensitive receivers within 2 km of the infrastructure corridor (south)
Note: The locations of sensitive receivers have been primarily determined by desktop assessment of aerial imagery and are subject to field and community verification.

Comment: E271
The problem with the Figure 4-14 is the missing information between Cape Hardy and the Mount Hill Coomaba Road. The applicant is therefore NOT providing a complete picture with respect to the corridor and the potential impact it would have upon the families not identified.

This is a significant omission when consideration needs to be given to the impact of noise and fugitive dust upon these unidentified receptors as well as other ‘factors identified’ in this Report.

"Iron Road is committed to negotiating consistently and sensitively with directly affected landholders to achieve agreements with all parties." (p146)

Comment: E272
Whilst this appears to be a reasonable corporate goal, the reality is that the corridor is subject to major project status under s46/48 of the Development Act. As such, s78 of the Development Act Compulsory acquisition, may come into play. There does not appear to be any recognition of this fact nor the social consequences arising there-from.

The spectre of compulsory acquisition has been present since the Government declared the major project status of the CEIP.

The corridor may have significant management impacts for those affected. These include re-alignment of fences, water reticulation, crossing points and the potential to not access part(s) of the property. The question being, who bears the expense of these management impediments, given that they are for all intensive purposes permanent?

It has been suggested that crossing points on private property will be limited to one. An assessment of such a limitation would suggest that it is unworkable in reality. In one instance a limit of one crossing for a property containing several kilometres of corridor is totally impracticable.

The social impacts (including mental health) of these impediments do not appear to be recognised in the application.

The overarching threat of compulsory acquisition is not a basis for ‘fair’ negotiations as claimed by the applicant.

"The assessment of noise and vibration noted the high level of acoustic amenity enjoyed by rural residents with minimal human induced noise sources. It found that construction works undertaken on a Sunday or a public holiday or during the night time (if required) would require a separation distance of at least 1-1.5 km between the construction work and a sensitive receiver in order to meet the requirements of the Environment Protection (Noise) Policy 2007 (Noise Policy). However, if the separation distance cannot be achieved, specific environmental management controls would be implemented to ensure Noise Policy criterion are met. These controls would be detailed in a construction environmental management plan." (P148)

Comment: E273
The question being what the baseline noise levels are at each receptor site against which any impact (perceived or real) can be measured. Given the use of heavy machinery, what are the levels of infrasound transmitted to the receptor sites?

It is noted the intention to include specified environmental management controls in a construction management plan, the details of which constitute ‘future work’ not subject to assessment or review by the public. Clearly, the minimalistic approach continues.

"the assessment found that gaseous pollutants were unlikely to exceed relevant air quality standards at distances of 140 m or more from the railway line, with the closest sensitive receptor located 140 m from the proposed railway line". (p149)
Comment: E274
The problem being the baseline testing for air quality is flawed. In the first instance the baseline must be recorded at each and every receptor on the corridor. Secondly the meteorological data must be site specific. Thirdly the collected sample must be analysed for PM10 and PM 2.5 inclusive of the analysis for diesel particulates.

Having obtained the baseline data, then a predictive model can be generated with air pollutants characteristic of that from Diesel trains and all diesel powered machinery operating in the immediate vicinity. Having established a normal baseline (no port) and a predicted model (more representative of the area) actual monitoring can continue at all receptor sites to ensure that the predicted value and the actual value are below the accepted level.

Such a program will also provide benchmarking in the event of claimed poor air quality arising from some activity being undertaken by the applicant, leading to virtually immediate mitigation.

All air quality and noise measurements must be available in real time to the public.

The health and welfare impacts of noise and fugitive dust appear not to be addressed to the level that establishes an appropriate baseline from which real time impacts can be determined.

Changes to transport networks (p149)

"operation of the infrastructure corridor would also require the realignment and upgrade of several local roads which will be reviewed and confirmed in consultation with relevant DCs."

Comment: E275
Given that the proposed changes involve expenditure of an hitherto undisclosed sum of money, the lack of transparency with this non-disclosure, when couple with the socio-economic structures of the various District Council (as outlined in the Report) in absence of evidence to the contrary, potentially places additional burden upon the ratepayers of these District to meet the costs.

It has been noted that the applicant sought to have a variety of MoU’s with Councils on a variety of road matters, but that these have not eventuated.

As mentioned in the case of the District Council of Tumby Bay, such documents are considered a waste of paper. Notwithstanding this position, the application is devoid of a cost estimate of such upgrades, particularly in Council areas where there is a significantly low socio-economic position, leading to the question of whether ratepayer funds will be used in this regard.

This apparent undisclosed cost to ratepayers needs to be determined before any approval is given. The right of ratepayers to object to the costs must be upheld. Ratepayer funds are not there for the benefit of the applicant.

"A construction traffic management plan would be prepared to minimise potential impacts on the community and the operation of the road network." (p150)

Comment: E276
Given the nuisance value of road works and the inconvenience caused, the so called ‘future work, the construction management plan’ needs to be included in this application. Further, the plan needs to be compliant with the District Council of Tumby Bay’s heavy vehicle requirements.

Transparency is required on all factors likely to impact the social fabric of the area in question.

Table 4-7
"Increased competition for workers and resources, attracting them from other sectors of the local and regional economy, including agriculture and fishing"
As mentioned elsewhere in this response, the competition for workers and resources is considered a major disincentive to the 'economic benefit' to the community. The resultant situation being increased costs for existing industries.

Population increases and demographic change in Wudinna

- Reduction or reversal of population losses in local and regional areas, by attracting and retaining families and young people

Comment: E278
Population increases as a consequence of FIFO and DIDO alter significantly the socio-economic mix of the towns impacted. Experience in other places would suggest the impact is negative (Pilbara region).

Statistically there may be a population increase, but it is not a sustainable increase in the long term.

The retention of families and young people has not been established in the application.

Potential population increases bring a critical mass to:
- sustain services and businesses in Port Neil

Comment: E279
The 'evidence to support this contention' is not apparent.

The assumption that the so called un-occupied residences in Pt Neill will be available to potential employees is without foundation. The greater majority of these houses are 'holiday residents' owned by persons in the District and beyond.

Expanded membership base for volunteer organisations

Comment: E280
Experience in other places would suggest this is not a credible assumption.

Increased demand for, and utilization of social and community infrastructure in Wudinna as a result of the operational LDC workforce and population increases

Comment: E281
It is recognised there will be an increased demand for services not only in Wudinna but also other communities impacted by the number of persons as a consequence of the proposal.

The information provided with respect to the employee profile is devoid of detail with respect to families and the number of children involved.

The provision of health services (and allied fields) and education facilities do not materialize over night. What therefore is the predicted impact upon these facilities as a consequence of the proposal? The lack of assessment of need is a major flaw in the application.

Increased demand for housing and accommodation in the DC of Tumby Bay affects local supply and affordability Negligible residual impact on housing from: the port's operational workforce given the availability of housing in the DC of Tumby Bay and surrounding areas.

Comment: E282
The conclusions drawn here appear to contradict the reality. The assumed availability of some 200 residences in Tumby Bay is without foundation. As in the case of Port Neill, most of the identified 'vacant' residences are owned by persons within the District and beyond and are holiday homes. Some may be available for short term rental, but the reality is, most will not.
Clearly more work needs to be undertaken with respect to the availability of housing in the local areas in order to address the supply and demand equation that will eventuate if the proposal is approved.

In the event the supply is deficient, what is the applicant’s position with respect to the provision of long term housing in Tumby Bay, Pt Neill, and Cleve, and to a lesser extent Wudinna?

Potential impacts on critical population groups who may be more susceptible to adverse impacts, including women, children, older people and people on low incomes Negligible residual impact on social character and wellbeing in DC of Tumby Bay from the construction or operational workforce.

Comment: E283
The reality for Tumby Bay and Pt Neill with respect to the construction workforce is the potential competition for services provided in Tumby and the perceived threat associated with large numbers of itinerant workers descending upon the township (especially the hotels).

Outside of the normal sporting clubs, there is limited facilities in the entertainment category, ie no cinema or Clubs (vide the City Clubs scene).

The appears to be no needs analysis of the impact of the work force upon health services in Tumby Bay, noting there are no health services available in Pt Neill. A simple question being is there enough doctors in Tumby Bay to cater for the proposed construction work force impact?

The conclusion is not credible.

Safety and security
- Heightened concerns about crime among residents Negligible residual impact in DC Tumby Bay from the construction or operational workforce.

Comment: E284
The reality for Tumby Bay and Pt Neill with respect to the construction workforce is the potential competition for services provided in Tumby and the perceived threat associated with large numbers of itinerant workers descending upon the township (especially the hotels).

Outside of the normal sporting clubs, there is limited facilities in the entertainment category, i.e. no cinema or Clubs (vide the City Clubs scene).

This is further exacerbated by the fact there is a single Police Officer stationed in Tumby Bay (none in Port Neill) on a 9 to 5 basis, with emergency support from Pt Lincoln some 50 kilometres away.

The conclusion is not credible.

Minor impacts on recreational, boating or other marine activities during operations at the port

Comment: E285
Whilst there is some indication of the exclusion zone around the proposed jetty, the detailed management of this area having regard to the frequency and size of the vessels involved (cape sized) and thence the propeller wash generated by these vessels and associated vessels and the shipping channel, together with the already declared aquaculture exclusion zone, needs to be articulated in order that the public have a full understanding of the restrictions to be imposed.

A comparison with the exclusion zone proposed for the proposed Port Spencer project would suggest more details are clearly warranted.

Establish real-time dust monitors at government approved locations

Comment: E286
Given the paucity of real time dust and noise monitoring at the so called ‘receptor sites’ outlined in the application, it is RECOMMENDED that all receptor sites become government monitoring sites for the purpose of determining noise and air quality levels during both construction and operation phases of the project.
It is RECOMMENDED that the cost of such monitoring be borne by the applicant, given that it has failed to undertake such baseline studies for the purpose of this application.

Given the potential hazards identified in this response with respect to fugitive dust and noise (including infrasound) the conclusion that 'some inconvenience' may result over the lifetime of the project is clearly not acceptable in terms of achieving a social licence to operate.

**Low residual impact** from the loss of agricultural land within the mine footprint, assuming that fair agreements and compensation are negotiated with directly affected landholders

Comment: E287
As mentioned previously in this response, the question of fairness is academic in the context of potential compulsory acquisition of property under the Development Act (s78) and under the threat of legal action (ERD Court).

The conclusion of low residual risk is clearly not credible.

**Mine and Village conclusions:**

"some workers may visit nearby townships to purchase goods or for recreation and leisure activities, demands on social services and infrastructure are expected to be limited" (p159)

Comment: E288
What is the predicted demand upon medical (including dental) services arising from the construction camps at Wudinna and Cape Hardy?

What is the capacity of the services in Wudinna and Tumby Bay to meet this need?

"Population modelling indicates that the mine’s operation could potentially result in growth of between 260 and 960 people, if 20% to 60% of workers and their families chose to relocate to the Wudinna DC."

Comment: E289
The operative words are "‘could’ and ‘if’... workers and families migrate..."

What incentives exist to encourage such migrations to occur? In the event that these estimates were taken up, where is the resultant needs analysis for family services and educational services in the township of Wudinna (and an equivalent series of questions for Tumby Bay and Pt Neill)?

The education facilities available would be a major issue in the decision to choose to migrate. The long term educational plan for the town (and for other affected towns) is not disclosed.

**Cape Hardy and DC Tumby Bay**

"A workforce of approximately 100 people would be required during the operations. It is anticipated that the majority of the operational workforce would live locally in nearby towns, including Port Neill and Tumby Bay."

Comment: E290
As described in this response, the assumption appears to be the local housing stock can accommodate the operational workforce for the Port.

It is strongly suggested that this assumption is without foundation.

**Transport corridor:**

"There are 66 sensitive receivers located within 2 km of the proposed infrastructure corridor and 26 located within 1 km of the infrastructure corridor. All but one of the sensitive receivers is believed to be a residential house."
Further to previous commentary on hazardous associated with noise and fugitive dust, it appears that none of the 66 identified receptor sites within the transport corridor have had baseline noise and dust measurements undertaken. That being the case, the affected landowners have no basis for complaint unless they actually fund the taking of baseline noise and dust measurements.

Baseline noise and dust measurement is essential to ensure public health safety standards are met as a consequence of the potential impact of the applicant's activities. Such measurements must include baseline measurements for diesel particulates.

It is noted that some road re-alignments may be required at rail crossings. It is RECOMMENDED that an assessment of each crossing be undertaken to determine the impact of the angle of the sun on visibility at the crossing, especially where the line is in a north-south aspect to the passage of the sun. It is on record that sun blinding upon the approach to a railway crossing has been a cause of death in train/vehicle accidents at such crossings.

It is unclear as to whether all crossings will have flashing lights and appropriate line of sight upon approach to the crossings.

**Population Scenario Modelling:**

"Around 100 workers would also be required for the operation of the port, who would reside locally. The construction and operations workforce for the proposed port are unlikely to impact on the population or demography of the DC of Tumby Bay" (p166)

It is assumed that the 100 or so can actually be accommodated in the local community, an assumption that is without empirical evidence to support it.

"In order to plan for potential population increases in Wudinna, Iron Road will provide further information on the workforce and timing as detailed planning progresses, and participate in planning initiated by the South Australian Government, Wudinna District Council and other service providers as appropriate." (p176)

Given that this is an application for a mineral lease and that this is the only document that is subjected to public scrutiny, the afore mentioned statement provides little confidence to the community that the modelling, in the context of significant downturn in mining across the State (as evidenced by retrenchments at Roxby Downs; Leigh Creek, Prominent, Valance (Uley Graphite)) and that seen in the economic downturn of commodity prices across the world, the question is whether the modelling provided above accurately reflect to reality of the current situation and the availability of a significant experienced work force (as a consequence of the retrenchments).

The reliance upon 2011 data is of concern, given that it is four/five years out of date.

The reliance on the use of the 'Roxby Downs' model is to be questioned in the context of the very different economic circumstances surrounding the establishment of the Roxby Downs venture, including the creation of the Indenture Bill and the financial credibility of BHP.

It is RECOMMENDED that the Australian Institute be engaged to undertake a peer review of the modelling undertaken in this application.

It is noted in the population data (triangle at top of page 174) that the figures appear to include the District of Le Hunte. The question is simply why, when it is the population of Wudinna that is under examination?

Comment: E294

It is the contention of the Associations, that the District Council of Tumby Bay has failed to exercise the required due diligence and prudential management in dealing with these proposals as evidenced by the lack of discussion in Council (refer to attached Minutes of Meetings) Ratepayers of the District are potentially exposed due to
potential unfunded financial implications associated with the proposals. Transparency on behalf of Council and thence the applicant on these matters is not a feature of the applications.

EXTRACTS from the Minutes of Meetings, District Council of Tumby Bay: Dec 2015 and Jan 2016.

COUNCIL MEETING 243
8th December 2015

DISTRICT COUNCIL OF TUMBY BAY

MINUTES OF THE ORDINARY MEETING OF COUNCIL
held at the Council Chamber, Mortlock Street, Tumby Bay on Tuesday 8th December 2015 at 9.00 am.

1.0 ROLL CALL

1.1 Present
Mayor Sam Telfer, Councillors Geoff Stewart, Bob Lawrie, Laurie Collins, Hannah Allen-Jordan, Ray Hetzel and Helen Kroemer.

1.2 In Attendance
Trevor Smith (Chief Executive Officer), Dion Watson (Deputy CEO), Damian Windsor (Works Manager) and Glenda Pickford (Executive Assistant).

1.3 Apologies/Leave of Absence - Emma McDonald (Manager Environmental Services)

1.4 Absent - Emma McDonald (Manager Environmental Services) and Dion Watson (Deputy CEO).

2.0 MINUTES OF PREVIOUS MEETING

2.1 MINUTES OF THE ORDINARY MEETING held on 10th November 2015.

1c/122015 Moved - Kroemer Seconded – Collins
That the Minutes of the Ordinary Meeting held on the 10th November 2015 be confirmed as a correct record.

CARRIED

3.0 DECLARATION OF INTEREST – Nil.

4.0 DEFERRED MOTIONS – Nil.

5.0 MAYOR’S REPORT
The mayor gave a verbal report on meetings attended.

6.0 DEPUTATION – Nil.

7.0 COMMUNITY DELEGATES’ / REPRESENTATIVES’ REPORTS

7.1 Elected Members Reports
Mayor Telfer
• Presentation to Navigators College Year 2/3’s
• Council workshop
• Citizenship Ceremony
• LGA President / CEO visit
• Met with EPLGA, RDA, LGA, EPNRM
• EPLGA meeting

Cr Allen-Jordan
• Tumby Bay Area School Governing Council meeting
8.0 QUESTION ON NOTICE
Cr Collins:
Can officers prepare a report for the next Council workshop to enable discussion regarding upgrading the Bratten Way and/or Lipson Road entrances to Tumby Bay with the objective of developing a Council position that can then be taken to DPTI for negotiation.

The CEO responded that this has previously been raised as an issue and officers will begin the process.

9.0 QUESTION WITHOUT NOTICE

10.0 PETITIONS – Nil.

11.0 MOTION ON NOTICE – Nil.

12.0 COUNCIL/COMMUNITY COMMITTEE REPORTS

12.1 COUNCIL COMMITTEE REPORTS

2c/122015 Moved - Kroemer Seconded – Allen-Jordan
That the following report from the Audit Committee be received:
Audit 1/1215 Minutes 5th November 2015
CARRIED

Audit 1/1215 Minutes 5th November 2015

3c/122015 Moved - Kroemer Seconded – Collins
That the Minutes of the Audit Committee meeting held on 25h November 2015 be received and noted by Council.
CARRIED

13.0 OFFICERS’ REPORTS

13.1 Chief Executive Officer’s Reports
4c/122015 Moved - Collins Seconded – Kroemer
That the following reports from the Chief Executive Officer be received.

- CEO 1/1215
- CEO 2/1215
- CEO 3/1215
- CEO 4/1215
- CEOCONF 5/1215

DCTB 2014/15 Annual Report
A Taste of Eyre Peninsula
Memorial Hall Disabled Facilities
Order to Exclude the Public
Gemtree Pty Ltd

CARRIED
CEO 1/1215 DCTB 2014/15 Annual Report

5c/122015 Moved - Kroemer Seconded – Allen-Jordan
That Council adopt the District Council of Tumby Bay Annual Report 2014/15 as presented.
CARRIED

CEO 2/1215 A Taste of Eyre Peninsula

6c/122015 Moved - Collins Seconded – Kroemer
That Council support the proposed market in March 2016 with a donation of $1,000 and that the Community Development Officer work with organisers and local businesses/stallholders/groups to ensure that the event showcases the best that Tumby Bay has to offer.
CARRIED

CEO 3/1215 Memorial Hall Disabled Facilities

7c/122015 Moved - Stewart Seconded – Collins
1. That Council note that alternative grants are being investigated for the disabled toilet and will be applied for;
2. That Council note that grants are being investigated for access to the front entrance and stage and quotes are being obtained for those works and that further approval will be sought regarding these items; and
3. That Council note the proposed expenditure plans for the Showboat funds.
CARRIED

13.2 Corporate Services Reports

8c/122015 Moved – Allen-Jorden Seconded – Kroemer
That the following reports from the Deputy Chief Executive Officer be received.

- DCEO 1/1215 Statement of Financial Position
- DCEO 2/1215 Budget v Actual Report
- DCEO 3/1215 Budget and Actual Comparison
- DCEO 5/1215 Debenture Loan No. 63

CARRIED

DCEO 1/1215 Statement of Financial Position

9c/122015 Moved - Kroemer Seconded – Collins
That the payment of cheque numbers 23096 to 23111 for a total of $23,418.07 and electronic fund transfer batch numbers 327 to 330 for a total of $415,722.91 be endorsed.
CARRIED

DCEO 2/1215 Budget v Actual Report
Noted.

DCEO 3/1215 Budget and Actual Comparison

10c/122015 Moved - Kroemer Seconded – Stewart
That Council receive and note the comparison of the 2014/2015 Budget and Audited Financial Statements as presented.
CARRIED


11c/122015 Moved - Collins Seconded – Kroemer
That Council accept the 2015/2016 Budget Review One October 2015 as presented and the Deputy CEO update the Council’s budget to reflect the changes.
CARRIED
DCEO 5/1215 Debenture Loan No. 63

Moved - Kroemer Seconded – Allen-Jordan
That the Mayor and Chief Executive Officer be authorised to sign and affix the Council seal to Debenture No. 63 for the Loan of $1,050,000 from the Local Government Finance Authority for execution on the 16th January 2016.

CARRIED

13.3 Technical Services & Operations Report

Moved – Allen-Jordan Seconded – Kroemer
That the following reports from the Works Manager be received.

WM 1/1215 Plant and Equipment Purchases
WM 2/1215 Road Renewal Program R2R Amendment

CARRIED

WM 1/1215 Plant and Equipment Purchases

Moved - Collins Seconded – Stewart
That Council endorses the allocation of up to $10,195 for the purchase of a tipping trailer for the works department, as detailed in the first quarter budget review.

CARRIED

WM 2/1215 Roads Renewal Program R2R Amendments

Moved - Stewart Seconded – Hetzel
That Council endorses the changes made to the 2015/16 Roads Renewal Program to meet obligations under the Roads to Recovery Funding Program, as described within this report

CARRIED

14.0 OTHER REPORTS – Nil.
Register of non-council decision report.

15.0 CORRESPONDENCE

Moved – Collins Seconded – Kroemer
That correspondence item C1/1215 be received.

CARRIED

C1/1215 Ian McDonald – Auditor

Moved – Allen-Jordan Seconded – Lawrie
That the Report and correspondence in relation to the Audit of the 2014/2015 Financial Statements be received and noted.

CARRIED

16.0 LATE CORRESPONDENCE – Nil.

17.0 INFORMATION TABLED

• Land Transfer Report

18.0 MATTERS IN CONFIDENCE

19.0 MEETING CLOSED AT 10.25 AM
COUNCIL MEETING 278
12
th January 2016

DISTRICT COUNCIL OF TUMBY BAY

MINUTES OF THE ORDINARY MEETING OF COUNCIL
held at the Council Chamber, Mortlock Street, Tumby Bay on **Tuesday 12th January 2016** at 9.00 am.

2.0 **ROLL CALL**

1.1 **Present**
Mayor Sam Telfer, Councillors Geoff Stewart, Bob Lawrie, Laurie Collins, Hannah Allen-Jordan, Ray Hetzel and Helen Kroemer.

1.2 **In Attendance**
Trevor Smith (Chief Executive Officer), Damian Windsor (Works Manager) and Glenda Pickford (Executive Assistant).

1.3 **Apologies/Leave of Absence** - Nil

1.4 **Absent** - Emma McDonald (Manager Environmental Services) and Dion Watson (Deputy CEO).

2.0 **MINUTES OF PREVIOUS MEETING**

2.1 **MINUTES OF THE ORDINARY MEETING** held on 8th December 2015.

1c/012016
Moved – Allen-Jordan Seconded – Kroemer
That the Minutes of the Ordinary Meeting held on the 8th December 2015 be confirmed as a correct record.

CARRIED

3.0 **DECLARATION OF INTEREST** – Nil.

4.0 **DEFERRED MOTIONS** – Nil.

5.0 **MAYOR’S REPORT**
The Mayor gave a verbal report to council.

6.0 **DEPUTATION** – 9.05 am Tumby Bay Lions Club
Lion Members - Ian Fulton, Wayne Branson and Tumby Bay Progress Association member John James presented a report to Council on proposed works to entrance roads coming into Tumby Bay.

7.0 **COMMUNITY DELEGATES’ / REPRESENTATIVES’ REPORTS**

7.1 **Elected Members Reports**
Mayor Telfer
- Australia Day Awards Selection Panel meeting
- EPLGA Special Meeting re speed limits
- End of Year Council gathering
- Tumby Bay Christmas Eve Parade

8.0 **QUESTION ON NOTICE** – Nil.

9.0 **QUESTION WITHOUT NOTICE**
- Police presence within the town during peak times
- Family Mission use of hall
- Dump point for Caravans in the Port Neill area

10.0 **PETITIONS** – Nil.
11.0 MOTION ON NOTICE – Nil.

12.0 COUNCIL/COMMUNITY COMMITTEE REPORTS

12.1 COUNCIL COMMITTEE REPORTS – Nil.

13.0 OFFICERS’ REPORTS

13.1 Chief Executive Officer’s Reports

2c/012016 Moved - Lawrie Seconded – Kroemer
That the following reports from the Chief Executive Officer be received.

CEO 1/116 Australia Day Panel
CEO 2/116 Order to Exclude Public
CEOCONF 3/116 Remission of Rates
CEO 4/116 Order to Exclude Public
CEOCONF 5/116 Industrial Development

CARRIED

3c/012016 Moved - Collins Seconded – Kroemer
That pursuant to Policy 2.21, Council endorses the Australia Day Judging Panel
recommendations of:
2016 Citizen of the Year: Ted Scrace
2016 Young Citizen of the Year: Eden Telfer
2016 Community Event of the Year: Tumby Bay “Showboat” Concert

CARRIED

13.2 Technical Services & Operations Report

4c/012016 Moved – Collins Seconded – Kroemer
That the following reports from the Works Manager be received.

WM 1/116 Funding Request – Tumby Bay Kindergarten
WM 2/116 Tumby Bay Wastewater Irrigation System

CARRIED

5c/012016 Moved - Stewart Seconded – Collins
That Council agrees to continue with existing informal arrangements to assist with
the mowing and general maintenance of a portion of the kindergarten grounds.

CARRIED

Moved - Lawrie Seconded – Collins
That Council agrees to provide funding assistance of $500.00 towards the fencing
of a portion of the kindergarten grounds subject to the Tumby Bay Progress
Association contributing $500.00 towards the Taste of Eyre market event.

CARRIED

6c/012016 Moved - Collins Seconded – Stewart
That Council adjusts the total construction budget for the Tumby Bay Wastewater
Storage and Disposal Project (GL Account 36122) from $1,150,600 to $1,308,600.

CARRIED
14.0 OTHER REPORTS – Nil.

15.0 CORRESPONDENCE – Nil.

16.0 LATE CORRESPONDENCE – Nil.

17.0 INFORMATION TABLED – Nil.

18.0 MATTERS IN CONFIDENCE

CEO 2/116 Order to Exclude Public

7c/012016

Moved - Kroemer Seconded – Allen-Jordan

That:

1. Having taken into account the relevant consideration contained in Section 90 (3) (a) and Section 90 (2) of the Local Government Act 1999, this meeting of the District Council of Tumby Bay dated 12 January 2016 resolves that it is necessary and appropriate to act in a meeting closed to the public as the consideration of CEOCONF 2/116 Remission of Rates listed on the Agenda in a meeting open to the public would on balance be contrary to the public interest.

2. Pursuant to Section 90 (2) of the Local Government Act 1999, this meeting of the District Council of Tumby Bay dated 12 January 2016 orders the public (with the exception of members of Council staff who are hereby permitted to remain) be excluded from this meeting to enable this meeting to receive, discuss or consider in confidence Report CEOCONF 2/116 Remission of Rates listed in the Agenda, on the grounds that such item of business, contains information and matters of a kind referred to in Section 90 (3) (a) of the Act, namely:

(a) information the disclosure of which would involve the unreasonable disclosure of information concerning the personal affairs of any person (living or dead).

CARRIED

19.0 MEETING CLOSED AT 10.58 AM

DATE: ___________________ CONFIRMED: ______________________

Mayor
To whom it may concern,

The South Australian Chamber of Mines and Energy (SACOME) is pleased to have this opportunity to make a submission to the Department of State Development on the Proposed Central Eyre Iron Project.

SACOME is the peak industry association for all companies with business interests in the resources industry in South Australia, including those with business, vocational or professional interests in minerals exploration, mining and procession, oil & gas exploration, extraction and processing, power generation, transmission and distribution, logistics, transport, infrastructure, and those with clients in these sectors. SACOME represents over 250 organisations, comprising of over 70 industry members and numerous service providers.

The Central Eyre Iron Project (CEIP) presents an opportunity for the Eyre Peninsula and specifically the Wudinna, Kimba, Cleve and Tumby Bay communities to diversify their local economies and share in these benefits.

Recent research undertaken by SACOME highlights that over 65% of people on the Eyre Peninsula are looking towards mining as sources of employment and/or diversity in their local economies, whereby the main concerns these communities face such as employment and health (Over 60% of residents rated these as the two top concerns for the Eyre Peninsula Community) are alleviated by the opportunity the CEIP brings. Overall residents are supportive of mining with 45% in favour and 28% having a neutral stance. This is further reinforced with mining not in the top five concerns for residents on the Eyre Peninsula.

The CEIP Mining Lease Proposal (MLP) and Environmental Impact Statement (EIS) highlight that the localised benefits during construction and mining will allay the concerns indicated by residents during SACOME’s research. The impact to gross regional product (GRP) and gross state product (GSP) highlighted in chapter 23 of the CEIP proposal shows a net regional benefit and the increase in full-time equivalent (FTE) job figures demonstrate the level of opportunity that exists to support the local employment expectations of the local community.

<table>
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<tr>
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<th>Construction (4 years)</th>
<th>Operations (25 years)</th>
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SACOME has taken the time to look at the document and are confident that, as a Chamber member company, Iron Road has undertaken due diligence in reporting on all costs and benefits for this important project. With the research undertaken to assess community attitudes and the net benefits highlighted in this document, the state of South Australia and particularly the Eyre Peninsula are set to benefit greatly from this project.

Yours Sincerely,

Jason Kuchel
Chief Executive
CEIP Submission.

We as Stop Invasive Mining Group Incorporated, SIMGI, have members attend many meetings and presentations from Iron Road, IR, Government Departments and TBCCG meetings.
SIMGI operated information sites at Port Lincoln, Wudinna, Kimba, Yallunda Flat and Cummins Shows (A & H Shows) as well as Field Day sites at Cleve, Eyre Peninsula Field Days and Yorke Peninsula Field Days.
The feed-back from the public, we see is that there has been very questionable community consultation.
What social licence has Iron Road obtained?
The discussions with Warramboo affected landowners and the Transport Corridor Landowners are very condemning of Iron Road. In our opinion there has been lack of respect to individuals and farming enterprises, no transparency, bullying and intimidation.

We believe the community presentations are spoken at you and not in the true spirit of consultation.
Presentations seem to be in your face and how good IR is for the individual, the community and South Australia. To some it is confronting to have several Iron Road representatives standing at the front of a presentation and question time. With some of the Iron Road staff raising their voices when answering questions or just state that you are wrong. Where is the documentation from Iron Road to prove the truth in what they are presenting?

Community acceptance?
Ask the right audience and you get the answer you are seeking.

Local Council Elected Members in this proposal area appearing to be in favour of this project on the perceived idea of extra local jobs, money spent in towns, increased population meaning more ratepayers to add to their income.
With construction camps, DIDO and FIFO workers this may not happen.
Iron Road or government departments, have presented at the many meetings or workshops that we have attended.
Have any of the four Local Councils held a public meeting for ratepayers to discuss this proposal and shown the negatives as well as positives?
TBCCG have never held a public meeting to explain to the community about IR proposals.
What have they done with this community information?
Twenty-three people on the TBCCG do not represent the DCTB community.
In our opinion the TBCCG does not have an independent chairperson as he works for Regional Development Australia who support the project.
CEIP Submission for EIS

Stop Invasive Mining Group Inc.

WE recall the chairperson referring to the Warramboo land as “useless” at a meeting on the Great Australian Bight in Tumby Bay.

In our opinion the CEIP Wudinna CCC do not have an independent chairperson as they did do some work for the government as per EPLUS program. District Council Tumby Bay has never had a public meeting to inform ratepayers. In our opinion most people in the DCTB haven’t sought information on the proposal. Many farmers on Eyre Peninsula believe the spin of the fictitious $10 per tonne saving on grain freight and many believe IR will set up the Port infrastructure for grain handling. Are the mining company and the media conveying complete information to the communities?

10-9-2014: At a DSD presentation to the TBCCC the intimidation and bullying was raised by SIMGI, (from the gallery).

12-3-2015: At a DSD and DPTI workshop at Cleve the intimidation and bulling was again raised by SIMGI. Due to an IR employee being present, discussions in private proceeded with DSD.

6-3-2013: It has been indicated, by landowners, that some corridor landowners were offered $10,000 to sign an agreement to allow corridor through their property. An IR person suggesting to corridor people that first in best price for land as money could become scarce if left too late to sign. Sign, or you are stopping progress, trying to pressure people into agreeing/signing? Is this more intimidation?

Iron Road certainly not understanding Agri-Business in suggesting landowners swap farm sections either side of railway to have their property in one and not having to cross railway corridor. No properties are the same and that suggestion is very disrespectful to farmers. Some landowners indicated they hadn’t had contact from IR since October 2013. Why?
The railway corridor is stated to be on one side of property and next week the other side. Why?
Landowners do not know how many if any railway crossings for paddock access on their properties.

Photo shown of an overpass at Cavan, Adelaide, and told one like this to be built for access across railway on your property. Is this true representation of what is planned?

9-12-2015: Iron Road have made many different statements, a huge lack of information to landowners in the transport corridor as an employee of the Department of Planning, Transport and Infrastructure, (DPTI), and an employee of the Department of State Development, (DSD) heard at a Cleve meeting. This meeting at Cleve certainly should have alerted the government departments of the conduct of Iron Road.

10-12-2015: Meeting at Wudinna with mine site landowners had an employee of DSD, listen to many concerns and lack of information, no exact details and questionable community consultation.

Were these concerns discussed with other DSD and DPTI staff in Adelaide?

We are told verbal comments are not taken into consideration in the MLP and EIS process, therefore extra pressure is loaded onto landowners and the public to reveal the comments and
sources in writing. In the end it seems like “he said you said” and many people are aware of litigation and will not feel comfortable to put all details in writing.

We recall the following: from Iron Road presentations and a radio interview.

15-1-2012: An Iron Road person indicated IR preferred FIFO as then they can control the workers. Fly them in to immediately start work and end of their shift fly them out.

29-1-2013: Radio interview with an Iron Road employee on ABC at approx. 6.45am as he explained his new role with Iron Road. ABC archives have two recordings of the interview but both have been edited as in the morning, 6.45am, it is recalled as stating, “that if any farmer has a come and see me.” The comment was in a louder aggressive voice but on the midday country hour this comment was edited out.

It appears his attitude from day one was not for the local people and community as he tries to portray.

6-3-2013: After a Port Neill presentation locals indicating a sub-contract service employee were offering $0,000 for some to sign documentation for the corridor. Land owners Indicated that the sub-contractor was rude and operated in a bullying/threatening manner.

8-5-2013: An Iron Road employee after presentation introduced himself to a member of the public. “You attend many presentations so must have something to contribute. When he knew that person was from Koppio he loudly said he would not comment on Koppio proposals so why should you comment here. That person informed IR person he is a stakeholder as ratepayer in the District Council Tumby Bay where some of the transport corridor and the port is located.

The IR person was rather rude and aggressive. Several locals heard this discussion and were not impressed with the conduct of the IR employee.

19-09-2013: IR employee in reply to a question on water modelling from a member of the public. “Bollocks to you, I have heard about you, you’re in dreamland, 6kms estimate not 60, go get hydrogeologist as answer to your question on underground water. You are scaring the community, all in raised voice. Will not affect Polda Basin! Don’t get caught in the fallacy of soil moisture for cropping!”

Another IR employee mentioned Arrium COULD be third party and there will a train every hour!

Meeting at Port Neill where Iron Road made special emphasis about the train. “It is called the Silent Death in Western Australia so don’t play with it.”

We believe in the manner it was said it could be taken that IR were proud of that fact and were addressing the audience as like children and don’t play with it!

“Silent Death”, everyone knows what that means!

7-4-2014: Warramboo where an IR employee refused to discuss in public some questions from an affected landowner, used the excuse of confidential, but landowner said everyone could hear, as he wanted answers and so did the public.

Another IR employee, very aggressive and red faced, challenged newspaper article about a certain family. “Journo Wrong” said in raised voice, “Polda Basin absolutely safe, anyone who says otherwise is WRONG!”

Not the first time that an IR person has raised their voice on questions about water.

A member of the public asked an IR employee as to when IR were going to inform the corridor landowners that third party COULD be Arrium, and if so, a train every hour. (From a Port Neill meeting).
The IR employee denied it had been said and wanted to know which IR representative had said it. 10 seconds after the presentation finished, the IR employee was in that person’s face, demanding the name of IR employee who said the third party could be Arrium.

Privately it was admitted that particular employee no longer works for IR. Many noticed this reaction from the IR employee. Intimidation?

We recall that IR person saying, “You are stopping the progress, jobs, money for South Australia.” Intimidation?

8-4-2014: Next night at Cleve presentation, an IR employee said a rumour has been started that IR have signed an agreement with Arrium for third party on railway. The member of the public, from the previous night, interjected and told the IR person to tell the truth and the public member repeated what was said at Warramboo (COULD be Arrium).

10-9-2015: At TBCCG, IR, we recall,” stated the reputation of construction camps hasn’t improved much so that is why it is at the mine site, would not like camps to be near a town.” IR has stated, DSD and DPTI are working well with us. Who is in control?

An indicated 21,000-ship movement around Australia per year and the Southern Right Whale population is increasing. “Big ships don’t kill whales as it is the smaller fast moving fishing vessels.” No documentation to prove these statements correct!

Notice in the EIS, IR recognise a whale strike near Tumby bay but readily dismiss it as “may have come from the open ocean.” Easy to generalise and have answer suggested in your favour!

29-9-2014: SIMGI site at Wudinna show, an IR employee visited but would not leave so had to get him escorted away by a member wanting IR to show them what IR had at their site. Very noticeable that while IR was at our site the locals were not attending.

19-9-2015: Wudinna Show this year we had a different IR employee try the same tactic. Okay to visit but not for that length of time. Intimidation tried again!

We believe the above from Iron Road Presentations and a radio interview indicates that Iron Road have very questionable transparent community consultation, have shown aggression in answering some questions and have tried to intimidate certain people. In our opinion IR want us to believe everything they present should not be questioned. Why have Iron Road seemed to be aggressive towards affected landowners and some public? One would expect a company trying to establish a mine and infrastructure on farming land would have a more-friendly approach.
2.2.3 Utilities
Water Supply
From the MLP and EIS
The Tod River is the only permanently flowing waterway on the Eyre Peninsula and has a capacity of 11,300 ML (SA Water 2014).
The Tod Reservoir currently supplies approximately 7% of the region’s water requirements (Deloitte 2013).

This statement is in the MLP and EIS.

The statement is incorrect.
It is common knowledge to many Eyre Peninsula residents that the Tod Reservoir hasn’t been used for years.

How many other statements are incorrect?

If Iron Road readily uses incorrect information like this, then how confident can the community feel about all their other statements being true.

Modeling will be incorrect if their research information is incorrect!
Iron Road cannot blame other agencies it contracts for information.
In due diligence Iron Road should be checking to confirm the correct information.

Following is a letter from SA Water, 25 June 2015.
This letter was sent to several landowners situated near the Tod Reservoir.

It states, “the Tod River Reservoir remains as a contingency water supply, but was taken off-line in 2002 due to high levels of salinity that made the water unsuitable for drinking water supply.”
Dear Land Owner

TOD RIVER DAM SAFETY PROJECT

The Tod River Reservoir, situated 27 kilometres north of Port Lincoln, is supplied by concrete channels fed from weirs constructed across the Tod River and its major tributary, Pillawarta Creek. The Tod River Reservoir remains as a contingency water supply, but was taken off-line in 2002 due to high levels of salinity that made the water unsuitable for drinking water supply.

SA Water has commenced planning to improve safety at the Tod River Dam. The Dam was identified in a recent SA Water Dam Safety Investigation and is part of a program to improve safety at a number of SA Water dams state-wide.

The works will be undertaken in order to meet the updated Australian National Committee on Large Dams Incorporated (ANCOLD) Guidelines on Dam Safety Management (2003). The works will increase the dam’s ability to manage flood events and improve its resistance to earthquakes.

A number of options are being investigated for the works and SA Water will consider the most cost effective option to meet the updated safety guidelines and other project criteria, such as community and environmental interests.

To ensure that community views are taken into consideration during options assessment through to project delivery, SA Water is engaging with the local community and other stakeholders.

SA Water is also actively exploring beneficial uses for its offline reservoirs that could generate revenue and support economic development in the state.

The budget and timeframes for the Tod River Dam Safety Project will be finalised during the option assessment process, but the project is expected to be completed by June 2018.
4.2 Infrastructure Corridor Design Description

The proposed infrastructure corridor will connect the mine site with the port site, extending approximately 148 km (refer to Figure 4-3). This section describes the proposed infrastructure corridor, including the design principles, the railway line, bore field and water pipeline and the power transmission line.

The proposed railway line and maintenance track will extend along the entire length of the infrastructure corridor, while the water pipeline and power transmission line will join the corridor north of the Birdseye Highway. The infrastructure corridor will therefore range in width from approximately 60 m in the south to approximately 110 m in the north depending on which components are present (refer to Figure 4-4 and Figure 4-5). However additional width will be required in some locations to provide for two rail sidings, a pump station and for earthwork embankments with a maximum width of approximately 150 m.

Passing Sidings

Two passing sidings are proposed along the main railway line (refer to Figure 4-6 and Figure 4-7). One will be approximately 45 km from the port site and the other will be approximately 110 km from the port site. Both sidings will be approximately 1.8 km in length, which will provide enough room to allow for a complete train to be clear of the main railway line to enable passing.

SIMGI Questions

This is the first time landowners have seen the above, indicating areas for passing sidings, why didn’t IR identify this to the affected landowners before?
Which landowners have the passing sidings on their properties?
No documented plans have been shown to transport corridor landowners on exactly where this railway corridor is situated on their farm.
How can landowners comment on an imaginary plan?
Before mid-September 2015 we accessed, a document presented to SA Freight council.
When shown to corridor landowners it was the first they had seen rail noise- fully compliant information. It also showed and confirmed a potential future third party rail connection that had not been seen before.

Why did an Iron Road employee show the SA Freight council and not the affected landowners?
Transparency? No!

In our opinion Iron Road has been allowed to submit a MLP and EIS without proper documentation to landowners and general public. The MLP and EIS contains many assumptions and not all the facts.
Where are the detailed engineers plans for the affected landowners to study?
Where are the plans that show within 100mm the actual position of the transport corridor?
One cannot build a house without submitting architectural plans to your Council for approval and if something that could impose on neighbours then it is available to the public, so once again where are Iron Road’s detailed plans.
Scope 3 Emissions
Steel and concrete will be required to construct the CEIP Infrastructure. The steel and concrete will require manufacturing and transport. GHG emissions will be generated from both the embodied emissions present in the steel and concrete and the manufacturing and transport of the steel and concrete from China to the project site?

Is this adhering to the Australian Jobs Act 2013?
IR already stating supply from China before project granted!
So much for tendering in Australia and keeping local Australian jobs.

4.5.6 Modules
Iron Road intends to use modular construction methods for large-scale infrastructure and buildings at both the mine site and port site. This method involves performing a majority of the construction work at an off-shore pre-assembly yard and shipping the substantially completed assemblies to the proposed module offloading facility at the port site.

Is this adhering to the Australian Jobs Act 2013?
In our opinion this makes a mockery of jobs for the following IR statement

“Every chance for every Child” stated in 2.3 MLP Planning Framework, Strategic priority.
What chance for every child if Iron Road is already nominating jobs and materials from overseas?

14.7.1 Ship Strike
There have been three recorded whale strikes within South Australian waters (IWC 2013), none of which were within the Spencer Gulf. There are currently no recorded whale strikes within the Spencer Gulf; however in 2013 the carcass of a Southern Right Whale was found at Tumby Bay.
The cause of death was attributed to a vessel strike but the location of the death was uncertain due to the level of decomposition and it may have drifted into the gulf from open water.

Convenient to assume the area where the whale could have been struck.

Economics for the project do not seem feasible.
Present day prices at approx. $40 per tonne for iron ore would not allow a profitable business.
$4-7 billion is suggested as needed for this project so why grant a MLP and EIS to a company that cannot afford to start or be viable?
EIS Comments from Stop Invasive Mining Group Inc., SIMGI, in green.

Table 23-12 Predicted Employments Resulting from CEIP (EconSearch 2015)

Direct and indirect job creation in the regional study area is expected to be over 518 in year five, peaking at 1,087 in year eight and averaging approximately 1,040 across the 25 operational years of the project.

Across South Australia employment generated by the CEIP is expected to be over 990 FTE jobs in year five (first year of operation), peaking at 2,128 FTE jobs in year eight and averaging around 1,985 FTE jobs over the 25 operational years of the project. This represents an average 0.3% increase in employment above 2012/13 levels (704,981 FTE) for the 25 years of operation (EconSearch 2015).

Direct and indirect employment in Australia as a whole is expected to increase by almost 1,100 FTE jobs in year one, peaking at more than 2,388 FTE in year eight and averaging 2,228 FTE jobs over the 25 year period. This would represent an average 0.02% increase in national employment above 2012/13 levels (9,718,000 FTE) over the 25 years (EconSearch 2015).

Given that the CEIP operation phase will generate significant employment opportunities for more than three years at the local, regional, state and national level, this is considered to be high benefit.

In our opinion, why are inconsistent figures being use in this document?

Loss of agricultural land and potential production losses

The permanent loss of productive land will occur in areas unable to be rehabilitated, such as the open pit. Some areas within the proposed mining lease not required by Iron Road may be made available to local farmers for cropping and/or grazing and will support the continued operation of land in accordance with established land management practices.

Combined, the proposed CEIP Mine and CEIP Infrastructure will result in the permanent loss of approximately 7,050 ha of productive agricultural land, less than 0.2% of all productive land in the Eyre Peninsula NRM Region (DWLBC 2003).

The revenue from this area of land has been conservatively calculated using above average and average data (yield 2-3 t/ha, price $250-300/ha, cropping intensity 50-80% and livestock $150-250/ha) and does not include any allowance for drought years. The annual revenue loss is $3.2-6.8 million. This is comparable to the predicted annual revenue range for the mine of $1.6-3.8 billion based on a conservative range of iron concentrate prices (AUS75-175). For the life of the 25 year mine, the total farming revenue is $79-171 million as compared to $40-94 billion from the mine. Thus it would take between 6,000 and 30,000 years of farming the equivalent area of land to return the same revenue as mining.

As such, the overall loss of productive agricultural land (0.2%) and subsequent reduction of supply in agricultural products (not detectable within seasonal variations) is considered to represent a negligible impact to the overall agricultural productivity and is not considered to adversely affect the sustainability of the agricultural industry on the Eyre Peninsula.

Individual farmer impacts and benefits are discussed from a social perspective in Chapter 22: Social.

Farming has a long-term future and mining is for less than a generation with a permanent loss of productive land.

The mine impact is far larger than the foot print perimeter stated. Any loss of sustainable agricultural land has an adverse effect on all Agri-business on Eyre Peninsula.
2.1 Project Objectives

in realising the Company’s corporate vision. Iron Road has established the following objectives:

• To develop a profitable mine, supplying premium iron concentrates to the Asian marketplace.
• To provide multi-user infrastructure (port, rail, transmission line, water supply) maximising the benefits of the CEIP to the Eyre Peninsula and South Australia.
• To positively contribute to the economic development of the Eyre Peninsula and South Australia.
• To positively contribute to the social development of the Eyre Peninsula through the provision of additional employment opportunities, the establishment of community facilities and the protection of the unique environmental assets in the region.
• To develop the CEIP as a socially acceptable, environmentally responsible and economically feasible mining development.

The water supply can only be used for industrial use because of salinity content.

What social licenses have Iron Road Limited obtained?

DSD and DPTI must not dismiss the private meetings with affected landowners at Cleve, 9-12-2015 and Wudinna, 10-12-2015, where it was stated the concerns and lack of information, no exact details and questionable community consultation.

Unique environmental assets in the region?

The Environment is at risk to pollution and contamination from this CEIP project.

Iron Road already stating the manufacturing of the steel and concrete from China to the project site.

What does this statement exactly mean?

(Perhaps IR mean cement because concrete would be set hard by time it arrives from China.)

IR state modules construction work at an offshore pre-assembly yard.

Portrayed local jobs have disappeared before the project start!

Iron Road expects that the demand for premium quality products will increase, which will enable steel makers to:

• Improve efficiencies
• Reduce power consumption
• Meet new environmental standards

This project will increase power consumption on Eyre Peninsula, EP, and more reliance on interstate power as Port Augusta Power Station is closing down. Mining is an energy intensive project according to Iron Road.

The project to help overseas steel makers to presumably lower emissions but here on EP the will be an unacceptable increase in emissions, pollution and contamination.

2.4 Consequences of Not Proceeding

Not proceeding with a feasible project generally results in the envisaged benefits and impacts not being realised. If the CEIP Mine does not proceed as planned, the magnetite resource will remain as a future development option with the potential benefits being deferred for an unspecified period of time. This will also result in the CEIP Infrastructure not being developed. The consequences of not proceeding with the CEIP within a preferred timeframe include:

• Loss of the project’s collateral benefits in the short term.
• A ‘missed opportunity’, with demand for the product possibly being fulfilled by another development.
• The trend of population decline on the central Eyre Peninsula may continue, threatening the viability of businesses and social services such as police, health and education.
• Loss of third party access to the CEIP Infrastructure and subsequent loss of potential benefits across multiple industries, including:
  • Potential shared usage of the proposed port for other mining companies or as an alternative export pathway for the grain industry.
  • Reinforcement of the Eyre Peninsula electricity network, supporting future development for energy intensive projects (e.g. mining) and the local establishment of alternative electricity generation sources (e.g. renewables).
Potential shared usage of the proposed railway line as a route to market for other mining developments and grain on the Eyre Peninsula.
• Recycled stormwater and wastewater from the proposed long-term employee village for irrigation purposes (landscaping and ovals) within Wudinna.
• Airport upgrade at Wudinna and establishment of a regular commercial air service.
• Local road upgrades (e.g. those required for the module haul route) facilitating the movement of agricultural machinery or stock in the region.
• Skilled labour relocating to new opportunities/industries.

Is Iron Road Limited profit making for their shareholders more important than established long-term businesses on EP?
There are huge amounts of iron ore in Australia so it is time the agricultural land is protected from mining.
IR indicates the demand could be filled by another development so why destroy agricultural land and subject the local environment to risks associated with mining.
The population data used might not be up to date as there are more young people in agriculture on EP than before according to several Agri- business employers.
There are always businesses being bought by other businesses, even in mining.
Iron Road hoping to get grain growers approval uses the fictitious saving of $10 per tonne grain freight. This action is dividing the community.
There is no guarantee that sharing a port with iron ore exports that there won’t be contamination to the grain for export.

2.4.1 Specific Benefits Forgone
Development of both the CEIP Mine and supporting infrastructure will provide a number of benefits to the local and regional communities, including:
• Job opportunities during construction and operation
• Improved regional infrastructure providing a catalyst to additional development on the Eyre Peninsula
• Increased royalty payments to the State Government

Jobs already lost with imports and pre-assembly overseas.

Table 2-1 Potential Benefits of CEIP
Local
The CEIP is anticipated to provide significant local employment opportunities with 2,490 positions being directly generated during construction and 760 ongoing positions during operation.
FIFO and DIDO are not local
Again the inconsistency of the figures shown.
Chapter 21
Significant upgrades and investment into Wudinna are proposed to support the CEIP, including the upgrade of Wudinna airport to support commercial flights (subject to a separate approval process being undertaken by Wudinna District Council).

Do the Wudinna ratepayers pay for this?

Chapter 4
The long-term mine workforce is proposed to be accommodated within a designated long-term employee village immediately adjacent to the township of Wudinna, providing a significant population boost to the immediate area and long-term support to local businesses and services.

25 years is not long term in agricultural time.

Chapter 4
Chapter 21
The stimulus of local population growth and employment opportunities will provide a range of opportunities for supporting business to provide goods and services to the CEIP, CEIP staff and service providers associated with the CEIP.

The construction camps will be self-contained.

Local businesses like the supply of fuel might not be big enough for the credit expected by companies in the time frame of payments.

Chapter 21
Chapter 22
A series of upgrades to local road infrastructure will be undertaken to facilitate safe vehicle movement surrounding the CEIP Infrastructure, thereby improving the condition and safety of local roads throughout the region.

At whose expense?

Chapter 18

Improvements to the local natural environment through the delivery of a Significant Environmental Benefit (SEB). Chapter 13

Spent where? Also significant environmental damage could occur!

Regional

The proposed port represents a viable export alternative to the central Eyre Peninsula with sufficient capacity to accommodate third party exports (subject to necessary consents). In addition, there are opportunities for future modification of the proposed port to support the export of grain from the central Eyre Peninsula. The importation of agricultural products, containers and other goods may be possible by utilising the Module Offloading Facility (MOF) (subject to necessary consents).

The grain industry, grain-growers, would have the expense of establishing the export facility with no guarantee that grain will not be contaminated by iron ore dust and other heavy metals that could be in the dust. The perceived $10 saving would disappear in the cost of the facility.

Will this lead to, in some cases, substandard uncontrolled Chinese imports on EP?
Chapter 3
Chapter 4
The regional electricity network is required to be reinforced to support the electricity requirements of the mine and port. The improved network will provide greater reliability in supply, and will support the connection of additional industries.

The present power-line will have to be up-graded/renewed even if there is no CEIP project. The reliability in supply could be in jeopardy when Port Augusta Power Station closes and EP has to rely solely on interstate power supply.

Chapter 4
Direct employment opportunities will be available to support the CEIP from the mine site near Warramboo to the port site south of Port Neill. The CEIP represents a significant geographical footprint from which employees may be sourced. Similarly, the CEIP will generate opportunities throughout the region for supporting business to provide goods and services to the CEIP.

Does local mean from the four affected councils, EP, South Australia, or Australia?

Chapter 21
An additional $2.4 billion per annum in gross regional product for the Whyalla and Eyre Peninsula region during operation. Chapter 21

Population stimulus required for construction/operation of the CEIP to halt the continuing trend of population decline on the central Eyre Peninsula, which may threaten the viability of businesses and social services.

At present day iron ore prices the project might not be feasible and the figures offered by Iron Road Limited are from a previous higher iron ore price.

Chapter 22
An upgraded, commercial airport in central Eyre Peninsula, reducing commuter time for residents and workers currently reliant on Port Lincoln, Ceduna or Whyalla airports (the upgrade to Wudinna airport is not included as part of this EIS as it is being pursued by the Wudinna District Council).

Do the ratepayers of the Wudinna Council area pay for this upgrade?

Chapter 22
State
The CEIP will result in significant upgrades to critical infrastructure (e.g. road, rail, port, electricity) at no cost to the State that may in turn support the growth and development of additional industries.

Is the cost to the four affected local councils?

Chapter 3
Chapter 4
An average direct and indirect employment in South Australia of 2,490 full-time equivalent jobs during construction and 760 during the operational years of the project.

Short-term jobs that alter statistics and could still be FIFO and DIDO.
Again the inconsistency of the figures shown.

Chapter 21
Development of business opportunities for contractors and service providers to supply goods and services to the CEIP, with preference given to local, South Australian providers.

The construction camps are self-contained.
Chapter 21
Development of business opportunities regionally and in South Australia, as
Iron Road work with business groups to identify local business opportunities
and maintain the existing register of businesses with an interest in supplying
goods and services to the project.

Chapter 21
During construction the CEIP will contribute an annual average of $518 million
to South Australia’s Gross State Product (GSP). During operation, the CEIP will
contribute $2.7 billion per annum to South Australia’s GSP.

Were the figures obtained at today’s iron ore price? If not, very misleading statements!

Chapter 21
National
During construction the CEIP will contribute an annual average of $1.2 billion
to Australia’s gross domestic product. During operation, the CEIP will
contribute $2.8 billion per annum to Australia’s Gross Domestic Product (GDP).

Misleading statements if not on current iron ore price!

2.4.2 Strategic Opportunity Costs
The immediate opportunity costs of the ‘no project’ option have been set out above however, there
are broader associated consequences of the project not proceeding.

For Iron Road, the proposed CEIP represents a prime opportunity for the company to become a
premium supplier of iron ore to the Asian region and to expand its operations significantly. Iron Road
currently has the capacity to undertake a project of this scale however, if the project does not go
ahead, then the opportunity cost in economic and human capital of not proceeding will be lost or
deprecated.

The loss of the CEIP would forgo an opportunity for stability in the Eyre Peninsula region with the CEIP
mine already shown to have a minimum 25 year mine life, with a high possibility that it will extend
beyond that time. There is also the potential loss of upskilling workers from the region in the mining
sector, as the CEIP would result in a significant employment opportunity, allowing for a significant
investment in training and development. Finally, the infrastructure improvements associated with the
CEIP have the capacity to support a range of additional mining projects and agricultural activities and
may act as a catalyst to growth in the industry.

An additional loss of the ‘no project’ option would be to other industries that would have benefited
and be able to utilise the multi-user infrastructure, including the airport, port, rail, transmission line,
communications and water supply, representing a large opportunity cost in economic losses to other
industry sectors. A key example of this would be the lost opportunity for a third party to further
develop the port site for additional regional exports and imports.

For the broader community, the CEIP not going ahead would mean an opportunity lost to provide a
more diverse and resilient regional economy that is not predominantly reliant on agriculture, as well
as access to improved community infrastructure on a local and regional scale.

Iron Road is assuming that there is instability in the Eyre Peninsula region.
One would have to point out that agriculture has never been better.

IR refers to 25 year mine life but also a minimum of 25 years so does that mean the other mineral
deposits in the tenement will also be mined. If that being the future, then more environmental damage
and more farms lost to mining and infrastructure.
3.1.1 Existing Export Facilities

- Centrex Metals is proposing a greenfield port facility at Port Spencer to export iron ore and/or concentrate from the proposed Wilgerup, Fusion, Carrow, Bungalow and Greenpatch projects.

Comment: Centrex Metals has reduced its iron ore operations on EP. Most of Centrex properties are up for sale and some under contract or sold.

3.2.2.1 Railway construction

The Noise Policy Division 1 titled ‘Construction noise, Clause 22 titled ‘Application’ does not apply to construction activity related to roads, railways or other public infrastructure. It is proposed the guidelines presented in the DPTI Management of Noise and Vibration: Construction and Maintenance activities, Operational instruction 21.7 (DPTI 2014) are relevant as a means of demonstrating compliance with the general environmental duty. It states:

“Although Section 22 of the Environment Protection (Noise) Policy 2007 specifically excludes road, rail and public infrastructure construction work from Division 1 of the Policy (which deals with construction noise), the department and its contractors still have a responsibility under Section 25 of the Environment Protection Act 1993 to have a “duty of care” to not pollute the environment through noisy activities:

“a person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.”

This Operational Instruction provides the guidance on DPTI’s “duty of care”.

The proposed railway line construction works will include not only the laydown of railway ballast, sleepers and track but will also incorporate the construction of bridges and railway cuttings.

Is this a licence to do what they please? What government department is going to be on-site monitoring 24/7? The company cannot be allowed to self-monitor.

4.2.1 Railway Line

Where required, the railway line will be fenced on both sides to prevent livestock from crossing the line (as shown on Figure 4-4); and access points along the fencing will be negotiated with each landowner. Landowners at meetings have expressed the corridor to be fenced all the way and to be fenced before any construction begins. Public Liability Insurance should require IR to fence the entire corridor. Livestock will be free to roam farm to farm and the entire corridor if it is not fenced.

Rail Maintenance Track

The track will be gated and sign posted as a private road, with access negotiated individually with directly-affected landowners. Two passing sidings are proposed along the main railway line (refer to Figure 4-6 and Figure 4-7). One will be approximately 45 km from the port site and the other will be approximately 110 km from the port site. Both sidings will be approximately 1.8 km in length, which will provide enough room to allow for a complete train to be clear of the main railway line to enable passing.

Why hasn’t this information been available to transport corridor landowners before the release of the MLP and EIS?
Railway Line Elevation
The railway line has been designed with maximum longitudinal grades of 1% for loaded trains. To achieve these grades, cut or fill will be required along some parts of the corridor. It is expected that the required fill volume will be supplied from the excavated cut along the railway line, with the exception of the rail ballast which will be sourced from elsewhere (refer to Section 4.5.4 for more detail on cut and fill volumes).
Rail ballast locations have never been identified. Landowners wonder whose paddock will be targeted for a quarry or several properties for several quarries for ballast and road works? IR have stated there will be enough material from within the corridor for all their needs but that is very questionable. What mining licence is required for the excavations or quarries?

Railway Line Road Crossings and Road Diversions
The proposed railway line will cross 17 public roads and numerous private farm tracks between the port site and the mine site. Consequently, the proposed design includes a combination of road realignments, level crossings and grade-separated crossings to maintain the connectivity of the road network, subject to negotiation and agreement with the relevant local councils and the Department of Planning, Transport and Infrastructure (DPTI) (refer to Table 4-1, Figure 4-6, Figure 4-7 and Figure 4-8). Level crossings for private farm tracks will be negotiated with landowners as required. Two passing sidings are proposed along the main railway line (refer to Figure 4-6 and Figure 4-7). One will be approximately 45 km from the port site and the other will be approximately 110 km from the port site. Both sidings will be approximately 1.8 km in length, which will provide enough room to allow for a complete train to be clear of the main railway line to enable passing.
This is the first property owners have seen the approximate position of the two passing sidings. Why hasn’t IR provided this information before?
Farmers will lose more of their property and approximately is not exactly the distance from the Port. How can landowners make an informed comment if they don’t know the exact location of the railway?

Railway Line Road Crossings and Road Diversions
The railway line has been designed with wide bends and loops to minimise wheel squeal.
Passing sidings have been located away from sensitive receivers to avoid the impact of idling noise.
"Silent Death" was the words used to describe the noise of the train. Now IR have designed wide bends and loops to minimize wheel squeal therefore admitting train noise.

4.5.2 Temporary Laydown Areas
Temporary laydown pads will be provided at the port site and along the infrastructure corridor for use during construction. These hardstand areas will be paved using crushed rock and provided with temporary access to accommodate construction traffic. Areas that are not required after the completion of site construction activities will be rehabilitated by removal of pavement materials, followed by contouring, ripping of bulk earthworks and topsoil spreading. Along the infrastructure corridor, earthwork staging areas will be located approximately every 15 km to allow for construction support facilities and equipment storage. A staging area for each bridge along the infrastructure corridor will also be provided to allow storage and pre-fabrication, crane access and inspection of modules/components prior to lifting.
Are these areas within the 60 to 150 metre wide corridor?
Will these areas be in farmer’s paddocks?
Again new information to landowners.
4.5.4 Earthworks and Materials Crushing and Screening
Earthworks will be required at the port site for construction of the rail loop, rail unloading facility, building pads, marine causeway and other support facilities. As described in Section 4.2.1, earthworks will also be required along the railway line to maintain a relatively flat gradient. At the port site, the cuttings for the rail loop and rail unloading facility will require blasting, which will occur over a period of approximately five to six months.

Cut and fill will occur in stages to minimize the amount of soil exposed at any given time, and rehabilitation of exposed sites will occur as soon as practicable. In addition, the total cut and fill volumes for the CEIP Infrastructure have been balanced where possible, with excavated materials to be reused as fill within the project site, to avoid offsite sourcing or disposal of fill. For example, rock excavations from the rail loop cutting at the port site will be used for construction of the marine causeway and module offloading facility (subject to assessment once excavated). It is proposed that rail ballast material will also be sourced from within the rail excavations at the port site or from a ballast supplier.

The many tonnes of light soil along the corridor will not be suitable for rail ballast, so a ballast supplier from where?
What mining licence does Iron Road have to quarry materials anywhere in their project?

4.5.6 Modules
Iron Road intends to use modular construction methods for large scale infrastructure and buildings at both the mine site and port site. This method involves performing a majority of the construction work at an off-shore pre-assembly yard and shipping the substantially completed assemblies to the proposed module offloading facility at the port site using lift on/lift off and roll on/roll off ships (refer to Section 4.3.2). Examples of module types are shown in Figure 4-40.

Modularized components of the proposed port are likely to include:
• The main cell of the rail unloading facility
• Transfer towers
• Sample station
• Dust extraction buildings
• Conveyors
• Jetty and wharf deck
• Ship loader

IR portray many jobs for locals but local work, again this has already disappeared offshore.

4.5.7 Construction Water Supply
Saline ground water supplied from two water supply wells (one in the Kielpa geological domain, and one in the Verran geological domain) will be used for earthworks, dust suppression and material placement at the port site and along the infrastructure corridor. Groundwater will be transferred from these water supply wells to designated water points in the northern and southern sections of the infrastructure corridor and to the port site by 110 mm HDPE pipelines. Each well would operate continuously for two years and water demand at each water point would be 430 m$^3$/day (GWS 2013).

Potable water for the port site construction camp and for concrete batching would be supplied from the new SA water connection (refer to Section 4.3.3).

Does this mean 110 mm HDPE pipeline from the Verran ground water supply well to the port?
SA Water should not be supplying water other than potable water for human needs for this project!
We believe Eyre Peninsula does not have spare water for mining projects.
4.6 Operation Phase
The CEIP Infrastructure will operate 24 hours per day for 365 days per year. This section provides information on the operational workforce, operation of the proposed railway line, water supply and port site and waste management.

Will Iron Road, and all their subcontractors obey fire ban days and halt dangerous activities? The trains should not travel when the local farmers call a halt to harvesting due to adverse weather conditions.

4.8 Summary
A high level summary of the CEIP Infrastructure components is provided in Table 4-10.

Table 4-10 Snapshot of CEIP Infrastructure Components

<table>
<thead>
<tr>
<th>Infrastructure Corridor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure corridor length (mine boundary to port boundary) 130 km</td>
</tr>
<tr>
<td>Infrastructure corridor area (railway line, rail maintenance track, water pipeline and earthworks from the mine boundary to port boundary) 743 ha</td>
</tr>
<tr>
<td>Total rail length (including railway line and loops within mine and port boundaries) 148 km</td>
</tr>
<tr>
<td>Length of water pipeline from the pump station to the mining lease boundary 56 km</td>
</tr>
<tr>
<td>Length of main collector pipeline that runs centrally through the borefield to the pump station 14 km</td>
</tr>
<tr>
<td>Combined lengths of connector pipelines from the central borefield pipeline to the bores 7 km</td>
</tr>
<tr>
<td>Area of borefield and collector pipeline 42 ha</td>
</tr>
</tbody>
</table>

Where is the 110mm HDPE pipeline from Verran to the Port as mentioned?

5.2.2 Other Legislation
In addition to the EPBC Act, a range of other Commonwealth legislation will be relevant to the CEIP Infrastructure. The most relevant legislation, including its objectives and potential relevance to the CEIP Infrastructure is summarised in Table 5-1.

Table 5-1 Other Commonwealth Legislation

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Objective</th>
<th>Relevance</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Jobs Act 2013</td>
<td>Ensure Australian entities have full, fair and reasonable opportunity to bid for the supply of key goods and/or services.</td>
<td>Iron Road must have a strategy to ensure Australian suppliers, manufacturers and contractors are provided full, fair and reasonable opportunity to obtain contracts relating to the CEIP.</td>
<td>Iron Road has prepared an Australian Industry Participation Plan which has been approved by the Australian Industry Participation Authority.</td>
</tr>
</tbody>
</table>
Modules:
This method involves performing a majority of the construction work at an off-shore pre-assembly yard and shipping the substantially completed assemblies to the proposed module offloading facility at the port site using lift on/lift off and roll on/roll off ships.

Scope 3 Emissions
Steel and concrete will be required to construct the CEIP Infrastructure. The steel and concrete will require manufacturing and transport. GHG emissions will be generated from both the embodied emissions present in the steel and concrete and the manufacturing and transport of the steel and concrete from China to the project site.

Portrayed local jobs disappearing again, offshore and China. Where offshore? (Concrete will be set too hard by time it arrives from China). Does Iron Road mean cement or pre-fabricated panels or what by this statement? How can IR have a prepared and approved participation plan when they stated imports of steel, concrete from China and off-shore pre assembly? Has an Australian company been given the chance to quote?

Foreign Acquisitions and Takeovers Act 1975; Foreign Investment Policy 2013
To regulate all foreign investment with respect to the acquisition of rural land; to ensure the Commonwealth Government is notified of any rural land being acquired by ‘foreign government investors’.
All land within the CEIP footprint is rural land;
Iron Road is considered a Foreign Owned Entity and must comply with the Act and Policy.
Approval for acquisition of any land within the CEIP footprint required from the Foreign Investment Review Board. The Commonwealth Government must be notified and give approval for the acquisition of rural land.
We cannot recall this ever being declared by Iron Road, but at least the Commonwealth Government considers Iron Road a Foreign Owned Entity.

Table 5-4 Alignment of CEIP to South Australia’s Strategic Plan
Premium food and wine from our clean environment
Although the export of grain is not proposed as part of this EIS, Iron Road has signed a memorandum of understanding (MOU) with a global grain handling organisation. This MOU provides for both parties to jointly investigate the export of grain via the proposed port (subject to necessary upgrades and regulatory approvals) and may provide an alternative export pathway for agriculture on the central Eyre Peninsula.

A huge contradiction with the pollution and contaminating that will occur with this project.
Loss of approximately 8500 hectares of farming land at the mine sit and approximately 743 hectares for the transport corridor is a loss of food production.
Exporting grain from an iron ore Port, places that grain in a situation of contamination and therefore no export market. There are no guarantees that this grain will not be contaminated. There is also a fictitious figure of a $10 per tonne saving on grain freight.
If a company set up to export it would have shareholders needing profit, not doing favours to producers.
6 Stakeholder Engagement

6.1 Introduction
This chapter describes the stakeholder consultation and engagement activities undertaken by Iron Road with regard to the proposed CEIP Infrastructure and the preparation of this Environmental Impact Statement (EIS). It documents the methods employed to undertake consultation, provides detail regarding stakeholders with whom Iron Road has engaged, and outlines the concerns and benefits identified by stakeholders and how these concerns and benefits have been addressed.

Engagement and consultation have been undertaken to:
- Identify and understand issues to be considered as part of the process of developing project design options.
- Provide opportunities for stakeholder participation (including the asking of questions and raising of issues by stakeholders and the provision of relevant and sufficient information to enable stakeholder participation in the project).
- Build strong partnerships between Iron Road and stakeholders.
- Capture and capitalise on identified benefits.

Iron Road considers the process of engagement and consultation as the practice of “actively bringing stakeholder voices into decisions that affect or interest them (DPC 2013)” and has identified, engaged, and consulted with a range of stakeholders, including but not limited to:
- Directly and indirectly impacted landowners
- Local communities
- Local government
- Local businesses
- Native Title Claimants and Aboriginal groups
- State and Federal government agencies
- Industry
- Service providers
- Non-government organisations and special interest groups
- The general public

Community consultation is very questionable. DSD and DPTI from private meetings at Cleve, 9-12-2015 and Wudinna, 10-12-2015, heard from directly affected landowners. There have been many different statements from IR and a huge lack of detailed information. DSD and DPTI cannot ignore the information from the affected land owners.

6.3 Engagement and Consultation Approach
Iron Road has developed and implemented a comprehensive consultation and engagement strategy and programme. The objective of the programme is to enable the participation of stakeholders so that the proposed CEIP Infrastructure generates maximum benefit for the local, regional and broader South Australian community. Iron Road views the building and maintaining of trust and credibility as a key measure of project success.

Iron Road values its place within the community and believes well planned and managed infrastructure operations, with a clear commitment to social and environmental responsibility, benefit both the Company and the community. Iron Road’s work is based on the following principles:
• Maximise opportunities to communicate and engage with communities and stakeholders
• Work with community leaders to identify mutual benefit
• Operate openly and develop strong relationships within communities
• Actively foster good working relationships with federal, state and local governments
• Liaise effectively with regulatory bodies and advisory agencies
• Support programmes and training to add to social wellbeing in local communities
• Prioritise local employment and business opportunities and encourage CEIP workforce to live in nearby communities and participate in local events
• Seek to leave the community with lasting positive benefits following mine closure
• Strive to leave the community with no lasting negative impacts

In addition to legislative requirements relating to consultation with stakeholders, Iron Road has drawn on South Australian Government policy directions, including Better Together: Principles of Engagement (DPC 2013). Iron Road has also incorporated industry-recognised approaches such as those developed by Dr Peter M. Sandman, and those developed by the International Association for Public Participation (IAP2), including Foundations of Public Participation (IAP2 2012). Flexibility has underpinned Iron Road’s consultation and engagement strategy and suggestions from stakeholders, together with lessons learnt from the experiences of other infrastructure proponents, have been incorporated into the programme on an ongoing basis.

Iron Road was one of the first industry signatories to the South Australian Chamber of Mines and Energy (SACOME) Code of Practice for Stakeholder and Community Engagement (SACOME 2012), and the principles of the Code, outlined below, also underpin the approach.

1) **Inclusive** – the engagement process identifies, reaches out to and includes participants who clearly represent all stakeholder groups, including community, government, business and industry.

2) **Transparent and Accountable** – the engagement process is transparent and it is clear who is responsible and accountable for its implementation.

3) **Clear and Informed** – the engagement process provides timely, balanced and objective information and promotes shared understanding between and within stakeholder groups. Issues on which stakeholder groups are to be engaged are clearly scoped and the factors that can or cannot be influenced by their input are clear.

4) **Accessible and Timely** – the engagement process is accessible to stakeholder groups. Time to deliberate is provided and an appropriate tone is created to encourage deliberation and the forming of informed opinion.

5) **Meaningful** – The engagement process and outcomes are considered by decision makers and can influence the decisions made. The engagement process

All of the above Stakeholder Engagement sounds good from Iron Road but the actual affected landowners disagree as per private meetings on December 9 and 10 with DSD and DPTI.
6.5 Engagement Programme

One-on-One Meetings
Establishing strong relationships with landowners whose properties are intersected by, bordering and/or adjacent to the proposed CEIP Infrastructure, together with directly-affected community members, has been a priority for Iron Road. It has been important not only to understand concerns and specific issues facing each, but to involve those directly affected by the proposed infrastructure in the design of project alternatives where possible.

Meetings with directly-affected landowners along the proposed Infrastructure Corridor are ongoing and at various stages, depending on various factors such as the availability of the individual owners to meet with Iron Road, their respective feelings for the project, and the level of impact the CEIP Infrastructure will have on their properties.

Meetings to date have covered why the route has been chosen, the impacts on the land, generic discussions around compensation and possible purchase of land (whether it be a whole or part of the impacted property) and, importantly, design solutions to assist farmers with various matters such as:

- Stock access and movement
- Machinery access
- Farm access
- Business operations such as shearing and cropping impacts

Impact Management Plans (IMP) are being developed in conjunction with each landowner which set out what infrastructure would be required to assist farmers continue on with their business (such as stock crossings and culverts) and which can then be utilised in the engineering design of the Infrastructure Corridor. To date, IMPs have not been developed for all landowners but the aim is to have these in place and to advance compensation and purchase discussions during 2016.

Discussions and meetings with impacted landowners will continue over the Construction and Operation phases of the CEIP Infrastructure.

In addition to the above individual meetings, Iron Road has hosted information sessions specifically for landowners along the proposed Infrastructure Corridor detailing general information regarding the EIS approvals process, engineering and design, and potential environmental impacts.

All of the above Stakeholder Engagement sounds good from Iron Road but the actual affected landowners disagree as per private meetings on December 9 and 10 with DSD and DPTI. The two Government departments cannot ignore what was said!

Community Reference Groups
Iron Road has supported and partnered with stakeholders to establish two community-formed reference groups. These community reference groups have been established to enable direct engagement with Iron Road on behalf of the community they represent and are based on geographical and social proximity to elements of the CEIP Infrastructure:

- The Port Neill Community Reference Group (focused on the proposed port, rail and other infrastructure) (Operate under the Port Neill Progress Association and did not develop a TOR for the purposes of engagement with the CEIP).
- Tumby Bay and Districts Community Consultative Group (focused on the proposed port, rail and other infrastructure) (Appendix H).

As both of the reference groups are self-formed and independently managed, they advise Iron Road
as to when and how they would like to be consulted and engaged with. The groups also meet upon request from Iron Road should the need arise. Meetings have focused on topics the groups have considered as significant to their community as well as highlighting opportunities for involvement in the CEIP Infrastructure.

We cannot recall the TBCCG, (sometimes referred as TBCCC), ever holding a public meeting to convey the information they receive to the ratepayers of the District Council of Tumby Bay. 23 volunteers on the TBCCG do not represent the ratepayers of the district.

**Peak bodies on the Eyre Peninsula**
Iron Road has entered into a joint MoU with several peak industry bodies on the Eyre Peninsula:
• Regional Development Australia Whyalla Eyre Peninsula
The “independent chairperson” of TBCCG is on this board. How can this be an Independent committee?

**6.7 Conclusion**
Iron Road is focused on developing the CEIP Infrastructure in a manner that generates maximum benefit for the local, regional and broader South Australian community. Iron Road has undertaken extensive engagement to gain a thorough understanding of issues and benefits which have been addressed through project design modifications where possible, and control and management strategies.

Iron Road views earning a respected place in the community as a key measure of project success and has developed and implemented a consultation and engagement strategy that is focused on building strong participation from, and trust with all stakeholders. This is underpinned by engagement that is inclusive, transparent, accountable, clear, informed, accessible, timely and meaningful.

Iron Road will continue with its engagement programme throughout the EIS process and beyond, which will include targeted information sessions and briefings, and the provision of information via Iron Road’s website and social media platforms.

If the EIS is approved, Iron Road will continue with an ongoing engagement programme to enable stakeholder involvement throughout the Construction, Operation and Closure phases.

All of the above Stakeholder Engagement sounds good from Iron Road but the actual affected landowners disagree as per private meetings on December 9 and 10 with DSD and DPTI. The two Government departments cannot ignore what was said!

**7.3.1 Climate**
Once again no site-specific data.

**7.3.2 Wind**
Once again no site-specific data.
7.3.2 Wind
The proposed CEIP Infrastructure extends from the east coast of the Eyre Peninsula near Port Neill to the central Peninsula at Wudinna where the proposed long-term employee village is to be located. At Wudinna, morning northerly winds are predominant in the winter, autumn and spring months, with strong south-easterly morning winds in summer months. Afternoon breezes are predominantly from the south in summer and autumn, the west in spring and from the northwest in winter. There is no existing wind monitoring station at Port Neill. The nearest coastal monitoring station is at Port Lincoln where morning wind direction is predominantly from the southeast in spring and northwest in winter. There is no prevailing morning wind direction in either summer or autumn. Afternoon winds at Port Lincoln are predominantly from the southeast in spring and autumn, northwest in winter and from the east in spring.

Roses of wind direction versus wind speed measured at 9am and 3pm at Wudinna and Port Lincoln are depicted in Figure 7-2, Figure 7-3, Figure 7-4 and Figure 7-5 (BOM 2012 & BOM 2012a).

BOM at Cleve, Adelaide, Wudinna, Kimba and Port Lincoln certainly are not site specific to the project. The wind and climate is certainly different to all these sites.

IR modelling is immediately questioned for correctness?
For example, one cannot compare the weather at Port Wakefield as being same as Mount Lofty in the Adelaide Hills.
There are stronger sea breezes and winds at the proposed Cape Hardy Port than the more sheltered site of Port Lincoln Airport.

Infrastructure Corridor
Iron Road does not currently have ownership or the right to access all the property within the proposed infrastructure corridor or long-term employee village and will seek to negotiate the acquisition of portions or whole sections of land with each affected landowner in due course.

Establishing strong relationships with landowners whose properties are intersected by, bordering and/or adjacent to the proposed CEIP Infrastructure has been a priority for Iron Road. It has been important not only to understand concerns and specific issues facing each, but to involve those directly affected by the proposed infrastructure in the design of project alternatives where possible.

Meetings with directly-affected landowners along the proposed Infrastructure Corridor are ongoing and at various stages, depending on various factors such as the availability of the individual owners to meet with Iron Road, their respective feelings for the project, and the level of impact the CEIP Infrastructure will have on their properties.

Meetings to date have covered why the route has been chosen, the impacts on the land, generic discussions around compensation and possible purchase of land (whether it be a whole or part of the impacted property) and, importantly, design solutions to assist farmers with various matters such as:
• Stock access and movement
• Machinery access
• Farm access
• Business operations such as shearing and cropping impacts

Impact Management Plans (IMP) will be developed in conjunction with each landowner and set out what infrastructure would be required to assist farmers continue on with their business (such as stock crossings and culverts) and which can then be utilised in the engineering design of the Infrastructure
Corridor. To date, IMPs have not been developed for all landowners but the aim is to have these in place and to advance compensation and purchase discussions during 2016. Discussions and meetings with impacted landowners will also continue over the Construction and Operation phases of the CEIP Infrastructure. In addition to the above individual meetings, Iron Road has hosted information sessions specifically for landowners along the proposed Infrastructure Corridor detailing general information regarding the EIS approvals process, engineering and design, and potential environmental impacts.

IR attitude and lack of detailed information to the landowners so far will create a lot of unwarranted stress on the landowner. As stated before, the government “walks away after granting the proposal and leaves the negotiations to the mining company and the stressed landowner.” Landowners will be forced to use solicitors, at their expense, to broker the best deal for themselves.

### 6.7 Conclusion
Iron Road is focused on developing the CEIP Infrastructure in a manner that generates maximum benefit for the local, regional and broader South Australian community. Iron Road has undertaken extensive engagement to gain a thorough understanding of issues and benefits which have been addressed through project design modifications where possible, and control and management strategies. Iron Road views earning a respected place in the community as a key measure of project success and has developed and implemented a consultation and engagement strategy that is focused on building strong participation from, and trust with all stakeholders. This is underpinned by engagement that is inclusive, transparent, accountable, clear, informed, accessible, timely and meaningful. Iron Road will continue with its engagement programme throughout the EIS process and beyond, which will include targeted information sessions and briefings, and the provision of information via Iron Road’s website and social media platforms. If the EIS is approved, Iron Road will continue with an ongoing engagement programme to enable stakeholder involvement throughout the Construction, Operation and Closure phases.

All of the above Stakeholder Engagement sounds good from Iron Road but the actual affected landowners disagree as per private meetings on December 9 and 10 with DSD and DPTI. The two Government departments cannot ignore what was said!

### 10.3.2 Sensitive Receivers
Sensitive receivers include locations where people live or work that may be affected by air quality impacts due to the proposed development of the CEIP Infrastructure. This includes dwellings, schools, hospitals, business premises or public recreational areas. Environmental receivers such as terrestrial flora and fauna and the marine environment are addressed in Chapters 13 and 14 respectively. The sensitive receivers closest to the proposed development are individual dwellings on agricultural properties located intermittently around the proposed port development, along the infrastructure corridor and at Wudinna (near the proposed long-term employee village) as well as a number of small...
towns including Port Neill, Rudall and Verran. There are also two grain storage and handling facilities in the vicinity of the proposed infrastructure corridor – one near Port Neill and one at Taragoro (half way between Verran and Rudall). There are approximately 30 dwellings, the Driver River Uniting Church (Verran) and the Taragoro grain storage and handling facility within 1 km of the proposed infrastructure components along the infrastructure corridor (including the borefield wells, water pipeline, railway line and power transmission line). Table 10-5 lists these sensitive receivers and the estimated distances to each component of infrastructure (also refer to Chapter 12, the noise assessment, for additional information on the location of sensitive receivers along the proposed railway line including a map illustrating locations).

Where is the now baseline data, collected at least 12 months before start of construction? There should be independent monitoring companies employed by Iron Road. Independent monitoring at all sensitive receivers. No self-monitoring that could lead to false results in favours of the company.

10.4.1 Proposed Infrastructure Corridor
The design of the proposed railway line and operation includes the following measures to minimise potential air quality impacts:
Over a period of years that minimize pollution will mount up to sizable contamination.

Proposed Railway Line
- The loaded rail wagons are proposed to be covered prior to leaving the proposed mine to prevent loss of the iron concentrate.
- New locomotives will be used which will meet the Australian Standards for railway rolling stock and emit less diesel fumes than older locomotives.
How much less is acceptable to the community and not on a computer screen study and modelling? If covered means tarpaulins, then we all know dust can escape from under this

10.4.2 Proposed Port Development
The design of the proposed port development includes the following measures to minimise potential air quality impacts:
Again minimise?

Rail Unloading Facility
- The rail unloading facility will be enclosed to assist with maintaining the moisture content of the iron concentrate (approximately 10%) and fitted with a dust control system under the wagons, at the bottom dumper tip point and conveyor loading point, to capture any residual dust generated during unloading.
- An automatic wagon vibrator will detect if iron concentrate is hanging on to the side of a wagon and use a mechanical arm to vibrate the affected wagon to ensure the contents are emptied completely before leaving the enclosed facility.

The wind and climate at the Port are different to the BOMs referred to for data. No site specific data!

Port Site Concentrate Stockpile
- The iron concentrate will have a relatively high moisture content of approximately 10% which will reduce the potential for dust generation and regular monitoring of moisture content will ensure the iron concentrate remains within strict moisture content parameters for safe shipping.
- The concentrate stockpile boom stacker and bucket-wheel reclaimer will be fitted with dust suppression sprays to control any dust that may be generated during stacking and reclaiming of
the stockpile.

- Application of water onto the stockpile by spray cannons mounted on water trucks will be undertaken as required to maintain the moisture content of the stockpile.
- An organic veneering agent will be added to the water sprayed by the water trucks to bind and stiffen the surface of the stockpile to create a cohesive layer over the surface of the concentrate and reduce the emission of wind-generated dust.

No site-specific data for weather conditions at the Port!
Stronger winds at the Cape Hardy Port coastline than at Port Lincoln airport.

### 10.5.1 Sources of Air Emissions

Air emissions associated with the proposed CEIP Infrastructure may result from construction activities, rail transport of the iron concentrate and operations at the port. The sources of emissions for each project component and emission estimates for significant sources are summarised below.

#### Air Emissions from Construction

During construction, sources of air emissions are likely to include:

- Wind-borne dust from exposed surfaces, such as cleared areas, temporary stockpiles and excavations
- Materials handling activities associated with earthworks requirements (e.g. cut and fill for railway line)
- Blasting for cut and fill works at the proposed port site and along the proposed infrastructure corridor
- General construction works associated with the construction of various buildings and storage facilities
- Wheel-generated dust from heavy and light vehicle movements on unsealed surfaces
- Diesel exhaust emissions from the use of construction machinery, vehicles and generators.

Dust emissions cause elevated levels of PM$_{10}$ that have the potential to impact on human health and larger particles can impact on amenity primarily by depositing on surfaces such as dwellings and vehicles.

No site-specific data for weather conditions for the mine site or the transport corridor and Port.

#### Air Emissions from Rail Transport of Iron Concentrate

#### Air Emissions from Port Operations

#### Qualitative Dust Impact Assessment for Construction of the Proposed Infrastructure Corridor

Clearing, grubbing, stockpiling, blasting and excavation associated with construction of facilities within the infrastructure corridor (railway, power transmission line and water pipeline) will create sources of emissions. Construction activities are not expected to generate significant quantities of dust, based on the relatively low levels of ground disturbance and short-term duration of construction along the corridor.

A CEMP will be implemented along the infrastructure corridor to minimise dust emissions during the construction period. The closest sensitive receiver is located 140 m from the infrastructure corridor. The impact of construction dust emissions is considered to be **low** based on the transient nature of construction along the infrastructure corridor, limited scale of planned earthworks at any particular site, the separation distance between construction activity and sensitive receivers, the short-term nature of construction works and implementation of standard construction dust control measures.

There is no mention of dust, pollution and contamination to crops, pastures and livestock.
Qualitative Assessment of Exhaust Emission Impacts from CEIP Infrastructure Construction

Diesel exhaust emissions would arise from the use of any construction machinery operating on site, and vehicular movements in and around the site. Combustion emissions include SO$_2$, NO$_x$, PM$_{10}$, and CO. The effects of these gaseous emissions are expected to be insignificant and localised around the emission sources only. Therefore, the impact of these emissions at sensitive receivers is considered to be negligible.

The environment would be free of any extra contaminates if this project is refused.

10.7.1 Construction Air Quality Risks

Soil disturbance along the corridor will easily create drift/dust in some areas before rehabilitation can occur and be established enough to prevent erosion in neighbouring paddocks. Farmers over the years have changed their ways and now with no-till the land is producing more with very little soil erosion. The properties alongside the corridor are at great risk of having erosion/dust started by the construction of the corridor that will not be rehabilitated successfully for years.

Climate Change and Greenhouse Gas

At the moment the emissions are presumably low. With the onset of this proposal there will be a huge increase in greenhouse gas emissions.

Elevated Fire Risk

Climate change predictions indicate that bushfire events will increase in frequency and intensity in the Eyre Peninsula region. Bushfire events may result in damage or destruction of CEIP Infrastructure components, as well as threaten the safety of Iron Road employees. Fire management procedures will be established, including stop work provisions for high risk activities proposed to be conducted during days of ‘Catastrophic’ or ‘Extreme’ fire danger ratings (as declared by the CFS). There is minimal native vegetation within the region, generally resulting in low fuel loads, and thus moderate intensity fires, in the event of ignition.

Nevertheless, a significant fire event could (in the worst case) result in the destruction or damage to CEIP Infrastructure components, or stop the ability to continue operation activities. This is considered to represent a major consequence.

No mention of fire destroying farming land from a fire that could be caused by IR.

Fuel loads are high as the grain crops ripen before harvest.

The Pinery fire December 2015 shows how quickly a fire can spread through the countryside.

Plate 11-2 Example of Rainfall Event on the Eyre Peninsula

More like a shower 1km wide.

It does rain in the project area and this photo is not showing a typical rain event.

EP is not all saltbush country.
11.4.2 Design Measures to Protect Environmental Values

The design of the CEIP has incorporated a number of measures to minimise GHG emissions. Iron Road has invested significant effort in reducing the GHG footprint of the CEIP during design optimisation by incorporating measures that have directly contributed to a reduction in projected energy demand during construction and operation, including:

- **Reduction in size of truck fleet** – The change from diesel-powered conventional load and haul mining to the proposed in-pit crushing and conveying mining method has significantly reduced the size of the haul truck fleet required from approximately 93 to 12 trucks, while taking advantage of greener grid-based electricity as the mining energy supply.

  The 93 trucks were never operating so Iron Road cannot claim a reduction of emissions that never occurred. It would be easy to load up a project, then reduce it and claim false benefits.

- **Module offloading facility (MOF)** – Proposed transportation of pre-constructed modules from the proposed MOF (at the proposed port development) directly to the mine rather than truck delivery of all construction material to the mine for on-site construction has significantly reduced fuel requirements during construction.

  Again local labour work disappearing before project start.

- **Optimisation of blasting techniques** – Rock and ore blasting techniques have been optimised to minimise the energy consumed in the primary crushing phase of the mining process.

  Dust containing heavy metals will still be covering nearby farming land.

- **Water source from borefield** – Initial designs of a desalination plant located near Elliston or a water supply and desalination plant at the proposed port site required significantly more power to pump the required water to the proposed mine near Warramboo. The current proposal pumps water approximately half the distance of earlier designs.

  Where is the identified 110mm HDPE pipeline from Verran to the port?
  Where is all the salt from the bore-field water going?
  Salt will be leeching out of waste rock pile some 130 metres high and onto adjacent farmland.

  The environment in the corridor will have huge amounts of salt delivered onto it by water used for dust suppression. Some of this saline water will spread on to adjacent properties

- **Efficient railway line** – The gradient of the railway line has been minimised to maximise fuel efficiency. Additional outcomes are reduced engine strain, braking and brake noise. New locomotives will be used which will meet the Australian Standards for railway rolling stock and emit less noise than older locomotives.

  Iron Road went to great length one presentation to call the train “Silent Death”. IR now identifying noise from the train!
• **Minimisation of disturbance footprint** – The CEIP Infrastructure has been located to avoid significant areas of native vegetation and infrastructure requirements will be ‘co-located’ within a single corridor to minimise the project footprint. Existing rail and road corridors will be utilised wherever possible to minimise the footprint. Maintenance tracks and vehicle laydown areas will be developed within the Infrastructure footprint to avoid further vegetation clearance, minimise ongoing disturbance (e.g. vehicle traffic and construction activities) and facilitate rehabilitation of disturbed areas for significant environmental benefit (SEB) offset.

IR must fence the transport corridor before any construction occurs so the above statement is adhered to.

**11.4.3 Impact Assessment: Greenhouse Gas Scope 3 Emissions**

Steel and concrete will be required to construct the CEIP Infrastructure. The steel and concrete will require manufacturing and transport. GHG emissions will be generated from both the embodied emissions present in the steel and concrete and the manufacturing and transport of the steel and concrete from China to the project site.

minimising fuel consumption (for example through a reduction in the size of the truck fleet

The truck fleet was never operational so IR cannot claim the reduction in emissions.

Australian jobs lost to overseas without any tenders being call for.

**14.5.10 Restricted Public Access to Coastal Reserve**

The exclusion zone of the port will restrict public access to the port site throughout the lifespan of the facility. The port site is known to support recreational fishing; however it is not considered to be heavily trafficked. The social impacts of restricting public access to the coastal reserve are discussed in detail in Chapter 22, Social Environment

The “Dog Fence” is a renown snapper fishing area.

To mitigate the risk of vessels colliding with marine fauna, speed limits will be applied to vessels travelling within the marine study area. Should a marine mammal be spotted in open waters, vessels will either steer away from the mammal or reduce speed to reduce the risk of collision (where safe and practicable). The ability to take evasive action may be limited by safety considerations such as appropriate water depth or the presence of other vessels.

Do not think these vessels have the manoeuvre-ability of a small boat.

**15.5.1 Altered Surface Water Regimes in Existing Creeks and Drainage Lines**

Due to the provision of culverts, the flow regime of existing creek and drainage lines running through the port site and southern infrastructure corridor will not be altered in rainfall of up to 1 in 20 year flow events. During higher flow events, the culverts will restrict flow, reducing the downstream peak flow rate and extending the length of time during which the creek would flow. Restricting flows will result in temporary localised pooling of surface water immediately upstream of the culverts, with approximate equivalent total volumes of runoff eventually passing through the culvert and reaching...
the coast. As the temporary pooling of surface water will be limited within the port site and southern infrastructure corridor and not result in diminished total volumes of runoff, the impact is considered to be **low**.

Soil compaction is a huge concern through the entire project area. The creek area soil will be compacted in the construction of the corridor, especially under the railway. This compacted soil will not allow the natural environmental water to flow above or under-ground. Culverts will be too small and too infrequent to allow this water to naturally flow downstream. There will be a build-up of water on one side of the corridor leading to formation of salt-water areas that will affect adjacent landowner’s properties. Iron Road dismisses this problem as a low impact. Local farmers do not. Local experience is very important. At a presentation in the Cleve Hall one evening the Iron Road staff could not understand the compaction issues. It was several minutes of discussion before they acknowledged there could be a problem. Some locals even offered to show IR the problem on farms and roadways as the IR staff seemed confused about compaction. A local person used an example of the compacted soil will be like cement under the railway and not let the water under the ground to flow through. In reply an IR employee thought the reference was for cement to be used as a base for railway! We still think IR has not considered this problem seriously enough.

### 15.5.3 Erosion

Significant earthmoving activity during construction of the CEIP Infrastructure will increase the potential for erosion, particularly during periods of heavy rainfall. Alterations to surface water flows from the development may also increase erosion and lead to water quality impacts. Standard soil and erosion management practices will be implemented, meaning that erosion during construction and operation is expected to be limited to within the footprint of the CEIP Infrastructure, with identified issues able to be immediately rectified. As such, impact on water quality as a result of erosion is considered to be **low**. Erosion from dust/drift will happen, especially in lighter soil areas. Erosion, pollution and contamination does not stop at the immediate boundary/perimeter of the CEIP footprint.

### 15.5.4 Restriction of Overland Flow

Comments above relate to this as well.

**Water Supply**

The Tod River is the only permanently flowing waterway on the Eyre Peninsula and has a capacity of 11,300 ML (SA Water 2014). The Tod Reservoir currently supplies approximately 7% of the region’s water requirements (Deloitte 2013). This statement is incorrect; refer to letter from SA Water on page 3.

### 16.3.1 Hydrology

Surface water on the Eyre Peninsula is sparse, with the occurrence of creeks and rivers limited by the topography and low rainfall. There are no prescribed surface water areas on the Eyre Peninsula. The Tod River, which is located approximately 50 km southwest of the port site, and outside the study area for groundwater and surface water impacts, flows south from Yallunda Flat to its mouth near Port Lincoln. The Tod River is the only permanent stream on the Eyre Peninsula. Other stream systems
are ephemeral or seasonal with limited connection to the ocean.  
There is not enough base-line data on aquifers on Eyre Peninsula.  
There are varying statements from hydrologists as to whether the aquifers are connected.

16.3.3 Regional Hydrogeology  
Eyre Peninsula groundwater resources are of variable quality and quantity, and most groundwater occurs in saline or brackish aquifers with generally low yields (Berens et al. 2011).  
Groundwater salinity data from recent drilling investigations focusing on the target aquifer in the vicinity of the proposed borefield (Tertiary sediment aquifer), and the broader regional dataset (DEWNR 2014) indicate that salinity ranges from 35,000 to 40,000 mg/L (GWS 2014a) which is comparable to seawater (BHPB 2009). Groundwater in the vicinity of the proposed borefield and the production wells for the infrastructure corridor construction water supply is suitable for industrial use only.  
Continued use of this saline water over 25 years will affect the surrounding country.

16.5.5 Predicted Effects to Groundwater as a Result of Infrastructure  
As identified in Section 16.5.1, altered groundwater conditions due to compression of soils from the railway line are not expected as part of normal construction and operation of the CEIP Infrastructure and therefore have not been considered as an impact.

Very questionable statements. Many locals disagree.  
Observe road crossings of creeks and the present railway and one can see results of compaction.

17.3.2 Acid Sulfate Soils  
Acid sulfate soils are naturally occurring and form in waterlogged areas with the presence of iron, sulphide and organic material. If exposed to air as a result of excavation or drainage, acid sulfate soils can react with oxygen to form sulfuric acid. Sulfuric acid can be toxic to flora and fauna, contaminate water supplies, or damage man-made structures (EPA 2014).  
Construction of the corridor and using huge amounts of saline water for dust suppression could cause more acid sulfate soils.

17.5.2 Soil Compaction  
Areas of the CEIP Infrastructure to be rehabilitated include temporary construction areas such as hardstands and laydown areas. As such, impacts associated with soil compaction will be limited within the proposed CEIP Infrastructure footprint, and are able to be remediated in the short term through deep ripping of compacted areas. As such, soil compaction is considered to be a low impact
Do any landowners know where these areas are on their property?

17.7 Residual Risk Assessment  
This section identifies and assesses soil and land quality risks that would not be expected as part of the normal operation of the CEIP Infrastructure, but could occur as a result of faults, failures and unplanned events. Although the risks may or may not eventuate, the purpose of the risk assessment process was to identify management and mitigation measures required to reduce the identified risks to a level that is considered to be as low as reasonably practicable and therefore acceptable.  
Through the adoption of design modification or specific mitigation measures, all identified risks were reduced to levels of medium or lower, which is considered to be as low as reasonably practicable and therefore acceptable. The key environmental risks would be monitored through the CEIP
environmental management framework.

Acceptable to whom, the mining company or the landowner?
Independent monitoring should be demanded. No self-monitoring.

17.7.6 Dune Instability
Cutting through existing sand dunes to support the construction of the railway line can result in dune instability or ‘blowouts’. Blowouts of dunes can occur when vegetation is cleared from the dune, leaving exposed sand that then blows across localised areas of the landscape in large quantities. Sand generally moves with the prevailing wind, resulting in blowouts being able to extend from the source of the clearance, smothering additional vegetation at the outer edge of the blowout and progressively increasing in area.
As previously outlined in Section 17.6, dune instability and blowouts will be managed (if required) through the use of sand trapping fences, revegetation of dunes and/or battering slopes with material more stable than sand (e.g. a mix of sands and clay). As such, significant blowout of dunes is not anticipated, with any landform alterations anticipated to represent a minor change. It is considered possible that minor alterations to the local landform will occur at some point during the construction and operation of the CEIP Infrastructure. As such, the risk of dune blowout as a result of railway cuttings is considered to be low.
Doubt if the local landowners agree with the IR statements above.
Erosion will not stop at the CEIP footprint perimeter.

4.2.3 Workforce Commute
The operational workforce for the mine would be accommodated at the long term employee village at Wudinna or in the mine site camp. This would require daily movement of personnel between Wudinna and the proposed mine site. These movements would consist of both bus and light vehicle movements which are assumed to enter the proposed mine site from Nantuma Road.
The operational workforce for the proposed port site is expected to live in local towns such as Port Neill, Tumby Bay and Port Lincoln with personnel moving to and from site along North Coast Road (from Port Neill) and Brayfield Road (workers commuting from Tumby Bay and Port Lincoln). These movements would consist of both bus and light vehicle movements.
Only one vehicle making the same turn through an intersection per hour?

5.1 Construction Phase
Construction stage transport impacts are different in scale and location to operational stage transport impacts due to the need to transport large volumes of plant and equipment to the site(s). As such the main traffic and transport impacts anticipated during the construction stage of the CEIP relate to the module delivery route and include travel time delay and road safety. Broader impacts to the transport network from construction traffic in terms of level of service and intersection capacity are also considered, as is the impact on the existing Cummins- Buckleboo Railway line.
5.1.1 Travel Time Delay from Module Transport

The most significant traffic impact during the construction period will be from delays caused by traffic waiting for large, slow modular loads (modules) being delivered to the site from the port. The extent of the impact will be dependent on the size and speed of the module, with a range of types intended and differing travel speeds for each. The range of module load sizes under consideration is shown in Table 5-2.

Table 5-1 Module Sizes for transport (Port to Mine and Port only)

<table>
<thead>
<tr>
<th>Module Size</th>
<th>Max.Load</th>
<th>Quantity</th>
<th>Haul Mode</th>
<th>Haul Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large (Port to Mine)</td>
<td>13m x 53m x 45m</td>
<td>2200 tonnes</td>
<td>SPMT</td>
<td>1 km/hr</td>
</tr>
<tr>
<td>Medium (Port to Mine)</td>
<td>13m x 53m x 45m</td>
<td>800 tonnes</td>
<td>SPT</td>
<td>40 km/hr</td>
</tr>
<tr>
<td>Large (Port only)</td>
<td>20m x 53m x 50m</td>
<td>2200 tonnes</td>
<td>SPMT</td>
<td>1 km/hr</td>
</tr>
</tbody>
</table>

SPT = Self-Propelled Transporter
SPMT = Self-Propelled Modular Transporter

Other large loads will be transported on conventional wide load vehicles under permit. The port modules are very large but will be moved only within the port site, and will not impact on any external roads. The primary impact from the modules will be the delay to other vehicles caused by the slow moving modules hauled by SPMT (Self-Propelled Modular Transporter). The traffic delay from the module transport rises linearly as the travel speed reduces.

Traffic impact has been measured in terms of total and average motorist travel time delay. As discussed in Section 2.3 a high level traffic simulation model was developed to estimate the likely travel time delay from delivery of the oversized modularised loads. The modelled delivery route is divided into segments which are representative of the start and end of a traffic control block with each also having a diversion route which would take motorists around the modularised load (refer to Figure 5-1)

Based on observed traffic volumes for the Lincoln Highway (see Figure 5-2) almost all daily traffic on roads along the module delivery route occurs between 5am and 8pm. It is assumed that all module driving shifts will be carried out overnight, however, depending on the start time, a driving shift may intersect with either the PM peak or the AM peak on the following day. As such, a range of start times for the 12 hour driving shift have been tested to measure the relative impact of different start time. These were 4am – 4pm, 6pm – 6am and 8pm – 8am. For each of these start times module travel speeds of 1km/hr, 2 km/hr, 3 km/hr, 4 km/hr and 40km/hr were considered.

In our logical opinion these numbers are questionable.

Travel time at 1km per hour will take approximately 6.25 days to drive to mine site.
There will be more delays to public traffic than stated.
Have the weather conditions been taken into account in these figures?

18.5.5 Impacts to School Bus Operations

School buses will be stopping at crossings so an increase in time for bus routes.
The “Silent Death” train will be using the rail-line so potential for accidents to occur.
Travelling times will be increased for students on school buses and more driver fatigue.
Governments in cities provide freeways and expressways so motorists can save a few minutes commuting to and from work.
The CEIP project will add more travelling time to all road users.
18.5.6 Pavement Condition and Wear
Traffic generated by the CEIP Infrastructure has the potential to increase the wear and tear on the road network, over and above what would be expected without the project traffic, from the additional axle loading on the road pavement. To manage this impact, Iron Road will implement a pavement monitoring, management and rehabilitation plan in consultation with DPTI. This will include undertaking pavement deflection (strength) testing on haul route pavements before and after the construction period to monitor pavement condition and undertaking remedial pavement rehabilitation treatment if required.

However, during operation of the CEIP Infrastructure a negligible (0 to 1%) increase in the axle loading on the road pavement is predicted. The impact of this additional loading on pavement condition is likely to be very slight and should not significantly affect the condition and remaining life of the pavement within the study area.

As such the impact of pavement deterioration during the Construction phase is considered to be low (short term and restricted to the project area with mitigation measures planned where required) and the impact on pavement condition during the Operation phase is anticipated to be negligible as a result of CEIP Infrastructure-generated traffic.

Will IR or the Council pay for repairs?
Has the weight and width of the low-loaders transporting the equipment from Port to mine site been considered?
In our opinion there are many places that will not support such weight or width.

6.2 Construction Phase Pavement Management
The large heavy vehicles proposed for use during the construction phase may result in incidental damage to the road pavement and/or road furniture. Iron Road will develop a construction phase pavement management plan to manage these impacts. This will identify different types of possible road and pavement damage, inspection frequencies, intervention levels and required treatments. As part of the management plan, Iron Road will undertake pavement deflection (strength) testing on haul route pavements before and after the mine construction period to determine whether any remedial pavement rehabilitation treatment is required as the result of the mine construction.

Will Iron Road pay for the widening and repair of roads or is the onus on the affected councils?
Will Iron Road pay for the alterations to power lines or relocation of power lines to allow for height and width of modules?
What compensation will be paid to network power consumers for loss of power due to CEIP activities?

18.5.9 Rail Movements and Traffic Delays at Level Crossings
Has the time for slowing down and then increasing speed back to the previous speed been calculated into the 60 seconds and 100 seconds delay?
18.8 Findings and Conclusion

IR states delays will be minor. Convince that to grain trucks, stock-trucks, emergency services and general public that have timetables to operate by and are delayed by a CEIP “Silent Death” trains. Convince farmers at spraying, seeding, spraying and harvest times of the minor delays.

Table 18-9 Vehicle Delay at Level Crossings

- Collision between train and member of the public due to inadequate warning of oncoming train or driver inattention.

It is acknowledged that such a collision could credibly lead to death or serious injury, and as such a consequence rating of catastrophic has been assigned. Rail crossings will be designed and constructed in accordance with Australian Standards, with active treatments applied at intersection points with key highways (higher trafficked areas) and passive crossings at localised intersections. The likelihood of a collision between a train and member of the public has been assessed as unlikely, reflecting that exceptional circumstances would need to arise for this risk to eventuate. As a result of the extreme worst case consequences, the overall risk of a train collision with a member of the public is considered to be high. An IR employee has referred to the train as “Silent Death”.

District Council of Tumby Bay

The DC of Tumby Bay has a population of approximately 2,586 (ABS 2011e) and is a largely rural, agricultural area. The local economy is predominately based on the farming of cereal crops and sheep, with mining and fishing also being significant contributors.

GRP in Tumby Bay in 2012/13 is estimated to be $154 million comprised of $145 million in total value added and $9 million in net taxes. Agriculture and fishing, is the major economic activity, contributing 42% to value added in 2012/2013.

Agriculture and fishing is the greatest contributor to employment, with 971 FTE positions in Tumby Bay (41%) in 2012/2013.

<table>
<thead>
<tr>
<th>Location</th>
<th>GRP</th>
<th>Top Contributors to Value-Added</th>
<th>Number of Jobs</th>
<th>Top contributors to FTE Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumby Bay</td>
<td>$154 million</td>
<td>• Agriculture and fishing (42%) • Mining (20%) • Construction (7%) • Ownership of dwellings (6%) • Health care and social assistance (5%)</td>
<td>971</td>
<td>• Agriculture and fishing (41%) • Construction (12%) • Health care and social assistance (9%) • Education and training (8%) • Retail trade (6%)</td>
</tr>
</tbody>
</table>

Explain mining in DCTB?
Their is no mining in the DCTB. The few years of exploration has stopped.
22.4 Design Modifications to Protect Social Values

Design measures to maintain and protect the social character, wellbeing and amenity of potentially affected communities in the project area and to reduce social impacts include:

- Providing workers’ accommodation to reduce potential impacts on the existing housing stock or short-term accommodation on the Eyre Peninsula.
- Encouraging the operational workforce to reside locally rather than on a long distance commute (LDC) basis. LDC refers to both fly-in/fly-out (FIFO) and drive-in/drive-out (DIDO) workers.
- Minimising the port and infrastructure disturbance footprint wherever possible.
- The design and siting of infrastructure including:
  - Locating the temporary construction camp within the proposed port site to minimise disruption to local communities.
  - Locating the long-term employee village adjacent to the township of Wudinna, in consultation with the Wudinna DC, to encourage integration within the community and boost local spending.
  - Locating the proposed port development site outside of existing urban areas and away from marine parks or conservation areas.
  - Locating the railway line, water pipeline and power transmission line within a single infrastructure corridor to minimise the overall impact footprint and access impacts.
  - Locating the infrastructure corridor away from townships to reduce amenity impacts associated with 24-hour operations.
  - Locating the power transmission line spur (from Yadnarie substation to the infrastructure corridor) parallel to the existing ElectraNet transmission line to minimise the area of clearance required for structures and amenity disruptions to farming operations.
  - Locating the infrastructure corridor on property or paddock boundaries to the extent practical to minimise the division of land and separation of farming activities
  - Locating the borefield and pump stations within road reserves to minimise land disturbance and access issues.

What Council insurance is needed for these saline bores that could leak and contaminate adjoining properties?

Many landowners disagree that IR has done this.

Stated at a TBCCC meeting that the reputation of construction camps hasn’t improved much so you would not want camps near towns.

Farmhouses are not important?

Increased Business Development Opportunities

The CEIP will provide substantial direct and indirect business opportunities for local, regional and State-wide businesses. Direct business opportunities would relate to the provision of goods and services to Iron Road staff and Iron Road contractors, and indirect flow-on effects generated in other sectors of the economy as a result of higher incomes levels and consumer spending in the region, including the provision of goods and services to LDC workers or incoming residents in local townships. This could benefit a range of business types from small to large, stimulate growth in the local and regional economy, and contribute to the overall well-being of communities.

How can this be believed as already IR has stated cement and steel from China and offshore assembly of modules?
IR is claiming reduced emissions by using less trucks but this also means less jobs for locals. Perhaps many workers would prefer to live in a seaside town and not Wudinna so there are too many assumptions made about the proposed workforce. Too many assumptions for employment in this document. With today’s iron ore price around $40, the competition for supply of goods and services will be strong and the smaller local supplier won’t be able to compete with state, national or overseas companies. We believe IR would have to cut costs where ever possible and that questions all the figures presented in the CEIP project MLP and EIS. Other established Iron Ore companies at the moment are cutting costs and dismissing workers. This also allows experienced workers available to other projects and could cause locals missing jobs if the CEIP project is approved.

Effects from the Construction Workforce

How will the 540 people at head office in Adelaide directly benefit Wudinna? They won’t personally be spending in Wudinna. Construction workforce would typically comprise young men? Largely of FIFO and DIDO so what benefit for Wudinna? Stated that free time at the camps while working on the CEIP infrastructure construction. What benefit for Wudinna? Would FIFO and DIDO workers would bank or shop in Wudinna? Stated at a TBCCC meeting that the reputation of construction camps hasn’t improved much so you would not want camps near towns. The construction camps are close to some farmhouses so what safety strategy is in place for these? Police resources could be stretched.

Effects from the Port Operational Workforce

As discussed in Section 22.3.5, there may be limited capacity in the local labour market to meet operational workforce requirements for the port and other proposed CEIP Infrastructure in the very short term. Iron Road’s preference is not to have a FIFO workforce for the proposed port and will encourage workers and their families to relocate to the Eyre Peninsula to live and work. In order to understand potential population effects arising from the operation of the proposed port development, it is assumed that 50% of the operational workforce may come from existing residents, and 50% may be new residents. Based on 50 new workers choosing to live in local townships or rural communities in the Lower Eyre Peninsula and an average household size of 2.4 people (the average household size for South Australia, which is larger than the Eyre region or the DC of Tumby Bay), this would equate to approximately 120 new residents. Taken as a percentage of the existing population of the DC of Tumby Bay (of almost 2,600 residents), this would represent a population increase of Assumptions.

Define local, is it within the four affected local councils, or Eyre Peninsula, or South Australia, or Australia or? Existing residents from where?
**Housing Impacts in Tumby Bay and Other Areas**

As discussed in Section 22.5.2, the majority of the 100 operational workers for the proposed port development are expected to live locally, within a commutable distance to the port site.

**Assumptions or a directive from Iron Road?**

The Port Neill Structure Plan further notes that the unoccupied nature of two thirds of the existing dwellings within the township means that the township could theoretically accommodate a tripling of the population without requiring the construction of any additional dwellings.

We believe that the experience from exploration in the Tumby Bay area has seen several houses damaged so when tenant left the money gained by renting did not cover the repairs needed to the rented premises.

The nature of Pt. Neill is a holiday destination hence the rate of occupancy

The on-site construction camps would provide for the day-to-day needs of the construction workforce, including dining and bar (‘wet mess’) facilities, on-site first aid / medical resources, laundry and recreational facilities (including a gym and multi-purpose sports court) to reduce the demand on services and facilities in nearby townships. While some workers may choose to visit nearby townships to purchase goods or for recreation and leisure activities, given the location of the accommodation, work rosters, FIFO arrangement sand limited transport options, it is likely that most workers would spend their free time at the camps while working on the CEIP.

Like the construction workforce, operational contractors based at the proposed mine site in Warramboo may choose to visit nearby townships to purchase goods or for recreation and leisure activities, but would be likely to spend most of their free time at the mine site camp while working on the CEIP.

As noted earlier, the construction workforce for the CEIP would be accommodated in two self-contained accommodation camps – one on the mine site near Warramboo and the other at the port site at Cape Hardy. While workers may visit nearby townships to purchase goods or for social and recreational purposes, it is envisaged that most workers would spend their free time at the self-contained camps, with minimal short-term impacts on the social fabric of nearby townships.

While there is potential for the construction workforce at Cape Hardy and Warramboo to visit local towns and tourist attractions, these opportunities would be limited given the siting of camps away from major townships and the FIFO and bus-in/bus-out workforce arrangements. While on work rosters, workers would have limited free time and would be likely to spend their leisure time at the camp and during their rostered time off-site, they would be at their usual residence elsewhere. Nonetheless, there is the potential for construction workers to visit nearby townships, including Tumby Bay, Port Neill and Wudinna, for social and recreational purposes.

**How are the nearby towns going to benefit from self-contained camps and IR suggesting workforce will rarely leave camp other than to go back to usual residence?**

FIFO, DIDO tends to go to their normal place of residency.
22.5.4 Social Character and Wellbeing
Issues identified during community and stakeholder consultation and a review of mining projects and developments in other rural communities highlight potential impacts on social character and wellbeing associated with:

- Changes to the nature, character and lifestyle of the community as result of population growth, demographic change and the influx of a large LDC workforce.
- Safety and security, including the misuse of alcohol and drugs, crime and anti-social behaviour and perceptions of safety.

Safety and Security (22.5.4)
How safe is the community going to be when an IR employee stated reputation of construction workers hasn’t improved much, so campsites not near towns?
“Code of Conduct”: depends on how it is enforced!
Has Iron Road have not recognized the risks to farm residences?

22.5.6 Amenity, Access and Disturbance from the Proposed Infrastructure Corridor
Impacts to property access
As the proposed infrastructure corridor will result in the division of some agricultural land there will be both temporary and permanent changes to property access and farm management practices. It could also affect crossing points for agricultural and pastoral purposes in some locations due to the proposed railway line and above ground water pipeline.

There are 89 land parcels, held by 56 landowners that would be affected by the proposed infrastructure corridor, including the land between Yadnarie and the corridor which the proposed power line would traverse. To ensure continued road access to land and properties, Iron Road will establish appropriate crossing points along the length of the infrastructure corridor in consultation with landowners. In some locations, the rail maintenance track will be able to be used by landowners to move between paddocks, and crossing points will also enable stock to cross the railway line to provide connectivity between pastures and ensure continuity of land use. The location of these crossings within private properties is the subject of ongoing one-on-one consultation and negotiation with directly affected landowners.

Iron Road recognises that the acquisition of land, either portions or whole sections, is likely to cause anxiety or uncertainty for some of the impacted landowners. Iron Road is committed to negotiating consistently and sensitively with directly affected landowners to achieve agreements with all parties. The effect on property connectivity as a result of changes in property access due to the proposed infrastructure corridor has been assessed as a low impact due to the localised and short-term nature of the impact as following construction property connectivity will be maintained where practicable through crossing points negotiated with landowners.

Many affected landowners state the lack of detailed information has not been available even though Iron Road state differently.
Changes to Local Access
As a consequence of the construction of the infrastructure corridor, local road users and landowners may experience some temporary nuisance, inconvenience and delays as a result of changes to local access, including temporary and permanent road closures, and an increase in road traffic (e.g. worker vehicles, heavy access vehicles and materials transport).

Permanent changes to the existing road network would include new level crossings along the railway line resulting in local traffic delays. Further detail on the loss of service resulting from changed traffic conditions can be found in the assessment of traffic and transport in Chapter 18. The effect of increased travel times for local people as a result of changes in local access from the proposed infrastructure corridor has been assessed as a medium impact, as it will be a long-term change to the local study area.

Amenity
People’s experience of the local environment may be impacted by the construction and operation of the infrastructure corridor.

22.5.8 Loss of Agricultural Land
The construction and operation of the CEIP Infrastructure will result in changes to the existing agricultural land uses along the proposed infrastructure corridor at the port site and the location of the proposed long-term employee village.

The area proposed to be developed at the port site (land within the security fence) comprises 461 ha, or 42% of the total land balance of Iron Road’s land holdings. The balance of the Iron Road land holdings will continue to be leased for agricultural purposes. This will minimise the loss of agricultural land in this location.

At the location of the proposed long-term employee village, the loss of agricultural land will be up to 5 ha. However, as discussed in Chapter 5.4.2, Wudinna DC is undertaking a structure planning process for the Wudinna township to support the establishment of the village. As a result of this process, the long-term employee village is expected to form a logical extension to the urban area at Wudinna and will not impact on the viability of agriculture in the region.

The proposed infrastructure corridor could potentially lead to the fragmentation of agricultural land if properties are divided by the proposed railway line and water pipeline. As discussed in Section 22.4, the proposed infrastructure corridor has been located on property or paddock boundaries to the extent practical to limit the potential impact to farming practices.

The total area of the infrastructure corridor, power transmission line and borefield is approximately 828 ha (see Chapter 8 Land Use and Tenure for further details) and includes the:
- Railway line, rail maintenance track, water pipeline and construction buffer – 743 ha
- Power poles footprint – 43 ha
- Borefield (boreholes and the borefield water pipeline to the infrastructure corridor) – 42 ha

The CEIP as a whole (incorporating the proposed CEIP Mine and proposed CEIP Infrastructure) will result in the reduction of 7,050 ha of productive agricultural land, which is approximately 0.2% of the total available agricultural land on the Eyre Peninsula (DWLBC 2003). As such, the overall loss of productive agricultural land and subsequent reduction of supply in agricultural products is considered to represent a negligible impact to the overall agricultural industry, and is not considered to adversely affect the sustainability of the agricultural industry on the Eyre Peninsula.

Farmers work times will dramatically increase if they have their properties intersected by CEIP Transport Corridor.

Access the rail crossings is still not known by landowners and yet submissions have to be made without exact details of the corridor route.
Future yearly expenses on landowners that they never had before due to changing farming conditions brought about by a mining company.

22.8 Findings and Conclusion
Only time will sort out the problems IR will create

The infrastructure corridor will result in the loss and division of agricultural land and permanent changes to property access in some locations due to the proposed railway line and above ground water pipeline. Where possible, and in consultation with impacted landowners and relevant Government authorities, Iron Road will establish appropriate crossing points along the length of the infrastructure corridor, facilitate access via the rail maintenance track and establish access points to properties to improve movement between paddocks impacted by the infrastructure corridor and enable continuity of land use on either side. The acquisition of land, location of crossings points within private property, fencing and other access issues are the subject of ongoing discussion and negotiation with directly affected landowners.

- Landowners near the infrastructure corridor may experience a loss of amenity, inconvenience and disturbance during both construction and operational activities which will require a number of modifications to existing transport routes. These are likely to include the introduction of new road and rail crossings, temporary and permanent road closures and road realignments, and would result in some short-term and localised inconvenience, nuisance and delays for local landowners and the general public.

IR has not recognised the cost, dollar or work time value, to the landowner for fences, water pipelines, water points, tracks, stock movement, machinery movement, extra time accessing paddocks, paddock working, general maintenance and general farm operations.

24 Environmental Management

Will all this be put into practice?
Easy to put on paper but difficult to implement and monitor?
SIMGI Summary:
We, SIMGI, believe the following:
The EIS has many assumptions with inconsistent figures with unanswered questions and questionable statements.
The EIS document has many assumptions from Iron Road Limited.
The present day prices for iron ore do not make this project feasible.
Indications from affected landowners of lack detailed information from Iron Road.
Corridor Landowners do not know the exact route of the transport corridor through their properties.
No true community consultation.
There has been intimidation and bullying to certain people.
Iron Road project community consultation is only with affected local councils and two CCC groups.
There is a huge risk of pollution and contamination to the environment from this CEIP project.
A short-term mining life that is not sustainable as once all the minerals are extracted the perceived economics is finished.
We need our food producing agricultural land.
Land that will continue producing, especially with modern farming practices, well into the future.
There are plenty of non-agricultural areas for mineral extraction.
What Insurance policies does Iron Road have in place?
Public Liability Insurance with every individual landowner, farm businesses, lessees, sharefarmers and anyone listed on land titles recognised on the document?
Will IR sub-contractors have sufficient insurance cover?
Most farmers would have at least $20 million cover but it would have to be a far bigger cover by Iron Road considering the many affected farms near the proposed mine site and along the transport corridor.
Iron Road indicates some landowners might be able to shift machinery and stock along their transport corridor road.
What insurance cover does the landowner need if using this road?
What insurance cover for extremely saline water from Iron Road bores that could leak onto Council land and farming properties? Or is the onus on the local councils that have some of these bores on their roadside land?
What insurance cover against train derailment for property, environment damage and contamination?
Is Iron Road paying for all costs associated with all land title transfers?
Are Iron Road paying for the cost of materials and labour for realignment and establishment of new water points for stock, new pipelines, new gate paddock access and farm road ways that are impacted by the transport corridor?
Is there compensation for disruption to land phone services?
Is there compensation for disruption of water supply?
Is there compensation for disruption of Power Supply?
Is there compensation for agistment of stock if the corridor is not fenced before construction of infrastructure begins?
Will Iron Road fence the complete transport corridor?
Safety for public and livestock: the insurance policy would require this corridor to be fenced.
Will Iron Road fence the sections before construction starts?
How will Iron Road access this corridor for construction?
Landowners should not have construction vehicles/machinery driving anywhere on their property.
Iron Road must stay within their boundary if this project is granted!
Driving on farming properties will cause erosion to soil that would not have happened if the projects were not granted.
Money cannot buy everything or reinstate lost soil.

Under the MLP if property owners don’t agree to sell IR, they are taken to ERD court
What happens if the corridor landowners don’t agree to sell their land to IR?
Will Part 9 of the Development Act 1993, acquisition of land then be enforced?

The following might not be what is required in submissions but DSD and DPTI, at Cleve in December, stated unless it is in writing what-ever is verbal does not count.
SIMGI believe the following:
“In our opinion the whole process from exploration to MLP and EIS is wrong.
The system wrongly promotes to the general public that the government and mining companies are listening to and involving the affected landowners but are they understanding.
There is no true community consultation.
Workshops by mining companies or government departments where they talk down to people.
A lot of presenters involved do not know how to communicate with country people.
After workshops or presentations, the affected community usually think what a waste of time and did they really listen to concerns.
Affected community are volunteers and are not paid when attending, but the mining company and department representatives are paid in their normal job.
Community members have to take time off work or go after hour to these meetings.
There seems to be little consideration or is this the plan when timing these events?
Only hard copies supplied to directly affected landowners with a fee for anyone else wanting copies.
USBs are very hard to study and comment from.
Ten weeks to study 4880 pages and write a submission is ridiculous! (From December 6 to February 2.) Have to read and comment on the average of 82.71 pages per day.
Long harvest days have many people working 12 hours plus and quite often the partner is involved as well. When the weather is favourable harvest continues without many farmers taking a break to secure their income for the year. What reasonable spare timeframe do farmers and their partners have to make a submission during this period? The time limit and busy period of year, harvest, make it unreasonable for the community, as yes, they do have holidays after harvest and during January, to work in with their yearly farming program. School holidays are during January so where is the time to relax if one has a young family? Notice DPTI close over Christmas and DSD has a reduced staff. The community have to study the proposal after hours or on weekends. Council offices are shut from 5pm and on weekends and impossible for several people to read the one hard copy at the same time in the council office. Libraries are not opened all weekend for reading of one hard copy. Some of the USBs did not open on some of the community’s computers. Iron Road, one would think, should only be too obliging to provide more hard copies. After all IR have much to gain if proposal granted so why is the reluctance to spend, very little money in the scheme of the process, to supply the community with more hard copies? The Tumby Bay Library only copy was of the EIS and no MLP. The project does involve the District Council of Tumby Bay and all its ratepayers. In submission writing you are damned if you do and damned if you don’t. Contents in submissions only help the proposed mining companies to make sure they have covered everything. The whole prolonged process by mining companies and government departments wears the affected community down. Some people cannot be bothered to spend hours writing submissions that will help company on anything it has missed. After attending these presentations and workshops many people are very disturbed by the attitude of the mining company and government departments. People with viable businesses are feeling squashed by governments trying in invent a bigger labour force and supporting overseas companies with a short-term future. In our opinion if or when a MLP and EIS is granted the process then is in favour of the mining company. The government departments say, yes, and have nothing to do with negotiations of land purchase and access. The government departments “walk away”. Many landowners have to employ solicitors to safeguard their rights and businesses. The stress and pressure on the landowner to agree and sign is enormous from then on. The pressure of supporters of the mine and transport corridor and Port, presumably the Local and State Government and some local community will be extremely great.
The Department of State Development is the promoters/facilitators of mining and also claim to be the Regulator.
This is a huge conflict of interest in our opinion.
The affected community only has one chance to write a submission with no allowance to re-address their concerns.
The mining company on the other hand has many opportunities to keep altering the proposal until it is acceptable to DSD and DPTI.
We believe this process is extremely unfair and wrong!

Bronte Gregurke
Keith Coventry
Stop Invasive Mining Group Inc.
epsimgi@gmail.com
www.epsimgi.com
CEIP ONLINE SUBMISSION

22 Jan-16

5th Australian Mining Application (MP), 5th Australian Development Application (EIS)

1. I understand that my submission will be published on the government website and provided to the applicant, BUT I require that the government withholds my name and contact details. I understand that it is my responsibility to ensure personal information is not included in the body of my submission, any footers or headers or any attachments.

General Mining Application and EIS

South Australia and the Eyre Peninsula region would benefit in numerous ways if a project of this magnitude was to proceed. The number of jobs created during construction would provide an economic boost to the State from on the ground construction workers through to design engineers. The longer term operational employment in the region would provide a welcome diversification to the regional economy. The rail alignment and port facility would be rare investments in major infrastructure for the Eyre Peninsula region, and it is likely that additional investment would be attracted to the region as a result of a project of this scale (e.g. airport upgrades, transmission line upgrades). The mine would provide on-going royalties to the State which would contribute to investment in other infrastructure projects, and the resulting flow on employment opportunities. I am confident that the State regulatory process provides the necessary framework to ensure that this proposal would be operated to a high environmental standard if it were to proceed, and as such, I am supportive of the project and the benefits it would bring to South Australia.

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