The submission is response to the EA advertised – in the Newcastle Herald

I write in response to the project Application Number 10-0215 for the T4 Project

To understand the background to this Submission I have attached what I believe are some important parameters that Planning NSW and the proponent T4 should have considered as the basis of collating expert reports . ie the Volumes that make up the T4 EA.

I believe the EA should

- **assess the impacts of a proposed activity on the environment to consenting authorities making the decision on whether to carry it out**
- **develop and assess measures to avoid or minimise those impacts if it is decided to carry out the activity**
- **encourage the applicant and the decision-maker to consider what measures can be adopted to minimise the impact of a proposal.**
- **Specifically identify impacts and minimisation measures of DG's requirements**

The T4 EA states the following

"A robust EA process was undertaken, spanning several years. Technical assessments were prepared by leading industry specialists, in accordance with relevant guidelines and policies, and in consultation with government agencies. ... To further assure the EA rigour , higher risk technical studies were reviewed by independent experts from their scoping to completion. The result is a project that meets its strategic goals and is designed to avoid or minimise impacts, or where necessary, provides effective mitigation or compensation measures." {Volume 1 pE.8 }

My review of the EA presented fails to show methods or measures to minimise and or prevent impacts then I would advise the proposed T4 Project be rejected. As some of the impacts are hazardous to human life or hazardous to the environment, it is my view the proposed T4 Coal loader should not proceed. In addition the EA fails to answer the key directive from the DG's requirements -"Appendix B" of the landscape and Visual Impact Assessment – Section 13 Supplementary Director general's Requirements

Key Assessment requirements

1. **The detailed description of the project must include:**
    - **The precise location of any works to be undertaken, structures to be built, or elements of the action that may have relevant impacts;**

- **How the works will be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts.**

The reports identifies the T4 site as a mixed bag of contaminated that are

- **Hazardous to human life**
- **Hazardous to the environment**

In addition to the risks of contamination to human life and or the environment there are issues with the modelling used to identify the risks to the

The report has a major flaw in that no discussion on how the site will be "loaded" and how the load will be transferred to the sub-grade layers, hence the impact of the "squeeze" is not identified nor discussion on minimisation of impacts discussed.

The EA says "Stage 1 dredging – will lead to consolidation (squeezing) underlying Unit 2 Clays " P74/143 Vol 3.

> **There is no discussion re methodology to compact the dredged sand to allow for infrastructure and facilities. There is a reference to a future report. This report is essential for the T4 EA Engineers to understand the potential loads on the subsoils and any associated risks.**

This major omission in the 60 PDF files that present as the T4 EA is the failure to describe, risk assess or describe impacts of "sub-grade piling" under infrastructure – hence skewing modelling and possibly rendering all modelling invalid.

The risk to the Aquifers from contamination of existing contaminants if "piled" is not discussed in the reports. This is a serious breach of the Director General's Requirements – especially "Appendix B" of the Landscape and Visual Impact Assessment – Section 13 Supplementary Director general's Requirements p66 SMM Rev G

> **Key Assessment requirements**
>
> **2. The detailed description of the project must include:**
>
> - **The precise location of any works to be undertaken, structures to be built, or elements of the action that may have relevant impacts;**
> - **How the works will be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts.**

Hazards to Humans and the Environment

The EA report identifies the following contaminants as being on the proposed T4 site

- **Cyanide**
    - **Total Cyanide**
- **TRH**
    - **C6-C9**
    - **C10 –C14**
    - **C15-C28**
    - **C29-C36**
    - **C10-C36**
- **Lead [mostly but above the water table but not 100% identified in the report – p135/143 Vol 3**
- **Anions**
    - **Ammonia(NH3) as N**
- **Metals**
    - **Arsenic(As)**
    - **Cadmium(Cd)**
    - **Cobalt(Co)**
    - **Chromium(Cr)**
    - **Copper(Cu)**
    - **Iron(Fe)**
    - **Manganese(Mn)**
    - **Nickel(Ni)**
    - **Lead(Pb)**
    - **Zinc(Zn)**
    - **Selenium(Se)**

    - **Mercury(Hg)**

- **PAH**
    - **Naphthalene**
    - **Acenaphthylene**
    - **Acenaphthene**
    - **Fluorene**
    - **Phenanthrene**
    - **Anthracene**
    - **Fluoranthene**
    - **Pyrene**
    - **Benzo[a]anthracene**
    - **Chrysene**
    - **Benzo[b,k]fluoranthene**
    - **Benzo[a]pyrene**
- **BTEX**
    - **Benzene**
    - **Toluene**
    - **Ethyl Benzene**
    - **Xylene**
- **These contaminants are required to be remediated. The report by Banksia EOHS identifies the hazards are increased to the employees whom may have the unfortunate task to remediate the proposed site. The report also identifies that the methods proposed to control contamination mobilisation are uncertain.**

The T4 project is proposing to mitigate exposure to these by 2 methods

1. **PPE**
2. **Exclusion zones**

To expose workers, adjacent workforces, residents, school students, child care kids and passing motorists to these contaminants is to be avoided at all costs.

The exclusion zone safety mitigation measure requires further explanation.

The reports from Mitchell McLennan, Douglas partners & Banksia OHS are invalid as they do not quantify or discuss "Construction Methodology " as to a safe method to control these contaminants. There is no discussion on how an engineered pile is placed in the ground to support the minimum required subsoil strength / bearing capacity. The engineered pile may punch through any of the above contaminants and affect the Aquifers /sub- ground conditions / transfer of contaminants to other lower strata and create and irreversible mobile "basin of toxic sludge".

To allow approval of the T4 project will create a public health risk which the Newcastle and Lower Hunter area has insuffient resources to manage. The T4 project should be rejected on the basis of risk to human health and the environment.

It should be noted here that some of the research for the lead/ asbestos tip zone was "interview with old BHP or subsidiary companies" There are at best poor records of the storage of lead dust and asbestos on this site. The failure to accurately quantify the existing quantities and storage depths of these contaminants is a major failure of the EA. The most serious of risks to the Aquifers will be created by loading the site and will squeeze Asbestos / lead into the Aquifers – amongst other contaminants listed above.

This needs to be re-inspected, re-tested and a review of acceptable harm to the workers and general community be established

The EA confirms this - in the Conclusion Sections of the Douglas Partners report p139 / 143 the summary is

- **"Section 13. Conclusions**
  - **The groundwater assessment and numerical modelling has identified a number of groundwater related matters which can be suitably managed by implementing appropriate mitigation measures during staged construction of the T4 Project. The following ground water issues were identified:**
  - **Potential salinity impacts both on and off-site due to dredging;**
  - **Potential Mobilisation of contaminants and groundwater interactions at the former Delta EMD site during the dredging phase**
  - **Changes to water levels in the wetlands west and north of the T4 Project area**
  - **Changes to water levels and flow rates due to filing, preloading and subsequent capping the site;**
  - **Potential groundwater impact associated with tar waste in Pond 5;**
  - **Lead dust co-disposed with asbestos could come into contact with groundwater due to settlement under the T4 Project Load;**
  - **Free phase oil contamination at Bore B-01 in Site B;**

- **Potential mobilisation of contaminants (mainly hydrocarbons and metals) at the Fines Disposal Facility associated with settlement under the T4 load and a rise in the water table;**
- **Groundwater interactions and potential contaminant pathways where the clay aquitard is penetrated by development; and**
- **Groundwater drawdown due to dewatering of excavations"**

The dotpoints clearly identify the potential hazards that building T4 Project on this site have. The second last dotpoint is critical –

- **" Groundwater interactions and potential contaminant pathways where the clay aquitard is penetrated by development"**

The discussion and modelling of the groundwater Assessment has not identified the risk and affect from piling and impact settlement of dredged sand to allow an engineered platform for superstructure of the following major infrastructure

- **Administration and maintenance facilities**
- **Rail receival infrastructure**
- **Stockpiling areas**
- **Coal stackers**
- **Coal reclaimers**
- **Conveyor systems**
- **Wharves & berth infrastructure**
- **Refer Volume 1 ES**
- **In volume 1 section ES3**

In the DG's requirements requested by the proponent to be included in the EA there is an obvious omission to comply with the clear instructions of the Director General. Refer - "Appendix B" of the landscape and Visual Impact Assessment – Section 13 Supplementary Director general's Requirements

Key Assessment requirements

3. The detailed description of the project must include:

- **The precise location of any works to be undertaken, structures to be built, or elements of the action that may have relevant impacts;**

- **How the works will be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts.**

The *obvious omission* is the discussion on the impact of piling on the subgrade of the T4 project site. The piling required to create a safe engineered bearing capacity for Coal Loading equipment described by the EA as "infrastructure"

I'll repeat the list as this is a very important point. There is no discussion on the effect of piling to sustain the loads of the following

- **Administration and maintenance facilities**
- **Rail receiving infrastructure**
- **Stockpiling areas**
- **Coal stackers**
- **Coal reclaimers**
- **Conveyor systems**
- **Wharves & berth infrastructure**
- **Refer Volume 1 section ES3**

To pile for these will require "punching steel / concrete or timber piles through the various layer of contaminants which will have major ramifications on the following

- **Contamination of air borne materials**
- **Aquifer modelling**
- **Remediation**
- **Dredging**

None of this is discussed .

The schedule of infrastructure buildings / structures listed above will sit over the top of Site Area C & D – Known as FDF & Delta EMD – these areas contain - Lead and asbestos but according to the EA "mostly but above the water table but not 100% identified in the report – p135/143".

As per the DG's requirements – the EA has not identified

- **The precise location of any works**
- **It describes $5 Billion worth of infrastructure in 6 lines**

- **It does not describe the elements of the action to build these**
- **It does not describe the relevant impacts because there is no discussion on piling**
- **It does not describe how piling will be undertaken**
- **It does not describe the impact of piling**

The report is negligent for not including this discussion and should not be approved as it contravenes the DG's requirements.

Further Discussion on Dredging & "Squeeze"

In the summary by Mitchell McLennan p122 Part B Stakeholder Engagement

Refer subclause - ii Loading, squeezing and contamination transport p122

"Filling and preloading will lead to consolidation (squeezing) of the underlying soil profile, and force water out of the pore spaces of compressible fine grained silt / clays and into the Fill and Estuarine Aquifers. The clay aquitard is the major stratum that would be subject to the squeezing effect. The clay aquitard is generally not a source of contamination, however, the water squeezed from it would temporarily increase flow rates(horizontal and vertical) in the Fill and Estuarine Aquifiers. The increased flow rates may affect the flux of contamination already present in the Fill and Estuarine Aquifers. Also a rise in the water table could bring contaminated materials which are currently unsaturated into contact with groundwater, with subsequent contaminant leaching into the groundwater. If unmitigated, there is potential for associated impacts on water quality at receiving water bodies.

"There is some uncertainty regarding the infiltration which would occur

through the capping" p 97/143 Volume 3.

Areas K7, Ponds 5/7, Delta EMD, FDF & Site B north have major sources of contaminants that may be squeezed into 2 aquifers -Estuarine Aquifer & Top Aquifer.

The report is deficient for the following reasons

The main areas of contamination cannot be contained by the remediation plan presented by Banksia OHS Report

2. **The loading methodology is not clearly defined or identified**
3. **The modelling in Ground water Assessment has a major flaw**

[refer table 20 p 87/143

In the reports Volume 1 pE.8 summary the following is written

A robust EA process was undertaken, spanning several years. Technical assessments were prepared by leading industry specialists, in accordance with relevant guidelines and policies, and in consultation with government agencies. ... To further assure the EA rigour , higher risk technical studies were reviewed by independent experts from their scoping to completion. The result is a project that meets its strategic goals and is designed to avoid or minimise impacts, or where necessary, provides effective mitigation or compensation measures.

This can not be true. The dates of some of the field tests allow less than 6 weeks from field to publication of their specific reports.

The reports have extensive discussion and sampling /logging of existing site conditions though some areas have not been tested or "opened" but have merely relied on existing reports or verbal recollections form past employees – some of which may been 25 – 30 years ago.

The EA fails to meet the tests of the purpose of an EA. The T4 Project should not be approved.

The modelling Ground Water Assessment

It is noted in the summary ES5.2 "Contaminated Soils" that some of the proposed T4 Project areas have existing licences in place. It is important to understand these licences are in place as landfill cells that contain contaminated materials – not as engineered fill. If there is piling(sheet or driven) required – it is not discussed.

In ES 5.2 "Contaminated Soils is summaries the "remediation strategies proposed to minimise the risk of contaminant mobilisation and migration through groundwater, and exposure of contaminants , are described in Section E#5.3

The ICI Botany site is a comparable site that now has a toxic "present" of materials that contain risk to health and the environment. Do we want to re-create this in Newcastle ? NO.

In ES5.3 Groundwater there is reference to the Douglas Partners Report.

There is a reference to the "loading" of the subsoils and aquifers

"The 'loading' with fill material and infrastructure and the associated 'squeezing' of the soil profile is likely to cause short term increases in groundwater flows(horizontal and vertical), which could temporarily increase leaching of soil contaminants and the rate of contaminated groundwater movement towards surface water bodies. To mitigate these effects and manage groundwater contaminants, the following measures are proposed

- **Construct a soil bentonite barrier wall to contain waste in ponds 5 & 7;**
- **Install permeable reactive barriers that maintain northerly groundwater flows while "treating" any leachate from the lead dust / asbestos area and the FDF;**

- **Pump out the LNAPL hydrocarbon contamination that is just south of the NCIG rail loop by 'dual phase extraction' and treat and dispose of it;**
- **Cover the Delta EMD site with a low permeability liner or cap before emplacing dredged material, to reduce vertical infiltration of saline dredge water; and**
- **Install a liner in the water body known as 'Deep Pond' before dredged material emplacement, to prevent saline dredge water from seeping through the rail embankment into wetlands to the west and north-west.**

The report then adds the following

"if the T4 Project is approved, the above measures will be refined and presented for subsequent approval as part of a detailed remediation action plan(RAP). This will include further investigations at the OneSteel site before construction starts there, to further characterise contamination and refine the management and remediation strategy. A comprehensive groundwater and surface water monitoring program will be in place to assess the effectiveness of the controls and identify and need for additional mitigation"

This should be presented as part of the current EA . In addition it should include discussion on the impacts of piling through out the T4 Project area.

In SE5.4 Surface Water

There is discussion re the Water balance modelling where 76% of site runoff will be captured and re-used to meet 73% of the t$ Projects process water demands. pE.12

Does this mean if the open aquifers when loaded and subject to initial squeeze are penetrated by any infrastructure piling - will this allow contaminants to mix in the aquifer and in the long term be recycled onto stockpiles as dust suppression ? – what are the likelihood of this event and long term effect on employees, residential neighbours and the lowering of coal quality with carcinogens. The T4 EA fails to answer or discuss the impacts.

Meeting 5th August 2011 5.4.3 State Government consultation p 83 / 84

Refer to Outline RAP in Appendix G

In Part B 7.1.3 Soil Contamination

Summary

The existing KCT operations note they operate under PWCS's environmental mgmt systems (EMS) , which is certified to ISO 14001. The EMS allows PWCS to systematically manage its potential impacts on the environment and local community – it aims to go beyond statutory compliance , meet community expectations ...

Part of this would include reporting or passing of critical information/ knowledge that may affect the ground conditions of T4 from the construction and or existing operations of

- **Carrington Coal Loader**
- **KCT**
- **NCIG**

Clearly the T4 EA has avoided or has been negligent to report

- **Proposed engineered piling loads**
- **Proposed exposure to contaminants that will place human health and the environment to deadly carcinogens in the piling process**
- **to test contaminated "hotspots"**

My submission is a brief summary that denotes potential serious harm and unhealthy risk to human health and the environment if the T4 Project proceeds.

The T4 EA does not satisfy any of the following 4 tests of an EA:

- **to assess the impacts of a proposed activity on the environment to consenting authorities making the decision on whether to carry it out**
- **to develop and assess measures to avoid or minimise those impacts if it is decided to carry out the activity**
- **to encourage the applicant and the decision-maker to consider what measures can be adopted to minimise the impact of a proposal.**
- **To specifically identify impacts and minimisation measures of DG's requirements**

I, Jane Kattenhorn of 33 John St Tighes Hill recommend not to proceed with the T4 Project described in the EA - as the risk to human health and the environment are unacceptable. There are major risks to public health for the Newcastle Community including death and long term irreversible damage to Aquifers in the Hunter River.