12 July 2018

Jacfin Pty Ltd C/O Allens
Deutsche Bank Place
126 Phillip St, Sydney NSW 2000
Attention Mr Bill McCredie

Our ref: 21/27116/LTR3
Your ref:

Dear Mr McCredie

**Eastern Creek Energy from Waste Proposal – Further Supplementary Information provided to the Independent Planning Commission**

## 1 Introduction

GHD previously assisted Jacfin Pty Ltd (Jacfin) in respect of the Amended EIS and Response to Submissions for the Next Generation (TNG) waste-to-energy proposal at Eastern Creek (SSD 6236) on land that adjoins Jacfin's land. GHD's comments to date have been provided in the context of potential odour, air quality and health risk issues associated with the TNG facility.

It is understood that the Independent Planning Commission (IPC) has now received further supplementary information from TNG in response to certain issues raised at a public meeting held on 14 May 2018.

Jacfin has now engaged GHD to undertake a review of the TNG supplementary information as listed below in order to support any further submissions to IPC.

## 2 Scope of work

The supplementary information (provided to GHD as single document) consists of:

(a) a letter from Urbis to the IPC providing further information in relation to catastrophic events, emergency shut-down procedures and potential risk scenarios; and

(b) a report by Hitachi Zosen Inova (HZI, the proposed operator for the Energy from Waste (EfW) facility) dated June 2015, which provides a detailed 'outline of the operation' of the proposed EfW facility.

GHD was engaged to undertake a review of these additional materials and advise whether:

1. whether the materials raise any new issues which Jacfin should consider addressing by way of a further submission to the IPC;
2. whether GHD disagrees with any of the assertions made in the additional materials or there are any inaccuracies in the materials which should be raised with the IPC;
3. anything in the materials that alters any conclusions expressed by GHD in its previous submissions; and/or

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4. whether the further detail provided regarding the proposed manner of operating the plant raises new concerns regarding power generation and air quality impacts during emergencies and shut-down periods.

# 3 GHD Comments on Responses

We note that none of the following further information changes the conclusions previously expressed by GHD.

## 3.1 General comments regarding shutdown scenarios

The table below indicates the shutdown scenarios that would typically be planned for a plant of this type. We have indicated whether these scenarios have been considered by Urbis/HZI.

| | Event | Comments | Has the proponent considered this in the document |
|---|---|---|---|
| 1 | For a situation where there is no power grid and no emergency power generation | Under these conditions the turbine by-pass will be shut down and steam will be discharged through a safety valve while the plant shuts down. A vapour plume and noise will be seen/heard until the steam pressure is exhausted and the plant comes to a halt. | Yes |
| 2 | For a situation where there is an induced draft (ID) fan failure and no Auxiliary fan motor available | Under these conditions the plant will be forced to shut down until the fan is repaired/replaced. | Yes |
| 3 | A major boiler leak leading to loss of circulating water | If the plant is unable to hold the water level in the drum the plant will shut down until the leak is repaired. | Yes |
| 4 | Failure of the compressed air system and the backup is not available | The plant is designed with two air supply systems (instrument air and process air system). If one system fails the plant can run for a short period before having to shut down the plant. Need to establish the maximum time that the plant can operate without instrument air before having to shut down the plant. | Yes |
| 5 | Failure of water supply | The plant is designed for short disturbances in this system before having to shut down the plant. Need to establish the maximum disturbance period before having to shut down the plant. | Yes |

| | Event | Comments | Has the proponent considered this in the document |
|---|---|---|---|
| 6 | Low Pressure (LP) steam supply failure | This will effect operation of the feedwater tank, primary air preheater, and turbine gland steam system (High Pressure & Intermediate Pressure stages of the turbine can produce LP steam while the LP stage is unserviceable). Need to establish how long the system can operate without the main LP steam supply before it needs to be shut down. | Yes |
| 7 | Failure of second feed pump | This will cause an automatic shutdown for a period until the feed pump system can be repaired. | Yes |
| 8 | Failure of second condensate pump | This will cause an automatic shutdown for a period until the condensate pump system can be repaired. | Yes |
| 9 | Failure in flue gas duct | When the pressure drops too low on the suction side of the ID fan the plant will shut down. The loss of pressure could be a result of damaged flue ducting. | Yes |
| 10 | Failure of air cooled condenser | If the air cooled condenser fails to condense the steam flow from the steam turbine, the plant will be shut down immediately. | Yes |
| 11 | Grates | Grates are replaced every 8 years. In GHD's experience the outage time is approximately 6 weeks (this would need to be verified by TNG). | No |
| 12 | Steam turbine/generator - major overhaul | A major overhaul of the steam turbine/generator occurs every 8 to 10 years. In GHD's experience, the outage time is approximately 8 weeks this would need to be verified by TNG). | No |
| 13 | Fan overhauls | Fan overhauls occur every 6 years. In GHD's experience the outage time is approximately 3 weeks this would need to be verified by TNG). | No |
| 14 | Plant availability & forced outage rate (FOR) | TNG needs to verify that the plant availability is of the order of 91-92%. In GHD's experience, common FOR is of the order of 4 to 5%. This suggests that the plant will be | No |

| Event | Comments | Has the proponent considered this in the document |
|---|---|---|
| | shut down for approx. 12 to 14% of the year (1051 hrs to 1226 hrs) | |

We note that, in respect of Scenario 14, this is based on GHD's professional experience in this sector on similar equipment, and means that the plant could be shut down for up to 43 days per year between planned maintenance and forced outages. This is 13 days longer than proposed. This may have negative outcomes in respect of odour management. See below comment under Odour.

We further note that, in respect of Scenarios 11 to 13, HZI has not considered the potential additional shut down time associated with these scenarios. This indicates that TNG has not assessed the extended time period and associated consequences from these scenarios.

### 3.2 Specific Comments

- Urbis Section 1.1.1:
  - Urbis states that "All waste fuel will have been pre-processed at the existing Genesis MPC Facility and transferred" but in the next paragraph that "In addition, delivery trucks will be subject to inspection by the EfW Facility personnel prior to discharging their load into the waste bunker. "
  - This is inconsistent and indicates that not all boiler bunker pre-feed is under direct control of Genesis. The amended EIS and Response to Submissions both infer that waste will be coming from sources other than Genesis MPC. This means that the sorting process to remove potential ignition sources from material received from off-site sources may not be as rigorous. GHD notes that a potential fire in waste would result in the emissions of additional particulates and contaminants which have not been accounted for in the human health risk assessment prepared by the Applicant.
  - Urbis also states that "Notwithstanding, all loads will be inspected as they are tipped at the EfW Facility bunker, using the installed CCTV system or by visual observation of the crane operator."
  - We note that CCTV monitoring appears to be a new development. It is not clear who will be monitoring the CCTV, and in GHD's opinion this is likely to be less effective than a crane operator, and the ability of a crane operator to finely sort and homogenise waste is considered to be low by GHD, given that potential ignition sources could be as small as 5 kg gas cylinders
- Urbis Section 1.1.2:
  - We note that we have previously commented on the effectiveness of the crane operator mixing the waste. The statement here that waste will "continually" be mixed in the bunker is not consistent with previous submissions which refer to mixing one or two times.
- HZI Table 4.4.8
- "Process disturbances and failures" For the Flue gas treatment on pp 50-51:

- HZI states that if there is a failure of $NH_4OH$ injection plant then they will only stop feeding waste if NOx emissions go outside of licence conditions.
- This may lead to a temporary increase in NOx emissions – but this unlikely to lead to human health implications as (a) the increase will be short lived and (b) NOx limits normally would be below a licence level (this should be alarmed so that the plant then goes into shutdown).
- HZI makes a similar statement in respect of failure of the activated carbon and $Ca(OH)_2$ system.
- This triggers reduced load which may well keep the emissions within limits.
- But these reduced loads are not specified and there is no continuous monitoring of the air toxic compounds such as dioxins/furans. We note that consistent with previous GHD comments, the Applicant has not provided detail on the nature of continuous monitoring and what parameters will be monitored. Previous submissions from the Applicant stated that "if the TNG facility were to be operating close to, or above the IED emission limits, this would be readily detectable in real-time, due to the facility's proposed Continuous Emissions Monitoring System (CEMS). Under such conditions, automatic alarms are raised and the facility, now operating out of specification, would be shut down." GHD maintains its previous opinion that a CEMS will not monitor all toxicants, only major gases such as NOx and SOx, meaning that exceedances of other toxic compounds will not be detected in real-time as asserted by the Applicant. We also note that the Applicant in previous submissions, reported calibration failures of the CEMS for a number of hours at a similar facility, during which emissions may have been higher than permitted.

***Odour***

During times of shutdown, it is suggested that the waste will be retained in the building and the doors closed (Pac Environment Odour Assessment 2017). This same report incorrectly states that the only source of waste to the site is from the Genesis facility and ignores the proposed incoming waste processed from facilities which can receive putrescible waste, which when processed, can still be odorous and potentially be classified as putrescible waste. TNG has not provided any details on whether, during an extended shutdown period, there would be a trigger point when the waste in the bunker would be transported back to Genesis via truck or conveyor, or off-site if the processed waste is still classed as putrescible (as the Genesis facility is not approved to receive putrescible waste) and hence the application has not assessed how this may influence potential odour levels experienced off-site. Furthermore no information has been provided on how the start-up process would not result in elevated odour emissions from the facility should waste be retained in the bunkers.

## 4 Limitations

This letter: has been prepared by GHD for Jacfin and may only be used and relied on by Jacfin for the purpose agreed between GHD and the Jacfin as set out in section 2 of this letter.

GHD otherwise disclaims responsibility to any person other than Jacfin arising in connection with this letter. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this letter were limited to those specifically detailed in the letter and are subject to the scope limitations set out in the letter.

The opinions, conclusions and any recommendations in this letter are based on conditions encountered and information reviewed at the date of preparation of the letter. GHD has no responsibility or obligation to update this letter to account for events or changes occurring subsequent to the date that the letter was prepared.

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GHD does not accept liability in connection with such unverified information, including errors and omissions in the letter which were caused by errors or omissions in that information.

We thank Jacfin for providing GHD the opportunity to assist with this work.

Sincerely
GHD Pty Ltd

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