Technical paper 5

Hazards and risk

Fairfield Recycled Water Treatment Plant Preliminary Hazard Analysis

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1. Introduction

Alinta Asset Management (3) Pty Ltd (Alinta) proposes to deliver a recycled water scheme between Fairfield and Camellia in western Sydney on behalf of AquaNet Sydney Pty Ltd. The proposed scheme includes a reverse osmosis recycled water treatment plant (RWTP) at North Street, Fairfield (the 'Fairfield RWTP'). As a result of the activities undertaken and the nature of materials used and stored as part of the recycled water treatment plant operation, the proposed development would constitute a potentially hazardous industry, and a preliminary hazard analysis (PHA) of the operation has therefore been undertaken in accordance with the requirements of NSW State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33).

1.1 Applicable legislation

SEPP 33 - Hazardous and Offensive Development (subsidiary legislation No 129 of 1992) includes in its objectives (clause 2):

"(a) to amend the definitions of hazardous and offensive industries where used in environmental planning instruments

(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account

(e) to ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact

(f) to require the advertising of applications to carry out any such development".

Part 3 of SEPP 33 applies to:

(a) development for the purposes of a potentially hazardous industry

(b) development for the purposes of a potentially offensive industry

(c) development notified, for the purposes of this Part, by the Director in the Gazette as being a potentially hazardous or potentially offensive development.

In SEPP 33:

"potentially hazardous industry" means a development which, if it were to operate without employing appropriate measures to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality to either human health, life or property or to the biophysical environment. It includes a hazardous industry and a hazardous storage establishment;

“potentially offensive industry" means a development which, if it were to operate without employing appropriate measures to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.

Part 3 requires that a person who proposes to make a development application to carry out development for the purposes of a potentially hazardous industry must prepare a preliminary hazard analysis (PHA) in accordance with current guidelines published by the relevant Department.

In making a determination regarding any such development application the consent authority is required to consider the PHA; any feasible alternatives to carrying out the development and its location, and the reasons for choosing the development and its location as proposed; and any likely future use of the surrounding land.

1.2 Applicability of SEPP 33

As a result of the activities to be undertaken and the nature of materials to be used and stored as part of the recycled water treatment plant, the proposed development could constitute a potentially hazardous industry. This preliminary hazard analysis has therefore been prepared to satisfy the requirements of SEPP 33 for the development application for the proposed recycled water treatment plant at Fairfield.

Notwithstanding the fact that the development may constitute a potentially hazardous industry, the proposed development, including the measures that are proposed to mitigate all risks and potentially offensive activities associated with the development, are considered adequate to ensure that there would be no significant risk to or impact on human health, life or property, or to the biophysical environment in the locality. The development would therefore not fall under the definition of either hazardous or offensive industry according to SEPP 33.

1.3 Objective

The objective of the PHA is to:

- qualitatively assess the risks posed to the human, social and biophysical environment in the locality by all activities associated with the operation of the proposed water recycling plant
- to determine whether any significant risk remains after the project design (including all appropriate risk mitigation measures) are considered
- provide the consent authority and any agencies with sufficient information regarding the risks involved in the proposal to enable them to properly determine the development application.

1.4 Scope

This PHA considers only the risks to the human, social and biophysical environment arising from sudden and unexpected events such as accidents and the results of equipment failure, operator error and the results of external events involving (but not under the direct control of) the proponent. Therefore the assessment does not consider risks that are unrelated to a single event (these longer term risks are generally treated in other sections of the EIS). Neither does the PHA address issues that are the direct result of activities undertaken intentionally as part of the development and described in the development application and supporting EIS. The hazards considered are therefore generally those arising from the transport, storage and use of bulk chemicals, The results of the PHA should be read in conjunction with other sections of the Environmental Assessment including the Traffic and Transport assessment.

1.5 Methodology

The methodology employed in this PHA is generally in accordance with AS/NZS 4360:2004 Risk Management, and relevant Department of Infrastructure, Planning and Natural Resources guidelines:

- Hazardous Industry Planning Advisory Paper: No 6 (HIPAP No 6) Guidelines for Hazard Analysis 1997
- Hazardous Industry Planning Advisory Paper: No 4 (HIPAP No 4) Risk Criteria for Land Use Planning (1997)
- Multi-Level Risk Assessment Guidelines (1999)
- Applying SEPP 33 (DUAP, 1997).

In accordance with HIPAP No 6, the PHA process followed was generally as follows:

- identify all possible sources and causes of hazardous incidents
- detail all operational and organisational safety controls
- identify the likely consequences and frequency of incidents and quantify the risks for the most relevant hazards identified
- assess likely cumulative risks
- compare expected risks against risk criteria detailed in HIPAP No 4
- assess the adequacy of proposed mitigation measures and controls.

In accordance with the recommendations of the guideline Multi-Level Risk Assessment (DUAP 1997) and Applying SEPP 33 (DUAP, 1997), a screening process comparing the quantities of hazardous materials against screening thresholds, was applied to all hazards to determine whether further assessment was required.

Following the screening process, a qualitative assessment has been undertaken, generally following the principles outlined in the companion to AS/NZS 4360:2004, handbook HB436:2004 Risk Management Guidelines.

The qualitative parameters and risk ranking tables are consistent with the preliminary risk register prepared for the operation of the RWTP by Alinta. The probability or frequency of the event being considered was generally categorised qualitatively as shown in Table 1-1.

Table 1-1 Qualitative measures of likelihood

Level of likelihood	Descriptor	Description
5	Almost certain	Almost certain to occur when relevant conditions are met. Frequent or continuous. At least a monthly occurrence.
4	Likely	Will probably occur when relevant conditions are met. Might occur annually.
3	Possible	Might occur at some time. May occur a few times in a person's lifetime.
2	Unlikely	Could occur at some time. Not expected to occur more than once in a lifetime.
1	Rare	Not expected to occur even when relevant conditions are met. Only in exceptional circumstances. Not expected to be observed in a lifetime.

The assessment of consequences was made against several relevant criteria and an overall score arrived at based on the perceived importance of each criterion and experience. The criteria are listed in Table 1-2.

Table 1-2 Qualitative measures of consequence

Severity	Public health and safety	Biophysical environment	Social, economic, property
5	Multiple fatalities, major chronic or acute public health effects to a significant population.	Major, long-term, irreversible effects on ecosystem function.	
4	Fatality or severe permanent disability. Ongoing public health effects.	Serious long term reversible effects on ecosystems	Major, permanent social disruption, major loss of assets or economic values.
3	Permanent partial disability or long term hospitalisation	Significant medium term impacts on species or ecosystems.	Serious on-going social impacts, loss of significant assets.
2	Medical treatment required, reversible disability.	Moderate short-term impacts not involving ecosystem function.	Ongoing social effects, minor loss of assets.
1	No medical treatment required, no health effects	Minor effects only, no irreversible effects or effects on ecosystems.	No loss of significant assets or property value, minor short term social effects.

Table 1-3 is used to calculate the risk ranking from the likelihood and severity or consequence assessments.

Table 1-3 Qualitative risk ranking

	Consequences				
Likelihood	**1- Insignificant**	**2- Minor**	**3 Moderate**	**4- Major**	**5- Catastrophic**
5-almost certain	M	H	E	E	E
4-likely	M	M	H	E	E
3-possible	L	M	M	H	E
2-unlikely	L	L	M	M	H
1-rare	L	L	M	M	M

E – extreme: requires immediate action to reduce risk before development could proceed.

H – high: requires attention to manage risk as part of the design process or management of the operation

M – moderate: requires specification of management responsibility

L – low: can be managed by routine procedures

The assessment process and criteria are such that any uncontrolled risk classified as extreme requires immediate action to reduce the residual risk; that uncontrolled risks classified as high require senior management attention (typically the implementation of specific controls and systems); that moderate risks require that management responsibility be specified; and that low risks can normally be managed by routine procedures.

2. Hazard identification

Hazard identification followed a systematic process to identify all credible hazards for the RWTP operation. This has involved identifying all activities undertaken as part of the water recycling plant operation, the materials associated with each activity, and the hazard that might arise from these activities and materials within each of a series of classes of hazardous incidents.

Activities that will be undertaken as part of the water recycling operation are:

- transport of equipment and materials to site
- storage on-site
- equipment maintenance
- waste disposal
- transport of other material (including waste) off-site.

Classes of materials that might give rise to or be involved in hazardous incidents and that might be present on the site are:

- water treatment chemicals
- lubricants, solvents, and other flammable or combustible materials
- wastes (sludges, waste chemicals, backwash waters, CIP wastes etc).

The types of hazardous incidents considered in this PHA are:

- loss of containment (leaks and spills)
- fire
- inappropriate waste disposal
- vehicle accidents.

These classifications have been combined in which details credible hazards relevant to the proposed RWTP operation.

Table 2-1 Credible hazards identified for the RWTP

	Classes of materials involving risk			
Activities	**Water treatment chemicals**	**Other materials**	**Chemical waste**	**Other wastes**
Transport to site	Vehicle accident Loss of containment	Vehicle accident Loss of containment Fire	n/a	n/a
Storage on-site	Loss of containment Chemical reaction	Loss of containment Fire	Loss of containment	Loss of containment Fire
Equipment maintenance	Loss of containment	Loss of containment Fire	Loss of containment	Loss of containment Fire
Waste disposal	n/a	n/a	Loss of containment Inappropriate waste disposal	Loss of containment Inappropriate waste disposal
Transport off-site	n/a	n/a	Loss of containment	Loss of containment

3. Risk assessment

The following sections provide a description of the hazards identified in the preceding section, likely scenarios, quantities of materials involved (where relevant), typical controls that would be applied, and the results of a preliminary screening against the criteria provided in the guideline Applying SEPP 33 (DUAP 1997).

3.1 Hazardous and other materials

3.1.1 Water treatment chemicals

Water treatment chemicals that will be used in the RWTP in significant quantities are:

- Sodium hydroxide – 49%
- Sodium hypochlorite – 12.5% (<16% available chlorine)
- Ferric chloride – 42%
- Sulfuric acid – 98%
- Sodium bisulfite – 30%
- Antiscalant – a non-hazardous phosphate-free polymer is proposed. (RO systems typically use antiscalants such as 1-Hydroxy ethylidene-1,1-Diphosphonic Acid or Amino trimethylene phosphonic acid)
- Sodium dodecyl sulfate (Sodium lauryl sulfate)
- Citric acid – 50%.

Water treatment chemicals will be transported to the site by road and stored in bulk tanks or intermediate bulk containers in a designated storage area. The tanks and storage area will be constructed in accordance with the requirements of AS 3780-1994: The storage and handling of corrosive substances. This will include a bund around all storages capable of containing the contents of the largest tank. The storage would be isolated from any stormwater catchment area allowing uncontrolled discharge to a major watercourse (in particular Orphan School Creek). This will include the tanker unloading area. This would limit the potential for any impacts on adjoining properties, water quality, downstream water users and aquatic ecosystems. All intermediate bulk containers will be stored or located during use within secondary containment facilities to prevent damage and the escape of their contents in the event of a leak or spill.

3.1.2 Fuels and other flammable liquids

There is no intention to store any fuel on site in quantities exceeding the definition of minor storage under AS 1940-2004: The storage and handling of flammable and combustible liquids. Materials might include materials such as solvents used in cleaning and maintenance activities.

3.1.3 Lubricants

Lubricants will not be used or stored on site in significant quantities; the largest container would be 200 L, and no more than 1,000 L would be held on site at any time.

These materials are only included in the screening process if they are stored together with Class 3 flammable liquids, as they do not themselves constitute hazardous materials. However, they do pose a potential hazard to the biophysical environment if they spill or leak.

3.1.4 Waste

A range of wastes will be generated by the RWTP operation. These are detailed in Schedule 6, and include the RO reject concentrate, flushing and backwash water and spent CIP solutions. These wastes will be neutralised if necessary and will generally be discharged to sewer under licence. Other hazardous materials and those that might pose a risk to the environment and all recyclable materials will be recycled or sent for treatment and disposal in licensed premises as appropriate. No significant risks to the environment are likely from these activities.

3.2 Hazard screening

Hazardous materials that would or might be stored on the Fairfield RWTP site have been subjected to a screening process in accordance with the Applying SEPP 33 guidelines (DUAP 1997). The results are shown in Table 3-1 below.

Table 3-1 Hazardous material storage screening

Dangerous goods class	Dangerous goods stored	Storage location	Maximum likely quantity in storage (aggregate)	Distance to nearest boundary/ protected works	SEPP 33 Screening threshold
8 Corrosive substances		Bulk chemical storage area		Approx. 10-15 m to nearest boundary. >100 m to nearest residence.	5 tonnes/ 5 m^3 – PG I 25 tonnes/ 25 m^3 – PG II 50 tonnes/ 50 m^3 – PG III
	Sodium hydroxide – 49% UN1824 PG II Hazchem Code 2R	Bulk chemical storage area – bunded tank	7 m^3.	As above for all chemical storage	
	Sodium hypochlorite – 12.5% UN1791 PG III Hazchem Code 2X	Bulk chemical storage area – bunded tank	34 m^3.		

Dangerous goods class	Dangerous goods stored	Storage location	Maximum likely quantity in storage (aggregate)	Distance to nearest boundary/ protected works	SEPP 33 Screening threshold
	Ferric chloride solution – 42% UN2582 PG III Hazchem Code 2Z	Bulk chemical storage area – bunded tank	38 m^3.		
	Sulfuric acid – 98% UN1830 PG II Hazchem Code 2P	Bulk chemical storage area – bunded tank	20 m^3.		
	Sodium bisulfite – 30% UN2693 PG III Hazchem Code 2X	Bulk chemical storage area – bunded intermediate bulk container	2 m^3.		

Table 3-2 Hazardous material transport screening

Dangerous goods class	Dangerous goods transported	Method of transport	Maximum number of movements per annum	Maximum quantity transported per annum	SEPP 33 Screening thresholds
8	Corrosive substances	Road -			>500 movements per annum
	Sodium hydroxide – 49% UN1824 PG II Hazchem Code 2R	Road tanker (8 m^3)	31	248 m^3	
	Sodium hypochlorite – 12.5% (<16% available chlorine) PG III	Road tanker (20 m^3)	18	350 m^3	
	Ferric chloride – 42% PG III	Road tanker (20 m^3)	18	350 m^3	

Dangerous goods class	Dangerous goods transported	Method of transport	Maximum number of movements per annum	Maximum quantity transported per annum	SEPP 33 Screening thresholds
	Sulfuric acid – 98% UN1830 PG II Hazchem Code 2P	Road tanker (8 m^3)	46	368 m^3	
	Sodium bisulfite – 30% UN2693 PG III Hazchem Code 2X	Bulki-bin (2 m^3)	29	58 m^3	
Not classified	Antiscalant polymer	Bulki-bin (2 m^3)	14	28 m^3	
	Sodium dodecyl sulfate (Sodium lauryl sulfate) -	20 kg bags	5	100 kg	
	Citric acid – 50%	Bulki-bin (2 m^3)	30	60 m^3	

In addition to the listed Class 8 dangerous goods, the plant will use approximately 100 kg per annum of sodium dodecyl sulfate (sodium lauryl sulfate), a common ingredient in hair shampoos and other personal care products, and 60m^3 per annum of citric acid solution, a compound which is present in many foodstuffs and is considered effectively non-hazardous even at high concentrations. It will also use an antiscalant polymeric chemical that is classed as non-hazardous.

The summary of the hazardous materials stored at the RWTP are:

Class and category	Maximum quantity stored	SEPP 33 screening threshold
Class 8 PG I:	0	5 m^3
Class 8 PG II:	27 m^3	25 m^3
Class 8 PG III:	74 m^3	50 m^3

The screening thresholds for both Class 8 materials of both PG II and PG III are exceeded. In addition, SEPP 33 guidelines require that where two or more categories of material are stored within one class, all the material should be considered as being in the higher category. For the purpose of screening, the plant should therefore be considered to store a maximum of 101 m^3 of Class 8 PG II dangerous goods.

The results of the screening process show that dangerous goods will be stored on the site in quantities that exceed the screening threshold, and that there is therefore the potential for risk. Therefore the conclusion from the screening process is that the development may constitute a hazardous or offensive industry under the provisions of SEPP 33, and further analysis is required.

3.3 Risk analysis

The screening assessment has indicated that the number of movements of material is small compared to the SEPP 33 threshold, and in addition the size of each type of shipment is also relatively small. The risk from transport-related hazards has therefore not been investigated further. Standard controls, including proper design of all tankers, should be sufficient to minimise the risk to the surrounding population.

It is considered that in the case of the RWTP, a qualitative Preliminary Hazard Analysis is sufficient to demonstrate that the risk associated with the plant can be controlled to a level that is not significant. This is based on the SEPP 33 Guidelines, which state a qualitative PHA may be sufficient:

- where the materials are relatively nonhazardous (for example, corrosive substances, and some classes of flammables)
- where the quantities of materials used are relatively small
- where there are no worst case major consequences
- where the technical and management safeguards are self-evident and readily implemented
- where the surrounding land uses are relatively non-sensitive.

In the case of the RWTP:

- corrosive materials are the only hazardous materials involved (although an unintended reaction between two of them could result in the generation of chlorine gas)
- the quantity of each material is relatively small and less than the SEPP 33 threshold in each case, although the total inventory of all hazardous materials involved exceeds the SEPP 33 threshold for Class 8 materials
- no worst-case major consequence can be envisaged, with the possible exception of accidental chlorine generation, and even this scenario is considered unlikely to have serious consequences because of the limited quantity of material that could be involved and the limited rate of generation
- the materials involved are all commonly used industrial chemicals, and their controls would pose no significant problems in a properly managed facility
- the land immediately surrounding the plant is currently undeveloped open or recreational space, and non-sensitive. The residential areas surrounding the plant are all located at least 100 metres from the chemical storage areas, and are therefore at little or no risk from any hazards other than perhaps the accidental generation of chlorine

A qualitative analysis of the associated risk was therefore undertaken using the process described in section 1.5. The results are presented in Table 3-3.

Table 3-3 Qualitative risk analysis results

Hazard	Possible consequences	Mitigation/controls proposed	Likelihood	Consequences	Risk rating	Comments
Chemical spills/leaks during transport	Contamination of soil, watercourses; water quality degraded; aquatic ecosystems adversely affected. Injury or possibly death.	Transport according to ADG Code, relevant standards including AS 2809.4-2001, AS 1678.8A1-2004 and regulations. Generally small cargo sizes.	3	E:3 P:3 S: 2	Moderate Moderate Moderate	Some increase likely over existing level of risk from DG transport along local road system. Little or no increase likely for wider road network given small number of movements.
Chemical spills/leaks from storage	Contamination of soil, watercourses; water quality degraded; aquatic ecosystems adversely affected. Injury or possibly death.	Storage in accordance with AS 3780-1994. Secondary containment (locked bunds) for all storages to collect leaks. All leaks and spills collected in neutralisation pit to prevent discharge via any drainage paths to watercourses or areas of sensitive land use. All residential areas separated by >100 m. Alarms and monitoring equipment for all storages, systems. Spill kits. Training. Emergency/incident procedures and training. Management system and audits.	2	E: 3 P: 3 S: 2	Moderate Moderate Moderate	Requires ongoing engineering and management controls of all dangerous goods storages.

Hazard	Possible consequences	Mitigation/controls proposed	Likelihood	Consequences	Risk rating	Comments
Mixing of incompatible DGs.	Reaction and emission of toxic gases (chlorine from reaction of acid and hypochlorite). Health effects, possible permanent injury.	Storages well separated. Controls to prevent delivery of wrong material into either tank. No physical systems (e.g. pipework) that permit incompatible materials to mix in dangerous quantities or concentrations. All residential and other sensitive land uses separated from plant by >100 m.	2	E: 2 P: 3 S: 1	Moderate Moderate Low	Extremely unlikely that sufficient toxic gas could be generated quickly enough to pose a significant threat to health.
Inappropriate waste disposal or failure of waste containment.	Contamination of land. Contamination of watercourses or groundwater. Degraded water quality, aquatic ecosystems adversely affected. Health effects from degraded water quality. Potential loss of economic value of water.	No hazardous or regulated wastes will be disposed of on site. All off-site disposal will be direct to sewer or via approved transport operators and to approved facilities. Chemical wastes collected in neutralisation tank. Neutralised waste and other wastewaters collected in wastewater pit for transfer to sewer in accordance with the Trade Waste Agreement with SWC. See Schedule 6.	1	E: 3 P: 2 S: 2	Low Low Low	Requires appropriate management controls and engineering standards to be maintained to prevent inappropriate disposal practices or design and operation of containment systems.

E: Environmental risks; P: Personal risk to members of the public; S: Socio-economic risk to members of the public

3.4 Risk assessment

This assessment should be read in conjunction with Schedule 7, the Preliminary Operational Risk Register, which also considers risks associated with hazardous materials.

The results of the preliminary, qualitative risk analysis shown in Table 3-3 must be evaluated against the criteria shown in section 1.5. The risk ranking, from low (L) to extreme (E) does not indicate an absolute scale of acceptability, where activities involving a risk above a certain level would automatically be considered unacceptable or significant. However, an extreme risk rating is taken to indicate the need for a more detailed quantitative analysis of the risk, and probably for additional controls for the development to proceed. No hazards with an 'extreme' risk assessment were identified in this study.

A 'high' risk assessment indicates the need for ongoing management oversight to ensure that controls remain effective and to maintain an acceptable level of risk. No environmental risks were assessed as being 'high'.

All other risks have been assessed as moderate or low. They are not considered to constitute a significant risk or to pose any limitation on the proposed development, subject to the proposed mitigation measures and controls being applied.

For all the hazards considered, it should be noted that the population potentially exposed to these risks is generally very small so that societal risk will also be small. The exception is for transport related accidents where the population along the entire transport route is potentially exposed. However, in this case the incremental risk is extremely small compared to the existing risk arising from the quantities of dangerous goods already being carried on the highway.

The result of this qualitative risk analysis is that none of the activities remaining in the analysis after screening has been found to be likely to result in a significant risk to human health, life or property or to the biophysical environment.

3.5 Mitigation and control measures

All facilities will be designed and constructed, and all operations will be undertaken in accordance with relevant standards, statutes and operating procedures developed by the company for the RWTP.

The number of movements of delivery vehicles is below the SEPP 33 screening threshold. The tankers involved are also small, limiting the consequences in the unlikely event of an accident. All tankers will conform to the relevant standard, and follow the Australian Dangerous Goods Code requirements.

Although the maximum cumulative quantities of Class 8 hazardous materials to be stored exceeds the threshold screening value specified in SEPP 33, the quantities of each material individually is low, and the maximum quantity likely to be involved in any incident is therefore also low.

Each hazardous material will be stored in a tank or container designed, constructed and maintained in accordance with the relevant standard. Each tank or container will have a secondary containment system, consisting of a locked bund able to contain the contents of the tank or container in the event of a leak. The delivery connection points will also be contained to prevent the escape of hazardous material in the event of a leak during tanker unloading. All material collected within the bunded areas will collected in a neutralisation pit and treated if necessary before discharge to the wastewater pit.

Storage systems will ensure that incompatible materials (in particular sulfuric acid and sodium hypochlorite) are kept separate. Safety in design principles will be applied during the process design phase to ensure that systems do no allow any dangerous mixing of incompatible chemicals.

All residential areas are separated from the plant by more than 100 m, so that the likelihood of any impact on residents is very small.

The hard physical controls provided by containment and piping systems will be backed up by an alarm system, spill kits to deal with minor leaks and spills, emergency incident procedures, operator training, and other management systems such as process change management control, maintenance management systems and regular audits to ensure that the plant is maintained in a safe state at all times.

Standards

AS 3780-1994: The storage and handling of corrosive substances.

AS 2809.4-2001: Road tank vehicles for dangerous goods – Tankers for toxic and corrosive cargoes.

AS 1678.8A1-2004: Emergency procedure guide – Transport – Group text EPGs for Class 8 substances – Corrosive substances.

4. Conclusions

A preliminary hazard analysis (PHA) of the proposed Fairfield RWTP has been completed as part of the environmental impact statement in accordance with the requirements of SEPP 33 – Hazardous and offensive development.

The PHA has found that dangerous goods are likely to be stored or used on the site in quantities that exceed the screening thresholds specified for the classes of dangerous goods involved, and that therefore there is the possibility that the development is a hazardous industry under the terms of SEPP 33.

A further qualitative risk analysis has been undertaken to determine whether the hazardous materials involved are likely to create any significant level of risk to persons health or property or the biophysical environment outside the RWTP. The conclusion from this analysis is that no significant risks exist that might prevent the proposed RWTP development from proceeding and operating safely, subject to the application of the proposed mitigation measures and controls.

5. References

Department of Urban Affairs and Planning (DUAP), 1997, Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines.