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Dear Nenita,

**R.E. Draft for Public Consultation: *Guidelines for wastewater lagoons***

Australian Pork Limited (APL) welcomes the opportunity to comment on the South Australia (SA): Environmental Protection Authority (EPA) - *Guidelines for wastewater lagoons (Guidelines)*, which are intended to replace the existing SA EPA Guideline 509/04, *Wastewater and evaporation lagoon construction*.

APL is the national representative body for Australian pork producers. APL works with the broader pork industry. It is a producer-owned, not-for-profit company combining marketing, export development, research & innovation and strategic policy development. This assists in securing a profitable and sustainable future for the Australian pork industry. APL's members currently represent approximately 92 percent of Australian pork production.

APL does not support the *Guidelines* in its current form. It harms the future right to operate for South Australian (SA) pork producers. APL argues that animal husbandry as an industry should be removed from the proposed *Guidelines*.

The *Guidelines* largely ignore the differences that piggeries have to industrial operations. Not only are industrial operations much larger in scale than pork producers, they also manage their ponds in different ways due to the different nature of animal husbandry effluent. The nature, scale, management and risks of piggery effluent are not comparable to industrial wastewater systems. Pork producers may be assessed against the *Guidelines* which do not acknowledge this distinction. As a consequence, more guidance for planners, engineers and consultants tasked with advising, operating and managing piggery effluent infrastructure in the pre and post construction phases is required within the *Guidelines*.

The *Guidelines* fail to recognise the value-adding opportunities of piggery effluent ponds. They also fail to recognise these value-adding opportunities as a positive for the environment, and a way in which the SA pork industry can demonstrate to the public and other stakeholders its efforts to manage its environmental impact.

This lack of recognition is evident primarily in the *Guidelines*' use of the term, 'wastewater lagoons.' APL and the agricultural industry have distanced themselves from the use of this terminology and now refer to it as effluent. Effluent is recognised as an agronomic resource and not a waste product. A clear example of the effluent's value to the pork industry is outlined in APL's National Environmental Guidelines for Piggeries 2010 (*NEGP 2010*) which is expanded on in this submission.

To improve the *Guidelines*, the *Guidelines* first need to acknowledge the specific properties of piggery effluent ponds and the way in which they are currently operated by the SA pork industry. APL's *NEGP 2010*, which was developed in consultation with the SA EPA and other producers, scientists and state EPAs, provide the best management practices for the whole of the Australian pork industry in siting, designing, managing and monitoring effluent ponds. Instead of the proposed *Guidelines*, the SA EPA should refer to APL's *NEGP 2010* which reflects Australian conditions and science relevant to SA piggeries.

APL recommends that an outcome based approach for design, construction and ongoing management of piggery effluent pond systems must be taken in these *Guidelines*. This is particularly evident with the delineation between small and low-risk lagoons and the different reporting, construction and management requirements which create an assessment inconsistency. This includes the potential requirement for pre testing and post geotechnical assistance.

Without an outcome based approach for design, construction and ongoing management of piggery effluent pond systems, small scale piggery effluent pond operations will face unnecessary and cost prohibitive supervision. Additionally, some of the requirements may not be relevant for small wastewater lagoons located in low-risk areas. Again the *NEGP 2010* details an outcome based approach for piggery effluent ponds that eliminate the need for cost-prohibitive assessment.

APL would welcome further involvement in the development of any guidelines more specific to animal husbandry operations.

We welcome any further enquiries from the SA EPA.

Yours sincerely,

(signed)  
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## I. Executive Summary

The *Guidelines for wastewater lagoons* fail to recognise the value-adding opportunities piggery effluent ponds have to SA piggeries. They also fail to recognise these value-adding opportunities as a positive for the environment, and a way in which the SA pork industry can demonstrate to the public and other stakeholders its efforts to manage its environmental impact.

The *Guidelines for wastewater lagoons* should take an outcome based approach to the design, construction and ongoing management of piggery effluent pond systems. This requires an acknowledgement of the specific properties of the piggery effluent ponds and the way in which they are currently used by the SA pork industry.

A key problem in the *Guidelines* is the SA EPA's use of the term 'wastewater lagoons.' This terminology is misplaced and misinforms potential users of the *Guidelines*. APL and the agricultural industry recognise 'wastewater' as effluent as an agronomic resource and not a waste product. The agricultural industries as a whole have distanced themselves from the outdated use of this terminology.

More problematic is that the *Guidelines* make reference to a number of existing documents related to landfills, composting and industrial wastewater lagoons. What is obvious is that the *Guidelines* largely ignore the differences that piggeries have to these industrial operations and instead refer to existing guidelines, such as the *EPA guideline, Environmental management of landfill facilities (Municipal Solid Waste and Commercial and Industrial Solid Waste), Jan 2007*. Not only are industrial operations much larger in scale than pork producers, they also manage their ponds in different ways due to the different nature of piggery effluent. Pork producers may be assessed against the *Guidelines* which do not acknowledge this distinction.

Categorising animal husbandry operations in the same vein as industrial and manufacturing industries exposes the SA pork industry to onerous, impractical and inappropriate construction, reporting and ongoing pond management requirements. APL would welcome any involvement in the development of guidelines more suited to piggeries.

SA pork producers will face additional onerous, inappropriate and cost prohibitive reporting processes should the *Guidelines* be implemented in its present form. To combat this, APL strongly argues that an outcome based approach for all ponds is taken in these *Guidelines*.

Outcome based solutions are possible by referencing APL's *NEGP 2010*. The SA EPA should refer to APL's *NEGP 2010* when reviewing its *Guidelines*. The *NEGP 2010* has specific recommendations on all aspects of piggery effluent ponds and this is covered in Section 2.

The proposed *Guidelines* are not appropriate for piggery effluent ponds nor reflect pork industry practice or science. Finally, the *Guidelines* should be an advisory document and should not force compliance on the SA pork industry.

## 2. APL's National Environmental Guidelines for Piggeries 2010

APL's *NEGP 2010* incorporates the most up-to-date scientific information for managing the environmental impacts of pork production. They also form the basis of a nationally consistent, co-regulatory approach which is outcome focused. It outlines best management practices as determined by industry stakeholders, and should facilitate a consistent environmental regulatory approach for producers throughout Australia.

The *NEGP 2010* builds on the earlier *National Environmental Guidance for Piggeries 2004 (NEGP 2004)*. The *NEGP 2010* provides direction about environmental assessments for developing piggeries. It also outlines options for existing piggeries to achieve positive 'Environmental Outcomes' that are appropriate for SA pork production and mindful of environmental needs.

The *NEGP 2010* reflects available science and the optimum outcome for all pond systems used by SA piggeries. The *NEGP 2010* states that all pond facilities should have minimal odour generation and no releases to surface water or groundwater.

Included in the *NEGP 2010* are the design standards for effluent lagoons that minimise the risks of overtopping, catastrophic lagoon failure, and odour nuisance. This follows recently commissioned work to develop new lagoon designs that can be more readily retrofitted with greenhouse gas capture and mitigation technology. This lagoon will incorporate improved sludge harvesting for recycling nutrients into agriculture.

The SA EPA was involved in the development of the *NEGP 2010*. Currently, the recommendations from APL's *NEGP 2010* are not specifically taken up nor mentioned in the *Guidelines*. The *Guidelines* do not account for all the pond systems used by SA piggeries for: 1) effluent collection and 2) effluent treatment systems, including covered ponds which are covered extensively in the *NEGP 2010*. These positive environmental initiatives need to be incorporated more explicitly in the *Guidelines*. By reflecting the *NEGP 2010*, the potential requirements in the *Guidelines* will be consistent with industry best management practice.

## 3. Compliance and consistency

APL contends that the *Guideline for wastewater lagoons* should be an advisory document only and should not force compliance on affected industries. There are ongoing risks that increasingly stringent regulatory requirements imposed on piggeries do not always take into account site-specific or management-specific features, which can markedly influence environmental risks. This is why the *Guideline* should remain outcome focused but as piggery specific as possible.

Notably, the previous guidelines (*SA EPA Guideline 509/04, Wastewater and evaporation lagoon construction*) did not seek status as mandatory; it only sought to advise industries on best management practices. The guidelines in fact stated, 'These guidelines offer advice to assist with compliance with the general environmental duty and specific environmental policies.'

As a consequence, the terminology of 'should' and 'must' in the proposed *Guidelines for wastewater lagoons* must be removed. This potentially will confuse readers as to the potential requirements for pond construction. The *Guidelines for wastewater lagoons* should only make reference to current SA legislation as per the previous *EPA Guideline 509/04, Wastewater and evaporation lagoon construction*.

As to the role of the *Guidelines for wastewater lagoons*, it is also unclear to readers whether it is a recognised document under the *Environment Protection Act 1993* (the EP Act), or an *Environment Protection Policies (EPPs)*. This is an important distinction as it is unknown to the readers how the *Guidelines* will be legally enforceable.

A final factor complicating compliance is the delineation between small and low-risk lagoons. Having both small and low-risk lagoons with different reporting, construction and management requirements will create an assessment inconsistency. To simplify this APL recommends that an outcome based approach, based on the *NEGP 2010* is taken for all ponds referred to in these *Guidelines*. The sections and sentences on aspects of the *Guidelines* where APL has comments have been 'bolded'.

#### 4. Scope and role

Guidelines for wastewater lagoons	APL Comments
<p data-bbox="339 696 472 723">Introduction</p> <p data-bbox="339 752 826 808"><b>Wastewater management is an inherent aspect of many industrial operations.</b></p> <p data-bbox="339 813 831 1043">Lagoons (or ponds) have been used extensively in the past to naturally treat, store (prior to reuse or discharge) and dispose of wastewater via evaporation. The uses and applications of these lagoons have increased in recent times. However, poorly constructed lagoons can lead to surface and groundwater pollution as well as odour and health impacts.</p>	<ul style="list-style-type: none"> <li data-bbox="954 696 1345 1160">- Piggeries have specific attributes that are not accommodated by the <i>Guidelines</i>. The ponds used in agriculture are unlike the ponds used for operations listed below. These industries include:               <ul style="list-style-type: none"> <li data-bbox="1050 875 1302 902">○ chemical industries;</li> <li data-bbox="1050 907 1246 956">○ manufacturing industries;</li> <li data-bbox="1050 960 1281 987">○ mining industries;</li> <li data-bbox="1050 992 1286 1041">○ sewage treatment facilities</li> <li data-bbox="1050 1046 1270 1072">○ food processing;</li> <li data-bbox="1050 1077 1315 1104">○ beverage processing;</li> <li data-bbox="1050 1108 1270 1135">○ aquaculture; and</li> <li data-bbox="1050 1140 1342 1167">○ composting and landfill.</li> </ul> </li> <li data-bbox="954 1171 1345 1368">- Agricultural effluent ponds are of a lower risk, smaller scale (and hence better assessed on an outcome basis) and the resultant effluent has agronomic value to the originating agricultural industry.</li> </ul>

## 5. Agricultural industries vs. industrial and manufacturing operations

Guidelines for wastewater lagoons	APL comments
Areas of concern: <ul style="list-style-type: none"> <li>• <b>All</b></li> </ul>	<ul style="list-style-type: none"> <li>• The introduction does not discuss the specific role of ponds for agriculture.</li> <li>• There is also no rationale for categorising agriculture in the same way as:               <ul style="list-style-type: none"> <li>○ chemical industries;</li> <li>○ manufacturing industries;</li> <li>○ mining industries;</li> <li>○ sewage treatment facilities</li> <li>○ food processing;</li> <li>○ beverage processing;</li> <li>○ aquaculture; and</li> <li>○ composting and landfill.</li> </ul> </li> <li>• Agricultural industries are also different in terms of:               <ul style="list-style-type: none"> <li>○ The risk of agricultural effluent compared to industrial activities;</li> <li>○ Scale of pond size, pond treatment systems and management (pig production is on a scale many times smaller than the industrial activities); and</li> <li>○ Proximity to sensitive use areas.</li> </ul> </li> </ul>

## 6. Approval, operational and reporting requirements

Approval and operational requirements	APL comments
<ul style="list-style-type: none"> <li>• Wastewater lagoon proposals are normally referred to the EPA as part of wastewater treatment facility or industrial development applications.</li> <li>• The Guidelines for construction specifications and reports for landfills, composting facilities and wastewater lagoons (currently in draft) outline the technical documents that the EPA may require when assessing wastewater lagoon proposals. These may include engineering design drawings, a Construction Quality Assurance (CQA) Plan, and a Construction Management Plan. <b>It should be noted that this guideline was designed for landfills, and major composting works and wastewater lagoon developments; hence some of the requirements may not be relevant in the case of small wastewater lagoons to be located in low-risk areas.</b> The EPA recommends that proponents discuss these requirements with the EPA prior to lodging their application.</li> <li>• In addition, the EPA will also require other information to enable risk assessment. These additional requirements are outlined in the following sections.</li> <li>• In the case of EPA licensed facilities, the Authority may also include conditions for assessment or monitoring of the ongoing integrity of wastewater lagoons in the premises. This assessment could be in the form of water balances, or monitoring of groundwater or installed leakage detection devices.</li> </ul>	<ul style="list-style-type: none"> <li>• The references to a 'Construction Quality Assurance (CQA) Plan, and 'Construction Management Plan (CMP)' are needed for landfills, major composting workers and wastewater lagoon developments. However they do not reflect the specific nature of piggery effluent ponds. The small scale and low risk of piggery effluent ponds does not necessitate CQA plans or CMP.</li> <li>• APL is concerned about the construction report requirements. The As Constructed Report (ACR) reporting requirement on pg. 14 of the <i>Guidelines</i> is irrelevant for small scale piggery effluent pond operations.</li> <li>• The <i>Construction Quality Assurance (CQA) Level 1 or Level 2 Supervision – The requirement for a Geotechnical Inspection and Testing Authority (GITA)</i> will be inappropriate for small scale piggery effluent ponds.</li> <li>• There are also constant references to <i>Guidelines for construction specifications and documents for landfills, composting facilities and wastewater lagoons</i> which APL believes are irrelevant for piggery effluent pond operators.</li> <li>• It should be stated in the <i>Guidelines</i> that these reporting requirements (CQA, CMP, and ACR) are not relevant for piggery effluent operations.</li> <li>• The NEGP 2010 overcomes the small scale, and low risk issue encountered by the SA EPA in the assessment of piggeries. The NEGP 2010 supports an outcome based approach for piggery effluent collection and piggery effluent treatment systems, which do not necessitate the requirements for the CQA Plan, the Construction Management Plan or the ACR.</li> </ul>
<p><b>Assessment Matrix – Appendix I</b></p>	<p>Costs will be borne by small scale piggery effluent pond operators because:</p> <ul style="list-style-type: none"> <li>• The Risk Assessment Matrix is too complex and an engineer needs to be engaged to interpret it;</li> <li>• The requirement for a geotechnical engineer needed to conduct assessment in order to determine category and construction requirements and post-construction monitoring requirements.</li> </ul>

## 7. Separation distances

Siting and separation distances	APL comments
<p>Construction of wastewater lagoons <b>should</b> be avoided in the following locations:</p> <ul style="list-style-type: none"> <li>• within the floodplain known as the '1956 River Murray Floodplain' or any floodplain that is subject to flooding that occurs, on average, more than one in every 100 years</li> <li>• within 100 metres of a bank of a major watercourse (eg Murray, Torrens, and Onkaparinga Rivers), or within 50 metres of a bank of any other watercourse</li> <li>• within 500 metres of a high-water mark</li> <li>• within an area where the base of the lagoon would be less than 2 metres above any seasonal water table</li> <li>• within 200 metres of a busy public road (&gt;50 vehicles per day), or within 50 metres of other public roads (&lt;50 vehicles per day), and</li> <li>• in areas where a Potentially Contaminating Activity has been undertaken.</li> </ul> <p><b>Construction of wastewater lagoons will only be allowed in these areas</b> if proponents can demonstrate that no other locations are suitable, and appropriate engineering measures are to be undertaken to manage the risks.</p> <p>The <i>Guidelines for separation distances</i> (December 2007) provides recommended buffer distances to prevent odour impacts from aerated and non-aerated lagoons in <b>sewage treatment works and Community Wastewater Management Systems (CWMS), and wineries or distilleries</b>. The guideline also outlines recommended separation distances for many industrial operations. <b>However, as these recommendations do not generally address odour impacts from wastewater lagoons that may be associated with these industries, the EPA will make an assessment on a case-by-case basis.</b> In some cases, the EPA may require the proponent to undertake odour measurements in accordance with the EPA Guideline, <i>Odour assessment using odour source modelling</i> (April 2007).</p>	<ul style="list-style-type: none"> <li>• The terminology used in this section needs to be consistent : <ul style="list-style-type: none"> <li>○ The first sentence says, 'should', but later says, 'construction of wastewater lagoons will only be allowed in these areas...'</li> <li>○ It should instead say, '...construction of wastewater lagoons <b>may</b> only be allowed in these areas...'</li> </ul> </li> <li>• The <i>Guidelines for wastewater lagoons</i> should clarify: <ul style="list-style-type: none"> <li>○ The separation distances listed should be contingent on the management of the pond, and only act as triggers for further assessment.</li> <li>○ Pond operations should be able to determine first if they are 'low risk' before being required to complete a risk assessment.</li> </ul> </li> <li>• Appropriate separation distances have been developed in the NEGP 2010 for piggery effluent ponds: <ul style="list-style-type: none"> <li>○ Watercourses – covered in detail in the NEGP 2010</li> <li>○ Water tables – covered in detail in the NEGP 2010</li> <li>○ Public roads – Public road carrying &gt; 50 vehicles per day – 200m;</li> <li>○ Public road carrying &lt; 50 vehicles per day – 100m.</li> </ul> </li> <li>• References to buildings and facilities, such as 'sewage treatment works' and 'Community Wastewater Management Systems (CWMS)', and 'industrial operations', are only appropriate if the <i>Guidelines for wastewater lagoons</i> make it clear that they only advise industrial operations, and not piggeries.</li> </ul> <p><b>ODOUR</b></p> <ul style="list-style-type: none"> <li>• The guidelines referenced here including, <i>Guidelines for separation distances (December 2007)</i> and <i>Odour assessment using odour source modelling (April 2007)</i>, including the guidance text relate to: <ul style="list-style-type: none"> <li>○ sewage treatment works;</li> <li>○ community systems;</li> <li>○ wineries and distilleries; and</li> <li>○ industrial operations.</li> </ul> </li> <li>• The text does not mention animal</li> </ul>

	<p>husbandry operations or the pork industry. The NEGP 2010 should be referenced here for clarity.</p> <ul style="list-style-type: none"><li>• The text states, 'However, as these recommendations do not generally address odour impacts from wastewater lagoons that may be associated with these industries, the EPA will make an assessment on a case-by-case basis.' The problem with this is:<ul style="list-style-type: none"><li>○ The EPA at its discretion can have an odour assessment of a small-scale piggery effluent pond. This is cost prohibitive for a producer.</li></ul></li><li>• The separation distances outlined by the NEGP 2010 should form the basis for triggers for an assessment to take place.</li></ul>
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## 8. Construction of ponds

Pond construction	APL comments
Pond construction in general - pg. 5	<ul style="list-style-type: none"> <li>Piggery effluent ponds can be small scale. As a result of this, geotechnical professionals who conduct pre and post construction testing, report on geomembrane liners and construction of clay lined ponds are unnecessary and these activities are only relevant for industrial operations.</li> <li>Such supervision is cost prohibitive for many producers who will have small scale piggery effluent facilities.</li> </ul>
Clay lining – pg. 5	<ul style="list-style-type: none"> <li>The NEGP 2010 specifies that lining should be based on the soil type. Currently, the clay lining section in the <i>Guidelines</i> requires inappropriate permeability testing of soil material to water at different water contents. Incorrect results will occur if permeability testing is not based on the effluent characteristics.</li> </ul>
Freeboard requirements – pg. 7	<ul style="list-style-type: none"> <li>The requirements for freeboard dimensions are excessive. The NEGP 2010 states, “Providing at least 500 mm freeboard allows the pond banks to contain wave action and prevents overtopping due to imperfections in the crest level.”</li> <li>There are some inconsistencies in the Volume and Overflow section. The <i>Guidelines for wastewater lagoons</i> should state that piggeries should have at least 500mm freeboard, instead of stating a 600mm freeboard requirement and should also state that a risk assessment can determine appropriate freeboard dimensions.</li> <li>Freeboard requirements for piggeries are also different than for other agricultural industries.</li> </ul>
Embankments - Differences of agriculture to industrial operations – pg. 8	<ul style="list-style-type: none"> <li>The <i>Guidelines for wastewater lagoons</i> state that embankments should be kept free from vegetation to prevent liner damage.</li> <li>This is inappropriate for piggery effluent ponds. Not all ponds are lined and grassy vegetation (not trees) should be encouraged to stabilise pond banks.</li> </ul>

## 9. Definitions

Definitions	APL comments
<p>Page 1 – “Wastewater includes (a) sewage, and septic tank effluent, whether treated or untreated, and (b) water containing commercial or industrial waste.”</p>	<ul style="list-style-type: none"> <li>The definition needs to be broadened. The wastewater definition does not mention agricultural effluent. This is problematic as it is referred to throughout the <i>Guidelines for wastewater lagoons</i>. Only ‘septic tank effluent’ is mentioned. Agricultural effluent should also be included here.</li> <li>Importantly, using the term ‘wastewater’ in agriculture is outdated. APL and the agricultural industry see wastewater as an agronomic resource and not as a waste product.</li> <li>This terminology reflects the <i>Guidelines for wastewater lagoons</i> key problem - largely noting sewage treatment plants, landfills and industrial operations.</li> </ul>

## 10. Conclusion

APL does not support the *Guidelines for wastewater lagoons* in its current form. It harms the future right to operate for those South Australian (SA) pork producers. APL argues that animal husbandry as an industry should be removed from the proposed *Guidelines*.

The *Guidelines* largely ignore the differences that piggeries have to industrial operations. Not only are industrial operations much larger in scale than pork producers, they also manage their ponds in different ways due to the different nature of animal husbandry effluent. The nature, scale, management and risks of piggery effluent are not comparable to industrial wastewater systems.

Categorising animal husbandry operations in the same vein as industrial and manufacturing industries exposes the SA pork industry to onerous, impractical and inappropriate construction, reporting and ongoing pond management requirements. APL would welcome further involvement in the development of guidelines more suited to piggeries.

This is an important consideration for the SA EPA. Piggery effluent ponds are operated, managed, monitored and supervised for different reasons and to a different extent to industrial, sewage or landfill operations mentioned in the *Guidelines*.

The National Environmental Guidelines for Piggeries 2010 should become a key source of information for the SA EPA in the development of such guidelines, or in the modification of *Guidelines for wastewater lagoons*. This will eliminate the perception that piggery effluent ponds have similar environmental or human health impacts to industrial, sewage or landfill operations.