



Decision Document

Environmental Protection Act 1986, Part V

Proponent: V & V Walsh Pty Ltd

Licence: L6001/1989/15

Registered office: 235 St Georges Terrace
PERTH WA 6000

ACN: 100 834 455

Premises address: V & V Walsh Abattoir
Lot 1 Rawling Road
DAVENPORT WA 6230
Being Lot 1 on Diagram 12060, Lot 5 on Diagram 50137 and part
of Lot 1050 on Plan 33291

Issue date: Thursday, 1 October 2015

Commencement date: Sunday, 4 October 2015

Expiry date: Wednesday, 3 October 2018

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER) has decided to issue a licence. DER considers that in reaching this decision it has taken into account all relevant considerations.

Decision document prepared by: Amine Callegari
Licensing Officer

Decision Document Authorised By: Jonathan Bailes
Delegated Officer



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1 Purpose of this Document

This decision document explains how DER has assessed and determined the application for a works approval or licence, and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.



2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/> New Licence <input checked="" type="checkbox"/> Licence amendment <input type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	15: Abattoir	47 000 tonnes per year
	16: Rendering Operations	9 000 tonnes per year
	55: Livestock saleyard or holding pen	900 000 animals per year
Application verified	Date: 21 July 2015	
Application fee paid	Date: 28 July 2015	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome	NA	
Is the proposal a Major Resource Project?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Department of Water consulted Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Environmental Protection (Swan Coastal Plain Lakes) Policy 1992		
Is the Premises subject to any EPP requirements? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		



3 Executive summary of proposal

V & V Walsh Pty Ltd (V & V Walsh) operate a sheep and beef cattle abattoir and meat wholesaler in the suburb of Davenport approximately 6 km southeast of the Bunbury CBD and 160 km south of Perth. The land is zoned under the City of Bunbury Planning Scheme No. 7 for Special Use (17, 18 Abattoir). The plant has been operating since the early 1960s and is an AUS-MEAT accredited export abattoir. The abattoir has the ability to process up to 3 500 sheep and 400 beef cattle per day.

Surrounding land comprises a variety of zoning including general farming and rural properties north, south and east of the premises, and the Halifax and Davenport Light Industrial Areas to the northwest and west of the premises. A firing range is immediately west of the premises. The nearest residential areas are over 1000 m from the premises. The site is located within the Preston River (Leschenault Estuary Preston River) catchment and the Preston River follows the eastern premises boundary. A minor tributary runs through the north east corner of the premises and terminates in the Preston River. A conservation category wetland is located on the western premises boundary.

The site accepts lambs, sheep and cattle by truck which is held in holding pens, paddocks or lairage facilities pending slaughter. Animals are washed before entering the abattoir where they are slaughtered in the kill room, before being skinned, eviscerated and further processed to form a carcass. The premises also includes meat trimming, packaging, cold storage, and distribution facilities which are currently leased by Woolworths Pty Ltd to produce retail packaged meat. Wastes produced on the premises include wastewater, blood, skins, solid animal waste (paunch, bone, fat, offal and trimmings), screening solids, and manure. Offal, fat and bone are processed in the on-site rendering plant. Skins and beef hides are treated on site for sale or further processing offsite. Kill floor trimmings, paunch and blood are separated prior to off-site disposal to licensed disposal facilities. Manure is collected and sent to a licensed, offsite composting facility for disposal.

Wastewater is treated via the on-site wastewater treatment system (WWTS). All abattoir, rendering plant and biofilter wastewater is directed through a 'Save All' and Dissolved Air Flotation (DAF) unit via a rotary screen. Water from the DAF unit is further treated through three anaerobic (currently only one pond is active) and three facultative ponds with final treatment in an oxidation pond. Wastewater from the livestock holding pens and washdown areas is directed through a sediment trap prior to entering the wastewater treatment ponds. Treated wastewater is used for cattle and sheep yard washdown, turf farm irrigation via a central pivot (year round), and on site irrigation of pasture and a treelot (winter) within Lot 1 of the premises. The high nutrient wastewater stream from the cattle lairage is separated and tankered offsite for disposal at a licensed composting facility.

Key issues associated with operation of the facility include solid waste management and wastewater and irrigation management. Nutrient levels in irrigation water have historically been high resulting in exceedance of the irrigation loading limits specified in the licence. Improvements to the WWTS and water reduction initiatives have resulted in reduced nutrient loading rates, most significantly for nitrogen. Improvements have included introduction of the DAF unit to remove fats and solids, desludging and re-lining of the wastewater treatment ponds, export of high strength lairage effluent to a licensed composting facility, additional aeration in the facultative treatment ponds, and improved screening of the process wastewater stream.



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
General conditions	L1.2.3	<p><u>Emission Description</u></p> <p><i>Emission:</i> Contaminated stormwater runoff from waste storage areas, the abattoir, lairages and irrigation areas containing high levels of salinity, sediments and nutrients.</p> <p><i>Impact:</i> Contamination of surrounding land and surface water systems. Potential impacts on the ecology of surface water systems from the addition of nutrients, sediment and salt and reduced oxygen. There are a number of sensitive surface water receivers in the vicinity of the premises which could be impacted if they receive contaminated stormwater runoff. These include the Preston River located on the eastern premises boundary (400m from abattoir and wastewater infrastructure) with a tributary running through the north-east corner of the premises and a conservation category wetland area on western boundary of the premises (<100m from wastewater ponds).</p> <p><i>Controls:</i> Abattoir and meat processing activities are conducted within enclosed buildings and lairages are roofed to reduce the volume of contaminated stormwater generated. The premises has an established stormwater management system which handles uncontaminated and potentially contaminated water via separate infrastructure to minimise the risk of uncontaminated stormwater becoming contaminated. All runoff from areas where there are potential contaminants including solid waste storage areas, livestock holding yards, lairages and unloading areas are directed into the WWTS via drains, sumps and/or a 'Save All'. Uncontaminated stormwater from buildings and general bitumised areas is piped or channelled to stormwater pits and collection basins prior to discharge through a series of channels to the tributary feeding the Preston River in the north east corner of the premises.</p>	<p>Application supporting documentation</p> <p>W5619/2014/1 supporting documentation</p> <p>W4597/2009/1 supporting documentation</p> <p>V & V Walsh Environmental Management Plan 2011</p>



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		<p><u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p> <p><u>Regulatory Controls</u> Condition 1.2.3 has been included on the licence to ensure effective stormwater management is continued and all contaminated or potentially contaminated stormwater is collected for treatment.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p>	
Premises operation	L1.3.1-L1.3.3	<p><u>Emission Description</u> <i>Emission:</i> Discharge of contaminated wastewater, partially treated wastewater or animal wastes to the surrounding environment from the abattoir, rendering plant, biofilter, WWTS, waste storage areas, lairages or livestock holding yards. <i>Impact:</i> Contamination of surrounding land, surface and ground water systems due to high nutrient and sediment levels in wastewaters and organic wastes from the abattoir. High nutrient levels can result in eutrophication of surface water systems or contamination of groundwater systems which may affect sensitive receptors. Groundwater levels range from 3-5 metres below ground level and flow is generally easterly toward the Preston River. Outcropping of the groundwater table can occur in low lying areas during the winter period. The Preston River is located 400 m east of the abattoir and wastewater treatment infrastructure and a conservation category wetland is located adjacent to the livestock holding yards and wastewater treatment ponds.</p>	<p>Application supporting documentation</p> <p>W5619/2014/1 supporting documentation</p> <p>W4597/2009/1 supporting documentation</p> <p>V & V Walsh Environmental Management Plan 2011</p>



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Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p><i>Controls:</i> Slaughter and processing of animals is undertaken within enclosed buildings with all wastes, wastewater and blood collected and disposed to an appropriately licensed disposal site or is treated on site. Wastewaters are directed to the WWTS for treatment; blood is channelled into concrete tanks for temporary storage pending daily removal to a licensed disposal facility by an enclosed tanker, and solid wastes are directed into metal storage bins pending rendering or transfer to a semi-trailer for disposal to a licensed facility. Lairages have bunded concrete bases to contain all solid and liquid animal wastes and wastewaters to prevent discharge to the environment. Solid wastes are removed routinely to a trailer and are sent to an appropriately licensed disposal site. Liquid wastes are channelled via concrete drains to a sump and then discharged to the anaerobic treatment ponds. High strength liquid wastes from the beef lairages are pumped to a tanker for offsite disposal at a licensed facility to reduce nutrient load on the WWTS.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Moderate <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p> <p><u>Regulatory Controls</u> Condition 1.3.1 has been included on the licence to specify infrastructure where potentially harmful wastes can be stored and/or treated, to ensure only approved containment infrastructure, suitably designed to prevent discharge of contaminated wastes to the environment is used. Condition L1.3.2 has been added to the Licence to ensure that where wastes are processed on site, rather than sent offsite for disposal, they are appropriately managed to minimise the risk of environmental impact. Part of this condition replicates the requirements of previous licence condition 15. Condition L1.3.3 has been included on the licence to specify management measures necessary to ensure the likelihood of releases of partially treated wastewater from the</p>	V & V Walsh Update of Environmental Improvement Plan 2013



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		<p>wastewater ponds is minimised. This condition also replaces the requirements of previous licence condition 13.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p>	
Emissions General	L2.1.1	The licence contains emission limits for discharges to land therefore condition 2.1.1 has been included on the licence requiring the investigation and recording of all limit exceedances.	<p>Application supporting documentation</p> <p>L6001/1989/14</p>
Point source emissions to air including monitoring	N/A	No significant point source emissions to air are known to occur from the premises therefore conditions specific to this are not required in the licence. Previous conditions 4 and 5 relating to management of dark smoke emissions from chimneys have not be replicated in the reissued licence as they are covered by the requirements of the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> . The licensee has also replaced the old boilers with two new reducing the likelihood of dark smoke emissions being produced.	<p>Application supporting documentation</p> <p><i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i></p>
Emissions to land including monitoring	L2.2.1-L2.2.2 L3.2.1	For DER's assessment of emissions to land including monitoring see Appendix A.	<p>Application supporting documentation</p> <p>W5619/2014/1 supporting documentation</p> <p>W4597/2009/1 supporting</p>



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			documentation V & V Walsh Environmental Management Plan 2011 V & V Walsh Update of Environmental Improvement Plan 2013
Fugitive emissions	NA	<p>Licence L6001/1989/14 contained fugitive dust conditions (condition 3). The risk of fugitive dust has been reviewed as part of this licence reissue.</p> <p><u>Emission Description</u> <i>Emission:</i> Potential for fugitive dust emissions due to stock movement within livestock holding yards and during animal deliveries or transfers. There is also the potential for dust lift off from truck movements on internal trafficable areas and from open holding yards. Fugitive dust emissions are more likely to occur during the summer months when there are sustained periods of hot, dry and windy conditions. <i>Impact:</i> Reduced local air quality causing a nuisance. <i>Controls:</i> The surrounding area comprises farm land and industrial premises - the nearest sensitive receptors are more than 1 000m from the premises. The previous licence L6001/1989/14 contained condition 3 requiring the licensee to prevent visible dust from crossing the boundary of the premises. Consequently the licensee has implemented measures to minimise the risk of dust generation such as water sprays in livestock holding yards and raceways, roofed lairages, planting of vegetation in open areas where practical, and bitumen sealing of all roads and carparks within the abattoir. DER has no recent records of dust complaints relating to the premises.</p>	<p>General provisions of the <i>Environmental Protection Act 1986</i></p> <p>Application supporting documentation</p> <p>Part V licence L6001/1989/14</p> <p>V & V Walsh Environmental Management Plan 2011</p>



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		<p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p> <p><u>Regulatory Controls</u> As fugitive dust is assessed to be low risk, the reissued licence will not include specific conditions relating to control of fugitive dust emissions. The licensee is required to comply with the general provisions of the <i>Environmental Protection Act 1986</i>.</p>	
Odour	NA	<p><u>Emission Description</u> <i>Emission:</i> Potential for odour from the abattoir, rendering facility, lairage yards, wastewater treatment system and solid waste storage. <i>Impact:</i> Emission of odour which impacts beyond the premises boundary and potentially can cause amenity impacts on nearby sensitive receptors. As the premises is primarily surrounded by farm land and industrial areas the nearest residential area is more than 1000 m from the abattoir infrastructure outside the recommended odour buffer. <i>Controls:</i> The abattoir operations are conducted within enclosed buildings. Rendering is conducted within an enclosed building with enclosed equipment (continuous cookers, decanter, Keith press). Roller doors on either side of the building are open during operations due to the continuous nature of the activity however odours generated from the equipment are directed via ducting to a biofilter for treatment. A cover is maintained on the anaerobic ponds when they are operational to minimise odour and promote anaerobic conditions. Solids animal wastes, paunch, screening wastes, blood and high nutrient water from the cattle lairage are removed from the premises on a daily basis for offsite disposal. Historically odour complaints have only been received during wastewater treatment pond maintenance works and in relation to poor management of the rendering plant biofilter and ductworks. Recent</p>	<p>General provisions of the <i>Environmental Protection Act 1986</i></p> <p>L6001/1989/14 Environmental Assessment Report</p> <p>V & V Walsh Environmental Management Plan 2011</p> <p>DER Guidance Statement - Separation Distances, Draft 2015</p>



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		<p>improvements in management of the biofilter and the WWTS, such as additional screening, covering of the anaerobic pond and desludging of the wastewater treatment ponds, have assisted in reducing odour emissions with no complaints being received by the Department since March 2012.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p> <p><u>Regulatory Controls</u> Condition 1.3.2 specifies requirements to be met when undertaking rendering on site to minimise the likelihood of odour emissions being generated by the activity which could impact beyond the premises boundary. There have been no odour complaints in the last 3 years. The general provisions of the <i>Environmental Protection Act 1986</i> are considered sufficient to regulate the risk.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p>	
Noise	NA	<p>Licence L5423/1990/14 did not contain any specific noise conditions and the DER has not received any complaints regarding noise associated with the premises. There have been no changes likely to have increased noise levels from the premises; therefore noise has not been re-assessed as part of this licence reissue. Consistent with previous versions, the licence does not contain any specific noise conditions. Noise emissions are adequately managed through the <i>Environmental Protection (Noise) Regulations 1997</i>.</p>	<p>Application supporting documentation</p> <p>General provisions of the <i>Environmental Protection Act 1986</i></p>
Monitoring	L3.1.1-L3.1.4	Ambient environmental quality and discharge to land monitoring is included in the	Application supporting



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general		licence. Therefore, general monitoring conditions relating to collection, preservation and testing of samples (L3.1.1), monitoring intervals (L3.1.2), and monitoring equipment calibration requirements (L3.1.3-3.1.4) have been included.	documentation
Monitoring of inputs and outputs		The previous licence L6001/1989/14 included a requirement for a monthly record of the number of animals processed at the abattoir. This requirement has been replaced with condition 3.3.1 and expanded to include the weight of livestock processed and the weight of material processed through the rendering plant. This is to ensure that records exist to demonstrate compliance with the approved premises production or design capacity for the licensed categories.	Application supporting documentation Part V licence L6001/1989/14
Ambient Quality Monitoring	L3.4.1	<p>For further details on ambient surface and ground water quality monitoring requirements see DERs assessment of emissions to land in Appendix A.</p> <p><u>Emission Description</u> <i>Emission:</i> Seepage of contaminated wastewater (elevated nutrient and salinity levels) from infrastructure on site including lairages, the abattoir and wastewater treatment infrastructure. <i>Impact:</i> Reduction in local groundwater quality due to elevated nutrient levels with potential impacts on nearby surface water systems which could experience eutrophication if affected by groundwater inflow with high nutrient levels. The depth to groundwater on the premises is approximately 3-5 meters below ground level (mbgl) and flow is generally easterly toward the Preston River. There are a number of sensitive surface water receivers in the vicinity of the premises including the Preston River located on the eastern premises boundary (400m from abattoir and wastewater infrastructure) with a tributary running through the north-east corner of the premises and a conservation category wetland area on the western boundary of the premises (<100m from wastewater ponds). <i>Controls:</i> Slaughter and processing of animals is undertaken within enclosed buildings with all wastewaters directed to the WWTS for processing. Lairages have bunded concrete bases to contain liquid animal wastes and wastewaters. Wastewater</p>	Application supporting documentation L6001/1989/14 Environmental Assessment Report



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		<p>treatment infrastructure has therefore historically been the most likely source of contaminated wastewater seepage due to insufficient lining systems, high levels of built up sludge material and minimal solids screening or pre-treatment of wastewater prior to entering the ponds. Since the last licence reissue the licensee has undertaken maintenance and upgrades on the DAF unit (pre-treatment and secondary screening) and relining of the ponds with five of the six wastewater ponds now lined to achieve permeability of less than 1×10^{-9} m/s. Only the oxidation pond remains with a clay liner of unknown permeability.</p> <p>An established quarterly ambient groundwater monitoring program is in place at the abattoir with results reported to the Department annually. Ambient groundwater monitoring results do not exhibit any significant trends over the past five years. GQ1 and GQ2 may have been impacted by seepage however as they exhibit higher nutrient levels. GQ2 is immediately east of the wastewater treatment ponds and is likely to have been impacted by seepage from the ponds prior to relining. MB 1 is south west of the Turf Farm and is more likely to have been impacted by irrigation (refer to Appendix A).</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p> <p><u>Regulatory Controls</u> Condition 3.4.1, has been included on the licence specifying ambient groundwater monitoring requirements. The condition replicates the requirements of previous licence condition 18 relating to ambient groundwater monitoring. Monitoring bore GQ2 is the most likely to be impacted by seepage of wastewater from the wastewater treatment ponds and is appropriately located to detect potential impacts associated with seepage</p>	



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		<p>from this infrastructure.</p> <p><u>Residual Risk</u> <i>Consequence</i>: Minor <i>Likelihood</i>: Unlikely <i>Risk Rating</i>: Moderate</p>	
Improvements	L4.1.1	An improvement condition for the Licensee to submit an updated NIMP has been included on the licence. For justification of IR1 refer to DER's assessment and decision making details in Appendix A.	<p>Application supporting documentation</p> <p>V&V Walsh Nutrient and Irrigation Management Plan 2011</p>
Information	L5.1.1 – L5.1.4 L5.2.1 – L5.2.3 L5.3.1	<p>Records Conditions 5.1.1 – 5.1.4 that form part of the licence template are included in this section of the licence relating to record keeping on the premises.</p> <p>Reporting Annual reporting requirements have been specified in condition 5.2.1 of the licence replacing the requirements of previous licence condition 24. Condition 5.2.2 has also been included to require the licensee to make an assessment of monitoring results against previous results and licence limits in order to detect changes which could indicate that the premises is impacting on the environment. As all water samples are required to be sent to a laboratory for analysis, condition 5.2.3 has also been included requiring the submission of original reports on request.</p> <p>Notification Condition 5.3.1 has been included on the licence to ensure that the CEO is notified of</p>	<p>Application supporting documentation</p> <p>Part V licence L6001/1989/14</p>



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		any limit exceedances within the specified timeframe. Condition 2.2.2 specifies the relevant limits for emissions to land. Condition 5.3.1 also specifies notification requirements in the event calibration requirements in condition 3.1.3 cannot be met. The previous licence also contained notification requirements in condition 2 in the event of spills or leaks occurring from treated wastewater pipelines. These requirements have not been included in the reissued licence as they replicate the requirements of s72 of the Act.	
Licence Duration	N/A	The overall environmental risk of this premises is categorised as moderate due to the proximity of sensitive receptors and compliance history of the licensee. The Licence has been issued for a period of five years as this allows the Licensee time to update and implement a Nutrient and Irrigation Management Plan and assess whether nutrient loading due to irrigation is having an environmental impact.	NA



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
10/08/2015	Application advertised in West Australian (or other relevant newspaper)	No comments received.	N/A
22/09/2015	Draft instrument referred to Department of Water for comment	Comments received 23/09/2015 1) Recommendations to address high phosphorous loading of the irrigation areas. 2) Recommend inclusion of TDS in ambient groundwater monitoring 3) Recommendation for wording of IR1.	1) High phosphorous loading of the irrigation areas will be addressed through annual compliance assessment activities. 2) TDS is included in the groundwater monitoring suite. 3) Minor wording change to IR1 incorporated.
25/09/2015	Proponent sent a copy of draft instrument	1) Comments received 29/09/2015 General comments and clarifications on the licence and decision document. 2) Clarification of rendering process and odour management.	1) General comments and clarifications taken into account in final draft. 2) Rendering process and odour management descriptions modified in accordance with onsite practices.



6 Emissions and discharges risk assessment framework

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



Appendix A

Emissions to land including monitoring

The principal emissions of concern from the V & V Walsh Abattoir are emissions to land, surface water and the underlying aquifer via irrigation of treated wastewater with elevated nutrient levels. Groundwater on the premises is typically 3 to 5 m below the surface and predominantly flows in an easterly direction toward the Preston River, with subtle variations reflecting surface topography. Outcropping of groundwater can occur in low lying areas in the winter months. Soils comprise of sandy loams with a coffee rock basalt base.

Emission Description

Emission: Irrigation of treated wastewater to a 13ha turf farm and a 45ha on site irrigation area.

Impact: Discharge of treated wastewater with elevated nutrient levels to land via irrigation which may result in excessive nutrient loading of the land or eutrophication of surface water systems due to runoff. A conservation category wetland is located on the western premises boundary immediately adjacent to the turf farm irrigation area and the Preston River, also classified as a conservation category wetland area, is located approximately 100 m east of the turf farm. The on-site irrigation area covers a large portion of Lot 1 of the premises within irrigation occurring within up to 50m from the Preston River and its tributary running through the north east corner of the premises.

Table 1 below shows the loading rates to the two irrigation areas for nitrogen and phosphorous since 2010. Historically both nitrogen and phosphorous loading limits have been exceeded at the Turf Farm and irrigation area and this has been ongoing since 2004. This triggered the need for an Environmental Management Plan and Improvement Program for the premises which have been implemented through previous licence and works approval conditions. Improvements on site have resulted in a significant reduction in nutrient loading rates, in particular nitrogen, however phosphorous overloading is still occurring.

Table 1: Annual Irrigation Loading Rates

Turf Farm Loading Rates						
	Licence limits	2010	2011	2012	2013	2014
Irrigation Volume (kL)	NA	175948	234056	100640	94817	95023
Total Nitrogen (kg/ha/yr)	600	1143.5	1215	483.85	417	303.73
Total Phosphorus (kg/ha/yr)	180	269.2	509.8	205.15	193	176.47
On-Site Irrigation Area Loading Rates						
Irrigation Volume (kL)	NA	177886	39735	106204	115798	102190
Total Inorganic Nitrogen (kg/ha/yr)	180	156.7	110.8	147.51	152	64.64
Reactive Phosphorus (kg/ha/yr)	20	17.1	39.8	55.46	61.1	48.26

Controls: To reduce the nutrient levels in wastewater generated by activities on the premises, wastewater is treated via screening, removal of fats and solids through a DAF unit, and anaerobic, facultative and oxidation treatment through a series of six ponds prior to irrigation to the turf farm or on-site irrigation area. Recently the Licensee has also incorporated addition of biological additives (Bio-Tabs) to the WWTS to increase biological breakdown of nutrients. High strength wastewaters from the cattle lairage are removed from site for disposal at a licensed facility to reduce nutrient loads on the WWTS.

The WWTS has undergone a series of improvements since 2010 as part of the premises Environmental Management Plan and Improvement Program to address continued exceedance of specified nutrient loading limits in irrigation areas. The improvements are designed to reduce wastewater volumes and improve nutrient breakdown. They have included reducing raw water



usage and increasing treated wastewater usage to reduce irrigation volumes, maintenance and improvements to the DAF tank to optimise operation, desludging and relining of the majority of the wastewater treatment ponds with only the final oxidation pond remaining unlined, and introduction of aerators in the facultative ponds.

An established quarterly ambient ground and surface water monitoring program is in place for the abattoir with results reported to the Department annually. Ambient groundwater monitoring results do not exhibit any significant trends over the past five years. GQ1 and GQ2 do however exhibit higher than background nitrogen levels. GQ1 is located to the south west of the Turf Farm and higher nutrient levels may be the result of runoff or seepage from the Turf Farm. GQ2 exhibits the highest nitrogen levels however it is located immediately east of the wastewater treatment ponds so is more likely to have been impacted by seepage from this infrastructure. Ad hoc ambient surface water monitoring was conducted at two locations on the Preston River (north and south) in 2011 and 2012 but did not detect elevated nutrient levels in the river.

Irrigation is preferentially undertaken on the Turf Farm as it has a higher nutrient uptake capacity and has been established for the purpose of exporting nutrients from the facility. Irrigation of the on-site irrigation area is predominantly undertaken in winter months when the nutrient uptake capacity of the Turf Farm is reduced.

Risk Assessment

Consequence: Moderate

Likelihood: Possible

Risk Rating: Moderate

Regulatory Controls

Due to the close proximity of the irrigation areas to sensitive surface water receptors effective control and management of irrigation activities is required to ensure the risk of irrigation water discharging to surface water receptors is minimised. Condition 1.3.2 has been included on the licence to specify required management measures for irrigation to reduce the risk of runoff occurring from the irrigation areas and excessive nutrient application occurring. This condition replicates the requirements previous condition 15.

Control and monitoring of nutrient application rates is required to minimise the risk of nutrient overloading. Conditions 2.2.1 and 2.2.2 have been included on the licence to specify where irrigation activities can occur and set nutrient loading limits. The current nutrient loading limits for the Turf Farm have been retained and were determined based on the initial calculations for the nutrient uptake capacity of the turf, harvesting frequency and the soil type (siliceous medium grain soil) when the area was first established. The current nutrient loading limits for the on-site irrigation area have been retained and were determined based on the Department of Water, *Water Quality Protection Note 22: Irrigation with Nutrient-Rich Wastewater (WQPN)*. The irrigation area is classified as Risk Category B in accordance with the WQPN. Condition 3.2.1 has been included on the licence to specify monitoring requirements for the volume and quality of water irrigated to land. The monitoring requirements replicate previous licence condition 18 with the addition of nitrogen speciation as this is the most significant nutrient in the irrigation water.

Despite a progressive reduction in nutrient application rates to the irrigation areas, nutrient loading limits continue to be exceeded. The Licensee submitted a Nutrient Irrigation Management Plan (NIMP) to the Department in 2011 however the plan was insufficient as it did not include management actions to ensure nutrient application rates comply with the licence limits. The plan has also not been updated following improvements to the WWTS. Previous versions of the licence included lysimeter monitoring of the Turf Farm. The purpose of the monitoring was to verify nutrient uptake capacity of the Turf Farm. This monitoring is more appropriate as part of the NIMP so has not been included in the reissued licence. Due to the 2011 NIMP not including management actions to manage nutrient application rates, improvements being made to the WWTS, and continued exceedance of nutrient loading limits, improvement condition IR1 has been added to the licence through condition 4.1.1 requiring the Licensee to submit a NIMP.



Condition 3.4.1 has been included on the licence to continue to monitor ambient groundwater and surface water quality to detect whether the irrigation of treated wastewater to land is potentially impacting on ground or surface waters. The condition replicates the requirements of previous licence condition 18. One additional existing bore (GQ4) has been added to the monitoring schedule as historic monitoring has not included any groundwater monitoring down hydraulic gradient from the Turf Farm. The bore location will enable detection of contamination in groundwater flowing toward the Preston River. Ambient monitoring of surface water on the Preston River tributary is required to monitor whether elevated nutrient levels are occurring as a result of irrigation of the on-site irrigation areas on either side of the tributary. Uncontaminated stormwater discharges from Premises are also directed to this tributary therefore ambient surface water monitoring will also detect if contaminants have entered the uncontaminated stormwater circuit.

The previous licence L6001/1989/14 included ambient surface water targets in condition 9. These have not been retained in the reissued licence in. The targets may be used as an internal management tool by the licensee to confirm uncontaminated stormwater discharges and on-site irrigation are not causing an impact on the surface water system.

Residual Risk

Consequence: Moderate

Likelihood: Possible

Risk Rating: Moderate

Inclusion of an ambient groundwater monitoring program in the licence does not alter the risk assessment however will allow for early detection of contamination and implementation of mitigation measures if required.