AUSTRALIAN PORK LIMITED

National Environmental Guidelines for Piggeries

SECOND EDITION

2010

Environmental Risk Assessment – Self Assessment

B1 Introduction

The purpose of an environmental risk assessment is to identify any actual or likely impacts that a piggery, or proposed piggery developing, may pose to the environment. This provides the basis for reducing impacts (or risks of impacts) through improved design, improved management or monitoring. There are three steps in this process:

- rate the vulnerability of the major natural resources
- rate the risk of each of the major design and operation features of the piggery
- evaluate the likelihood of an environmental impact.

Note that the information in Appendix B is designed to provide a guide to the risk of an environmental impact only. It is not designed to provide a guide to risk in other areas (e.g. workplace health and safety).

B2 Natural Resources and Amenity (Vulnerability Ratings)

The first step in an environmental risk assessment is to rate the vulnerability of each of the major natural resources or amenities associated with the piggery, including:

- soils of reuse areas (if utilising by-products on-farm)
- groundwater quality and availability
- surface water quality and availability
- community amenity.

Information to assist in deciding resource and amenity vulnerability is supplied in the tables below. Since it is not possible to represent all situations that will occur on all farms, discretion should be used when evaluating the site vulnerability using these tables. To use the risk assessment:

1. Read the statements in the individual rating criteria.
2. Select the most appropriate rating for your farm. To do this, go through the options and tick the one of most relevance to your farm. The highest rating option ticked is your overall rating. For example, if you have ticked comments in the rating 1, 2 and 3 options, but not in the rating 4 option, your piggery is rating 3 for that vulnerability area.
3. Record the appropriate rating at the bottom of the page along with any comments that assisted in selecting the specific rating. This will allow for more ready identification of monitoring requirements later in the risk assessment process.

B2.1 Vulnerability Rating – Soils in Reuse Areas

Rating Criteria	Rating
Reuse areas, including outdoor rotational piggeries, are:	
• suited to growing a broad range of broadacre crops and pastures	1 ☐
• suited to growing crops or pastures that can be cut and carted	3 ☐
• unsuited to growing or harvesting crops or pastures that can be cut and carted	4 ☐
Reuse areas, including outdoor rotational piggeries, have a soil depth of :	
• at least 1 m	1 ☐
• at least 0.75 m	2 ☐
• at least 0.5 m	3 ☐
• less than 0.5 m	4 ☐
Reuse areas, including outdoor rotational piggeries, have soils that are:	
• well structured, non-rocky, non-saline and non-sodic	1 ☐
• non-rocky, non-saline and non-sodic	3 ☐
• soils are rocky or saline or sodic	4 ☐
Reuse areas, including outdoor rotational piggeries, have soils that are:	
• loam (25-30% clay) to medium clay (45-55% clay) in texture	1 ☐
• sandy loam (10-25% clay) to heavy clay (>50% clay) in texture	2 ☐
• sandy in texture	4 ☐
Reuse areas, including outdoor rotational piggeries, are:	
• not prone to waterlogging	1 ☐
• prone to waterlogging	4 ☐
Reuse areas, including outdoor rotational piggeries:	
• flood at a frequency of less than once every ten years	1 ☐
• flood at a frequency of less than once every five years	2 ☐
• flood more than once every five years on average	4 ☐
Reuse areas, including outdoor rotational piggeries, have slopes that promote:	
• infiltration, rather than runoff or erosion	1 ☐
• runoff or erosion	4 ☐
OVERALL RATING	0

B2.2 Vulnerability Rating – Groundwater Quality and Availability

Rating Criteria	Rating
The depth to groundwater is:	
• always at least 20 m below the ground surface or the base of any piggery infrastructure, OR always at least 10 m beneath the surface or the base of any piggery infrastructure, and protected by a significant rock or clay band	1 ☐
• always at least 10 m below the ground surface or the base of any piggery infrastructure, OR always at least 2 m beneath the surface or the base of any piggery infrastructure, and protected by a significant rock or clay band	2 ☐
• always at least 2 m below the ground surface or the base of any piggery infrastructure	3 ☐
• sometimes present at a depth of less than 2 m below the ground surface or the base of any piggery infrastructure	4 ☐
Water for potable use is:	
• not sourced from bores located within 1 km of the piggery	1 ☐
• sourced from bores located within 1 km of the piggery	4 ☐
If groundwater is used in the piggery, there is:	
• ample allocation and supply that is of a suitable quality to meet requirements	1 ☐
• sufficient allocation and supply that is of a suitable quality to meet requirements	3 ☐
• marginal or insufficient allocation or supply (and no other water source), or the water is of a marginal quality to meet requirements	4 ☐
OVERALL RATING	0

B2.3 Vulnerability Rating - Surface Water Quality and Availability

Rating Criteria	Rating
The piggery is located:	
• at least 200 m from the closest watercourse	1 ☐
• at least 100 m from the closest watercourse	2 ☐
• within 100 m from the closest watercourse	4 ☐
The piggery is located:	
• at least 800 m from the closest major water supply	1 ☐
• within 800 m from the closest major water supply	4 ☐
Reuse areas, including outdoor rotational piggeries:	
• comply with the buffer distances in Table 6.1 of the National Guidelines, and there are also vegetative filter strips, or terminal ponds, between these areas and all watercourses	1 ☐
• comply with the buffer distances in Table 6.1 of the National Guidelines	2 ☐
• don't comply with the buffer distances in Table 6.1 of the National Guidelines, but there are effective VFSs (designed as per section 6.1 of the National Guidelines), or terminal ponds, between these areas and all watercourses	3 ☐
• don't comply with the buffer distances in Table 6.1 of the National Guidelines, and there are not effective VFSs (designed as per section 6.1 of the National Guidelines), or terminal ponds, between these areas and all watercourses	4 ☐
The piggery is located:	
• above the 1-in-100 year flood line	1 ☐
• above the 1-in-50 year flood line	3 ☐
• within the 1-in-50 year flood line	4 ☐
Reuse areas are located:	
• above the 1-in-10 year flood line	1 ☐
• above the 1-in-5 year flood line	2 ☐
• within the 1-in-5 year flood line	4 ☐
If surface water is used in the piggery, there is:	
• ample allocation and supply that is a suitable quality to meet requirements	1 ☐
• marginal or insufficient allocation or supply (and no other water source) or the water is of a marginal quality to meet requirements	4 ☐
OVERALL RATING	0

B2.4 Vulnerability Rating - Community Amenity

Rating Criteria	Rating
The piggery has received:	
• no complaints from the public or regulators for at least five years	1 ☐
• less than two complaints per year (on average) over the past five years	2 ☐
• less than four complaints per year (on average) over the past five years	3 ☐
• four or more complaints per year (on average) over the past five years	4 ☐
Levels of odour, dust and noise around the property boundary are:	
• checked at least weekly	1 ☐
• checked at least monthly	2 ☐
• checked occasionally	3 ☐
• not routinely monitored	4 ☐
The piggery provides:	
• separation distances meeting the Level 1 criteria specified in Appendix A of the National Guidelines	1 ☐
• a separation distance of 80-99.9% of the Level 1 separation distance criteria, specified in Appendix A of the National Guidelines	3 ☐
• a separation distance of <80% of the Level 1 separation distance criteria, specified in Appendix A of the National Guidelines	4 ☐
Surrounding land is:	
• all designated rural, and is not designated for future development or rezoning	1 ☐
• all designated rural, but some is designated for either future development or rezoning	3 ☐
• not all designated rural	4 ☐
The piggery is:	
• well concealed from roads and neighbours	1 ☐
• fairly well concealed from roads and neighbours	2 ☐
• partly concealed from roads and neighbours	3 ☐
• clearly visible from roads and / or neighbours	4 ☐
The entrance point to farm provides:	
• at least 300 m good visibility in both directions	1 ☐
• at least 200 m good visibility in both directions	2 ☐
• at least 150 m good visibility in both directions	3 ☐
• less than 150 m good visibility in at least one direction	4 ☐

B2.4 (Continued)

Rating Criteria	Rating
Vehicle movements and other noisy activities:	
• occur only during the day, except under exceptional circumstances	1 ☐
• are generally scheduled to occur only during the day	3 ☐
• occur at any time of the day or night	4 ☐
Mechanical equipment used on-farm is:	
• all fitted with manufacturer-specified exhaust devices	1 ☐
• generally fitted with manufacturer-specified exhaust devices	2 ☐
• not fitted with manufacturer-specified exhaust devices	4 ☐
Dust from traffic movements, solid by-products handling and reuse and feed milling is:	
• controlled as needed	1 ☐
• not specifically controlled and dust is an issue at times.	3 ☐
There is:	
• a complaints management procedure in place that includes complaints recording, investigation and corrective action, along with appropriate consultation	1 ☐
• a complaints management procedure in place that includes complaints recording, investigation and corrective action	2 ☐
• no complaints management procedure in place, or the procedure that is in place does not include complaints recording, investigation and corrective action	4 ☐
Mediation is:	
• used to try to settle disputes with neighbours	1 ☐
• generally used to try to settle disputes with neighbours	2 ☐
• not generally used to try to settle disputes with neighbours	4 ☐
OVERALL RATING	0

B3 Design and Operation (Risk Assessment)

The second step of the environmental risk assessment is to rate the risk of each of the major design and operation features of the piggery, including:

- pig housing
- the nutrient content of manure
- the effluent collection system
- the solids collection system
- the effluent treatment system
- solid by-products storage/treatment
- carcase management
- design and management of reuse areas
- chemical storage and use.

Not all the factors will be applicable to all enterprises. For example, not all piggeries will have a solids separation system. Where factors are irrelevant for a given situation, they do not require evaluation.

To use the risk assessment:

1. Read the statements in the individual rating criteria.
2. Select the most appropriate rating for your farm. To do this, go through the data options and tick the comments of most relevance to your farm. The highest rating option ticked is your rating. For example, if you have ticked options with the ratings 1, 2 and 3, but not option 4, your piggery is rating 3 for that design and management item.
3. Record the appropriate rating at the bottom of the page along with any comments that assisted in selecting the specific rating. This will allow for more ready identification of monitoring requirements later in the risk assessment process.

B3.1 Risk Assessment - Pig Housing

Rating Criteria	Rating
Sheds:	
• are oriented east-west and are constructed from materials that maintain temperatures at the required range with minimal mechanical heating or cooling	1 ☐
• require significant mechanical heating or cooling to maintain temperatures at the required range	3 ☐
• have a strong reliance on mechanical heating or cooling to maintain temperatures at the required range	4 ☐
Sheds bases are:	
• concreted for conventional sheds and either concreted or compacted for a permeability of 1 X 10-9 m/s for a depth of at least 300 mm for deep litter sheds and feedlot pens	1 ☐
• formed from well-compacted clay or other low permeability material for deep litter sheds and feedlot pens	3 ☐
• not concreted for conventional sheds and not formed from concrete, well-compacted clay or other low permeability material for deep litter sheds and feedlot pens	4 ☐
Feeding systems:	
• minimise feed wastage	1 ☐
• rarely allow feed to be visually detectable on the floor or in the bedding near the feeders	2 ☐
• often allow significant quantities of waste feed to be visible on the floor or in the bedding near the feeders	3 ☐
Naturally ventilated sheds are:	
• well ventilated, as the sheds are separated by a distance of at least five times their height	1 ☐
• quite well ventilated, as the sheds are separated by a distance of at least four times their height	2 ☐
• reasonably well ventilated, as the sheds separated by a distance of at least three times their height	3 ☐
• not well ventilated	4 ☐
Stocking densities:	
• meet the requirements of the Model Code of Practice for the Welfare of Animals Pigs	1 ☐
• do not meet the requirements of the Model Code of Practice for the Welfare of Animals Pigs	4 ☐

B3.1 (Continued)

Rating Criteria	Rating
Conventional sheds are:	
• frequently cleaned to maintain very clean lanes, pens and handling areas. Pigs are clean	1 ☐
• regularly cleaned to maintain very clean lanes, pens and handling areas. Pigs are generally clean	2 ☐
• regularly cleaned but the lanes, pens and handling areas are often visibly dirty and generally some pigs are dirty	3 ☐
• not regularly cleaned. Pigs are generally dirty	4 ☐
The bedding in deep litter sheds (except for dunging areas):	
• is always kept dry and friable. Pigs are clean	1 ☐
• is mostly kept dry and friable. Pigs are generally clean	2 ☐
• causes most pigs to be dirty towards shed clean out, because of its moisture content	3 ☐
• is frequently damp or wet and pigs are dirty	4 ☐
The inflow or outflow of water from sheds and feedlot pens is:	
• prevented by controls	1 ☐
• mostly prevented by controls	3 ☐
• not well controlled	4 ☐
Wash-down water is:	
• always contained	1 ☐
• mostly well contained	3 ☐
• not well contained	4 ☐
OVERALL RATING	0

B3.2 Risk Assessment – Nutrient Content of Manure

Rating Criteria	Rating
The quantities of:	
• effluent and solid by-products used on-farm is measured and recorded each time reuse occurs, and each type of by-product used is tested at least annually	1 ☐
• nutrients in the piggery by-products have been estimated using conservative figures in accepted industry nutrient mass balance models or publication	2 ☐
• nutrients in by-products that will be applied to land, including by outdoor rotational piggeries, is estimated	3 ☐
• nutrients to be applied, including by outdoor rotational piggeries, is not generally measured or estimated	4 ☐
OVERALL RATING	0

B3.3 Risk Assessment – Effluent Collection System

The effluent collection system can include effluent pits or channels, drains or pipes and/ or sumps.

Rating Criteria	Rating
Stormwater runoff, including roof runoff:	
• is excluded from entering the effluent collection system (or the system is designed to handle the runoff)	1 ☐
• is mostly excluded from entering the effluent collection system, and the system does not generally overflow as a result	2 ☐
• enters the effluent collection system, and the system sometimes overflows as a result	3 ☐
• enters the effluent collection system, and the system often overflows as a result	4 ☐
Effluent collection systems for conventional sheds are:	
• concreted and impervious (no significant cracks)	1 ☐
• concreted and have good integrity (minimal cracking)	3 ☐
• are pervious because they are not made from concrete (or similar), or because of deterioration of the material they are constructed from	4 ☐
Feedlot Outdoor piggery drains:	
• have a design permeability of 1 X 10-9 m/s for 300 mm depth	1 ☐
• well compacted, but the design permeability is unknown	3 ☐
• are not well compacted	4 ☐
Effluent pits, sumps and drains are:	
• sized and managed so that they do not spill	1 ☐
• sized and managed so that they only spill infrequently	3 ☐
• inadequately sized or managed and spill at least once a year	4 ☐
Effluent pits and drains:	
• are self-cleaning and manure solids are not present in these after flushing or draining	1 ☐
• are not self-cleaning, but are cleaned at least weekly to remove manure solids	2 ☐
• have manure solids present in them after flushing or draining that are removed at least monthly	3 ☐
• have manure solids present in them after flushing or draining and these are removed less than once a month	4 ☐

B3.3 (Continued)

Rating Criteria	Rating
There are:	
• appropriate contingency measures to prevent spills from the system	1 ☐
• contingency measures to prevent spills from the system, but these need improvement to reduce the spill frequency	3 ☐
• no specific contingency measures to prevent spills from the system	4 ☐
Flushing channels are flushed:	
• at least daily and static pits and pull plugs are emptied at least weekly, with pits emptied in rotation, to promote uniform loading of the effluent treatment system	1 ☐
• at least every second day, and static pits and pull plugs are emptied at least fortnightly	2 ☐
• at least twice a week, and static pits and pull plugs are emptied at least once every three weeks	3 ☐
• less than twice a week, and static pits and pull plugs are emptied less than once every three weeks	4 ☐
Drains, pits and sumps are:	
• inspected after each flush or draining for solids accumulation, leakage and deterioration	1 ☐
• inspected after every second flush or draining for solids accumulation, leakage and deterioration	2 ☐
• inspected at least monthly for solids accumulation, leakage and deterioration	3 ☐
• not regularly inspected for solids accumulation, leakage and deterioration	4 ☐
OVERALL RATING	0

B3.4 Risk Assessment – Solids Separation System

Rating Criteria	Rating
The solids separation system (including any associated storage areas) has:	
• a base comprising two 150 mm layers of material each, compacted for a design permeability of 1 X 10-9 m/s, or other impervious material (e.g. concrete)	1 ☐
• a well compacted base	3 ☐
• an uncompacted base	4 ☐
The solids separation system (including any associated storage areas):	
• sits within a controlled drainage area, and there is no uncontrolled outflow of effluent	1 ☐
• does not sit within a controlled drainage area, OR there is uncontrolled outflow of effluent	4 ☐
Effluent from the solids separation system and associated storage areas is:	
• directed to a storage designed to cater for this inflow	1 ☐
• not directed to a storage designed to cater for this inflow	4 ☐
The out-loading bay, where present:	
• is kept clean of excess solids. There is no significant spillage from transport vehicles	1 ☐
• is generally kept clean of accumulated solids. Significant spillage from transport vehicles happens less than once a year on average	2 ☐
• frequently contains accumulated solids, OR there is significant spillage from transport vehicles twice a year on average	3 ☐
• generally contain accumulated solids, OR there is significant spillage from transport vehicles more than once every six months, on average	4 ☐
The solids separation system is:	
• checked daily and cleaned or maintained after this check, as needed, to ensure it is performing to the design specification	1 ☐
• checked at least weekly and cleaned or maintained after this check, as needed, to ensure it is performing to the design specification	2 ☐
• checked at least fortnightly and cleaned or maintained after this check, as needed, to ensure it is performing to the design specification	3 ☐
• not checked and cleaned or maintained at least fortnight	4 ☐
OVERALL RATING	0

B3.5 Risk Assessment – Effluent Treatment System

Rating Criteria	Rating
The effluent treatment system:	
• is designed to capture, treat, store and reuse all effluent. It has no isolated sections. Inlets and outlets are positioned to prevent short-circuiting	1 ☐
• is designed to capture, treat, store and reuse all effluent. It has no significant isolated sections. Inlets and outlets are positioned to minimise short-circuiting	2 ☐
• is designed to capture and store all effluent. However, treatment capacity is compromised because the inlets and outlets are close together, OR because significant isolated sections don't provide active treatment capacity	3 ☐
• does not capture, effectively treat or store all effluent produced by the piggery	4 ☐
The effluent treatment system:	
• is designed and managed such that odour emissions are acceptably low	1 ☐
• is designed and managed such that odour emissions are generally acceptably low	2 ☐
• sometimes produces strong odours, but these don't generally impact beyond the property boundary	3 ☐
• produces strong odours that can be detected beyond the property boundary	4 ☐
The effluent treatment system is:	
• designed to allow for ease of desludging, OR to store at least ten years sludge	1 ☐
• difficult to desludge and this needs to occur every five to ten years	2 ☐
• difficult to desludge and this needs to occur every two to five years	3 ☐
• difficult to desludge and this needs to occur more than once every two years	4 ☐
The effluent treatment system:	
• has a design permeability of 1 X 10-9 m/s for a depth of at least 300 mm of compacted clay for ponds up to 2 m deep; 450 mm of compacted clay for ponds deeper than 2 m, or is fitted with a well maintained impervious synthetic liner	1 ☐
• has a design permeability of 1 X 10-9 m/s for a depth of at least 300 mm of compacted clay	2 ☐
• is lined with well compacted clay	3 ☐
• is not lined with well compacted clay or a well-maintained impervious synthetic liner	4 ☐

B3.5 (Continued)

Rating Criteria	Rating
The depth to the water table from the base of the effluent treatment system is always:	
• at least 2 m	1 ☐
• sometimes less than 2 m	4 ☐
Freeboard of :	
• at least 500 mm is provided on any effluent treatment system ponds	1 ☐
• less than 500 mm is provided on one or more effluent treatment system ponds	4 ☐
The effluent treatment system has a design overtopping frequency:	
• of once every 10 years (or less often)	1 ☐
• exceeding once every 10 years	4 ☐
OVERALL RATING	0

B3.6 Risk Assessment – Solid By-products Storage/Treatment

Rating Criteria	Rating
Solid by-product storage areas:	
• sit within a controlled drainage area, and all leachate or effluent is directed to effluent ponds, or storages designed to receive this inflow	1 ☐
• sit within a controlled drainage area, and most leachate or effluent is directed to effluent ponds, or storages designed to receive this inflow	3 ☐
• are not within a controlled drainage area, OR leachate or effluent is not directed to effluent ponds, or storages designed to receive this inflow	4 ☐
The bases of solid by-product storage areas are:	
• sealed for a design permeability of 1 X 10-9 m/s for a depth of 300 mm	1 ☐
• well compacted clay or other low permeability material	3 ☐
• not built from well compacted clay or other low permeability material	4 ☐
The depth to water tables beneath the base of solids storage areas:	
• exceeds 2 m at all times	1 ☐
• may be less than 2 m at times	3 ☐
Solid stockpiles/windrows are:	
• always managed to maintain low odour emissions	1 ☐
• generally managed to maintain low odour emissions, but significant odour releases occur about once a year on average	2 ☐
• generally managed to maintain low odour emissions, but significant odour releases occur about four times a year on average	3 ☐
• not managed to maintain low odour emissions, and significant odour releases occur more than four times a year on average	4 ☐
Spilt or spoilt feed or leachate from wet feedstuffs is:	
• promptly cleaned up	1 ☐
• cleaned up within 4 days	2 ☐
• cleaned up within 7 days	3 ☐
• frequently present in the mill area	4 ☐
OVERALL RATING	0

B3.7 Risk Assessment – Carcase Management

Rating Criteria	Rating
Dead pigs are:	
• always removed from the sheds or pens daily	1 ☐
• almost always removed from the sheds or pens daily	2 ☐
• usually removed from the sheds or pens daily	3 ☐
• frequently left in the sheds or pens for more than 24 hours	4 ☐
Carcase management (e.g. placement in a composting pile, burial etc,):	
• always occurs within 24 hours of death	1 ☐
• always occurs within 36 hours of death	2 ☐
• always occurs within 48 hours of death	3 ☐
• does not always occur within 48 hours of death	4 ☐
Carcase management is by:	
• rendering or composting	1 ☐
• burial or proper incineration	3 ☐
• burning or dumping	4 ☐
Carcase management areas:	
• always provide at least 2 m depth between base level and groundwater; and are concreted or sealed to a design permeability of 1X10-9 for a depth of 300 mm	1 ☐
• always provide at least 2 m depth between base level and groundwater; and are lined or built from compacted clay or gravel	3 ☐
• sometimes provide less than 2 m depth between base level and groundwater; OR are not on a well sealed site	4 ☐
Where carcase management is by composting or burial, carcases are:	
• always promptly covered with at least 300 mm of sawdust or alternative carbon source (if composting) or soil (if burying) and continuously kept covered	1 ☐
• generally promptly covered with at least 300 mm of sawdust or alternative carbon source (if composting) or soil (if burying) and continuously kept covered	2 ☐
• generally not promptly covered with at least 300 mm of sawdust or alternative carbon source (if composting) or soil (if burying) OR not continuously kept covered	4 ☐
Where carcase management is by composting, burial or burning this:	
• occurs within a controlled drainage area with stormwater diverted away from the area	1 ☐
• does not occur within a controlled drainage area	4 ☐

B3.7 (Continued)

Rating Criteria	Rating
In the event of mass mortalities, there is:	
• a suitable site selected and a detailed plan for managing mass mortalities	1 ☐
• a suitable site selected and a plan for managing mass mortalities	2 ☐
• a suitable site selected but no real plan for managing mass mortalities	3 ☐
• no site selected or plan for managing mass mortalities	4 ☐
OVERALL RATING	0

B3.8 Risk Assessment – Design and Management of Reuse Areas

Rating Criteria	Rating
The nutrients in by-products are:	
• budgeted to ensure they are applied at rates determined from mass balance principles, based on past property crop / pasture yields OR from soil test results	1 ☐
• budgeted to ensure they are applied at rates determined from mass balance principles based on typical district harvested yields for the crops / pastures grown	2 ☐
• are not budgeted using mass balance principles, or the recommendations from soil test results	4 ☐
Nutrient export from reuse areas is:	
• minimised through good management and physical barriers (e.g. appropriately designed VFS; terminal ponds to catch the first 12 mm of runoff; contour banks; or maintaining average groundcover over whole area of at least 70%) and good farming practices (e.g. conservation tillage)	1 ☐
• minimised through good management and physical barriers (VFS; contour banks; or maintaining average ground cover over whole area of at least 70%) and good farming practices (e.g. conservation tillage)	2 ☐
• not specifically prevented	4 ☐
Effluent irrigations occur:	
• only when the soil is dry enough to absorb the water and when rain is not expected	1 ☐
• only when the soil is dry enough to absorb the water	3 ☐
• irrespective of soil moisture conditions or expected weather conditions	4 ☐
By-products are spread:	
• evenly and at times when active plant growth is expected	1 ☐
• somewhat unevenly, but generally only spread when active plant growth is expected	3 ☐
• very unevenly or at times when active plant growth is not likely	4 ☐
High-pressure spray guns are:	
• not used	1 ☐
• used	4 ☐

B3.8 (Continued)

Rating Criteria	Rating
Flood irrigation is used:	
• only on sites with an even grade and loam or heavier soils, and with good flow control	1 ☐
• on sites with uneven grades and sand-sandy loam soils, and/or inadequate flow control	4 ☐
By-products are:	
• only irrigated / spread when weather conditions are conducive to odour dispersion, and not on weekends or public holidays	1 ☐
• generally only irrigated / spread when weather conditions are conducive to odour dispersion, and not normally on weekends or public holidays	2 ☐
• irrigated / spread at any time of the day, but not normally on weekends or public holidays	3 ☐
• irrigated / spread at any time of the day, or commonly on weekends or public holidays	4 ☐
Soils of reuse areas are:	
• tested at least annually, and the results considered when determining future reuse rates	1 ☐
• tested at least annually	2 ☐
• regularly tested	3 ☐
• not regularly tested	4 ☐
OVERALL RATING	0

B3.9 Risk Assessment - Chemical Use and Storage

Rating Criteria	Rating
MSDS, emergency response plans for spills and spill kits or suitable clean up equipment are:	
• provided for all chemicals used	1 ☐
• provided for most chemicals used	3 ☐
• not generally provided	4 ☐
Quantities of chemicals stored on-farm are:	
• minimised	1 ☐
• not minimised	3 ☐
Chemicals with a low toxicity and low water contamination potential are:	
• preferentially selected	1 ☐
• not preferentially selected	3 ☐
Chemicals and fuel are:	
• always stored and used in accordance with manufacturer's instructions, or advice from the state agricultural department, WPH&S codes of practice, and only in accordance with the registered use. Records of use are maintained	1 ☐
• always stored and used in accordance with manufacturer's instructions, or advice from the state agricultural department, WPH&S codes of practice, and only in accordance with the registered use	3 ☐
• not always stored and used in accordance with manufacturer's instructions, or advice from the state agricultural department, WPH&S codes of practice, and only in accordance with the registered use	4 ☐
Staff members are:	
• trained in the correct handling and use of all chemicals of relevance to their position	1 ☐
• not trained in the correct handling and use of all chemicals of relevance to their position	4 ☐
Empty container and sharps disposal is:	
• always in accordance with manufacturer's instructions	1 ☐
• generally in accordance with the manufacturer's instructions	3 ☐
• not generally in accordance with the manufacturer's instructions	4 ☐

B3.9 (Continued)

Rating Criteria	Rating
Where there are underground petroleum storage systems (UPSS) on-site:	
• applicable regulatory requirements for monitoring are always followed	1 ☐
• applicable regulatory requirements for monitoring are not followed	4 ☐
Where chemical contractors are used:	
• only accredited contractors are engaged	1 ☐
• accredited contractors are generally engaged	2 ☐
• non-accredited contractors are commonly engaged	4 ☐
OVERALL RATING	0

B4 Overall Risk Assessment

The third step in evaluating the likelihood of an environmental impact, is assessment of the combined effect of resource vulnerability and the design and operation risk. The two-dimensional matrix below is used for this step.

The overall risk can be used to help decide the action to be taken. A low overall rating would not trigger any action. A medium overall rating may trigger some action. A high overall rating would trigger some action. The design and/or operation of the piggery should be examined to decide the most appropriate action, which may take the form of environmental improvements or monitoring. Examining the reasons for vulnerability and risk ratings listed in the applicable tables can assist in deciding the action to be taken.

B4.1 Environmental Risk Assessment Matrix

The environmental risk assessment matrix should be completed by multiplying the vulnerability rating designated for each natural resource and amenity category rating, by the risk rating designated for each design and operation factor. The shaded cells in the table should not be filled in.

Natural resource vulnerability ratings (1-4)	Design and operation risk ratings (1-4) (based on site assessment)			
	Soils of reuse areas	Ground-water quality and availability	Surface quality & availability	Community amenity
Pig housing		0	0	0
Nutrient content of manure	0	0	0	
Effluent collection system		0	0	0
Solids separation system		0	0	0
Effluent treatment system		0	0	0
Solid by-product storage / treatment		0	0	0
Carcase management		0	0	0
By-product Reuse – design and management	0	0	0	0
Chemical storage		0	0	0

A combined rating of 1–4 means a low risk and would not trigger any action.
A combined rating of 5–11 means a medium risk and may trigger explanation or action.
A combined rating of 12–16 means a high risk and would trigger explanation or action.

For proposed piggeries, actions might involve choosing a better site for piggery facilities, or raising the standard of design. For existing piggeries, actions would be to improve the environmental performance through better design, management or monitoring. Refer to the example that follows.

B5 Example Risk Assessment

The example below assesses the potential impact of carcase management practices on groundwater.

B5.1 Groundwater Vulnerability

Groundwater is always at least 8 m beneath the soil surface (rating 3).

Nearby groundwater sources are only used for irrigation (rating 1).

Groundwater is not used in the piggery (not applicable).

Highest rating is 3, so rating 3 applies.

B5.2 Carcase Management

Dead pigs will always be removed from shed daily (rating 1).

There will always be same-day management of carcases (rating 1).

It is proposed to bury carcases in pits, which will be lined with compacted clay (rating 3).

There is a contingency plan in place as part of the Environmental Management Plan for mass mortalities (rating 1).

Highest rating is 3, so rating 3 applies.

B5.3 Overall Risk Rating

Groundwater vulnerability rating is 3 and carcase management rating is 3.
Hence: overall risk rating is: 3 x 3 = 9

A combined rating of 1-4 = low risk, no action.
A combined rating of 5-11 = medium risk, may trigger explanation or action.
A combined rating of 12-16 = high risk, would trigger explanation or action.

Hence, the proposed mortality management practices pose a medium risk at this site, which might trigger the need for changes to the management of mortalities. In this case, switching to well-managed composting on an impervious, bunded pad would reduce the carcase management rating to 1 and the overall rating to 3 (low risk).