Riverina Oils & BioEnergy Pty Ltd

Integrated Oilseed Processing Plant

Air / Odour Management Plan

April 2018

Glossary of Terms

Abbreviations	Definition
ASL	Above Sea Level
AWS	Automatic Weather Station
BoM	Bureau of Meteorology
CEMS	Continuous Emissions Monitoring System
CoA	Conditions of Approval
DEC	NSW Department of Environment and Conservation
DoP	NSW Department of Planning
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
GHD	GHD Pty Ltd
m^3	Cubic metre
OEH	NSW Office of Environment & Heritage
OMP	Odour Management Plan
PLC	Programmable Logic Controller
POEOA	Protection of Environment Operations Act
RCA	Root Cause Analysis
ROBE	Riverina Oils and Bio Energy Pty Ltd
SEP	Solvent Extraction Plant
SPP	Seed Preparation Plant

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1. Introduction

1.1 Purpose

This odour management plan (OMP) describes the site characteristics, current operations and the odour mitigation and management practices associated with the operation of an integrated oilseed processing plant owned by Riverina Oils and BioEnergy Pty Ltd (ROBE). The plant is located at the intersection of Trahairs and Byrnes Road in the Bomen Industrial Estate, approximately 8 km northeast of Wagga Wagga in NSW.

The Department of Planning (DoP) and the Environment Protection Authority (EPA) have issued Conditions of Approval (CoA) (07-0146) and an Environment Protection Licence (EPL) (#13097) which apply to the site and its activities. Condition O4.3 of the EPL requires that an Odour Management Plan be prepared. Condition 31 of the CoA's also requires that an Odour Management Plan be prepared and implemented.

This document addresses the Odour Management Plan requirements of both the EPL and CoA.

1.2 Scope

The ROBE site in Bomen is an integrated oilseed processing plant, involving activities such as seed delivery and storage, seed crushing and milling, oil extraction via press and solvent based processes, oil refining and storage, meal handling, storage and transport. A number of these processes have the potential to generate odour either as fugitive emissions or as direct point source emissions.

This OMP is intended to:

- describe the ROBE site conditions that are relevant to the management of odour;
- describe the ROBE manufacturing processes and potential sources of odour; and
- describe the management, monitoring and contingency measures which will be employed by ROBE in order to avoid the generation and release of offensive off-site odour.

Preventing offensive off-site odour is a requirement of the NSW *Protection of Environment Operations Act* 1997, (POEO Act) (section 129). It is also consistent with the ROBE Environmental Policy which states, amongst other things, that it will '*Seek efficiency in our use of water and energy with the aim of conserving natural resources, reducing atmospheric emission and their by mitigate the effect of climate change'*.

The overarching objective of this OMP is to assist ROBE with meeting its legal and internal policy requirements in order to ensure that offensive odour emissions are not detected beyond the site boundaries.

This document is to be periodically reviewed and updated by ROBE so that the procedures and practices documented remain relevant to its manufacturing operations.

1.3 Assumptions and Limitations

This document has been compiled based on information obtained from a number of sources. ROBE has provided information in relation to plant design, construction and operation, management processes and procedures. GHD has not independently verified all aspects of the plant engineering, operational or management procedures associated with the ROBE site.

Site based meteorological information has been obtained from the automatic weather station (AWS) operated and maintained by ROBE. The weather station location and equipment has been previously approved by the EPA in accordance with condition M4.1 of the EPL.

GHD has been engaged in 2014 to provide assistance with the documentation of this odour management plan but has no direct role in the day to day management of the ROBE site. Later on the plan has updated by ROBE.

2. Regulatory Requirements

2.1 Protection of Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is the main piece of environmental legislation in NSW which is relevant to the operation of the ROBE site. It covers aspects including water, land, air and noise pollution and waste management.

ROBE operates a scheduled premise, which is licenced under the POEO Act.

The POEO Act (Sections 124-126), requires that businesses maintain and operate equipment and handle materials in a proper and efficient manner in order to prevent air pollution at all times.

Under Section 129 of the POEO Act, businesses licensed by the EPA must not cause or permit the emission of any offensive odour from the premises.

2.2 Environmental Planning and Assessment Act 1979

Planning and development within NSW is carried out under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000*. The ROBE project was assessed as a 'major project' under Part 3A of the Act, with the Minister for Planning being the approval authority.

ROBE was granted approval to construct and operate the oilseed processing facility in 2011 following an assessment of the project against the requirements of the Act, and against other relevant planning and environmental legislation.

The approval to construct and operate the plant was issued with a series of conditions (Conditions of Approval (07-0146)).

2.3 EPL Conditions and Project Conditions of Approval

The ROBE site must be managed to achieve compliance with the site EPL #13097 (administered by the NSW EPA) and the Project CoA (07-0146) (administered by the NSW Department of Planning). Relevant conditions from each document (that specifically relate to this Odour Management Plan) are provided in the following sections.

2.3.1 Environment Protection Authority - EPL Condition L5

Potentially Offensive Odour

Condition L5.1 requires that:

The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Condition L5.2 advises that:

No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

The above conditions require ROBE to avoid the emission of potentially offensive odour beyond the site boundary and indicate that there are no conditions under which the emission of potentially offensive odour is permitted.

2.3.2 Environment Protection Authority - EPL Condition O4.3

Condition O4.3 requires that:

An operational environmental management plan must be developed for the facility prior to operations commencing.

As part of the OEMP for the development, the licensee shall prepare and implement the following Management Plan:

An Odour Management Plan to outline measures to minimise odour impacts associated with the operation. The Plan shall include, but not necessarily be limited to:

i. *identification of all point and diffuse sources of odour associated with the operation;*
ii. *a detailed description of the odour mitigation methods and management practices that will be used throughout the operation to ensure offensive odour impacts do not occur off site;*
iii. *details of the implementation of industry best practice management measures to ensure potential odour impacts are managed;*
iv. *a detailed description of the methods used for monitoring the effectiveness of the odour mitigation methods and management practices for all point and diffuse sources of odour associated with the operation;*
v. *details of proposed contingency measures should odour impacts occur;*
vi. *details of the proposed maintenance procedures for the overall project to ensure potential odour impacts are managed; and*
vii. *a procedure for handling potential odour complaints that includes recording, investigating, reporting and actioning.*

Note: The EPA will not require any part of the above plan to be approved or reviewed by the EPA. The licensee must ensure that the plan is sufficient to meet all the requirements of the conditions of this licence.

2.3.3 Department of Planning - CoA Condition 30

The Proponent shall not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the Protection of Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

2.3.4 Department of Planning - CoA Condition 31

Odour Management Plan

The Proponent shall prepare and implement an Odour Management Plan, in consultation with the OEH, outlining measures to minimise odour impacts associated with the operation of the project. The Odour Management Plan shall be submitted and approved by the Director-General prior to commencement of operation, and must include:

a) *all point and diffuse sources of odour associated with the operation;*
b) *best practice odour mitigation and management practices to be implemented to ensure offensive odour impacts do not occur off-site;*
c) *a program to monitor the odour impacts, and the effectiveness of the odour mitigation and management practices, associated with the operation of the project;*
d) *details of proposed contingency measures should odour impacts occur;*
e) *details of the proposed maintenance procedures to ensure potential odour impacts are managed; and*
f) *details of an odour complaints system that will be implemented to record, investigate, report and action any odour complaints received.*

2.4 Odour Management Plan Content & Structure

The specific requirements for the Odour Management Plan (based on the EPL and CoA requirements listed previously) and where they are addressed in this document are described in Table 1.

Table 1 Odour Management Plan requirements

Condition	Where addressed in this document
Identification of all point and diffuse sources of odour associated with the operation (EPL 4.3 i, CoA 31a)	5.1, 5.2
A detailed description of the odour mitigation methods and management practices that will be used throughout the operation to ensure offensive odour impacts do not occur off site (EPL 4.3 ii, CoA 31b)	6.1, 6.2, 6.3,
Details of the implementation of industry best practice management measures to ensure potential odour impacts are managed (EPL 4.3 iii, CoA 31b)	6.2, 6.3,
A detailed description of the methods used for monitoring the effectiveness of the odour mitigation methods and management practices for all point and diffuse sources of odour associated with the operation; (EPL 4.3 iv, CoA 31c)	7
Details of proposed contingency measures should odour impacts occur (EPL 4.3 v, CoA 31d)	8
Details of the proposed maintenance procedures for the overall project to ensure potential odour impacts are managed (EPL 4.3 vi, CoA 31e)	6.3, 8.1
A procedure for handling potential odour complaints that includes recording, investigating, reporting and actioning any odour complaints received (EPL 4.3 vii, CoA 31f)	9

3. Site Description

3.1 Location

The ROBE oilseed processing plant site (Lot 2, DP 590756) is located at the intersection of Trahairs and Byrnes Road (177 Trahairs Road) in the Bomen Industrial Estate, approximately 8 km northeast of Wagga Wagga (refer Figure 1). The plant site is approximately 16.5 ha in size.

The site occurs within the Wagga Wagga Local Government Area where it is zoned General Industrial (IN1) under the *Wagga Wagga Local Environment Plan* 2010.

3.2 Topography and drainage

The topography in the vicinity of the plant site is generally flat with an elevation of approximately 245 m ASL (Lennon Salvestro, 2010). The site is located on a broad undulating ridge running generally from the south west to the north east.

The site is part of the Wagga Wagga catchment area. Site surface drainage flows in a south-easterly direction. A number of minor watercourses and drainage lines in the vicinity of East Bomen ultimately combine to discharge to the Murrumbidgee River, approximately 6 km away at its closest point.

The site itself consists of sealed and gravelled areas associated with roadways and buildings, as well as significant areas of unsealed, gravelled or grassed areas. Some of these areas are being progressively landscaped or are used for the storage of spare parts and other materials.

3.3 Existing environment and sensitive receptors

The area surrounding the project site currently contains a mixture of both rural and industrial land uses. The closest rural residential receptors are located intermittently to the northwest, west and south east of the site, primarily adjacent to the Olympic Highway or Bomen Road East.

The nearest residential receptors to the site are presented in Table 2 and Figure 2.

A number of other isolated rural residences occur within the wider vicinity of the site, for example adjacent to Mary Gilmour Road (approximately 2.4 km to the north) or Shepherds Siding Road and Pattersons Road (two residences approximately 3.2 km to the east of the site).

Table 2 Sensitive Residential Receptor Details

Receiver	Easting	Northing	Distance to site boundary (km)
R1	537248	6121739	1.5
R2	537625	6121799	1.9
R3	538090	6121848	1.0
R4	537968	6122862	1.5
R5	537760	6123116	1.75
R6	538140	6123263	1.5
R7	538268	6123807	1.9
R8	540329	6119814	1.9
R9	540594	6119575	2.25

Figure 1 Site Location

Figure 2 Nearest residential receivers

A number of industrial and commercial facilities (some operating, some closed) also occur in the vicinity (to the south) of the ROBE facility (refer Figure 3). Facilities within 1.5 km of the ROBE site include:

- a woolscour and associated wastewater treatment and storage ponds (closed)
- Buckman Laboratories – administration offices and storage of bulk chemical products
- Metroll – metal building products
- Australian Wool Handlers – wool store
- AusFarm Nutritional Products – livestock feed supplement manufacturer and supplier
- Renewed Metal Technologies (RMT) – battery recycling plant

Figure 3 View south from ROBE site to adjoining industrial area

3.4 Off-site / background odour sources

The ROBE plant site is located on the current north eastern boundary of the Bomen industrial estate (containing a number of different manufacturing and industrial facilities) and an agricultural area. There is potential for a variety of odours to be generated by activities undertaken on the adjoining land. At the time of writing there were no significant sources of off-site odour identified in the vicinity of the ROBE site.

3.5 Local wind conditions

The local wind climate largely determines the pattern of off-site odour impact. The characterisation of local wind patterns requires accurate site-representative hourly recordings of wind direction and speed over a period of at least a year.

Wind rose distributions for the ROBE facility have been compiled based on data obtained from the automatic weather station (AWS) located on the ROBE site. This data has been collected for the period Dec 16 to Nov 17. The anemometer wind speed sensor is a wind vane and rotating cup type.

The effect of wind on dispersion patterns can be examined using the general wind climate and atmospheric stability class distributions. The general wind climate at a site is most readily displayed by means of wind rose plots, giving the incidence of winds from different directions for various wind speed ranges.

The features of particular interest in this assessment are: (i) the prevailing wind directions and (ii) the relative incidence of more stable light wind conditions.

3.5.1 Prevailing Wind pattern

Annual variation in wind pattern

The average wind rose for the entire data period is shown in Figure 4 and indicates that predominant annual average wind directions are from the southwest comprising of 10.5 per cent of incident winds, with lesser extents from the north, northeast and east-southeast comprising of 9, 8.5 and 8 per cent of incident winds respectively. The annual average wind speed measured was 2.2 m/s. The observed wind speed distribution indicates that the largest proportion of high wind speeds (> 6 m/s) are from the southwest and the largest proportion of light winds (< 2 m/s) are from the east-southeast.

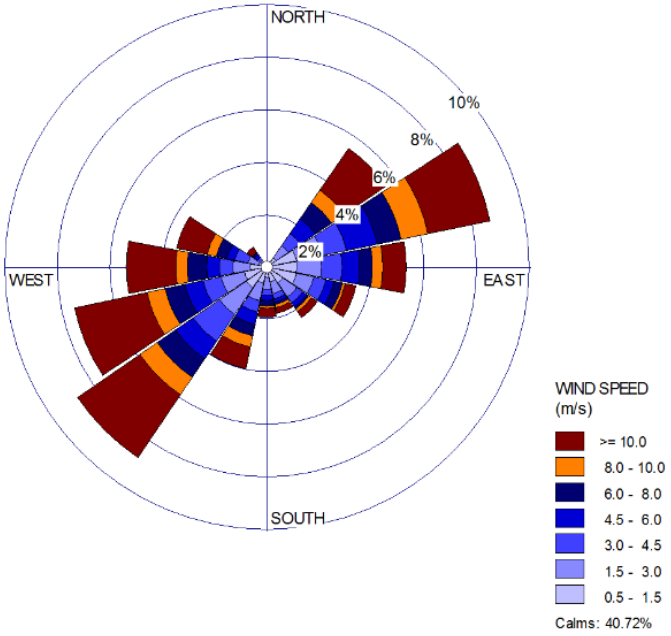


Figure 4 ROBE AWS annual wind rose distribution

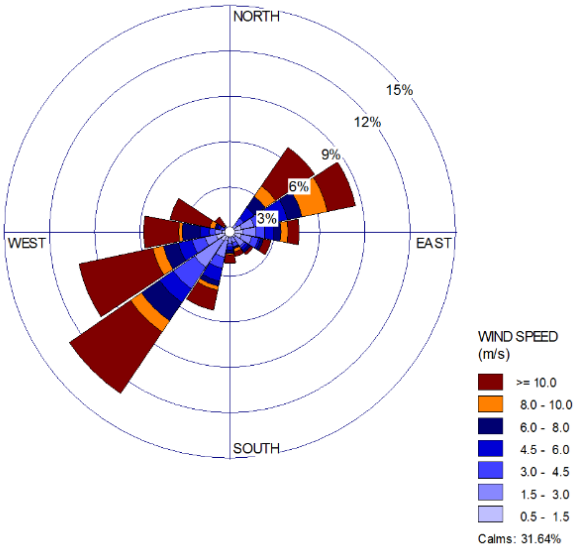
Seasonal variation in wind pattern

The seasonal wind roses presented in Figure 5 indicate that:

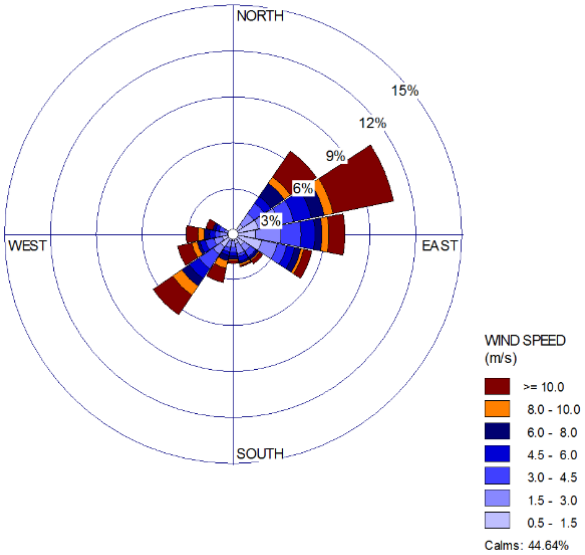
- During winter, northerly winds are the most dominant due to pre-frontal northerlies followed by synoptic westerlies and cool air drainage flows from the east-southeast;
- During summer north-easterly winds are the most dominant followed by the southwest due to the synoptic sub-tropical ridge migrating to the south of this location during the warmest months of the year;
- Spring and autumn are transitional periods. During these months both summer and winter patterns are observed;
- The seasonal incidence of high winds (>6 m/s) is greatest in summer, and lowest in summer;
- The incidence of light (<2 m/s) winds is greatest in autumn, followed by winter and least in autumn;
- As with the annual wind rose, there is a lack of southerly winds in all seasons; and

- The direction and high proportion of light winds in autumn is predominantly from the east and east-southeast. These drainage flows are likely to be associated with high stability, and can be expected to define the directions of poorest dispersion.

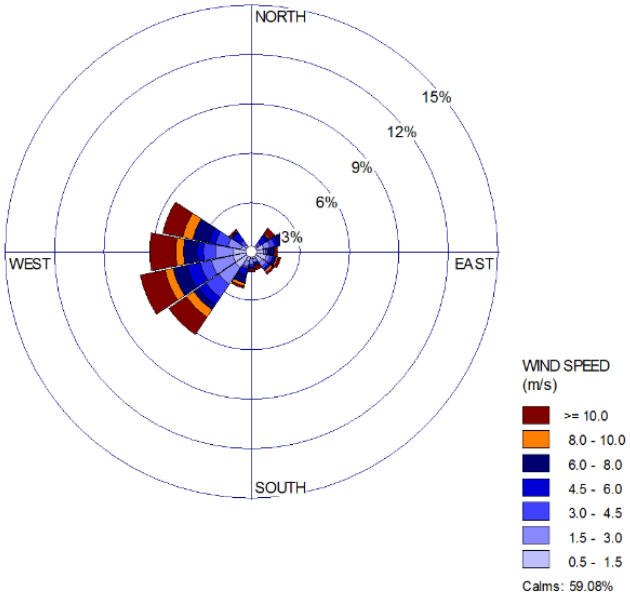
Summer (average speed = 5.6 m/s)



Autumn (average speed = 3.60 m/s)



Winter (average speed = 2.36 m/s)



Spring (average speed = 5.44 m/s)

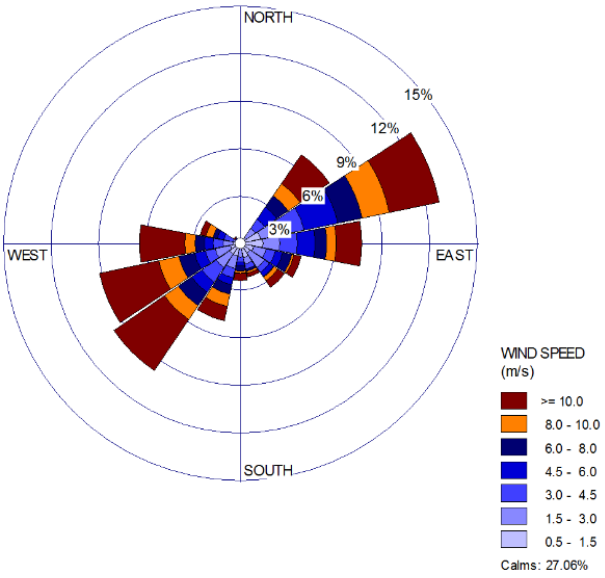


Figure 5 ROBE AWS seasonal wind rose distribution

3.5.2 Pattern of Atmospheric Stability

In the Pasquill/Gifford atmospheric stability scheme, stability is classified into six classes A through F. A, B and C stability classes represent strongly, moderately and slightly unstable atmospheres respectively. Under unstable conditions dispersion of emissions from near-ground sources is good due to convectively vertical turbulent mixing.

The stability category D denotes neutral atmospheric conditions (strong winds in moderate temperatures or lighter winds on overcast to partly cloudy days).

Categories E and F denote slightly and moderately stable atmospheres when dispersion is poorest, as vertical mixing of air is suppressed. Stable atmospheric conditions occur in the absence of strong gradient winds, and mostly on nights with clear skies. They are often associated with ground-based radiation forced temperature inversions, sometimes with fog, mist or frost.

Neutral stability (D class) conditions occur most frequently and along with the prevailing wind direction can indicate the most common direction for potential impact. Under night-time E and F class conditions, emissions from ground based sources; result in a downwind plume that is detectable to a greater distance than during the day.

4. Plant Description

4.1 ROBE Integrated Oilseed Processing Plant

The plant currently processes canola seed but is also capable of processing sunflower, cotton seed and soybeans. Approximately 600 tonnes of seed are processed on a daily basis. The plant has an oilseed processing capacity of 200,000 tonnes per year. This equates to approximately 75,500 tonnes of vegetable oil per year.

A layout of the ROBE plant site and key site features are presented in Figure 8 and Appendix A. The site is comprised of a number of key process components. These include:

- Oilseed receival and storage;
- Oilseed processing and crushing in the seed preparation plant (SPP);
- Meal handling, processing and oil recovery in the solvent extraction plant (SEP);
- Meal storage;
- Oil refining; and
- Storage of finished oil product in a tank farm prior to despatch.

A series of ancillary activities including the operation of a weighbridge, raw water and effluent treatment plants, steam production, firefighting service, laboratory and administration are also undertaken.

4.2 Hours of Operation

The manufacturing process utilised by ROBE is a continuous one which operates 24 hours per day, 7 days per week. Maintenance shuts are scheduled on a bimonthly / quarterly basis. An annual maintenance shut is also undertaken.

The plant operates a shift roster based on 2 x 12 hour shifts (8 am to 8 pm). A general day time shift (8 am to 4 pm) is also utilised.

4.3 Process Overview

There are a number of stages to the production of edible vegetable oil, each yielding one or more products which are either sold or undergo further processing. A process flowchart demonstrating the steps in the operation of the plant is presented in Figure 9. An outline of the process supported by site photographs (Figure 10) is provided below:

- Oilseed is received and stored in a silo;
- Oilseed is fed from the storage silo to the oilseed crushing plant (SPP) via a conveyor, prior to preconditioning and crushing;
- Conditioned oilseed is mechanically crushed to expel the oil from the seed. This process results in the production of expelled oil and oilcake;
- Expelled oil is processed in the vegetable oil refinery and oilcake is transferred via conveyor to the solvent extraction plant (SEP); and,
- Oil expelled during the oilseed crushing process (SPP) or recovered as part of processing in the SEP is refined in the vegetable oil refinery.

Some by-products are produced, stored or further processed and sold onto the local market. These are described below:

- The oilcake produced from the crushing plant is conveyed to the SEP;

- The de-oiled meal from the SEP is blended with by-products from the crushing plant and refinery. The extracted oil from this process is pumped from the SEP to the vegetable oil refinery or to intermediate storage tanks located in the tank farm; and,
- The meal is then transported to the meal shed for storage, loaded onto trucks and distributed.

Figure 6 Site Layout

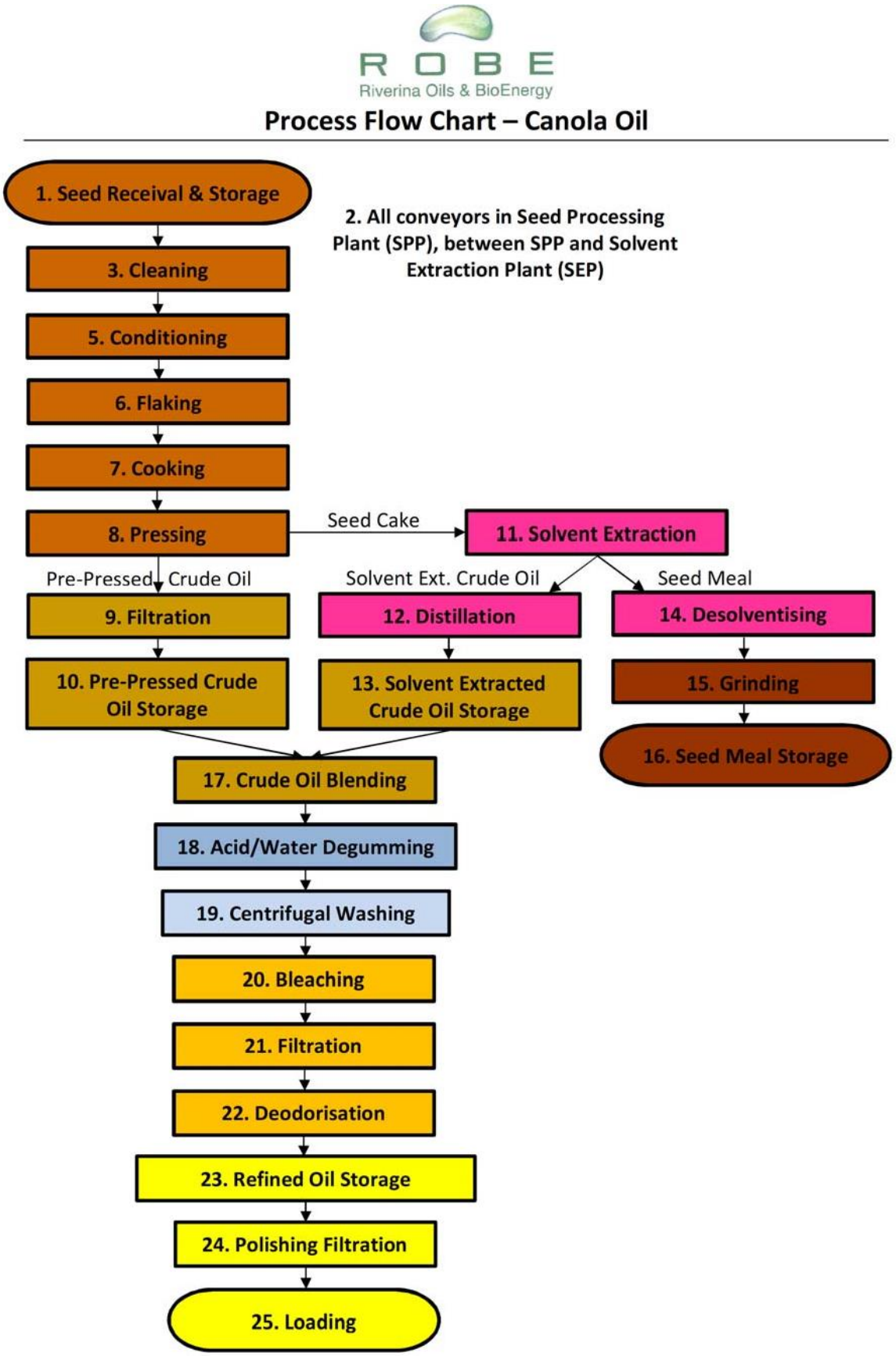


Figure 7 ROBE manufacturing activities – canola oil process flow chart

Seed delivery and storage

Seed preparation plant (SPP)

Solvent extraction plant (SEP)

Bulk de-oiled meal storage building

Oil refinery

Oil storage and despatch area

Figure 8 Main process areas and buildings

5. Potential Sources of Odour

A quantitative odour impact assessment (Heggies, 2010) was performed as part of the environmental assessment undertaken for the approval of the ROBE plant (Lennon Salvestro, 2010). The assessment assumed that the principal sources of odour were point source emissions associated with the SPP and SEP. This has largely been confirmed through site observations and monitoring following construction and operation of the plant. This section of the OMP describes the sources of odour on the site (both point and diffuse).

5.1 Point Sources of Odour

A summary of the air emission point sources (as at November 2009), their location, emission control equipment and venting arrangements is presented in Appendix A. There are three identified point sources of odour at the facility which are monitored in accordance with the EPL. A fourth point source is infrequently used and is not required to be monitored by the EPL.

5.1.1 Seed Preparation Plant (SPP)

The release of odoriferous compounds happens while crushing canola (Heggies, 2010) and during its subsequent processing. Canola seed is conveyed from the silo adjacent to the SPP, where it is cleaned, pre heated, flaked, cooked and pressed as part of the oil extraction process.

A series of vents, ducts and fans combine to extract air from within the SPP and discharge it through a wet scrubber prior to its release to atmosphere at approximately 25 metres above ground level (refer Figure 11). This discharge point is described as ‘EPA identification number 2’ on the EPL.

Figure 9 Seed Preparation Plant - Combined Vent

5.1.2 Solvent Extraction Plant (SEP)

Seedcake generated by the oilseed processing activities in the SPP is conveyed to the SEP where a solvent (hexane) is introduced in order to assist with the extraction of the remaining vegetable oil. A combined vent system collects air emissions from vessels and cyclones within the SEP and discharges them through a wet scrubber prior to their release to atmosphere at approximately 25 metres above ground level (refer Figure 12). This discharge point is described as 'EPA identification number 3' on the EPL.

Figure 10 Solvent Extraction Plant – combined vent and scrubber (at right)

5.1.3 Refinery – filter blowing vapour scrubber

Crude oils from the SPP and SEP processes are transferred to the refinery where they are neutralised, degummed, bleached, deodorised and refined in order to produce a finished oil product. A series of tanks containing water are used to scrub the vapours associated with the refining process. Emissions are combined and discharged through a single pipe approximately 25 metres above ground level. This discharge point (Figure 13) is identified as 'EPA identification number 14' on the EPL.

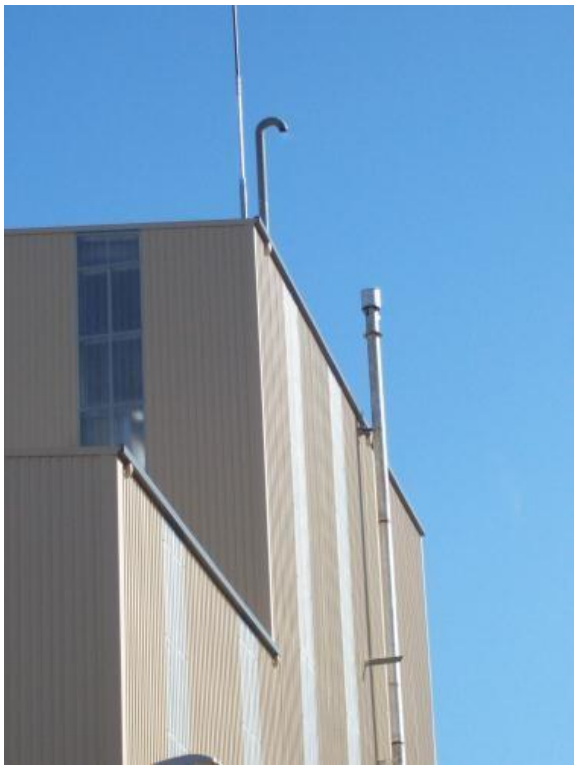


Figure 11 Refinery - filter blowing discharge point (left), steam boiler (right)

5.1.4 SEP Extractor Purge Fan

The extractor purge fan is located within the SEP building and used to expel air and residual hexane during plant shutdowns which require hot work to be undertaken (refer Figure 14). It discharges through a vent approximately 14.5 metres above ground level. It is not a routinely operated discharge point and is not required to be monitored by the EPL.

Figure 12 SEP Extractor Purge Fan

5.2 Diffuse Sources of Odour

As described previously, the majority of oilseed processing activities which are likely to contribute to odour are point source emissions. These activities are undertaken within enclosed buildings which utilise air emissions controls prior to discharge. In addition to point sources of odour emission, there are also a number of potential diffuse or fugitive sources of emissions on the site. These are described in subsequent sections and are considered to make a minor contribution to site odour emissions under normal operating circumstances.

5.2.1 Unloading and storage of canola seed

The activities associated with the unloading and storage of oilseed (currently canola) are considered to be a very minor source of odour. Some odour may be generated during unloading of seed into an open pit and during subsequent conveyance into the silo. As may be seen from Figure 15, these activities are undertaken within enclosed or partially enclosed buildings.

Figure 13 Oilseed storage and unloading area

5.2.2 Meal cake conveyors

Meal cake conveyors transfer seedcake and meal between the:

- SPP and SEP plant (Figure 16); and the
- SEP and the de-oiled cake storage building (Figure 17).

These conveyors are covered but are not completely sealed . There is the potential for some minor air movement and diffuse emissions to be associated with the conveyance and processing of meal cake.

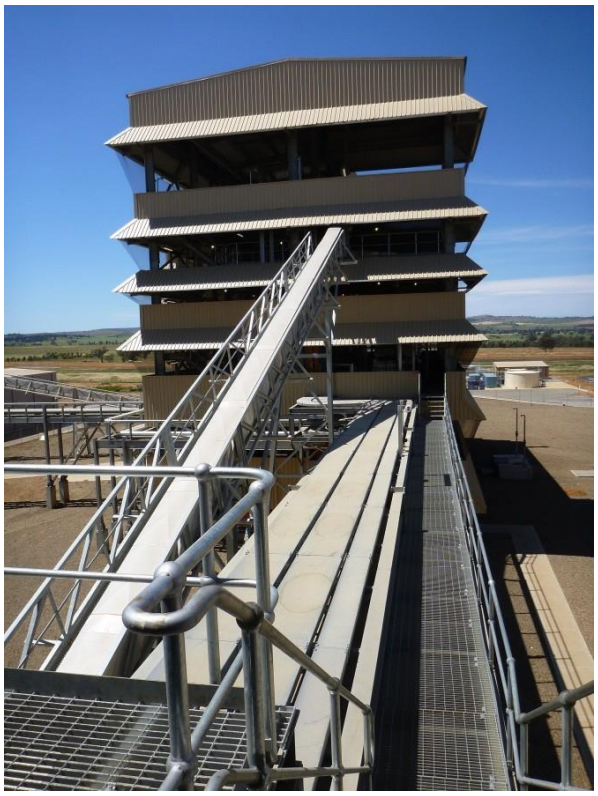


Figure 14 Covered meal cake conveyors SPP to SEP

Figure 15 Covered meal cake conveyor prior to storage building

5.2.3 Meal cake storage

Processed (de-oiled) meal cake (post SEP processing) is stored in a large substantially enclosed and unvented building (refer Figure 18). The building can be closed via a large roller door.

Trucks are used to transport the meal cake off-site. They are loaded by conveyor within a partially enclosed building or by front end loader in the open air adjacent to the building.

There is potential for air movement and diffuse emissions to be associated with the storage and handling of meal cake.

Figure 16 Meal cake storage building

5.2.4 Waste water treatment plant

The ROBE site utilises a number of waste water treatment processes to allow internal reuse and recycling of process water. A series of stages are operated including screening, mixing, clarification, aeration and ultimately membrane treatment. An evaporation pond associated with the plant is located in the southwest corner of the site (refer Figure 8). The mechanical aeration of wastewater (Figure 19), the temporary storage of solids extracted from the wastewater, or temporary storage of water in the evaporation pond (Figure 20) may provide conditions suitable for the creation and release of diffuse odours. The plant is located adjacent to the eastern boundary of the site.

Figure 17 Aeration tank in the wastewater treatment plant

Figure 18 Evaporation pond

5.2.5 Spent earth

Spent earth is generated as a by-product of the oil refining process. This material is temporarily stored in a bunker at the north eastern corner of the refinery building (Figure 21) and represents a minor source of diffuse odour.

Figure 19 Spent earth temporary storage

5.2.6 Tank farm

Crude and refined oils are stored in the tank farm prior to blending or despatch. The tanks are located in a bunded and sealed area. There is a minor localised 'oily' odour associated with this part of the plant.

Figure 20 Crude and refined oil storage / tank farm

5.2.7 Other minor sources

The transport and handling of seed and seed cake may from time to time result in spills to roadways or adjoining gravel or concrete areas. These spills may result in the emission of minor diffuse and localised odours. The site employs a fulltime cleaner and utilises a street sweeper in order to contain and remove any spilt material.

6. Odour Mitigation and Management

6.1 ROBE Personnel Responsibilities

All ROBE personnel are responsible for implementing the appropriate management measures to mitigate and / or minimise the generation of odour on site as described in this plan.

Staff responsible for the management of odour in specific management or operational areas, as well as, the responsibilities of the maintenance and environmental team for odour management and reporting processes is outlined in Table 3.

Table 3 Personnel Responsibilities for Odour Management

Role	Areas of responsibility in relation to odour management
Managing Director	Ensure compliance with legal requirements associated with odour management. Ongoing review of legal compliance, internal and external reporting requirements. Promote the ROBE environmental policy.
General Manager Operations	Regularly review site performance against odour compliance requirements. Compile annual reports for the EPA including documentation of performance in relation to odour, incidents and complaints. Review of any incident reporting required as a result of odour monitoring results or complaints. Ensure that the ROBE plant operates in a way which avoids the generation of offensive off site odour. Promote the ROBE environmental policy.
Maintenance & Environment Manager Environment Officer	Ensure that site maintenance routines and housekeeping procedures which assist in the mitigation and management of odour are followed. Coordinate the odour monitoring program including day to day site performance and review of CEMS data. Respond to / follow up of any odour complaints Undertake investigations and incident reporting required as a result of odour monitoring results or complaints. Toolbox meetings to remind staff of their responsibilities regarding odour mitigation. Periodic review and update of the Odour Management Plan. Promote the ROBE environmental policy.
Safety Manager	Maintain records of environmental incidents including complaints. Include odour management considerations as part of any 'change management' procedure. Incident management.
Shift Supervisors	Ensure that procedures designed to mitigate or manage odour are followed. Review of any incident reporting required as a result of odour monitoring results. Toolbox meetings to remind staff of their responsibilities regarding odour mitigation.
Laboratory	Provide technical assistance or analysis as necessary.
Operators	Ensure that procedures designed to mitigate or manage odour are followed. Review and respond to online (CEMS) odour monitoring data. Report and respond to incidents which generate or have the potential to generate odour.

6.2 Industry 'Best Practice' Measures

There are a variety of 'best practice' measures for the processing of oilseeds in a safe, efficient manner which minimises odour generation. These measures cover aspects such as site location, design and engineering, the use of process controls and technology, as well as management systems and procedures. These best practice measures are associated with both avoidance and mitigation of potential odour impacts. The specific application of these measures to the ROBE site is described below and in more detail in section 6.3.

6.2.1 Location of the facility

The appropriate location of manufacturing facilities with the potential to generate odour can be considered an important 'first step' from a best practice planning perspective. The ROBE facility has been constructed in a location which is appropriately zoned in terms of land use, and where there is considerable separation distance to sensitive receptors (refer section 3.3). Appropriate siting of the facility allows potential conflict with residential development and other sensitive receptors to be avoided.

Odour dispersion modelling undertaken as part of the environmental assessment for the project (Heggies, 2010) indicated that the 99th percentile Project odour assessment criteria (DEC (2005), DEC (2006), (5 Odour Units at the nearest sensitive receptors) would be achieved by the facility.

6.2.2 Site design and engineering

A number of site design and engineering principles which potentially influence the generation and management of odour have been adhered to in the design of the facility. These principles or strategies allow for the management of odour at its source and include:

- *Site design and layout which facilitates the efficient movement of materials and process inputs* (feedstock, oil, chemicals, steam, water, seed cake, personnel) around the site. Appropriate design avoids or minimises stockpiles and reduces the potential for material to be spilled.
- Design and construction of *purpose built facilities which segregate key process areas*. This allows individual unit processes to be managed separately, often with dedicated balancing or buffer storages.
- *Isolation, collection and conveyance of potentially odorous air*. Best practice building and equipment design should facilitate the isolation, collection and conveyance of potentially odorous air or vapour to an appropriate emission control technology. The ROBE site achieves this by covering internal and external conveyors (Figure 23), collecting air from key pieces of plant and equipment (Figure 24 and Figure 25), and conveyance of air to wet scrubber systems (SPP and SEP). This converts potentially diffuse sources of odour into point sources which can be treated .
- Building *design and construction which minimises the potential for the release of fugitive emissions*, for example via roof vents, doorways etc. The ROBE seed storage silo and seed cake buildings are unvented and can be effectively 'closed' when materials transfer is not occurring.
- Use of *appropriate air pollution control technology*. There are a variety of potential air emissions which can be emitted from an oilseed plant due to the operation of boilers, and the processing of materials which may generate dust or odour. The site has invested in wet scrubber technology in two separate locations (SPP and SEP) in order to allow treatment of the two major point sources of odour.

- Elevated air emissions discharge points which maximise the potential for dispersion of odorous compounds. The discharge points for the SPP, SEP and refinery buildings are located at a height of approximately 25 metres above ground level (refer Figure 11, Figure 12, and Figure 13). These discharge points are vertical, and, in the case of the SPP and SEP, utilise rain caps that do not restrict the upward flow of exhaust gases. The discharge arrangements in place have been designed and constructed to maximise the potential for mixing and dispersion of the emissions released from these points.

Figure 21 Covered internal conveyor and air collection system

Figure 22 Tank vent collection system

Figure 23 Oil screen with air collection hood and extraction system

6.2.3 Process monitoring and control

- *Real time monitoring and control of production processes*. The ROBE plant utilises modern communications and control technology to operate each production process. The use of control and set points, and the recording and trending of data allows operators to monitor, predict and avoid potential production issues – some of which may contribute to the generation of odour.
- ROBE has installed a *Continuous Emissions Monitoring System* (CEMS) in both the SEP and SPP. This supports the online monitoring of parameters (such as hydrogen sulphide) which may give rise to odour issues, and allows for proactive management of production processes and the wet scrubbers. The CEMS is supported with periodic calibration and testing to confirm the accuracy of information provided.

6.2.4 Management systems and procedures

- Best practice *management systems and procedures* include aspects such as clear accountability and responsibility for decision making, an appropriate focus on key performance measures and indicators at a process and plant level, and management processes to review and communicate priorities, address issues and implement corrective actions. The ROBE management structure incorporates a series of levels with escalating management and decision making responsibilities. Key performance measures and targets are regularly reviewed and documented. Review and planning processes include a series of meetings (for example a daily performance meeting, weekly managers meeting). Environmental performance is an agenda item at these meetings.
- *Planning & production scheduling*. The planning and scheduling of production, inspection, maintenance and shut activities should take account of health, safety and environmental aspects. ROBE includes environmental considerations as part of its maintenance and production planning and scheduling activities.
- *Operator training and awareness*. ROBE undertakes operator induction and re-induction training programmes which cover aspects such as environmental performance, incident and spill management and the importance of good housekeeping (Figure 26).

Figure 24 Meal cake storage shed meal loading facility

6.3 ROBE Odour Mitigation & Management Measures

ROBE operates a modern plant which was commissioned in March 2013. Many of the industry best practice measures described in section 6.2 have been incorporated into the plant. Key 'best practice' aspects including important maintenance and housekeeping items are listed in Table 4.

6.3.1 Routine Maintenance and Inspection

Planned inspection and maintenance of key components of the ROBE plant is considered to be an important aspect of odour management.

ROBE has established a series of inspection and preventative maintenance routines for critical parts of the plant. These are to be integrated into an overall maintenance plan and schedule for the site.

Important maintenance items from an odour management perspective include:

- Conveyor equipment and sensors;
- Air collection, ducting and extraction systems;
- Wet scrubbers (SEP and SPP) – fans, pumps, dosing systems, sensors;
- CEMS system; and the
- Wastewater treatment plant – pumps, aeration and solids handling systems

A system to manage the supply of critical spares and consumables is also under development.

Table 4 Application of 'best practice' to key areas of the ROBE plant

	Design & Engineering	Management Controls & Procedures	Maintenance Priorities & Housekeeping
Seed Receivals Area	Enclosed seed receival pit. Sealed conveyor system. Single enclosed silo.	Scheduling of seed deliveries. Daily inspection. Equipment maintenance and inspection routines. Supply or storage of critical spare parts.	Regular cleaning of road surface to avoid build-up of any spilt material. Conveyor equipment and sensors.
SPP	Enclose, collect and combine air & vapours from plant and equipment including conveyors, vessels, tanks, screens. No storage of meal cake – transport direct to SEP. Wet scrubber to treat combined emissions prior to release from building. Stack height and discharge arrangements to maximise dispersion. CEMS, PLC technology installed to monitor and control processes.	Daily inspection. Monitoring and review of operational data including CEMS, scrubber performance and caustic dosing. Equipment maintenance and inspection routines. Quarterly external air emissions testing. Supply or storage of critical spare parts.	Conveyor to transport meal cake to SEP. Air collection and extraction equipment. Day shift cleaner to remove any meal cake spills. Scrubber fan, pumps, valves and dosing equipment. Temperature, pressure, flow and pH sensors. CEMS system.
SEP	Enclose, collect and combine air & vapours from plant and equipment including conveyors, vessels, tanks, screens. Wet scrubber to treat combined emissions prior to release from building. Stack height and discharge arrangements to maximise dispersion. CEMS, PLC technology installed to monitor and control processes.	Daily inspection. Monitoring and review of operational data including CEMS, scrubber performance and caustic dosing. Equipment maintenance and inspection routines. Quarterly external air emissions testing. Supply or storage of critical spare parts.	Conveyor to transport meal to storage building. Air collection and extraction equipment. Day shift cleaner to remove any meal spills. Scrubber fan, pumps, valves and dosing equipment. Temperature, pressure, flow and pH sensors. CEMS system

	Design & Engineering	Management Controls & Procedures	Maintenance Priorities & Housekeeping
Refinery	Collect and combine air & vapours from tanks. Water tank based scrubbing system. Stack height and discharge arrangements to maximise dispersion. PLC technology installed to monitor and control processes.	Daily inspection. Monitoring and review of operational data. Equipment maintenance and inspection routines. Quarterly external air emissions testing. Waste removal contract. Supply or storage of critical spare parts.	Regular removal of spent earth. Cleaning of spent earth bunker to avoid build-up of spilt material. Spent earth conveyor system.
Meal Storage	Enclosed conveyor. Unvented building which can be closed.	Daily inspection. Keep doors closed when truck loading not being undertaken. Equipment maintenance and inspection routines. Regular removal of product from site, sales contract.	Day shift cleaner. Regular cleaning of road surface to avoid build-up of any spilt material. Meal grinder and conveyor system. Roller door.
Wastewater treatment plant	Adequate aeration and pumping capacity. Balancing tank for process effluent. PLC and closed circuit technology installed to monitor and control processes. Onsite laboratory. Membrane technology to achieve zero discharge / full recycling of process effluent.	Daily inspection. Monitoring of treatment plant performance (F/M, MCRT) and balance flows through plant. Only RO brine to be discharged to evaporation pond. Equipment maintenance and inspection routines. Supply or storage of critical spare parts.	Regular removal of WWTP solids. Maintain aerators, pumps, sensors. Solids handling system.
Balance of Plant		Daily inspection. Monitoring of plant performance – storages, throughput, production rates. Equipment maintenance and inspection routines. Waste removal contracts.	Spill clean-up and waste removal as required.

7. Monitoring

A variety of methods are used by ROBE to monitor the effectiveness of its odour mitigation and management practices. These include a combination or physical inspections, management procedures and routines, and collection and review of monitoring data. The monitoring program undertaken by ROBE is described below and summarised in Table 5.

7.1 Daily Site Inspection & Performance Meeting

A plant inspection is undertaken by the Maintenance and Environment Manager (as well as other supervisory staff) each morning. This inspection, incorporating a 'sniff test' is undertaken in order to (amongst other things):

- Confirm that effective odour management and controls are in place;
- Identify any housekeeping issues;
- Determine whether any abnormal events or plant breakdowns are impacting upon odour performance;
- Establish the likelihood of any odour complaints being received; and
- Allow corrective actions to be identified, planned and implemented.

The daily plant inspection is followed by a Performance Management meeting attended by key operations staff from across the ROBE site. The morning Performance Management meeting operates to a standard agenda and reporting format and covers a number of aspects including:

- Safety, environment and housekeeping performance; and
- Plant performance including production and maintenance issues requiring follow up.

The meeting also identifies the individuals responsible for following up any issues and the resources that they may require.

Odour observed on the site or complaints received by the site are included amongst the items assessed at the daily plant inspection, and, if applicable these are discussed at the performance meeting under the 'environment' meeting agenda item. An integrated checklist associated with the regular plant surveys undertaken is presented in Appendix B.

7.2 Complaints Monitoring

Complaint data is a useful tool to assess the level of odour impact beyond the ROBE site boundary. ROBE has a complaint handling procedure (refer section 9) and an environment incident register to record complaint data. The receipt of complaints would be reported to the EPA.

7.3 Continuous Emission Monitoring

As discussed in section 6.2.3, the ROBE site operates a Continuous Emissions Monitoring System (CEMS) which extracts and tests air samples from the SPP and SEP air emission stacks, and generates data on total reduced sulphur (TRS as Hydrogen sulphide) concentrations in the discharges from each plant.

This data is integrated into the site control system so that TRS levels can be monitored and trended. Alarms are activated when TRS concentrations exceed specific set points.

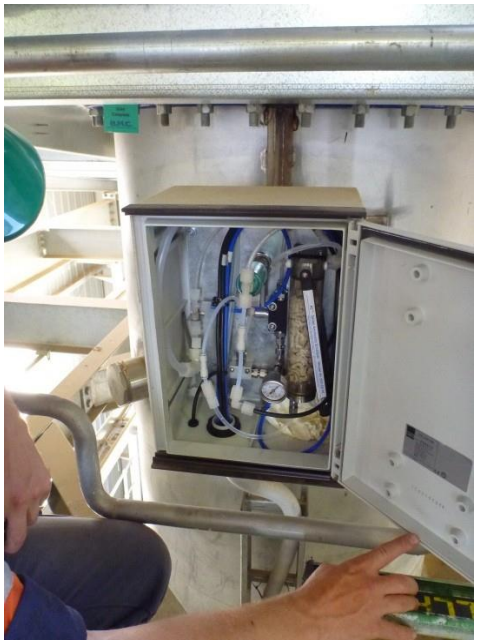


Figure 25 Continuous Emissions Monitoring System

7.4 Quarterly emissions testing

The ROBE EPL requires quarterly testing of a number of point source air emissions to NATA standard. Sampling and laboratory analysis of the point source discharges is undertaken and coordinated by a contracted third party on behalf of ROBE.

The results of testing are reviewed against the EPL licence limits and against previous performance and emissions data. The test results are also published and made publicly available on the ROBE web site.

The production Manager in conjunction with the Environment Officer is responsible for scheduling sampling, reviewing test results, confirming compliance with the EPL, investigating any non-compliant test results and publishing data on the web site.

7.5 Automatic Weather Station

ROBE operates and maintains an Automatic Weather Station (AWS) adjacent to the ROBE administration buildings (refer Figure 8 and Figure 28). The AWS was purchased and installed in order to meet the requirements of Condition M4 Weather Monitoring of the EPL. The location and make/model of the AWS was approved by the EPA prior to installation.

The weather station records the following parameters at 10 minute intervals:

- Rainfall
- Sigma theta @ 10 m height
- Temperature @ 10 m height
- Temperature @ 2 m height
- Solar radiation @ 10 m height
- Wind speed @ 10m height
- Wind direction @ 10 m height
- Relative Humidity

The weather station data can be used to follow up any odour issues or complaints – for example wind strength and direction, or whether calm conditions which may give rise to temperature inversions have occurred.

Data from the weather station is downloaded and archived on a quarterly basis.

In the event that an odour complaint is received, the weather station data would be downloaded, archived and assessed in conjunction with the details of the odour complaint.

Figure 26 ROBE Automatic Weather Station

Table 5 Summary of ROBE Odour Monitoring Processes

Method	Undertaken by	Frequency	Reporting
Site Inspection & 'Sniff test' Standard site checklist utilised.	Maintenance & Environment Manager	Daily	Daily Performance Management meeting
Complaints	Security / Maintenance & Environment Manager	Continuous	Environment incident register Daily Performance Management meeting EPA
CEMS (TRS as Hydrogen sulphide)	Thomson Environmental Systems CEMS	Continuous online data	Continuous data storage and trending via site control system. Alarm to SPP or SEP operator. Review of CEMS data and scrubber performance by Environment Officer. Monthly review of data by Maintenance & Environment Manager as part of website reporting process.
Stack sampling in accordance with EPL and EPA Standard methods	Third party (NATA registered)	Quarterly	Review of data by Maintenance & Environment Manager. Website reporting.
AWS	Environ AWS	Continuous logging of data	Periodic (quarterly) download and review of data. Data to be downloaded, archived and examined in the event of an odour complaint.

8. Contingency Measures

Contingency measures are generally implemented following an observation that the plant (or part of the plant) is operating outside its normal parameters. This may be prior to the observation of offensive odour at the site boundary. For example contingency measures may be applicable if key parts of the plant are out of service or not performing as per 'normal'.

An odour observation or complaint may be internal (from employees or contractors) – or external – via a neighbor or other interested party. Complaints are recorded as an environmental incident and are to be investigated and managed in accordance with the procedure presented in section 9.

ROBE has undertaken a review of potential abnormal conditions which are most likely to result in the generation of offensive odour at the site boundary. Potential sources of odour at the site are described in section 5, however not all of these sources are likely to result in offensive odour at the site boundary.

Table 6 provides a summary of potentially relevant preventative and contingency measures for key parts of the ROBE plant.

8.1 Actions in the event of abnormal odour emissions

If the event that the monitoring described in section 7 identifies that abnormal odour emissions or offensive odour emissions have or are likely to occur at the site boundary, the following actions would be undertaken by ROBE:

- Check relevant items of plant and equipment associated with odour generation or control in order to identify potential causes of abnormal odour emissions (for example scrubber fan or chemical dosing system, wastewater treatment plant, temporarily stockpiled material);
- If possible, cease the activity causing the odour emission;
- Identify and take steps / corrective actions to eliminate the cause of the abnormal odour emissions (undertake maintenance or repairs if required);
- Document the odour event and maintain records;
- Follow the ROBE environmental incident and (if appropriate) complaint procedure; and
- Identify opportunities, take steps to avoid a recurrence of the event (for example review management and housekeeping procedures, monitoring and maintenance procedures).

Table 6 Summary of preventative and contingency measures for identified abnormal events

Source of Odour Emission	Circumstance through which abnormal event may arise	Consequence	Preventative measures to avoid abnormal event	Actions to be taken / contingency measures
SPP / SEP	Scrubber operation is sub optimal or fails due to mechanical, electrical or chemical issues	Odorous compounds are not effectively removed from stack	Monitoring of scrubber performance via PLC, CEMS Maintenance of equipment – mechanical, electrical. Maintenance of sensors	Implement RCA: • Assess mechanical, electrical or chemical issues • Review CEMS data for performance trends. • Review scrubber chemistry - pH and caustic dosing. Reduce plant throughput or cease operation until repairs are undertaken
Refinery	Refinery process issues	Increase in odorous compounds emitted from stack	Maintenance of equipment – mechanical, electrical. Maintenance of sensors	Review plant operations – throughput, quality, bleach and deodoriser performance.
Meal transport or storage	Conveyor damage, break down or roller door failure. Material stored for extended time frame.	Fugitive emissions from spilt material or storage building.	Maintenance of conveyor, grinder truck loading systems, roller door	Cease operations until repairs undertaken. Removal of internal or external material from site via manual loading of trucks. Schedule loading of trucks and priority removal from site.
Wastewater treatment plant	Effluent generation exceeds WWTP throughput	Storage of effluent in balancing tank or elsewhere. Potential for odour generation.	Monitoring and management of biological processes. Maintenance of plant and equipment.	Reduce manufacturing plant throughput or flows until stored effluent can be reclaimed. Review incoming flows and loads, Adequate aeration capacity.
	Aeration rate lower than required	Anaerobic conditions and odour	Maintenance of aeration equipment. Biological monitoring	Repair equipment and increase aeration rates to avoid anaerobic conditions
	Sludge removal rate lower than required	Sludge accumulation and odour generation	Maintenance of desludging plant and equipment. Biological monitoring.	Repair equipment and increase desludging rates

9. Odour Audit Recommendation and Actions

Odour Audit was conducted in April 2014 and recommended points mentioned in table 7.

Table 7 Odour Audit Recommendation and Actions

Issue	Relevant details	Recommendation	Actual Status
H2S removal efficiency is less than design	Heggies (2010) report assumes 99.7% removal efficiency of H_2S. CEMS data shows low TRS emissions. This is supported by quarterly sampling results (TM5)	Scrubber H_2S (or other compounds) removal efficiency cannot be directly assessed at present. It is recommended that ROBVE install sampling ports in the inlet pipe prior to entry into the wet scrubbers so that removal efficiencies in the SPP and SEP can be assessed.	ROEB will provide sampling points in Annual Shut (Tentatively Sept 2018).
	ROBE advised that caustic dosing trials in the scrubbers determined that pH of 10.5 (pH range 9 to 11) was optimal for H2S control (based on CEMS data). A pH control system based on dosing to achieve upper and lower pH limits has been implemented. BETE (scrubber supplier) specification recommends continuous caustic dosing and a pH >14 at the top of scrubber column to maximise H_2S control.	Recommended ROBE to undertake additional investigations to confirm optional scrubber pH and control mechanism (e.g. pH set point) for caustic dosing. Ensure CEMS data can be acquired and manipulated easily so that the CEMS can be used as an efficient investigative and monitoring tool.	We are always maintaining pH ranging from 9-11 and also Process operators monitors H_2S reading on PLC all the time. Further all these data has been stored and also published on our website as well.
	BETE document advised that liquid flow to the distributor within the scrubber column should be $80M^3$/hr.	ROBE has confirmed circulation pump flow capacity is 80 m^3/hr. Actual flow may vary. Recommended ROBE review and monitor flow as part of scrubber operation.	Design flow is 80 m^3/hr. We are monitoring and reviewing flow in each shifts and maintaining a log sheet for this.
	Long term data trends captured over a variety of operational and production scenarios are required to confirm the adequacy of scrubber design and operations.	ROBE should ensure that relevant monitoring data sets are captured for an extended period of time and in a format that allows subsequent analysis to be undertaken. Recommended that ROBE undertake a process engineering review to assess the scrubber design and efficiency once	We are running both scrubbers since long back and last 4 years data shows that all data are well within the limits.

		appropriate long term data sets have been obtained.	
Odour compounds other than H_2S are present in significant concentration.	Scrubber is designed to remove H_2S, SO_2 and acetaldehyde. Caustic dosing is recognized as an effective means of controlling H_2S release, however monitoring results suggest that a variety of other reduced sulphur compounds are present which may not be oxidised by caustic.	ROBE to investigate potential options to remove non H_2S compounds within the scrubbers. This may include dosing with other chemicals.	Not required as only H_2S and SO_2 is main gases from stack. Scrubber is in operation since last 4-5 years and no issue with any odours. Even CEMS data and quarterly emission monitoring data are also well within the limits.
Refinery	Represent a source of odour not identified in the Heggies report. Contributes 3% to site OER based on Feb 2014 monitoring.	ROBE may wish to investigate the potential for the redirection of stack emission from EPA point 14 into the adjoining gas fire boiler (air intake or stack). This would required a detailed engineering and HAZOP assessment to confirm whether the modification was safe, appropriate and technically feasible. A low priority given small % contribution to site OER.	It's not feasible as if we do so it will backfire all gases in plant as boiler stack is small compare to point 14.
Inconsistent analytical results (significant difference between olfactory and flexfoil bag (GC-MS) results)	Other odorous compounds present but not analysed in current suite of tests.	Review sampling and laboratory procedures. Consider duplicate sampling and analysis. Review analytical suite with laboratory to ensure that all significant odorous compounds are identified and quantified.	Reviewed sampling procedure and laboratory procedure. We measure our parameters based on olfactory. At present we don't have to conduct odour monitoring. If based on olfactory any complain received, we need to take odour monitoring of site. If you DPE has any inputs in this please advise.

10. Incident Response & Complaints Procedure

The receipt of any internal or external complaint relating to odour requires a follow up process of internal reporting, investigation, action, and response. Any member of staff taking the complaint, must conduct themselves professionally as a representative of ROBE and should give a commitment that the complaint will be investigated and the appropriate actions taken.

An odour complaint is considered to be an environment incident. Internal reporting is conducted through the use of the ROBE Environment Incident Reporting template.

ROBE staff or security contractors should ensure notification is made as soon as practicable after becoming aware of any incident/non-conformance which could result in the release of offensive odour beyond the site boundary which is a breach of the EPL

10.1 Complaints Management Procedure

10.1.1 Purpose

The purpose of this procedure is to ensure environmental complaints are recorded and responded to effectively, and to ensure corrective and preventative actions are in place to prevent reoccurrence.

10.1.2 Scope:

This procedure applies to environmental complaints that are caused by the operation of the ROBE oilseed processing facility.

10.1.3 Responsibilities:

The Maintenance & Environment Manager is responsible for ensuring that:

- This procedure is maintained and reviewed.
- That community complaints are recorded investigated and responded to.
- That all complaint details are entered into the Environmental Incident Database

10.1.4 Procedure:

1. Receiving a Complaint

A community member lodges complaint with the Security on 02 5942 3300.

During Office Hours (Monday to Friday 8:00 am to 4:00 pm) the Security Officer may forward the telephone call to the Maintenance & Environment Manager. The details of the complaint are to be entered into the Environmental Incident Reporting template.

When the Maintenance & Environment Manager is unavailable, the Security Officer is to record the complaint details in the Environmental Incident Reporting template and is to notify the Shift Supervisor.

Outside Office Hours the Security Officer is to enter the complaint details in the Environmental Incident Reporting template and is to notify the Shift Supervisor of the complaint.

2. Recording the Complaint Details

The Environmental Incident Register is to be updated with information from the template. The following complaint details should be recorded if possible:

- Who the complaint was taken by
- How the complaint was received (phone / email)
- The date and time the complaint was received
- The nature of the complaint
- The date and time that the offending event occurred
- The name of the complainant
- The address of the complainant
- The telephone number of the complainant
- A description of the complaint
- The duration of the offending event
- Any other relevant information

When receiving a complaint, inform the caller that you will have someone return his or her call as soon as possible. Always remain courteous and do not debate the merits of the complaint.

3. Responding to the Complaint

The Maintenance & Environment Manager is to ensure that:

- The complaint is investigated, that the appropriate operational personnel are notified, and that adequate corrective and preventative actions are in place.
- The corrective and preventative actions are communicated to the complainant, and that a request for continual feedback is made.
- The complaint is reported to the EPA.
- All details regarding the complaint are recorded in the Environmental Incident Register.

Outside Office Hours when the complaint has been directed to the Shift Supervisor they are responsible to:

- Collect relevant details and investigate the complaint.
- Notify appropriate operational personnel.
- Ensure that any immediate corrective and preventative action(s) are in place.
- Notify the Maintenance & Environment Manager and the Environment Officer to follow up on the complaint.

4. Documentation of Investigations and Follow up

There are three documents referred to in this procedure:

1. *ROBE Environmental Incident Reporting Template* – to be used to capture initial details of the incident (complaint);
2. *ROBE Environmental Incident Investigation Form* – this document is to be used to record all details of the incident including investigations undertaken, follow up and corrective actions (including responsibilities and time frames), incident close out. It uses the same

processes and is equivalent to the ROBE OH&S Incident Investigation Form. Relevant details to be recorded may include:

(1) wind direction and speed,

(2) atmospheric stability at the time of the complaint,

(3) plant process issues or incidents at the time,

(4) any off site activities which may be relevant,

(5) location of the complainant in relation to the ROBE plant

(6) results of the daily site inspection and sniff test.

(7) the results of any follow up contact with the complainant;

3. *ROBE Environmental Incident Register* – this document (spreadsheet) records the key details of the incidents identified and reported by ROBE. It serves as a chronological record of incidents at ROBE and assists with EPA reporting.

11. Training

All staff and contractors that work on the ROBE site must undergo a ROBE orientation and induction session prior to the commencement of any work in any of part of the ROBE site.

All staff are provided with an induction and training manual that they must sign as an acknowledgement of their understanding of the key procedures and requirements for working on the ROBE site.

The staff induction program covers a range of environmental aspects including spill management, emergency procedures, complaints handling, and pollution control measures.

Employees responsible for the operation or maintenance of plant considered important for odour control (for example scrubbers or the wastewater treatment plant) are provided with on the job training that includes a requirement to review and report on key operating parameters.

12. References

Heggies Pty Ltd (2010) *Riverina Oils and BioEnergy, Integrated Oilseed Processing Plant, Odour Impact Assessment*, March 2010

Lennon Salvestro Planning (2010) *Riverina Oils and BioEnergy, Integrated Oilseed Processing Plant, Environmental Assessment*, August 2010

NSW Department of Environment and Conservation (DEC) (2005), Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.

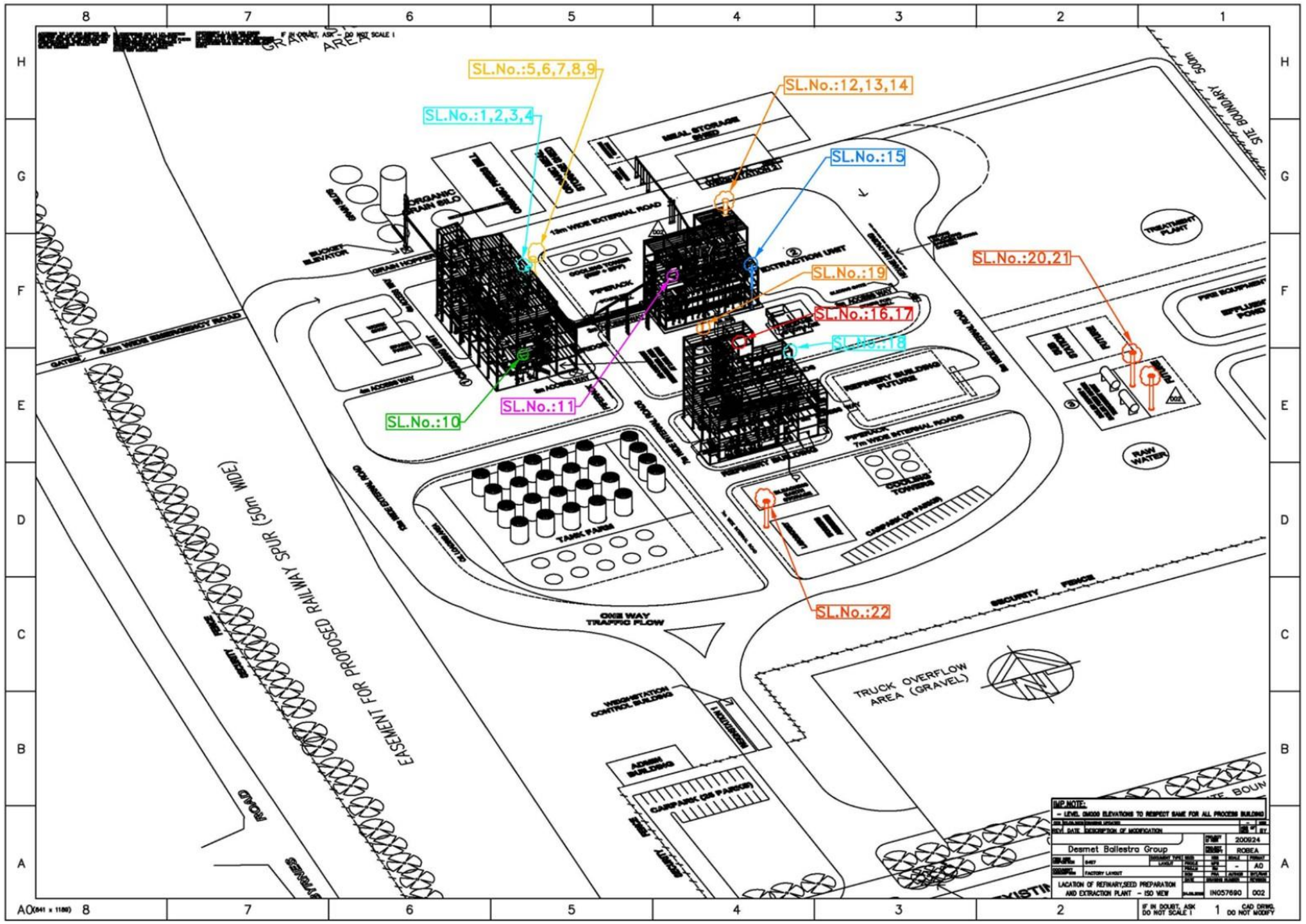
NSW Department of Environment and Conservation (DEC) (2006), Technical Framework: Assessment and management of odour from stationary sources in NSW.

Appendix A – Plant Design & Vent Emission Points

Appendices

ROBEA SEED CRUSHING PLANT & REFINERY : VENT EMISSION POINTS

EPA ID No	SL./ No	TAG	Emission Point Name	Emission Point Bldg	Height of Release Point	Side of Emission Point	Proposed Emission Control	Type of Emission	Quantity of Emission	Total	Notes
5	1	717	DESTONER	SPP	Above 25.525mts	East side (Outside Bldg.)	Dust filter/ cyclone in the device	Air + Fine dust	10200 CU M	31150	COMBINED VENT
	2	740	SEED CLEANER	SPP	Above 25.525mts	East side (Outside Bldg.)	Dust filter/ cyclone in the device	Air + Fine dust	6000 CU M		
	3	769	HAMMER MILL	SPP	Above 25.525mts	East side (Outside Bldg.)	Dust filter/ cyclone in the device	Air + Fine dust	9500 CU M		
	4	703	CRACKING ROLL MILL	SPP	Above 25.525mts	East side (Outside Bldg.)	Cyclone in the device	Air + Fine dust	5450 CU M		
2	5	704	FLAKERS	SPP	Above 25.525mts	East side (Outside Bldg.)	Cyclone in the device	Air + Moisture + fines	3000 CU M	27120	COMBINED VENT going to wet scrubbing system before release to atmosphere
	6	705	PRE CONDITIONER	SPP	Above 25.525mts	East side (Outside Bldg.)	Cyclone in the device	Air + Moisture + fines	3000 CU M		
	7	2705	COOKER	SPP	Above 25.525mts	East side (Outside Bldg.)	Cyclone in the device	Air + Moisture + fines	7500 CU M		
	8	2713	CAKE COOLER	SPP	Above 25.525mts	East side (Outside Bldg.)	Cyclone in the device	Air + Moisture + fines	13500 CU M		
	9	2782C	FILTER BLOWING TANK	SPP	Above 25.525mts	East side (Outside Bldg.)	Filter in the Device	Air + fines + traces of Oil	120 CU M		
8	10	2744	OIL SCREENING TANK	SPP	Above 7.500mts	South side (Inside Bldg.)	None	Air + Moisture	TRACES		
9	11	1B	CAKE CONVEYOR	SEP	Above 13.500mts	South side (Outside bldg.)	None	Air + Moisture	TRACES		Occassional vent during variation in process condition
3 + 11	12	14A	CYCLONE FOR DT HEATER	SEP	Above 25.525mts	North side (Outside bldg.)	Cyclone in the device	Air + Moisture + fines	20000 CU M	28000	COMBINED VENT going to wet scrubbing system before release to atmosphere
	13	14B	CYCLONE FOR DT COOLER	SEP	Above 25.525mts	North side (Outside bldg.)	Cyclone in the device	Air + Moisture + fines	8000 CU M		
	14	136	RECUPERATION VENT FAN	SEP	Above 25.525mts	North side (Outside bldg.)	Absorber in the device	Air + hex + traces of water	100 kgs/hr		
12	15	36P	EXTRACTOR PURGE FAN	SEP	Above 14.500mts	South side (Outside bldg.)	None	Air + hex + traces of water	4000 CU M		Occassional load which happens during shutdown for hot work only
13	16	609AC	BAG DISCHARGE HOPPER	REF	Above 18 mts	North side (Outside bldg)	Dust filter in the device	Air+ traces of activated carbon			
	17	609	EARTH CONVEYING SYSTEM	REF	Above 18 mts	North side (Outside bldg)	Dust filter in the devise	Air+ traces of bleaching earth			
14	18	629	FILTER BLOWING VAPOR SCRUBBER	REF	Above 19 mts	East side (Outside bldg)	Scrubbing the vapors by water	Steam + traces of oil	550 kgs/hr		During filter blowing every 2,5 hours
15	19	890HP	HIGH PRESSURE STEAM BOILER	REF	Above 29 mts	North side (Outside bldg)	None	Flue gases of natural gas combustion			
4	20	B1	LOW PRESSURE STEAM BOILER	BOILER H	Above 10 mts	East side (Outside bldg)	None	Flue gases of natural gas combustion			
10	21	B2	LOW PRESSURE STEAM BOILER	BOILER H	Above 10 mts	East side (Outside bldg)	None	Flue gases of natural gas combustion			
-	22	LAB	LABORATORY FUMES CHAMBER	LAB	Above 6 mts	West side (Outside bldg)	Scrubbing the vapors by water	Air + Moisture			


SL.No.:5,6,7,8,9
SL.No.:12,13,14
SL.No.:1,2,3,4
SL.No.:15
SL.No.:20,21
SL.No.:19
SL.No.:16,17
SL.No.:18
SL.No.:11
SL.No.:10
SL.No.:22
MEAL STORAGE SHED
ORGANIC WASTE SILO
BUCKET ELEVATOR
GRAIN HOPPER
EXTRACTION UNIT
PIPERACK
TANK FARM
TREATMENT PLANT
RAW WATER
FIRE EQUIPMENT
EFFLUENT POND
COOLING TOWERS
ONE WAY TRAFFIC FLOW
SECURITY FENCE
TRUCK OVERFLOW AREA (GRAVEL)
WEIGHBRIDGE CONTROL BUILDING
ADMIN BUILDING
CARPARK (26 PARKS)
EASEMENT FOR PROPOSED RAILWAY SPUR (50m WIDE)
SITE BOUNDARY 500m
Desmet Ballestra Group
LOCATION OF REFINARY,SEED PREPARATION AND EXTRACTION PLANT – ISO VIEW
IN057690
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Appendix B – Integrated GMP Checklist

RF 5.15.8 Food safety checklist

	Using a five-category system for a total of 1000 points.		Total Possible	Points this audit		Points last audit
1	Evaluation of Food Safety Program		200			
2	Pest Control		200			
3	Evaluation of Operational Methods and Personnel Practices		200			
4	Maintenance and Repair		200			
5	Evaluation of Cleaning Program		200			
	TOTAL		1000			

Deduction instruction
1 *Must be explained in the report even is no points are deducted.
2 All shaded areas indicate that all points must be deducted if deficiencies are found
3 Any critical finding should be noted in red color with overstriking in finding blank.

EVALUATION OF FOOD SAFETY PROGRAMS/

		BRC Clause no	Total Points						Points	Rating	FSTL	PM	QM	MM/UM	WHS	Findings	Issue Category	Correct Action	Finish Time	Findings of last audit	Follow up
A1	Does the plant have a food safety team? Have team members been trained by group? *		5		3		0														
A2	Does the plant conduct self-inspections and keep improvements?*		5		3		0														
A3	Does the workshop summarize and analysis the food safety inspection monthly/or in a periodical interval? Whether to develop corrective measures in a timely manner? Whether to confirm the results of rectification?		10	8	5	3	0														
A4	Is there inspection requirements and standards for raw materials, packaging materials (including filter bag,filter paper, filter cloth, etc.) before using?Is able to take timely corrective and preventive measures and keep record when find problem?		10	8	5	3	0														
A5	Are the accessory, auxiliaries and additives food grade?Is there a requisitioned record and record of lot number?		15	12	8	5	3	0													
A6	Is there a adding record of accessories, auxiliaries and additives including weighing quantity and batch number, etc.?		15	12	8	5	3	0													
A7	Does the plant have an incoming goods inspection and analysis program? Are the incoming inspection and analysis records on file?*		10	8	5	3	0														
A8	Does the personnel know food safety provisions of the group and workshop? (You can make a random check)		10	8	5	3	0														
A9	Does the plant implement the chemicals requirements? Are there complete MSDS and requisitioned records of all kinds of chemicals in workshop?		10	8	5	3	0														
A10	Is there operating requirements for switching between different materials ? (Content including the process of switching allergen materials)		15	12	8	5	3	0													
A11	Does the plant have a procedure for handling regulatory inspections and is a file of these inspections available?*		10	8	5	3	0														
A12	Does the plant have an effective Employee Training Program? Is there at least one food safety training for all employees?*		10	8	5	3	0														
A13	Is there specialized HACCP and CCP training for CCP operating staff? (You can make a random check)		10	8	5	3	0														
A14	Is there a provisions of food safety training for workshop personnel external personnel(including labor workers, cleaner, insect company service personnel, etc.) to enter workshop?		10	8	5	3	0														
A15	Is there a glass and brittle materials control program in place to insure control of all sources?*		10	8	5	3	0														
A16	Does workshop comply with employees health management requirements?		10	8	5	3	0														
A17	Does the plant have a nonconforming products control program?*		10	8	5	3	0														
A18	Does the workshop comply with rework control program? Does keep detailed records of rework in order to traceability?		15	12	8	5	3	0													
A19	Is there an emergency contingency plans (water, electricity, etc.)? Is there a provisions for the assessment and treatment of food safety after emergency?		10	8	5	3	0														
			200								PS FM	0	0	0		Possible score Full marks					
			Percentage								ES	0.00	0.00	0.00		Earned score					
											%	#DIV/0!	#DIV/0!	#DIV/0!		Percentage					

PEST CONTROL/

			Total Points	Points		FSTL	PM	QM	MM/UM	WHS			Correct Actions	Finish Time	Findings of last audit	Follow up

B1	Are there any insects, flies, rodents, or birds on products or ingredients?		90																
B2	Are there insects, flies, rodents, or birds in packaging supplies?		20	15	10	5	0												
B3	Are there insects,flies,rodents or birds inside plant or storage areas?		10																
B4	Are there birds residing in processing area or warehouse?		5																
B5	Are there insects,flies,rodents or birds outside plant or storage areas? Whether it is an appropriate prevention plan ?		5		3		0												
B6	Are electric "fly lights" located away from exposed product or packaging materials?		10																
B7	Are all pest control devices in use cleaned and maintained?		10	8	5	3	0												
B8	Does the plant have documented and effective pest control program?*		15	12	8	5	3	0											
B9	Does the workshop carry out effective rectification and keep the records (or electronic files) for the problem found in each inspection (or service) and record keeping ? Does track verify?		5		3		0												
B10	Does workshop clean sewer frequently?Is there pest and odor?		5																
B11	Does the manager of pest control have license or get training from outside?		10																
B12	Are pest control activities performed in accordance with regulatory requirements?		15																
			200																

EVALUATION OF OPERATIONAL METHODS AND PERSONNEL PRACTICES\ STORAGE OF RAW MATERIALS, FINISHED PRODUCTS AND PACKAGING

			Total Point					Points								Correct Actions	Finish Time	Findings of last audit	Follow up
C1	Is material package clean or protected? Is there visual inspection and cleaning before the materials transported to processing area?Packaging material should be taken out from the protective packaging outside the processing area,and single-layer packaging materials should be clean before brought into the production area.		10	8	5	3	0												
C2	Are all ingredients stored to prevent cross-contamination?		5		3		0												
C3	Are all chemicals (including chemicals for cleaning and maintenance) and non-product materials (such as equipment and utensils) stored separately and locked?		5		3		0												
C4	Are all materials, (ingredients and finished product) in a sound condition, free of spoilage?		5		3		0												
C5	Whether reject damaged, pest contaminated or dirty raw and auxiliary materials? Whether the reject raw and auxiliary materials transported by the damaged, pest contaminated and dirty transport machine and container shipped? Whether retain the records?		10	8	5	3	0												
C6	Does all rejected material, the pending material generated in the production process as well as unqualified finished stored separately and clearly identified?		10	8	5	3	0												
C7	Are all containers, materials and packaging correctly labeled?		5		3		0												
C8	Is unused material mildew, deterioration, oxidation, expired?		10																
C9	Is the inventory rotated using a mechanism to ensure proper turnover of product?		5																

C10	Is an 18 inch perimeter aisle being maintained for storage areas?		5		3		0													
PRODUCTION AREAS /																				
C11	Is the generation of steam, condensate, dust, and spillage properly controlled?		5		3		0													
C12	Are there effective measures to prevent cross-contamination?		5		3		0													
C13	Is there adequate space to perform operations and keep clean?		5		3		0													
C14	Are exposed product areas segregated from storage and the outside?		5		3		0													
C15	Is all surplus/unused equipment stored in non-production areas?		5		3		0													
C16	Whether to use the non-diesel forklift in raw materials and finished products in-room?		5		3		0													
OPERATIONAL PRACTICES /																				
C17	Are openings in bags, boxes or containers for sampling or production properly re-sealed and marked ?		5																	
C18	Are all outside receiving ports and transfer lines for both bulk liquid or dry products capped, locked and identified?		5																	
C19	Are raw ingredients, where applicable, examined, sieved or strained before use and are lot numbers recorded for traceability?		5		3		0													
C20	Does workshop clean the production lineafter a certain period of discontinued in accordance with the regulations, in order to avoid introduction harm? Does keep the record?		5		3		0													
C21	Is there security seal number(seals or other security seal) on tankers and other bulk materials container? And is the safety seal number in line with the seal number in provided documents		5																	
C22	Are screen, filter bags and vacuum facilities stored in a dust-free environment?Are they clean?Can the design of the vacuum and filter device avoid possible contamination of the thin line, lint, fibers, wire, iron filings?		10	8	5	3	0													
C23	Are there hand-wash, and where needed, hand sanitize stations?		5		3		0													
C24	Is there adequate protection against possible adulteration?		15	12	8	5	3	0												
C25	Are wash basin and pond for cleaning tools separate? Is there a logo for this?		5																	
C26	Is finished product stored at correct temperatures?		5		3		0													
EMPLOYEE PRACTICES																				
C27	Are employees exhibiting good personal hygienic practices and complying with the plant personnel GMP's?		10																	
C28	Are employees, where required, wearing effective hair restraints?		5																	
C29	Are smoking, eating, and drinking restricted to designated areas?		5																	
C30	Are all items removed from shirt and blouse pockets?		5		3		0													
C31	Are there separate areas for employee's personal items without food?		5		3		0													
C32	Are barriers or procedures in place to limit access to the facility and production areas by unauthorized personnel?		5		3		0													
			200					**0**	0.0%	**PS FM**	0.0		0.0		0.0		Possible score Full marks			
										ES	0		0		0		Earned score			
	MAINTENANCE AND REPAIR									%	#DIV/0!		#DIV/0!		#DIV/0!		Percentage			
BUILDING AND GROUNDS			**Total Points**					**Points**		**FSTL**	**PM**		**QM**		**MM/UM**	**WHS**		**Correct Actions**	**Finish Time**	**Findings of last audit**	**Follow up**

			Total Points					Points		FSTL	PM	QM	MM/UM	WHS			Actions	Finish Time	last audit	Follow up
D1	Are all ladders and walkways over exposed product lines protected in a manner that prevents contamination of product below?		10																	
D2	Are overhead pipes protected against leaks or condensate drips?		5		3		0													
D3	Is there adequate lighting present in all areas to perform tasks?		5		3		0													
D4	Is ventilation adequate to remove dust, steam, and odors?		5		3		0													
D5	Are floors, walls and ceilings in good repair?		10	8	5	3	0													
D6	Are all doors to the outside rodent and insect proof?		10	8	5	3	0													
D7	Are exterior walls hole free to keep out birds, rodents, insects?		5		3		0													
D8	Are there control measures to reduce the potential contamination of birds, rodents and other harmful substances?		5		3		0													
D9	Are there separate areas for raw materials and finished products?		5		3		0													
D10	Is the outside area free of general litter and trash?		5																	
D11	Is the outside area free of weeds?		5																	
D12	Is the outside area free of standing water?		5																	
D13	Outside, are all items being stored correctly?		5																	
EQUIPMENT																				
D14	Are food contact surfaces corrosion free?		5		3		0													
D15	Are all equipments in good repair and cleanable?		5		3		0													
D16	Is insulation on all pipes, tanks, ductwork and equipment properly maintained and in good repair?		5		3		0													
D17	Is there flaking paint or any flaking material in production?		10																	
D18	Is there any rust on outside of equipment or surrounding areas?		5		3		0													
D19	Is all equipment that contact with products made of food grade material?		5		3		0													
D20	Are wooden surfaces or equipment being used where more cleanable materials would be appropriate?		5		3		0													
D21	Are controls in place for the use of food grade and non-food grade lubricants?		10	8	5	3	0													
D22	Are there catch pans under all motors and gear boxes over product areas and are they maintained in a manner that does not add further contamination problems?		10																	
D23	Is the equipment being over-lubricated, causing dripping lube?		5																	
D24	Is all compressed air that comes in contact with finished product filtered? Is air compressor oil-free?		5																	
D25	Is there a program for runing, monitoring and testing of foreign matter control device? For each examination, whether to identify any unusual foreign body and find the source? Whether or not to retain the daily inspection and maintenance records and corrective action records?		10																	
D26	Are temperature and pression recorders checked and calibrated on all equipment requiring them? Are all weighing equipments for food additive and processing aid calibrated as national requirement?	6.4	5		3		0													
D27	Are string, tape, wire, cardboard, or silicone being used as temporary repairs?		5		3		0													
D28	Are seams, bumps or welding point of all food-contact surfaces smooth and free of dirt?		5		3		0													
D29	Has the plant implemented a preventative maintenance program?*		10	8	5	3	0													
D31	Are all water lines protected against backflow/backsiphonage		5																	
D32	Are garbage and wastewater removed from production areas frequently?		5																	
D33	Are leaked material, garbage and waste treated in a timely manner? Is there a bag in the trash and stamped?		5																	
			200					0	0.0%	PS FM	0.0	0.0	0.0		Possible score Full marks					
										ES	0	0	0		Earned score					
	EVALUATION OF CLEANING PROGRAM									%	#DIV/0!	#DIV/0!	#DIV/0!		Percentage					
HOUSEKEEPING			Total Points					Points		FSTL	PM	QM	MM/UM	WHS			Correct Actions	Finish Time	Findings of last audit	Follow up
E34	Is there a critical or complex equipment fixed cleaning procedures to standardize personnel operating?		10	8	5	3	0													
E35	Are effective cleaning procedures in place to preclude cross-contamination of products with allergens?*		10	8	5	3	0													
E36	Does the plant follow a written cleaning schedule?The written cleaning schedule is full? Frequency is appropriate? Is there evaluation after cleaning		20	15	10	5	0													
E37	Are production and packaging areas clean?		5		3		0													
E38	Are all products, additives temporary barrels and boxes clean? Are all weighing instruments clean and well-preserved?		5																	

	preserved?																						
E39	Are all storage areas clean?		10	8	5	3	0																
E40	Are all spills being cleaned up immediately?		10	8	5	3	0																
E41	Is there cleaning and inspection after maintenance of food contact surfaces, ?		10	8	5	3	0																
E42	Are areas under storage shelves or racks being cleaned?		5		3		0																
E43	Are all internal transport vehicles clean and sanitary?		5		3		0																
E44	Are rest rooms, break rooms, lunchrooms, and locker rooms clean and sanitary - floors, walls, ceilings, etc.?		5		3		0																
E45	Is equipment available to perform general housekeeping?		10	8	5	3	0																
E46	Is cleaning equipment stored in a separate area or cupboard?		5		3		0																
E47	Are vacuum cleaners and central vacuum systems being cleaned to prevent insect harbourage?		5		3		0																
E48	Is deeply clean according to the plan (including the ceiling, upper pipe, steel structure, etc.)?		10	8	5	3	0																
E49																							
E50	During cleaning, are all foods and packaging protected?		10	8	5	3	0																
E51	Is all processing equipment clean and sanitary?		10	8	5	3	0																
E52	Are equipment's non-food-contact surfaces being cleaned?		10	8	5	3	0																
E53	Is equipment that is not in use or between uses stored clean?		5		3		0																
E54	Are items that come in contact with products or ingredients maintained and controlled in a sanitary condition?		10																				
E55	Is clean equipment stored with food-contact surfaces protected?		5		3		0																
E56	Are all cleaning chemicals used to clean food contact surfaces approved for use in food plants?		10																				
E57	Are sanitation items (pails, brushes, scrapers, etc.) color coordinated or otherwise distinguished from general use production items?		5																				
E58	Is there someone validated cleaning, cleaning tool used on food contact surfaces, in order to ensure effective implementation?		5																				
GENERAL CLEANING/																							
E59	Is the area outside buildings being kept sanitary?		5		3		0																
			200					0	0.0%	PS FM	0.0	0.0	0.0	Possible score Full marks									
			1000					0	0.0%	ES	0.0	0.0	0.0	Earned score									
										%	#DIV/0!	#DIV/0!	#DIV/0!	Percentage									

	FSTL	PM	QM	MM/UM
PS FM		0.0	0.0	0.0
ES		0.00	0.00	0.00
%		#DIV/0!	#DIV/0!	#DIV/0!

Possible score Full marks
Earned score
Percentage

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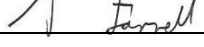
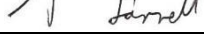
0	S Dahl	S Farrell		S. Farrell		23/01/14
1	S Dahl	Viral Raval		Viral Raval		19/04/2018

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