Sonac Australia Pty Ltd

DEVELOPMENT LICENCE APPLICATION

Application ID: APP002180

EPA Vic.

Request for Further Information

RFI002495 - EPA 26/8/22

October 2022

The following report details 'further information' as requested by EPA Vic. contained RFI002495

Sonac Australia Pty Ltd
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List of Development Licence Application documents submitted to EPA Vic. by Sonac Australia:

1. Development Licence Application (Nov. 2021), Attachments: 1 – 21
2. Sonac Australia Pty Ltd Expansion Project Overview (Feb. 22), Attachments: 1 - 14
3. Wastewater Treatment Plant Report (Feb 22), Attachment 14, 'Installation of a Wastewater Treatment Plant', Attachments 1 - 3
4. Sonac RFI 001912 response (Apr. 2022).
5. Sonac RFI 002003 response (Apr. 2022), Attachments: 1-3
6. Sonac RFI 002495 response (Oct. 2022),
    - List of Attachments:
        i. Attachment 1: WWTP Mass Balance and Design Basis

        ii. Attachment 2: EPA Licence Monitoring Program
            - Bore Analysis Results
            - Soil Sampling Program
            - Wastewater / Recycle Water Reuse Program
            - Stormwater Monitoring Program
            - Surface water Monitoring Program

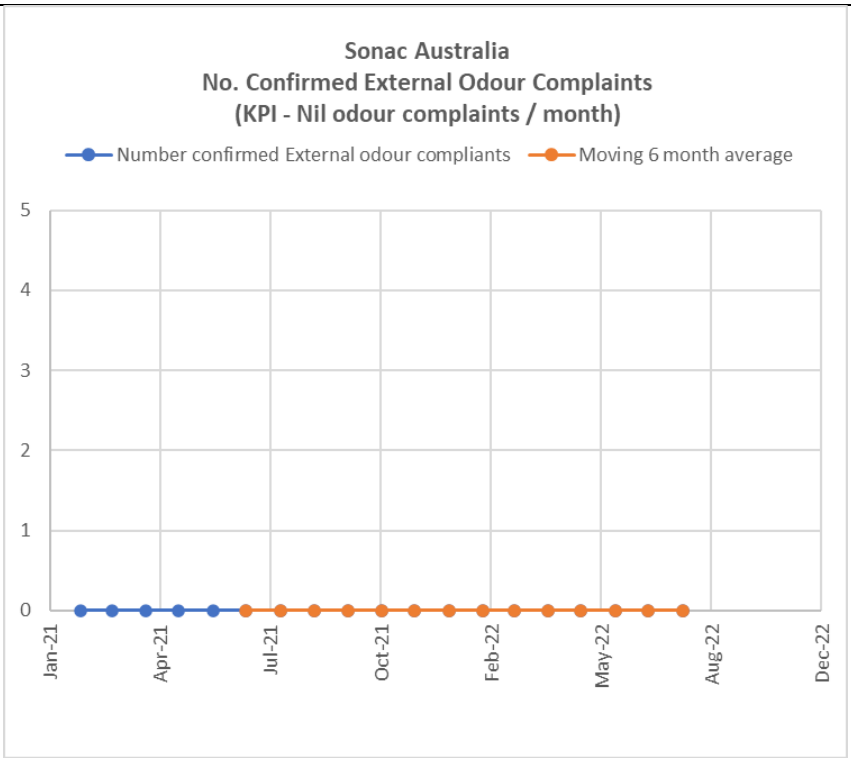
        iii. Attachment 3: Sonac Noise Assessment
        iv. Attachment 4: Sonac Environmental Complaints Register – Summary Odour Complaints
        v. Attachment 5: Aircare Extraction Systems: Advanced Air Horizontal Packed Bed Wet Scrubber
        vi. Attachment 6: Sonac Spray Dryer PFD 210600
        vii. Attachment 7: Sonac Australia Natural Gas Consumed and Electricity Use 2019 – 2021

REQUEST BY EPA Further information is required, including evidence showing that you have -	SONAC RESPONSE TO REQUEST FOR FURTHER INFORMATION
<u>WWTP and evaporation lagoons</u> 1. Provide a mass balance (including flowrate and equipment size/volume) to demonstrate appropriate sizing of the proposed WWTP and existing evaporation lagoons has been made.	**<u>WWTP</u>** Details of Sonac Australia's WWTP expansion project was provided in a report submitted to EPA Vic. in its 'Development Licence' application titled: '**Sonac Australia Pty Ltd, DEVELOPMENT LICENCE APPLICATION, Application ID: APP002180, Attachment 14, Installation of a Wastewater Treatment Plant**. The WWTP report describes the proposed installation research and presented by company consultant Waterform as Stage 1 of the Sonac expansion project. WWTP data table of scenarios, graphical representation, and load calculations for BOD and TKN have been provided in **Attachment 1: WWTP Mass Balance and Design Basis.** The selected design proposal accepted by Sonac was based on an annual intake of 50,000T whole blood annually and calculated WWTP daily loading for BOD/TKN and with high pollution load (less solids). Sizing and modelling for the proposed WWTP was developed by Sonac and in consultation with Waterform based on current treatment plant operation, effluent sample analysis and predicted whole blood intake. Treated wastewater from the Sonac WWTP will be used on site for CIP and planned to be discharged as Trade Waste to CHW sewer. **<u>Evaporation Ponds</u>** Sonac maintains four evaporation ponds at its production site for brine collection and evaporation. The pond levels are monitored weekly, and volumes trended to ensure levels are managed and capacity is not exceeded. In the event if too much rain falls, and unacceptable pond levels are reached, Sonac may utilise an existing contract with Wannon Water to collect from the ponds and truck away the brine for disposal. **<u>Wastewater Trade Waste Connection</u>** As previously reported in the Development Licence application, Sonac will connect the site Trade Waste under agreement with Central Highlands Water (CHW) for treatment at the nearby wastewater treatment plant. The Trade Waste acceptance criteria and agreement was finalised in 2021.

	Connection to Trade Waste to discharge wastewater will enhance production capability by removing potential mass balance issues that may arise from increased raw material intake. The quality of water produced from the WWTP will also reduce operating costs by decreasing use of potable mains water for in-plant CIP.
<u>Monitoring programme</u> 2. The site has an EPA licence monitoring programme (Feb. 2021). Provide the results of the monitoring programme undertaken in last 5 years including groundwater, soil, and wastewater/recycle water reuse programme. (This is to help us assess conditions of the existing ponds, groundwater, soil, and the site).	Sonac commenced a licence monitoring program in accordance with the provisions of the Environmental Licence and conducts weekly Plant Environmental Protection System Inspections (PEPSI) to ensure plant operations are following environmental conditions. A program of routine site inspection was commenced after Feb. 2021. Prior to Feb. 2021 environmental monitoring and inspections were informal, not documented but were included as part of the site's safety and housekeeping inspections. Results of Sonac's monitoring program are detailed in **Attachment 2: EPA Licence Monitoring Program: Bore Analysis Results, Soil Sampling Program, Wastewater / Recycle Water Reuse Program, Stormwater Monitoring Program, Surface water Monitoring Program**
<u>Noise</u> 3. Compare the response provided in question 1 of RFI001912 and provide a reviewed noise assessment in accordance with the Noise Protocol (EPA publication1826.4) to include: Noise limits at the nearest sensitive receptors. Effective noise levels at the nearest sensitive receptors including any applicable adjustments	A review has been conducted to provide noise assessment in accordance with the 'Noise Protocol (EPA publication1826.4)' to include Noise limits at the nearest sensitive receptors. The 'nearest sensitive receptor is located 700m from Sonac. Sonac Australia is in designated zoning **Industrial 1 Zone IN1Z** (generating zone) and is adjoining to Rural Farming Zone (North & West), Industrial Zone (South) and Public Use Zone (East). According to Table B.1: Zone levels (dB(A)) for rural area method for commercial, industrial and trade premises: The table below details the measured noise readings taken on 5/4/22 at 21:30 at the Sonac site property line perimeter on clear and calm conditions and noise limits at the 'nearest sensitive receptor'.

Noise Measurements on Sonac Perimeter Fence	Measured noise dB(A) Low	Measured noise dB(A) High (Peak)	Land Zoning Around Sonac	Table B.1: Zone levels (dB(A)) Receiving zone	Receiving zone Noise limits at the nearest sensitive receptors (dB(A))
North	56	58	Rural farming	Farming Zone FZ	Day 53 Evening 48 Night 43
East	58	64 (car passing)	Public Use	Public Use Zone 1,3,4,6&7	Day 55 Evening 50 Night 45
South	60	63 (car passing)	Industrial	Industrial 1 Zone IN1Z	Day 58 Evening 53 Night 48
West	58	60	Rural farming	Farming Zone FZ	Day 53 Evening 48 Night 43

4. Provide the assessment to show that the proposed box dryer, wastewater treatment plant and increased trucking movements from operational expansion do not present a risk of exceeding noise limits.	Sonac has conducted a noise assessment to examine the risk of noise exceeding limits for the construction and operation of the proposed box dryer, wastewater treatment plant and increased trucking movements from the expansion. Risk ratings of Low to Medium were identified with existing control documented. Refer to **Attachment 3: Sonac Noise Assessment** for details of the assessment.
<u>Odour</u> 5. Provide details in relation to odour complaints previously received including improvements made to the Sonac's current and proposed operations to minimise odour as so far as reasonably practicable.	<u>Details of Odour Complaints</u> Sonac commenced recording environmental complaints in its register commencing Nov. 2021. The register details information on environmental incidents that includes odour complaints and formalises complaints as being justified or unjustified. Details regarding odour complaints is provided in a summary report. Refer to **Attachment 4: Environmental Complaints Register – Summary Odour Complaint's**. Sonac investigates all external and internal (raised by Sonac employees) odour complaints. Investigations have determined the odour is from another source and not from Sonac based on wind direction, odour characteristics and location of detected odour. Prior to 2021, Sonac investigated two incidents last five years: - EPA issued Inspection Report Number OP-GOC-INSP-30 on 15 November 2018 in relation to an odour report. Sonac replied to EPA by letter on 30 November 2018 providing further information as was requested in the Inspection Report. - Isolated and unconfirmed odour complaints were received in February 2019 from a resident in Dooleys Road for which a formal investigation was done and reported to EPA Sonac maintains monthly monitoring trends for management reporting. The KPI target is 'Nil odour external complaints per month' with current performance show in the graph below.



As part of elevated environmental awareness, and in particular to odour, any odour identified by employees are registered and investigated.

The following improvements have been and are proposed to be made to minimise odour so far as reasonably practicable:

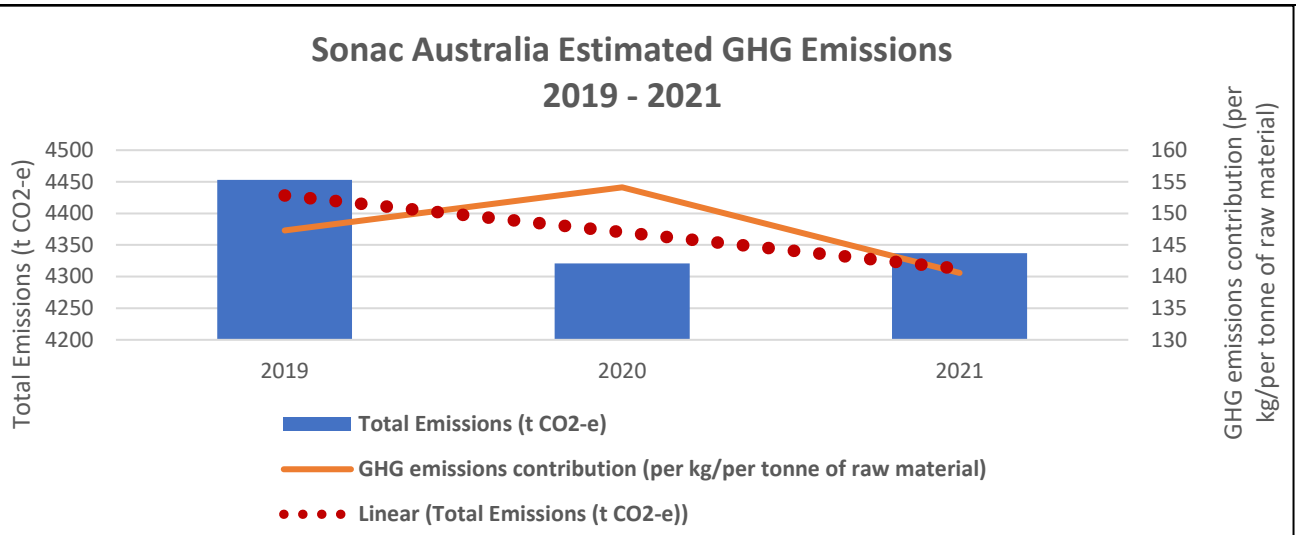
Current

- Sonac developed and implemented a raw material quality monitoring procedure to manage suspect raw blood deliveries
- Conduct weekly PEPSI to identify actual or potential odour sources and issues.
- Conducted employee and visitor environmental awareness training.
- Sonac removed a tank that received transitory waste and altered plumbing to ensure the waste is combined with normal waste for management in a time appropriate manner.
- Sonac covered an opening in the top of the outdoors waste tank which greatly minimised release of odour.

Proposed

- WWTP installing an air extraction system and water scrubber to extract, treat, and prevent odours being released from the storage tanks.
- Feed water going to the bio process will enter at the bottom of the tank thus greatly minimising odour release.
- Old waste pits will be decommissioned.

6. In reference to page 49 of the development licence application 'Wastewater Treatment Process': Fugitive odour emissions from the wastewater treatment plant - in the event wastewater in the storage tank cannot be recirculated for any reason or aeration is not provided, what measures are set in place to ensure odour is minimised?	As part of the WWTP upgrade Sonac will be installing an air extraction and water scrubber to eliminate the likelihood of odours being released from the storage tanks and treat fugitive odour emissions. The manufacturing supplier is AIRCARE EXTRACTION SYSTEMS. Details of the WWTP scrubber were provided in RFI 002003 and provided in attachment 3 that accompanied the RFI response. The design basis for sizing the water scrubber system is calculated on passive displacement of air expected within the main tanks. This type of Packed Bed Wet Scrubber removes odours as the contaminated gases pass through the packing media that is wetted with a single pass or recirculating water spray system. Refer to **Attachment 5: Aircare Extraction Systems: Advanced Air Horizontal Packed Bed Wet Scrubber**
Air **7.** Confirm the addition of the new box dryer will increase the existing air emissions flowrate of 1.3 kg/day.	The rated fan capacity for the new box dryer is 8.8 – 10.43 m3/S and dust emissions is rated at <10g/m3 / <10 mg/Nm3. Refer to **Attachment 6: Sonac Spray Dryer PFD 210600**
8. Clarify the types of contaminants present in the air emissions from the blood/plasma dryers.	Following drying of the blood haemoglobin & plasma product in the spray dry tower, particulate-laden air passes through a cyclone for particle separation. The air is further treated in a bag filter to remove 99.9% of blood haemoglobin/plasma particles. After passing through the bag filter, treated air passes through a heat recovery system to remove excess heat from the air stream. (This also reduces the heating requirement for the fresh air inlet.)
9. Provide information on where the air emissions from both dryers are proposed to be ducted to.	Air emissions from both dryers will be discharged to atmosphere after particle removal. The discharge from Box Dryer is equipped with 'dust sniffer' to identify any leakage or malfunction from the dust collection system.
GHG 10. Provide an estimated GHG emissions contribution (per kg/per tonne of raw material) for all relevant scopes for the existing and proposed plant to demonstrate any reduction in GHG emissions.	Estimated GHG emissions contribution (per kg/per tonne of raw material) for existing plant 2019 – 2021 as detailed in the graph and table below. There was an apparent increase in GHG contribution in 2020 due to a reduction ion raw material intake reducing the plants efficiency for production. Refer to **Attachment 7: Sonac Australia Natural Gas Consumed and Electricity Use 2019 – 2021** demonstrating reduction in GHG emissions.



	2019	2020	2021
Total Energy consumed (GJ)	48541	43634	43659
Total Scope 1 Emissions (t CO2-e)	2034	1752	1750
Total Scope 2 Emissions (t CO2-e)	2419	2569	2587
Total Emissions (t CO2-e)	4453	4321	4337
Total Emissions (kg CO2-e)	4453000	4321000	4337000
Total Energy consumed (GJ)/T Blood Raw Material	1.606	1.556	1.415
Whole Blood Raw Material (T)	30,227	28,036	30,850
Whole blood equivalent (kg)	30,227,000	28,036,000	30,850,000
GHG emissions contribution (per kg/per tonne of raw material)	147	154	141

Calculations reference: https://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators

Human Health 11. Provide the procedure in the event the quality of raw blood received is unacceptable, as per procedure 7.1 steps 7.1.5 to 7.1.8., where deteriorated blood needs to be disposed of.	The quality of animal blood processed by Sonac must be of a required quality standard to enable processing of animal blood to produce high quality spray dried haemoglobin and blood plasma products. Where the quality of raw material blood is determined to be below Sonac quality standards, the blood will be redirected to an alternate method of disposal. 'Disposal' in this procedure means another method of processing and in general, redirected to a rendering plant for steam coagulation, solids separation, drying to produce blood meal. The following procedure details the steps actioned by Sonac management if raw blood is received and is determined to be unacceptable for processing at Sonac:

	Procedure 1. Animal blood tanker arrives on site to be unloaded 2. Prior to unloading, blood is tested for quality according to Sonac acceptance criteria 3. If the raw blood received is determined to be unacceptable to be processed by Sonac, Sonac may: - Redirect the blood delivery to a rendering for processing - If the blood cannot be accepted by a rendering site, the delivery maybe redirected to a licenced composting facility In the event raw blood is determined to be unsuitable from the supplier Sonac reserves the right not to collect raw blood.
<u>Principles of Environment Protection</u> 12. The Act has eleven (11) principles of environment protection ('principles') on which the EPA must operate. Refer to Part 2.3 of the Act. Demonstrate that your application incorporates technologies, techniques and other measures that are capable of meeting these principles.	**Refer to the table below**

Part 2.3—Principles of environment protection	Principle	Sonac's Response
Principle of integration of environmental, social and economic considerations	Environmental, social, and economic considerations should be effectively integrated.	Sonac is committed to ensuring environmental, social, and economic considerations are effectively integrated and this commitment is identified in the company's Global Environment Health and Safety policy. The policy details to all stakeholders the key operating principles.
Principle of proportionality	A decision, action or thing directed towards minimising harm or a risk of harm to human health or the environment should be proportionate to the harm or risk of harm that is being addressed.	Sonac has conducted a Risk Assessment for the site and the expansion project. Details of the Risk Assessment were submitted in the Development Licence application '**Sonac DLA Attachment 15_Human Health and Environment Risk Assessment V1.3'**
Principle of primacy of prevention	Prevention of harm to human health and the environment is preferred to remedial or mitigation measures.	Prevention measures are detailed in the Risk Assessment. Details of the Risk Assessment were submitted in the Development Licence application '**Sonac DLA Attachment 15_Human Health and Environment Risk Assessment V1.3'**
Principle of shared responsibility	Protection of human health and the environment is a responsibility shared by all levels of Government and industry, business, communities, and the people of Victoria.	The '**Sonac Australia Pty Ltd Expansion Project Overview**' report submitted by Sonac Australia in Feb. 2022 details the various levels of consultation that has occurred for the project. Sonac has engaged with the community, and local/state authorities. For further information refer to submitted report, section **5.1 Planning and other Approvals,** pgs. 8 – 10.
Principle of polluter pays	Persons who generate pollution and waste should bear the cost of containment, avoidance, and abatement.	Sonac complies with polluter pays principle with all site operations.

Principle of waste management hierarchy	Waste should be managed in accordance with the following order of preference, so far as reasonably practicable—	Sonac operates under a site Waste Management Plan that complies with the waste management hierarchy. Details of the plan were submitted in the Development Licence application as an attachment 'Sonac DLA Attachment 13_Waste Management Plan Rev1.2 Aug 2021'
	(a) avoidance;	Best practice for processing raw materials and producing product enable the avoidance of off spec product being produced. Packaging of products is limited to bulk bags to reduce handling and transport costs.
	(b) reuse;	Off specification Product and test samples are reworked.
	(c) recycling;	Wastewater is treated to Class B Recycled water quality and is intended to be reused on site for Cleaning-in-place (CIP) processes.
	(d) recovery of energy;	Waste heat is utilised in the drying of product through box dryers.
	(e) containment;	Saline brine is collected in ponds for water evaporation. Storage tanks and bunds in use for liquid materials.
	(f) waste disposal.	Activated sludge that is generated from the wastewater treatment plant is dispatched for composting as K100.
Principle of evidence-based decision making	Actions or decisions under this Act should be based on the best available evidence in the circumstances that is relevant and reliable.	Sonac Australia has consulted, researched and is active in sourcing best available evidentiary information to comply with best practice and to document this in the Development Licence application process in response to EPA Vic. RFI requests.

Precautionary principle	If there exist threats of serious or irreversible harm to human health or the environment, lack of full scientific certainty should not be used as a reason for postponing measures to prevent or minimise those threats.	Sonac operates under license conditions as detailed in the PrimeSafe and EPA Vic. Licence's and ensure it is compliant with all applicable legislation, regulations, and industry operating requirements. Compliance to the General Environmental Duty's (GED) are as follows: (a) Plant and equipment is maintained and operated in accordance with manufacturer's specifications and company standard operating procedures. Personnel are trained and instructed in operating plant and equipment to ensure risk to health and environment is reduced as far as practicable. GED (b) Safe systems of work are documented in policies and standard operating procedures. As required by PrimeSafe licensing and internal operating requirements, HACCP is used as a management system to plan, operate, monitor, control plant and process. GED (c) Continuous monitoring and plant environmental protection systems inspections are conducted routinely and according to PEPSI schedules. Incident management includes reporting to authorities' notifiable incidents. Refer Attachment 9. GED (d) All substances are transported, handled, and stored in a manner to minimise risk to human health and to the environment. In case of incident, Sonac has an emergency management plan and personal trained in emergency procedures. Storage facilities are inspected to ensure compliance to requirements. Waste management systems and procedures have been developed and are complied with. GED 9 (e) Suitably trained operators provide instruction and supervision to ensure plant and equipment is operated in accordance with SOPs. Incident management includes reporting to authorities any notifiable incidents.

Principle of equity	(1) All people are entitled to live in a safe and healthy environment irrespective of their personal attributes or location. (2) People should not be disproportionately affected by harm or risks of harm to human health and the environment. (3) The present generation should ensure the state of the environment is maintained or enhanced for the benefit of future generations.	Sonac understands the purpose, principles, obligations and expected outcomes of the principle of equity. Sonac works actively to minimise risks of harm to human health and the environment from its activities as far as practicable. The company is committed to its general environmental duty, and key elements of this are identified it the company's Global Environment Health and Safety policy. The policy details to all stakeholders the key operating principles for all employees. Sonac had submitted its policy as an attachment in the Expansion Project Summary Report Refer **Attachment 10: Darling Ingredients Inc. Global Environment, Health & Safety Policy**.
Principle of accountability	Members of the public should— (a) have access to reliable and relevant information in appropriate forms to facilitate a good understanding of issues of harm or risks of harm to human health and the environment and of how decisions are made under this Act; and (b) be engaged and given opportunities to participate in decisions made under this Act, where appropriate to do so; and (c) have their interests taken into account in decisions made under this Act.	The '**Sonac Australia Pty Ltd Expansion Project Overview**' report submitted by Sonac Australia in Feb. 2022 details the various levels of consultation that has occurred for the project. Sonac has engaged with consultants, the community, and local/state authorities. For further information refer to DLA submitted report, section **5.1 Planning and other Approvals,** pgs 8 – 10. Sonac has been proactive in all its development activities to engage and consider thoughts, comments, and responses wherever necessary.

Principle of conservation	Biological diversity and ecological integrity should be protected for purposes that include the protection of human health.	Sonac operates under license conditions as detailed in the PrimeSafe and EPA Vic. Licence's and ensure it is compliant with all applicable legislation, regulations, industry operating requirements and with the General Environmental Duty's.
<u>Best available techniques and technologies (BATT)</u> 13. Demonstrate proposed risk controls are reasonably practicable, with consideration of best available techniques/technologies.	The following information was described in the preliminary DLA portal submission for BATT. Installation of new wastewater treatment plant, construction of dewatering screw press for dewatering waste activated sludge and reducing waste disposal quantities, installation of new spray dryer for blood products, reuse of recycled water into plant CIP systems, construction of a storm water management collection and retention basin and connection to trade waste system. Proposed larger, more stable and streamlined activated sludge process for processing bloody wastes that previously had to be disposed off site. This will significantly reduce volume of bloody waste disposal. Proposed new Reverse Osmosis system with higher efficiency will minimise the increase of brine volume discharged to evaporation ponds. Proposed new waste activated sludge dewatering equipment will enable improved dewatering of waste activated sludge and reduce, as a percentage, the quantity of waste disposed. Larger buffering capacity of wastewater will stabilise the wastewater treatment plant. The SANOVO Box Dryer is the best-known technology as determined in the company's international businesses (US, EU and China). Criteria for selection is for waste minimisation and energy efficiency. The proposed dryer design uses low exhaust temperatures and special sandwich panelling to retain heat and minimise energy consumption. The dryer has dust monitoring equipment to detect leaking filter socks and superior design to minimise waste versus the older current system. Expected reduction in noise from the existing WWTP due to insulated noise attenuation sheds for blowers and decommissioning of centrifuge currently used to thicken waste activated sludge. The Stormwater Management Plan forms part of the planning application documentation submitted to Central Goldfields Shire Council.	