Mackay Sugar

www.mkysugar.com.au

16 May 2019

Department of Environment and Science
Level 1, 22-30 Wood Street
PO Box 2001
Mackay QLD 4740

By email: CWES_Mackay@DES.qld.gov.au

Dear Rebecca and Alisha,

On 15th May 2018 the Department of Environment and Science (DES) issued Mackay Sugar Limited (MSL) with a notice to conduct or commission an environmental investigation, reference CR70825/STAT1122 (the notice), with respect to potential nuisance odours being generated from the operation of the Racecourse Mill effluent treatment ponds.

MSL engaged a suitably qualified and experienced environmental consultant to undertake the environmental investigation in response to the requirements set out in the notice. The Environmental Assessment Report (EAR) developed by environmental consultants CQG was submitted to DES on 28th February 2019.

Further to the submission of the EAR developed by CQG, a Remedial Options technical memorandum was provided in response to the requirements detailed in Action 2 of the notice. The technical memorandum detailed a list of maintenance and capital work currently planned and to be completed by MSL in preparation for the 2019 crushing season. It is expected that this targeted capital program will considerably improve the operation of the mill effluent treatment system, with a reduced volume and sediment loading of milling wastewaters to be transported to the ponds. It is expected that this will aid in the reduction of odour generation within the treatment system.

The technical memorandum developed by CQG also identified some further best practice treatment methods from other industries that may be applicable to sugar milling wastewaters, with a cost and benefit analysis of these potential options. Additionally, section 6 of the EAR identified and detailed proposed recommendations to reduce the risk of odour generation at the effluent ponds.

Following the submission of the EAR and technical memorandum to DES on 28th February 2019, a notice requesting further information was issued to MSL on 14th March 2019, on the grounds that inadequate information was provided regarding the requirements of Action 2 of the notice. The nature of this letter is to inform the department of Mackay Sugar's response to the recommended actions identified in section 6 of the Environmental Assessment Report and the proposed best practice treatment methods detailed in the technical memorandum. The attached action plan in **Table 1** will aim to demonstrate the intended work to be undertaken in an effort to reduce the risk of odour generation at the Racecourse mill effluent treatment ponds. This supplementary letter aims to fulfil the requirements of condition 2 of the notice and the request for further information.

The action plan in **Table 1** below outlines the actions that have been recognised by MSL to be achievable within the funding available under the current five year capital program. The identified actions are suitable and practicable mitigating measures to managing potential odours produced by the effluent treatment system. The action plan provides a scheduled scope of the works to be carried out in response to these recommended actions, outlining the costs committed by MSL to undertake these actions, in conjunction with a proposed timeframe for their implementation.

MSL have further assessed the potential best-practice remedial options as identified in the technical memorandum developed by CQG. While MSL accepts that these treatment technologies may provide best-practice solutions to effluent/wastewater treatment in other industries, the significant capital investment, infrastructure, training and ongoing maintenance that would be required to operate these systems would be prohibitive given the current state of the Racecourse mill and the business more broadly.

It is expected that the actions identified in **Table 1** will provide far more effective, practicable and viable solutions to managing the generation of odours within the Racecourse Mill effluent treatment and waste streams, rendering these additional technologies unnecessary.

MSL will continue to assess and improve the effluent management practices and systems employed at the Racecourse Mill, to ensure future compliance with its general environmental duty and all environmental authority conditions. Mackay Sugar is committed to ensuring its operations comply with its obligations under its environmental authorities and the Environmental Protection Act 1994 into the future.

Regards,

Philip Kearney
Environmental Officer
Mackay Sugar Limited

CC Carissa Mansfield, HR and Health Safety Environment Manager, Mackay Sugar Limited
Mark Gayton, Factory Manager – Racecourse Mill
Tony Lloyd, Group Asset Manager, Mackay Sugar Limited

Table 1. MSL Pond Odour Action Plan

Recommended Actions	Action Identification	Expected Outcomes	Implementation/Timeframe	Estimated Cost
Repair the sediment removal screen at the effluent tank	MSL maintenance identification	Improved solids removal from effluent waste stream before transfer to the treatment ponds. Reduced biological oxygen demand within effluent system and reduced suspended solids transfer to ponds.	Completed 15th April 2019	$40,000
Replacement and refurbishment of launder system of the ash clarifier	MSL maintenance identification	Upgrade of the internal launder system to improve ash solids removal during the clarification process, reducing volume and solids loading (ash) on the effluent treatment system and reduced solids transferred to the ponds.	Completed 14th April 2019	$1.6m
Decommission boiler #2 and major upgrades to boiler #3	MSL maintenance identification	Efficient use of two boilers (3 and 4), reducing the amount of water used and discarded in the effluent stream, reducing the volumetric load on the treatment system. Reduced solids being transferred to the ponds. Removes the requirement for regular scrubber system cleaning (ash entrainment) by using best practice scrubber technology.	Work in progress Due 31st May 2019	$3.2m
Valve replacement program	MSL maintenance identification	Prevention of sugar leaks into the effluent stream, reducing the organic (biological oxygen demand) load within the treatment system.	Work in progress Due 31st May 2019	$300,000
Re-tubing the #2 vacuum pan	MSL maintenance identification	Prevention of sugar leaks into the effluent stream, reducing the organic (biological oxygen demand) load within the treatment system.	Work in progress Due 31st May 2019	$552,000

Identification and repairs to leaking tubes in evaporators and pans – ongoing focus	MSL maintenance identification	Prevention of sugar leaks into the effluent stream, reducing the organic (biological oxygen demand) load within the treatment system.	Work in progress YEM19 program to be completed by 31st May 2019	$150,000
Installation of additional aerators in effluent treatment ponds (MSL consider aeration of Pond 1 to be counter-productive to anaerobic treatment processes)	Arris Wastewater Treatment Assessment Report	Increase in the oxygen levels and aid in the mixing within the first two treatment ponds, improving water quality and reducing the risk of odour generation.	Strategically positioned aerators installed in Pond 3 – 30th November 2018 Complete trials of the VRM treatment strategy to determine effective odour reduction – 30th January 2020	$32,000 spent completing the Pond 3 aerator installation upgrade Further cost TBC
Investigate the scope to de-silt Pond 1 and assess any alternative options for increasing wastewater storage/treatment capacity	Arris Wastewater Treatment Assessment Report and CQG Environmental Assessment Report	Increase the capacity and retention time of Pond 1 and allow it to manage effluent as per original design, improving water quality and reducing the potential generation of odours.	30th April 2020	$100,000
Undertake suitable work identified during investigation of de-silting/increased capacity options			TBC	TBC

Undertake an investigation during the crushing season to identify any additional sources of contaminants within the effluent stream	CQG Environmental Assessment Report	Development of an action plan to further address the contribution of contaminants across the operation	31st January 2020	Undertaken by internal resources
Assess the cost and suitability of installing continuous data collection units on effluent streams to record pH, flow, conductivity etc.	CQG Environmental Assessment Report	Provide suitable data for understanding effluent stream quality and the ability to make real time effluent management decisions, improving operational management of effluent. (achieving reliability with continuous monitoring systems on sugar mill effluent streams has historically proven difficult)	30th May 2020	Costs to be determined as outcome of investigation
Develop an Odour Management Plan	CQG Environmental Assessment Report	Provide operational protocols and instructions regarding effluent and odour, to achieve better management outcomes.	30th August 2019	$5,000
pH stabilisation of the effluent stream using chemicals (lime)	CQG Remediation Options Tech Memo	Maintaining the pond influent pH at 8.0 reduces the Hydrogen Sulphide production to 10% of total dissolved sulphides. (there is some concern about how this may implicate on water quality with respect to release limits, therefore a trial will be completed to determine suitability)	Trial to be completed throughout 2019 crush	Costs to be absorbed in 2019 operational budget
Investigate the design and benefits of a primary settler on site, prior to the effluent screen/transfer system	MSL operations identification	Allows for the pre-treatment and removal of suspended solids before transferring effluent to the ponds, significantly improving water quality and minimising the build-up of silt within the effluent treatment ponds. Reduced need for pond maintenance and de-silting.	31st March 2020	Costs to be determined as outcome of investigation