Notice

Environmental Protection Act 1994

Environmental Evaluation

Notice to conduct or commission an environmental evaluation

This notice to conduct or commission an environmental evaluation is issued by the administering authority pursuant to section 326B of the Environmental Protection Act 1994*.*

The Mulgrave Central Mill Company Pty Ltd
47 Gordon Street
Gordonvale QLD 4865

Your reference: EPPR00390613
Our reference: 101/0009102, C-CPLRC-100008829; E-100022326

Wednesday, 16 December 2020

Take notice: that under the *Environmental Protection Act 1994* (the Act) a notice to conduct or commission an environmental investigation is issued to The Mulgrave Central Mill Company Pty Ltd (ACN 009 657 032) (you) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Science (the department).

The notice to conduct or commission an environmental investigation is issued with respect to the activities of The Mulgrave Central Mill Company Pty Ltd on land described as 47 Gordon Street, Gordonvale, Lot 102 on Plan SP279534, Lot 184 on Plan NR5231, Lot 11 on Plan RP835454, and Lot 12 on Plan RP835454 (the licensed place).

A. Grounds

The notice to conduct or commission an environmental investigation is issued on the following grounds:

1. In accordance with section 326B(1)(a) and 326B(1)(b) of the Act, the department is satisfied that an event has happened causing environmental harm while an activity was being carried out and an activity or proposed activity is causing, or is likely to cause environmental harm.

The facts and circumstances forming the basis for these grounds are:

1. The Mulgrave Central Mill Company Pty Ltd operates the Mulgrave Sugar Mill and is the holder of environmental authority EPPR00390613 (EA), which authorises the following environmentally relevant activity (ERA) at the licensed place:
    a) ERA 28 – *Sugar milling or refining* – crushing or grinding 200 tonnes or more of sugar cane in a year; or manufacturing 200 tonnes or more of sugar or other sugarcane products in a year.
2. The licenced place, as defined in the EA, includes Lot 102 on Plan SP279534, Lot 184 on Plan NR5231, Lot 11 on Plan RP835454, and Lot 12 on Plan RP835454, located at Gordon Street, Gordonvale.

Queensland Government

3. Mulgrave Sugar Mill operates continuously during the crushing season which lasts approximately 22 weeks/year. Additionally, steam trials are completed prior to the start of crush as part of the safety and commissioning component of boiler start-up.
4. Release of contaminants to the atmosphere are authorised via the boiler house stack (Release Point A1) located on Lot 102 on Plan SP279534, in accordance with conditions of the EA.
5. When operating, emissions are treated in a wet scrubber system and released via the boiler house stack at a height of 50.3 metres.
6. Bureau of Meteorology (BOM) wind rose graphs for the Cairns Aero Station (ID 031011) show that the predominant wind directions during crushing season are from a Southerly and South-Easterly direction.
7. Mulgrave Sugar Mill is situated on the Eastern edge of the township of Gordonvale; consequently, stack emissions tend to be directed towards the township.
8. Mulgrave Sugar Mill's boilers are permitted to be fuelled by bagasse, coal, fuel oil, wood, or waste oil, in accordance with conditions of the EA.
9. Mulgrave Sugar Mill utilise waste oil as a fuel to supplement bagasse during boiler start-up and during times of abnormal or suboptimal cane feed conditions and/or bagasse quality.
10. Bagasse and waste oil have highly variable composition, combustion properties and combustion by-products.
11. Amounts and concentrations of sugar mill combustion by-products released to the atmosphere are influenced by combustion efficiency and the effectiveness of emissions control measures including wet scrubbing.
12. Sugar mill combustion by-products include carbon monoxide, sulphur oxides, oxides of nitrogen, acid gases and organic compounds. Metals and their compounds may also be entrained and carried by gas or vapour.
13. Emissions of substances listed on the National Pollutant Inventory (NPI) are estimated using the NPI Emission Estimation Technique Manuals. Where the emission estimate for a substance exceeds the reporting threshold, it is reported annually to the NPI by The Mulgrave Central Mill Company Pty Ltd.
14. The 2018/2019 NPI report for Mulgrave Sugar Mill recorded the following annual emission estimates:
    a) Carbon monoxide – 957,137 kilograms
    b) Oxides of Nitrogen – 282,866 kilograms
    c) Sulfur dioxide – 91,822 kilograms
    d) Particulate Matter <10.0 microns (PM10) – 38,617 kilograms (3,078 kilograms of which are recorded as fugitive rather than point source emissions)
    e) Particulate Matter <2.5 microns (PM2.5) – 20,257 kilograms
    f) Total Volatile Organic Compounds (TVOCs) – 11,025 kilograms
    g) Ethanol – 10,851 kilograms
    h) Lead and compounds – 91.39 kilograms
    i) Chromium (III) compounds – 3.37 kilograms
    j) Nickel and compounds – 1.85 kilograms
    k) Cadmium and compounds – 1.57 kilograms
    l) Polycyclic aromatic hydrocarbons (PAHs) – 0.05 kilograms
15. Exposure to oxides of nitrogen, PAHs, sulphur dioxide, TVOCs, and ethanol may cause irritation to the eyes, nose and throat, and can lead to coughing. Oxides of nitrogen and sulfur dioxide, among other substances, can also cause strong odours.
16. Particulates with an equivalent aerodynamic diameter (EAD) of 10 microns and less (PM10) are classified as respirable and hence may affect human health. Particulates with an EAD of 2.5 microns and less (PM2.5) have been statistically associated with human health effects including the exacerbation of asthma.

17. Exposure to the above mentioned substances may therefore cause adverse impacts on qualities of the air environment that are conducive to human health and wellbeing, aesthetics of the environment, and may also cause offensive odours.
18. The department considers that based on the predominant wind direction, the variability of fuel qualities, and the reported emission estimates of combustion by-products, your activities at the licensed place have the potential to impact environmental values and cause environmental harm, as nuisance, at sensitive receptors.
19. On 4 June 2020, the department received a report of smoke nuisance and offensive odour which identified Mulgrave Sugar Mill as the alleged source. The community notifier reported that this was not an isolated occurrence and nuisance has been experienced at different times over the past 4 years. This report was not considered frivolous or vexatious.
20. The department responded to this community report and conducted monitoring within Gordonvale area over the succeeding weeks.
21. On 16 June 2020, departmental officers conducted monitoring in Gordonvale and made the following observations:
    a) Smoke nuisance and offensive odour was recorded between 10:20am and 11:40am at the front of the Turf Club and Gordonvale State School, located on George Street, approximately 500 metres from Mulgrave Sugar Mill. It is noted that departmental officers departed this location soon after 11:40am in order to avoid prolonged exposure, and that the smoke nuisance was ongoing at the time of departure.
    b) Smoke nuisance was recorded between 12:20pm and 12:30pm at the front of Pyramid Residential Care Centre, located on Cairns Road approximately 1.3 kilometres from Mulgrave Sugar Mill.
    c) Smoke nuisance was again observed between 2:50pm and 3:05pm in the Gordonvale CBD. It is noted that departmental officers departed this location soon after 3:05pm and that the smoke nuisance was ongoing at the time of departure.
    d) The smoke nuisance and offensive odour was not detected at upwind monitoring sites on 16 June 2020, nor was it detected during background monitoring conducted on 5 and 11 June 2020.
22. On 16 June 2020, departmental officers observed smoke being emitted from the Mulgrave Sugar Mill stack and observed it falling to ground level and travelling towards nuisance sensitive places within the Gordonvale township, including those locations described above.
    a) The smoke elicited the reflex to cough and caused irritation to the eyes of departmental officers. Members of the public in proximity to the State School entrance were also observed to cough and wave at the smoke in an effort of avoid exposure.
    b) When exposed to the smoke, departmental officers experienced a strong synthetic burning odour that caused displeasure to the officer's sense of smell and was deemed offensive by an authorised person at George Street, Gordonvale.
    c) No other potential sources of smoke or emissions were observed on 16 June 2020.
23. Environmental nuisance of this nature impacts the environmental values of human health and wellbeing and aesthetics of the environment, including the amenity and odour qualities of a place, which are considered to be values present at the nuisance sensitive places described above.
24. On two occasions on 16 June 2020, members of the public approached departmental officers and advised that smoke nuisance of a similar nature frequently occurs during the crushing season. These community members expressed concern for the potential respiratory and health implications of the smoke.

25. On 24 June 2020, you received two community reports of nuisance. These community notifiers reported a burning oil smell and difficulty breathing at a distance of over 2 kilometres from Mulgrave Sugar Mill.
26. Dark coloured smoke, which is considered an indicator of inefficient combustion and/or ineffective wet scrubbing, has been observed on a number of occasions by departmental officers at various locations within the Gordonvale township, including on 4 June 2020 at 3:20pm, on 16 June 2020 from 1:25pm to 1:50pm and from 2:35pm to 2:40pm, and on 24 June 2020 at 3:20pm.
27. On 23 June 2020, the department issued you correspondence identifying potential non-compliances with your EA and provisions of the Act, and requested further information relating to your activities on 16 June 2020 including actions taken to prevent or minimise harm.
28. On 2 July 2020, you provided a response which advised that you would take action to address the matters identified commencing with site investigations by a subject matter expert in boiler function. In the response, you also advised the following:
    a) Bagasse and waste oil were burnt concurrently throughout the day on 16 June 2020, with crushing commencing at 4:35pm.
    b) Atmospheric conditions were noted as including low cloud cover, South-Easterly wind direction towards the township, and wind velocity such that stack emissions were sheared immediately and pushed down towards the township.
    c) Review of camera footage identified 6 periods of darker smoke emissions ranging from one to three minutes in duration between 11:48am and 3:03pm, which is characteristic of lower oxygen levels in the boiler furnace.
    d) There are no environmental incident logs of any operational matters that may have affected environmental performance.
    e) The response also provided supporting documentation including waste oil product information, logs of visual monitoring using the Ringelmann scale of smoke darkness, records of complaints received, the most recent stack test and a stack diagram, and a schedule of wet scrubber maintenance.
29. The Mulgrave Central Mill Company Pty Ltd monitors stack emissions through visual assessments and camera footage, however had not undertaken stack testing of particulate matter concentration since October 2018, nor has there been monitoring of ambient air quality within the Gordonvale township.
30. The department considers that an event has happened on 16 June 2020 that caused environmental harm in the form of offensive odour resulting from smoke emissions while an activity was being carried out at the licensed place.
31. On 23 July 2020, the department issued you a penalty infringement notice (PIN) for contravention of condition B4 of your EA which states *"The environmentally relevant activities which are the subject of this environmental authority must be carried out in such a manner to ensure that no odour deemed offensive by an authorised person and caused by the environmentally relevant activities can be detected beyond the boundaries of the licenced place."*
32. Furthermore, based on observations of departmental officers, reports of environmental nuisance from members of the community, and reported sugar mill combustion by-products, the department considers that activities at the licensed place are causing or are likely to cause environmental harm in relation to offensive odour and smoke nuisance to nuisance sensitive places in the township of Gordonvale.
33. Environmental harm is defined under section 14 of the Act as *"any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance."*

34. Environmental nuisance is defined under section 15 of the Act as *"unreasonable interference or likely interference with an environmental value caused by –*
    a) aerosols, fumes, light, noise, odour, particles or smoke; or
    b) an unhealthy, offensive or unsightly condition because of contamination; or
    c) another way prescribed by regulation."
35. Environmental value, as defined under section 9 of the Act, *"is –*
    a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
    b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation."
36. The *Environmental Protection (Air) Policy 2019* identifies the qualities of the air environment that are conducive to human health and wellbeing and to protecting the aesthetics of the environment as environmental values to be enhanced or protected.
37. Smoke nuisance and offensive odour impacts the environmental values of human health and wellbeing and aesthetics of the environment, including the amenity and odour qualities of a place, which are considered to be values present throughout residential and commercial premises within the township of Gordonvale.
38. Impact to environmental values was evidenced by:
    a) Community reports of environmental nuisance on 4 June 2020 and 24 June 2020;
    b) The strong intensity of the offensive odour detected during monitoring on 16 June 2020;
    c) The severity of the ground level haze caused by smoke emissions observed on 16 June 2020;
    d) The physical responses of coughing and irritation to one's eyes that the smoke elicited on 16 June 2020; and
    e) The effect on members of the community who were observed to cough and wave at the smoke and who spoke directly with departmental officers on 16 June 2020.
39. Further likely impact to members of the community was evidenced by:
    a) The spatial extent of the smoke which was observed up to and beyond 1.3 kilometres from the source on 16 June 2020;
    b) The duration of the smoke nuisance which was experienced for over an hour at the State School on 16 June 2020; and
    c) The potential health effects posed by exposure to particulate matter and other contaminants produced by sugar mill combustion.
40. The department has determined that the facts and circumstances warrant the issuing of a notice to conduct or commission an environmental investigation under section 326B(1)(a) and 326B(1)(b) of the Act.

B. Requirements

The report on the environmental investigation must address the following relevant matters:

1. By 1 February 2021, commence an **Operation and Maintenance Review** of the Mulgrave Sugar Mill with a particular focus on the boilers, boiler house stack, and fuel inputs.
2. The Operation and Maintenance Review of the Mulgrave Sugar Mill must:
    a) Be conducted by a *suitably qualified person*;
    b) Consider current operational and maintenance practices against manufacturing specifications, engineering and fabrication design plans, standard operating procedures, and industry best practice;

c) Identify any factors that have potential to adversely impact on boiler operation and stack emissions, and identify issues requiring action, as well as opportunities for improvement;
d) Identify any alterations to plant or equipment that would increase, or is likely to increase, the risk of environmental harm with regards to air emissions;
e) Investigate, as a minimum, the following:
    i) The quality, types and use of fuel inputs;
    ii) The quality of process water streams, particularly those utilised for wet scrubber operation and/or maintenance, and for cane and/or bagasse washing;
    iii) The maintenance and condition of any wet scrubber system servicing the boilers;
    iv) Start-up and restart practices and procedures;
    v) Operating parameters of boiler and boiler house stack function including, but not limited to, steam generation, moisture, temperature, velocity, and efficiency of combustion, with reference to the Stack Testing and Modelling outlined in Requirement 4; and
f) The operations and maintenance review must form part of the Environmental Report, as stated in Requirement 9 of this notice.

3. Undertake **Stack Testing and Modelling** of the Mulgrave Sugar Mill stack to investigate contaminants released to the atmosphere from the Mulgrave Sugar Mill.
4. The Stack Testing and Modelling must:
    a) Be undertaken by a *suitably qualified person*;
    b) Be undertaken during the Ambient Air Quality Monitoring Program outlined in Requirement 6;
    c) Be undertaken during representative operating conditions, particularly with regards to boiler throughput and fuel use;
    d) Measure the concentration of particulates reported as milligrams per cubic metre at a velocity not less than 12 metres per second at maximum continuous rating (M.C.R);
    e) Include, as a minimum, the following monitoring parameters:
        i) Flow rate;
        ii) Temperature;
        iii) Velocity;
        iv) Oxygen;
        v) Water vapour;
        vi) Carbon Dioxide;
        vii) Carbon Monoxide;
        viii) Oxides of Nitrogen;
        ix) Sulfur Dioxide;
        x) Total Volatile Organic Compounds (TVOCs);
        xi) Polycyclic Aromatic Hydrocarbons (PAHs);
        xii) Lead and compounds;
        xiii) Ethanol;
        xiv) Particulate Matter <10 microns (PM10);
        xv) Particulate Matter <2.5 microns (PM2.5);
        xvi) Odour;
    f) Include monitoring of meteorological variables necessary for modelling at a representative location within Gordonvale;
    g) All sampling, analysis, data validation and reporting must be undertaken in accordance with the relevant Australian or International standards;

h) All analysis must be undertaken by a laboratory which holds the relevant NATA accreditation;
i) Utilising the results of stack testing and available meteorological data, conduct air dispersion modelling and dust deposition modelling of point source stack emissions to predict ground level concentrations within the ambient air environment;
j) Include a review of monitoring and modelling results against applicable environmental and health based guidelines and standards; and
k) Results, as well as a summary and interpretation, must form part of the Environmental Report, as stated in Requirement 9 of this notice.

5. By 15 March 2021, you must develop an **Ambient Air Quality Monitoring Program** to investigate potential environmental nuisance associated with stack emissions from the Mulgrave Sugar Mill, and submit a copy to the department for review. You must have due regard and consideration for any comments made by the department in relation to the documents submitted.
6. The Ambient Air Quality Monitoring Program must:
    a) Be developed by a *suitably qualified person*;
    b) Commence within two weeks prior to the start of the 2021 crushing season;
    c) Be undertaken for a minimum of two months in duration;
    d) Include monitoring at locations which are not impacted by the operations of Mulgrave Sugar Mill (background monitoring);
    e) Include monitoring at locations in Gordonvale which are reflective of the air quality of sensitive receptors with potential to be impacted by the operations of Mulgrave Sugar Mill having consideration for variation in wind speed and direction;
    f) Include, as a minimum, the following monitoring parameters at all monitoring locations:
        i) Continuous monitoring for particulate matter with an aerodynamic diameter of less than 10 microns (PM10);
        ii) Continuous monitoring for particulate matter with an aerodynamic diameter of less than 2.5 microns (PM2.5);
        iii) Dust deposition;
    g) Include monitoring of meteorological variables at a representative location within Gordonvale;
    h) All sampling, analysis, data validation and reporting must be undertaken in accordance with the relevant Australian or International standards;
    i) All analysis must be undertaken by a laboratory which holds the relevant NATA accreditation;
    j) Include a review of monitoring results against applicable environmental and health based guidelines and standards; and
    k) A summary of findings from the Ambient Air Quality Monitoring Program must form part of the Environmental Report, as stated in Requirement 9 of this notice.
7. Maintain an **Operational Log** on a continuous basis during, and for a 14 day period prior to and following the Stack Testing outlined in Requirement 4, and the Ambient Air Quality Monitoring Program outlined in Requirement 6.
8. The Operational Log must:
    a) Include the following information, where applicable:
        i) Daily boiler throughputs;
        ii) Type of fuel burned and composition;
        iii) Volume of each type of fuel burned;
        iv) The source/supplier(s) of each type of fuel burned;

v) Any factors that may influence mill performance in relation to release of contaminants to the atmosphere;
vi) Any community reports of environmental nuisance received and the subsequent response;
vii) Visual estimates of smoke darkness (density) over a 30 minute period immediately following a change of fuel or abnormal feed condition, and over a one hour period immediately following a start-up or restart of a boiler using the Ringelmann scale;

b) Be reviewed as part of the Operational and Maintenance Review outlined in Requirement 2, the results of Stack Testing and Modelling outlined in Requirement 4, and the Ambient Air Quality Monitoring Program outlined in Requirement 6; and
c) The Operational Log and a summary of its findings must form part of the Environmental Report, as stated in Requirement 9 of this notice.

9. By 15 November 2021, you must submit the Environmental Report to the department.

The environmental investigation must be carried out, and the environmental report prepared by a *suitably qualified person*. A *suitably quality person* is defined as a person or persons who has demonstrated professional qualifications, training, skills or experience relevant to performing the function.

The environmental report (including all requirements) must be submitted to the department on or before: **Monday, 15 November 2021**

As the recipient of this notice, you are also required to provide a statutory declaration in the form attached, to accompany the environmental report submitted to the department.

Copies of the template statutory declarations can also be accessed from the Queensland Government website at www.qld.gov.au, using the publication number as a search term:

1. Statutory declaration environmental evaluation for recipient (ESR/2016/1997)
2. Statutory declaration for *suitably qualified person* (ESR/2016/2266)

Take notice:

1. The requirements of the notice to conduct or commission an environmental investigation take effect immediately upon service of this notice;
2. This notice remains in force until further notice from the department; and
3. You are responsible for meeting the costs of conducting or commissioning the environmental evaluation, preparing the environmental report and providing any further information as requested by the department.

C. Reviews and appeals

The provisions regarding reviews of decisions and appeals are found in sections 519 to 539 of the Act.

A person who is dissatisfied with certain decisions of the department, may be able to apply to have the department review that original decision.

Generally, a request to have a decision reviewed must:

- be made within 10 business days of the decision being notified to the person;
- be supported by enough information to enable the department to decide the application for review; and

- be made using the application form, Application for review of original decision (ESR/2015/1573) available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2015/1573) as a search term.

Where an application has been made for a decision to be reviewed, the applicant may also apply to the relevant court for a stay of the decision to secure the effectiveness of the review.

Once the original decision has been reviewed, a person who is dissatisfied with the review decision may be able to appeal against that decision to the relevant court within 22 business days after receiving notice of the review decision.

A person whose interests are or would be adversely affected by a decision of the department may also be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

For further information about reviews and appeals see the information sheet, Internal review and appeals (ESR/2015/1742) available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2015/1742) as a search term.

Information sheets are available on the Queensland Government website at www.qld.gov.au, using the publication number as a search term.

You may have other legal rights or obligations and should seek your own legal advice.

D. Penalty

Failure to comply with a notice to conduct or commission an environmental evaluation is an offence.

1. The maximum penalty for an individual is 300 penalty units, totalling $ 40,035.00.
2. The maximum penalty for a corporation is 1500 penalty units, totalling $ 200,175.00.

Should you have any queries in relation to this notice, please contact Kristen Corkill of the department on telephone number (07) 4222 5334.

Tariq Khan

Signature

16 December 2020

Date

Tariq Khan,
A/Manager (Compliance)
Delegate of the Chief Executive
Department of Environment and Science
Environmental Protection Act 1994

Enquiries:

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