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Nader Zreik
Hansen Yuncken
Level 4, 1 Rosebery Avenue
ROSEBERY NSW 2018
AUSTRALIA

Our Reference: 0084170L02-FINAL.DOC

Dear Nader,

RE: GOODMAN FIELDER – AIR QUALITY ASSESSMENT

1. INTRODUCTION

This air quality assessment has been prepared to accompany the Lenore Drive Erskine Park Project Application and Concept Plan at Lenore Drive, Erskine Park. This assessment addresses development and operation of Site Area E within the Development Plan.

The overall project site has an area of approximately 38 ha, located in the CSR Limited's land holdings adjacent to Lenore Drive. It is located within the land area addressed as 2 – 60 Lenore Drive and is a part of the Erskine Park Employment Area.

Construction work on Site Area E (53,910m^2) will include earthworks and the construction and operation of the food manufacturing facilities which are to include goods receival and dispatch, production, offices, warehousing, R&D facilities, amenities, bulk oil tank farm, LPG pilot plant, tanker washing bays, weigh bridges, trade waste facility and car park (for 125). The building footprint on the site will cover 13,990m^2. The site is located within the Penrith Local Government Area.

Site Area E is bound by Lockwood Road to the north and Templar Road to the west, the overall project site is bound by a Sydney Water pipeline to the south and by an approved industrial site to the east.

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2. SITE SUMMARY

2.1 RECEPTORS

Surrounding residences are located to the north within the residential area of Erskine Park, approximately 890m from the proposed production facility and 830m from the closest earthworks area. The Emmaus Retirement Village 'future' residences are located approximately 820m south of Site Area E, beyond the water supply pipeline. Further south on Bakers Lane are the Emmaus Catholic College, Trinity Catholic Primary School and Mamre Christian College. Other existing residential receivers are composed of a few isolated properties located north of and fronting Lenore Drive, approximately 250 metres from the site.

2.2 BACKGROUND CONCENTRATIONS

Background air quality is a measure of the existing air quality in the absence of the project activity. In the context of this assessment, 'background air quality' is used to describe sources (natural or man made) other than the site. It is important to consider background air quality when considering cumulative impacts on sensitive receptors in the area.

A desktop review of the National Pollutant Inventory (NPI) of reported emissions from fixed and mobile sources in the vicinity of the site was undertaken to obtain an indication of existing industries in the project area. No facilities within the Erskine Park area (postcode 2759) report emissions to air under the NPI reporting scheme.

A NSW Department of Environment and Climate Change (DECC) monitoring station is located approximately 5km north of the site at St Marys. This monitoring station measures ambient concentrations of Ozone (O_3), Nitrogen Dioxide (NO_2) and Particulate Matter less than 10 microns in aerodynamic diameter (PM_{10}).

For the 2006 calendar year (the latest available annual data) the average of 1 hour concentrations of NO_2 was 36.1 $\mu g/m^3$. The NSW DECC criterion for 1 hour averages of NO_2 is 246 $\mu g/m^3$. As such the annual average ambient concentrations of NO_2 in the region are 14.7% of the criteria.

Similarly, for particulate matter less than 10 microns (PM_{10}) the annual 24 hour average is 19.5 $\mu g/m^3$ and the NSW DECC criteria is 50 $\mu g/m^3$. The average ambient PM_{10} concentrations recorded in the area are 39% of the criteria.

The M7 Western Sydney Orbital road has recently been completed 2.5km east of the subject site parallel to Wallgrove Road, Eastern Creek. The M7 Motorway intersects with Old Wallgrove Road to the north-east of the site and Elizabeth Drive to the south-east.

2.3 PREVAILING WIND CONDITIONS

As no weather observation station is located at Erskine Park, wind observations are based on review of observation data taken from the Bureau of Meteorology Parramatta North (Mason's Drive) Observation Station. It is anticipated that the wind regime presented in this section would be broadly representative of that of Erskine Park, given the proximity of the Parramatta Observation Station (~20 km east of the Site).

From October to April the wind regime is characterized by morning onshore northwest to south-westerly winds with significant contributions from the south, which shift to established offshore north-east to south-east sea breezes during the afternoon.

Between May and September, the wind regime is characterised by significant onshore contributions (north-west to south-west) as well as contributions from the south and south-east. The strongest prevailing wind contributions are from on-shore sea-breezes, particularly during summer months. However, given that the subject site is located approximately 20 km west (inland) of the Parramatta recording station; it is likely that these contributions will not be as pronounced because of the greater distance from the coast.

3. LEGISLATION

The primary air quality legislation of relevance to the proposed development is the Protection of the Environment Operations Act 1997 (POEO Act). The POEO Act is the major legislation governing environment protection in NSW. Standards of concentration are prescribed by the POEO (Clean Air) Act (2002) and it is an offence under the Act for emissions of air contaminants to exceed these levels. These limits are in stack emission limits and the maximum emissions permissible for an industrial source anywhere in NSW. The emissions limits vary depending on whether an individual site is classified as a scheduled premise or a non-scheduled premise.

Goodman Fielder are currently in discussions with the NSW DECC as to whether the proposed Erskine Park facility will be classified as a scheduled premise.

The emission concentration limits for particulate matter are 20mg/m^3 for scheduled premises (as outlined in Schedule 4 of the Act) and 100mg/m^3 for non-scheduled premises (as outlined in Schedule 6 of the Act).

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

4. POTENTIAL IMPACTS

4.1 CONSTRUCTION

Emissions to the atmosphere from construction activities are primarily particulate matter. Particulate emissions from the site may occur during the construction phase from construction equipment, earthworks and unsealed exposed surfaces. Dust generating activities may include road construction, building construction and truck movements.

Potential impacts from particulate matter during short term construction activities are often nuisance related rather than health related.

Combustion emissions of carbon monoxide, carbon dioxide, particulate matter and nitrogen oxides will also occur from trucks and vehicles exhausts onsite.

ERM understand that the major earthworks associated with the construction of this facility are complete. As such, potential impacts to air quality from remaining building construction are anticipated to be negligible.

4.2 OPERATION

4.2.1 Emissions from Manufacturing Activities

Detailed design of the process to be undertaken at the site, and therefore the mitigation techniques to be employed are at preliminary design stage. To enable an understanding of the activities at site, this assessment has relied upon discussions with personnel at the Goodman Fielder facility located in Mascot,

which amongst other processes, manufactures liquid groceries in the same manner to be employed at Site E.

The proposed Goodman Fielder operations on this site will include:

- Production of Liquid Groceries;
- Production of Dry Mix;
- Site utilities; HVAC and boiler; and
- Bulk tank facility

The liquid groceries plant entails the processing and packing of mayonnaise, salad dressings, vinegar and table sauces.

A gas fired boiler, up to 5MW, is proposed for the site, and an area has been allocated in the preliminary site design for a second gas fired boiler.

The bulk tank facility will be a storage facility to distribute vegetable oils manufactured in Melbourne and Brisbane to its NSW customers. The bulk tank facility is not considered a significant source of emissions to atmosphere and is therefore not considered further in this assessment.

Emissions to atmosphere from this facility are anticipated to consist of particulate matter from processing and ingredients preparation, and combustion gases from the boiler.

4.2.2 Liquid Groceries

Within the liquid groceries manufacturing process, three activities have been identified as potential sources of emissions to atmosphere;

- Dust collection system servicing the pre-mixing/micro ingredients area and the processing room.
- Pneumatic conveyor system for transferring sugar and salt.
- Dedicated exhausts for various process operations (mixing vessels, process tanks *etc*.)

The **dust collection system** will service the pre-mixing/micro ingredients area and the processing room. The pre-mixing/micro ingredients area is the location

where starches, sugars, salts *etc* are weighed. The processing room is the location where dry ingredients are mixed with liquid ingredients.

These areas will be fully enclosed and have extraction hoods located above process areas to capture particulate matter generated. Detailed design of the ducting and mitigation equipment is not available at this stage. The existing liquid groceries process at the Goodman Fielder Mascot facility uses a DC Volks filter unit to minimise emissions of particulate matter. The discharge point at Mascot has a licence limit of 250 mg/m^3 and exhaust sampling and analysis is undertaken annually. The most recent sampling and analysis undertaken in 2007 recorded a concentration of less than 1 mg/m^3.

Detailed design criteria for this discharge have not yet been provided to the design engineers, the intention is for similar dust mitigation equipment to be used at Erskine Park to ensure that regulatory discharge criteria are met.

A **pneumatic conveyor system** may be employed at the Erskine facility for the transfer of sugar and salt. The inclusion of this activity is still under consideration. If a conveyor system were to be installed particulate emissions may be generated through conveyor transfer points. This activity will have an associated dust collection hood and discharge designed to meet regulatory discharge criteria.

The manufacturing facility will be in a temperature/humidity controlled environment and will have **dedicated exhausts** for various processing operations. For example, following regular hot water cleaning, where a build up of moisture is evident within the facility, the exhausts will be used to vent moisture and reduce humidity in the processing area. In addition processing tanks (*eg* kettles used for rehydrating garlic, onions and gherkins) may be vented to atmosphere during processing operations. Mitigation equipment is not proposed for these exhausts other than ensuring exhausts vent vertically from the roof of the facility.

4.2.3 Dry Mix

The design of the dry mix process is at a very preliminary stage. This process is anticipated to include a dry material handling operation, potentially including pneumatic conveying to/from storage silos, blending of dry ingredients, and a transfer and packaging.

It is anticipated that the detailed design process will include dust hoods or collection systems for dry material handling, transfer and mixing activities.

Discharges from this process will be designed to meet regulatory discharge criteria.

4.2.4 Site utilities; HVAC and boiler

Process steam is required for the liquid groceries and temperature/humidity controlled environment within the process. This is anticipated to be provided by one 5MW gas fired boiler, the preliminary design includes provision of an area for a second gas fired boiler. Detailed design will include determination of boiler capacity and selection of vendor for provision of package boiler. Detailed design of dispersion characteristics of the boiler (*eg* exhaust height, exit velocity, discharge limits) are not available at the time of this assessment, however the boiler vendor will be required to ensure the discharge is designed to meet regulatory discharge criteria.

5. SUMMARY

Details of the process to be undertaken at the site, and therefore the mitigation techniques to be employed are at preliminary design stage. Nonetheless this assessment has used discussion with project process engineers and an existing similar facility (with respect to the liquid groceries process) to provide an indication of the anticipated emissions and mitigation measures to be employed.

It is anticipated that Goodman Fielder's activities are unlikely to have a significant impacts to local air quality for the following reasons:

- Whilst detailed design information of process emissions sources, mitigation and discharges is not currently available – they have been identified and detailed design will be undertaken with the requirement to meet regulatory criteria.

- Impacts to local air quality from a similar operation (liquid groceries) operated by Goodman Fielder in Mascot are not considered significant. One discharge at the Mascot facility is licensed and required to be monitored annually. The results of the most recent monitoring indicate a concentration of particulate matter less than 1 mg/m^3 compared to a licence limit of 250 mg/m^3.

- The nearest sensitive receptors to the development are approximately 250 metres north of the site boundary this area is zoned as industrial land use.

The main residential area is located approximately 800 metres north of the site;

- The existing background concentrations of particulate matter and nitrogen dioxide are well below the NSW DECC criteria; and
- The majority of the earthworks associated with the construction have been completed.

Proposed activity at the Goodman Fielder site is anticipated to not represent a significant impact to local air quality from manufacturing operations.

Yours sincerely,
for Environmental Resources Management Australia Pty Ltd

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