

06/05/2020

Fraser Auret Racing
c/o Maree Marshall
27 Racecourse Avenue, Marton 4710

Dear Ms. Marshall,

I am writing in response to your inquiry as to the potential impact of planned construction of a timber processing facility on horses stabled, in-training, and racing at the Fraser Auret racecourse/training centre.

As you may be aware, prior to beginning my academic/research career, I was employed as a toxicologist, industrial hygienist and epidemiologist for a global automotive parts manufacturing company and spent significant time performing community based environmental risk assessments specific to existing and proposed manufacturing operations. I am well versed in assessing multimedia emissions (air, water, waste streams, noise and odor) and the implementation of control strategies to mitigate community impact/exposures.

In my current role in academia, my research focus is on the role of environmental and/or workplace exposures to contaminants and their role in the development of disease. Of particular research interest is lung disease. As horses are the only natural animal model for human lung disease, and racehorses are exquisitely sensitive to airway inflammation, I was part of a team of investigators working to determine the association between airborne particulates (dusts) in training stables and indices of airway inflammation known to adversely affect racing performance¹⁻³.

Environment and Racing Performance

As with humans, airway inflammation in horses due to mechanical and chemical irritation of the thoracic and lower respiratory system (trachea, lungs) due to environmental contaminants can lead to excess mucus production and cough in the absence of bacterial or viral infection. In racehorses, this non-infectious form of airway inflammation and mucus production has been associated with poor racing performance⁴. Real-time aerosol particle monitors were used to determine the association between concentrations of particles in size ranges known to cause airway inflammation and worsening of lung disease in humans, with indices of airway inflammation in racehorses known to be associated with poor performance. Stable construction, routine management practices, and environmental conditions were recorded and evaluated to determine their relationship with measured particle concentrations and numbers of particles. Risk factors for particulate concentrations known to be associated with mucus production in volumes shown to be associated with poor racing performance included season (time of year), time of day (active/busy vs overnight), ventilation status of the stable (doors/windows open and closed, proximity to busy roadways and parking lots (road dust)) and high-dust management practices³. Less well known, of increasing interest in performance horses, are the effects of exogenous noise(s) and other stressors and the release of stress hormones and their effects on performance^{5,6}.

Impact Assessment

In order to perform a comprehensive impact/hazard assessment, it is necessary to have knowledge of the following: size of the planned or existing operation of interest, proximity to sensitive populations including residential housing communities, schools, childcare or senior-living facilities, agricultural operations, etc., weather patterns and prevailing winds (affects

airborne emissions transport), a complete inventory of processes involved in the manufacturing of product(s), chemicals/chemical composition and volume used, hours of operation (1-3 shifts, #days/week) and planned (or established) environmental emissions control technologies.

Processes common to the timber industry include over the road transportation, de-barking, cutting (circular saws, bandsaws), 'seasoning', milling, laminating, painting, and others⁷. Environmental and occupational hazards associated with these processes may include excessive noise, odor, use of hazardous chemicals⁷⁻¹⁰ (resins, adhesives, solvents, paints, coolants, degreasing agents, other chemicals used to treat wood products), airborne emissions of particulates and VOCs, water emissions, stormwater runoff and generation of hazardous wastes^{11,12}.

In order to accurately assess the potential impact of the proposed operation, review of results from environmental emission modeling procedures - likely already completed in preparation for obtaining necessary environmental and operating permits – is warranted. These models will take into account the requisite information as described above and in conjunction with planned emission control technologies and relevant weather histories (prevailing winds, temperature, humidity, rainfall, etc.) can be used to predict ground level concentrations of pollutants, information which can be used to assess risk.

As the hazards associated with the timber industry are well described (environmental/occupational), at your direction I would be happy to review results of the air dispersion models for the planned timber processing facility in relation to the location of the existing racing/training centre and more comprehensively evaluate the output (results of emissions modeling) in context with your operation.

I have provided references as noted in the text below, and if desired will provide the full report for your review at your upcoming meeting(s).

Best regards,

Melissa Millerick-May PhD, MSc

References

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