

Potential Measures to Mitigate Odours from Rendering and other Similar Plants

ISSUE

Heavy industrial uses in the Hudson Bay Industrial Area have resulted in an odour nuisance, experienced by surrounding businesses and residential neighbourhoods. Odour concerns primarily arise from a rendering plant within the Hudson Bay Industrial Area.

BACKGROUND

City Council, at its Regular Business [Meeting](#) on December 19, 2022, approved the following motion:

“Whereas West Coast Reduction recycles food waste and by-products from farmers and restaurants and operates a plant in Saskatoon’s north end.

Whereas several residents and businesses in the vicinity have recently complained about the persistent strong and putrid odour likely coming from the plant.

Whereas it was recently reported that several dead pig carcasses were left piled outside the plant, generating more intense odours.

Whereas such odours are having substantial negative impacts on the quality of life for many north end residents, to the point where their ability, to sit outside in their own yard or go to the park, is compromised.

Now therefore it be resolved that the Administration report back to the appropriate Standing Policy Committee not later than the end of Quarter 1 of 2023 on various measures undertaken by the City of Saskatoon, Ministries or Agencies of the Government of Saskatchewan, and/or Ministries of Agencies of the Government of Canada to mitigate persistent and strong odours coming from this and other similar plants; and,

Be it further resolved that the Administration report back to the appropriate Standing Policy Committee not later than the end of Quarter 1 of 2023 on potential legal options available to the City and/or Province concerning the operations of the rendering plant operating in the north end of Saskatoon, the odour, and the impact this is having on the quality of life of Saskatoon residents.”

CURRENT STATUS

West Coast Reduction Operations

In the spring of 2022, West Coast Reduction (WCR), a rendering plant, resumed operations at its location of 3018 Miners Avenue, in the City of Saskatoon’s (City) Hudson Bay Industrial Area, after ceasing full operations in 2016. Rendering is the process of recycling food waste and by-products from food producers to make ingredients for such things as pet and livestock feed, fertilizers, soaps, lubricants, detergents and biofuel.

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The plant currently controls odours generated from the rendering process through multiple condensing systems and a multi-stage scrubbing process, operated by a computerized control system. All processing equipment able to generate odour is under a vacuum and ducted directly through the odour control process, which uses chemicals and water to wash particulates out of the airstream (scrubbing). All receiving and process areas inside the building are also under a vacuum and ducted through a separate room air scrubbing process.

The intention of this type of odour management approach is to mitigate escaped odours and treat air before it exits the facility. Installation challenges, when new equipment is being commissioned, or malfunctions in the odour control process could potentially lead to an odour complaint. Other potential sources of odour include transport of raw material to the plant as well as storage of raw material on-site outside the plant.

Current Zoning and Regulatory Framework

The Hudson Bay Industrial Area is zoned exclusively IH - Heavy Industrial District (IH District) and IL1 - General Light Industrial District under [Bylaw No. 8770, Zoning Bylaw, 2009](#), (Zoning Bylaw). Areas zoned IH District, within the Hudson Bay Industrial Area, are buffered by adjacent General Light Industrial District zoned sites. The IH District permits land uses which may generate nuisance conditions beyond site boundaries, including noise, dust, vibration, odour, etc. West Coast Reduction is zoned IH District where a rendering plant is a permitted use. The residential neighbourhood of Silverwood Heights is located adjacent to the Hudson Bay Industrial Area, with Lawson Heights and River Heights also being in proximity.

Complaint Summary

In 2022, regarding the rendering plant, the Community Standards Department received a total of 11 odour-related complaints and one complaint of exposed animal carcasses. A summary of zoning complaints in the Hudson Bay Industrial Area is highlighted (see Appendix 1), including a 10-year summary of odour complaints attributed to the site, as identified by each complainant, but as complaints are not followed up in real time, the Community Standard Department are not necessarily able to definitively verify them. In 2022, odour complaints allegedly relating to WCR, came from the neighbourhoods of Silverwood Heights, River Heights and the Hudson Bay Industrial Area. The furthest logged complaint was from the 300 block of La Ronge Road, located approximately 3 km away.

DISCUSSION/ANALYSIS

City of Saskatoon

Resulting from odour complaints in the summer of 2022, the Community Standards Department met with representatives of WCR to discuss potential measures to help mitigate odour concerns. To assist with validating complaints and identifying potential malfunctions in their equipment, WCR requested complaint information be forwarded to their group in real time so they may travel to the general area of the complaint to review wind conditions and performance of the odour control system. Recently, WCR installed a remote weather station which provides instantaneous wind tracking data to assist in these investigations.

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To address complaints and minimize potential for escaped odour, WCR uses an odour management plan which details the response process after a complaint is received. In addition, standard operating procedures have been developed for the odour control system, including a maintenance schedule and requirements for daily monitoring of the system. To address installation challenges when new equipment is being commissioned, improvements have been made to the system controls, which included adding alarms to indicate when industry standard values and operational setpoints are outside of the required threshold, potentially leading to odours being released from the stack. Trucking routes were also modified by WCR to minimize proximity to residential areas. Procedures and training have been updated with respect to receiving raw materials and managing abnormal operating conditions, such as the recent exposed carcasses incident.

The real time complaint data, provided by the City, was used by WCR to complete an internal audit of their odour control system to identify correlation between control system values and odour complaints. In addition, an odour abatement consultant was commissioned by WCR to complete a report with recommendations for changes to their odour control system. Changes were completed during the last week of 2022, which increased efficiency of the odour control system due to the processing equipment now operating under a greater vacuum.

The last odour complaint was received by Administration on December 14, 2022. While concentration of detectable compounds in the air, which can potentially contribute to odour, are seasonably dependent (Guerra et al., 2017) and anticipated to be less detectable in colder temperatures, daily field observations by Administration have so far resulted in zero detection of exterior odour at the site. Daily inspections were started by Administration in early 2023 to help gather data on this topic.

Other Regulatory Agencies

The Province of Saskatchewan (Province) regulates air quality through *The Environmental Management and Protection Act, 2010*. The legislation provides the Province authority to regulate air pollutants and emissions through ambient air quality standards; however, it does not address nuisance or odour activities. In 2022, when the City began receiving odour complaints about WCR, Saskatchewan's Ministry of Environment also received complaints regarding WCR and odour. The Environmental Protection Branch of the Ministry requested WCR to hire a qualified person to complete an independent assessment of their air emissions to determine the need for an Environmental Protection Plan, under the Industrial Source Air Quality Code Chapter of Saskatchewan's Environmental Code. At the time of this report, early indications show plant emissions do not trigger any requirements for an Environmental Protection Plan; however, the assessment has not yet been concluded.

The Government of Canada's federal regulations require all rendering plants to obtain an operating permit. Based on risk categories, the Canadian Food Inspection Agency undertakes, at a minimum, yearly inspections to ensure safety of production and use of rendered materials. On issuance and yearly renewal of a plant permit, the Canadian Food Inspection Agency also provides a recommendation to the Government of Canada. Air quality and nuisance odours are out of scope for operating permit requirements. Currently, WCR operates under an approved permit.

External Scan

In other jurisdictions, standards to measure or monitor odour as a nuisance range from the requirement for yearly stack testing of contaminants, typically associated with odour, to outright banning perceived odours of nuisance, with a very low threshold for what constitutes a nuisance. In some municipalities, nuisance odours for specific uses are regulated, such as composting facilities; however, in most instances, areas zoned for heavy industrial use are exempt from nuisance clauses in other bylaws, due to zoning regulations which permit external nuisances and allow for land uses in which nuisance factors have a high probability of occurring.

For example, the City of Edmonton's Nuisance Prohibition clause, within their Community Standards Bylaw, was developed out of need to regulate nuisance odours outside heavy industrial areas, for such things as back yard compost, diesel truck odours, as well as cannabis prior to its legalization, as a proactive approach.

Metro Vancouver uses a rigorous permitting process under the authority of British Columbia's environmental legislation to regulate rendering plants. This permitting process provides opportunities to proactively address potential odour issues. For example, permit approvals have included requirements for yearly stack testing and building envelope assessments to check for air leaks. Despite this, Metro Vancouver continues to receive approximately 120 complaints per year regarding rendering smells. An external scan is included (see Appendix 2).

Industrial/Residential Interface Study

The Planning and Development Department is conducting the Industrial-Residential Interface Study (Interface Study) to determine if there are ways to address existing nuisances where residential areas are impacted by heavy industrial businesses. As part of this Interface Study, an online public survey, targeting residents in neighbourhoods near existing heavy industrial areas, was open for responses from November 14, 2022, through January 31, 2023, to collect input on types of nuisances related to heavy industrial uses experienced by residents in various areas of Saskatoon. Of the 588 responses received, 235 were related to odour nuisances, including 143 respondents from the Silverwood Heights, Lawson Heights and River Heights neighbourhoods.

A stakeholder group, made up of residents and owners/operators of heavy industrial businesses, was formed in January 2023 and includes representatives from WCR. The purpose of the group is to:

- Provide advice and support to the City in facilitating engagement with businesses and residents for whom this project may be relevant;
- Build relationships between the City, heavy industrial businesses and the property owners and residents near heavy industrial areas;
- Provide insight to the City on existing nuisance conditions and any practices or efforts being made or tested to mitigate those nuisances, and
- Act as a stakeholder group the City can utilize to workshop ideas and proposals.

Targeted engagement and data collection is currently being planned for areas reportedly experiencing the most significant nuisances, as identified in the survey results.

Potential Regulatory Options

The City currently does not have an objective standard threshold to address odour nuisances outside of heavy industrial areas. There are existing situations where the City regulates offensive odours; however, regulating odours emitted by a producer within an IH District poses a number of issues.

1. Development of City Odour Regulations

In general, the City has authority to regulate nuisance odours through bylaw. The City currently prohibits nuisances under [Bylaw No. 8175, Property Maintenance & Nuisance Abatement Bylaw, 2003](#). There is nothing to say that a nuisance odour could not be enforced under this bylaw. If the City were to see an increased need for enforcement of nuisance odour issues, the bylaw could be amended to include provisions specifically relevant to odours, including certain factors to consider in determining what constitutes a nuisance odour.

Some challenges in enforcing nuisances would include the City's limited ability to regulate IH Districts for odour nuisance, given the Zoning Bylaw permits nuisances generated during normal course of operations to escape from those sites. Another challenge is the difficulty posed by the subjective nature of odour and the industry standard typically used to measure odour. The standard is neither practical nor economical, as it involves the use of trained panel members at a specialized lab. Rather, municipalities with an enacted odour nuisance clause typically rely on an inspector's assessment through field observations.

The difficulty is further compounded by the short-lived episodes of odour, common with odour complaints. In some cases, it can be difficult to definitively pinpoint the odour's source. Other businesses have been subject to odour complaints within the Hudson Bay Industrial area. The evidence required to prove an odour qualified as a nuisance, beyond a reasonable doubt, could also be difficult to achieve, and therefore create challenges for any nuisance odour prosecutions.

2. Zoning Bylaw Amendment

Due to the flexible nature of the IH District, in terms of permitting nuisance, amendments could be enacted to add specific development standards for uses, such as rendering plants. For example, the City of Chilliwack includes development standards for "special industries" in their heavy industrial district, which require certain nuisance uses, such as abattoirs and associated uses, to meet certain conditions which preclude them from being permitted to have a nuisance, such as odour, go beyond the boundary of their site. Other municipalities have enacted a separation distance from residential uses. Alternatively, the Zoning Bylaw could be amended to prohibit rendering and other similar uses in the IH District.

The disadvantage of the amendment option is that existing uses would become legal, non-conforming uses and would be able to continue operating under previous regulations, as per *The Planning and Development Act, 2007*. Given this, nuisances could potentially continue to exist.

3. Proactive Monitoring

Given the short, episodic nature of odour complaints and recent changes undertaken by WCR to address complaints, proactive odour assessments based on wind monitoring could be completed, by the Bylaw Inspectors, in the Hudson Bay Industrial Area, ensuring future complaints could more likely be traced to a probable source, given the concentration of potential nuisance odours in the area.

Metro Vancouver uses this technique to proactively check for odour nuisances. Complaints received by Metro Vancouver must be attributable to a source before they are forwarded to the offending party. Similar to Saskatoon, Metro Vancouver works with the property owner in disseminating their complaints to address and troubleshoot for potential issues causing the complaint. However, in the case of Metro Vancouver, complaints are received 24 hours a day by a live agent, and an on-call inspector is available on weekends as well as after hours until 11:30 pm.

Odour survey options and assessment tools are being reviewed as part of the Interface Study. Scope of work and consultant services will be retained if determined feasible for targeted data collection.

The approaches described above focus on the City's regulatory measures. However, the Ministry of Environment's Environmental Protection Branch is completing their own assessment, which may generate additional regulatory approaches, at the provincial level, to address this issue.

FINANCIAL IMPLICATIONS

Any continued inspections of the WCR site will occur through existing operating budget resources. In the event that direct odour regulation is desired by City Council, Administration would need to review potential capital and operating costs.

OTHER IMPLICATIONS

There are no privacy or social implications identified. The legal and environmental implications are as discussed in the body of the report.

NEXT STEPS

As detectable compounds in the air, which can contribute to odours, are seasonally dependent, unless directed otherwise, Administration will continue to monitor the site periodically through the spring and summer months to determine if an odour problem continues to exist. Administration will also undertake to report back in Q1 2024 on the results of the proactive monitoring approach, and to determine if any additional consideration for potential regulations may be required at that time. In addition, Administration will follow-up with the Province on the outcome of their review.

APPENDICES

1. Historical Odour Complaint Data for Hudson Bay Industrial Area
2. Local Regulation and Jurisdictional Scan
3. Confidential – Solicitor/Client Privilege

REPORT APPROVAL

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Guerra, F. D., Smith Jr, G. D., Alexis, F., & Whitehead, D. C. (2017). A survey of VOC emissions from rendering plants. *Aerosol and Air Quality Research*, 17(1), 209-217.

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