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 Mailing Address: PO Box 5350 Stn Terminal, Vancouver BC, V6B 5L5
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The *Workers Compensation Act* requires that the employer must post a copy of this report in a conspicuous place at or near the workplace inspected for at least seven days, or until compliance has been achieved, whichever is the longer period. A copy of this report must also be given to the joint committee or worker health and safety representative, as applicable.

A revised version of the *Workers Compensation Act* took effect on April 6, 2020. The B.C. government's revisions aim to make the Act easier to read and understand, and to reorganize the numbering to make laws easier to find. The revisions make no changes to B.C.'s laws concerning workers' compensation, occupational health and safety, and employers' assessment premiums. Please be aware there may be a transitional period where correspondence from WorkSafeBC may include references to either the previous Act or the revised Act. For more information, visit www.worksafebc.com/WCA2019 or call the Prevention Information Line at 604.276.3100, or toll free within BC at 1.888.621.7233 (SAFE).

Inspection Report #202118282055A

Employer Name	Jobsite Inspected	Scope of Inspection
SIMON FRASER UNIVERSITY	8888 ›11 University Drive Burnaby BC V5A 1S6	Indoor Air Quality Investigation

Date of Initiating Inspection	Date of This Inspection	Delivery Date of This Report	Delivery Method
Dec 09, 2021	Dec 09, 2021	Dec 16, 2021	Email

THERE ARE TWO (2) ORDERS OR OTHER ITEMS OUTSTANDING

ACTION REQUIRED

Summary of Orders or other Items

See "Orders/Items – Full Details" section of this Inspection Report for orders/items cited

Order/Item No.1 <input type="checkbox"/>	Status: Outstanding	Cited: OHS4.79(2)(a)
Order/Item No.2 <input type="checkbox"/>	Status: Outstanding	Cited: OHS4.79(2)(b)

ORDER STATUS LEGEND

Order Status	Description
Outstanding	Order Outstanding - Action Required to Achieve Compliance
Complied	Compliance Achieved - No Further Action Required
Closed	Order is Closed
Rescinded	Order has been cancelled - No Further Action Required

INSPECTION NOTES

On September 9, 2021, WorkSafeBC Prevention Officer R. Levis and I met virtually with representatives of Simon Fraser University (SFU) for the purpose of confirming compliance with the *Workers Compensation Act (WCA)* and *Occupational Health and Safety (OHS) Regulation*. The focus of this inspection was indoor air quality (IAQ) in the South Sciences Building (SSB), Technology and Science Complex 2 (TASC2), and Shrum Science Building (SSB).

On September 10, 2021, in follow-up to the meeting held on September 9, 2021, an employer representative provided the following documents by email:

- "SFU Air Quality Screen Measurements" (April 27, 2021)
- "Corix Biomass Burner SFU Burnaby Campus" (October 15, 2021)
- "Response to Smokey small Oct 2020-now"

DISCUSSIONS

During this inspection, I met with employer representatives and a worker representative. The items discussed included, but were not limited to:

- An employer representative stated that complaints related to IAQ within the SSB, TASC2, and SSB were first raised in October 2020 and have been intermittently reported to the employer since October 2020. Records of the complaints have been maintained from October 2020 until May 2021, although, complaints are still being reported.
- An employer representative stated that the majority of the complaints are related to smoke ingress within the SSB. Health effects, such as eye irritation, have also been reported and at times, workers have left the affected workplaces.
- Corix started operating a biomass plant in October 2020 immediately south of the above mentioned buildings. This biomass plant processes recycled wood chips to generate thermal energy for the SFU district energy system. It is believed that the biomass plant is likely the source of the smoke.
- The employer retained a third-party consultant to conduct an IAQ investigation ("SFU Air Quality Screen Measurements", April 27, 2021). Carbon dioxide (CO₂), carbon monoxide (CO), total volatile organic compounds (TVOC), and airborne particulate matter with an aerodynamic diameter of 2.5 µm or less (PM_{2.5}) were monitored and data-logged from March 11, 2021 until April 6, 2021 in two areas of the SSB. Wind velocity and direction as well as PM_{2.5} were monitored on the roof of the SSB. Elevated levels of CO and PM_{2.5} were not observed.
- An employer representative stated that complaints of smoke ingress appear to occur at times when the biomass plant is operating under suboptimal conditions (e.g., during shut downs and start ups). As such, the employer retained another third-party consultant to conduct another IAQ investigation to capture such an event.
- The second IAQ investigation was conducted between September 17, 2021 until September 27, 2021; concentrations of CO, nitrogen dioxide (NO₂), and PM_{2.5} were data-logged for the duration of the sampling period in a room located within SSB. The biomass plant was not in operation for the majority of the sampling period; start-up occurred on September 26, 2021. Elevated concentrations of CO, NO₂, and PM_{2.5} were not observed in the sampling location during start up (wind direction and occupancy within SSB was unknown at the time of the start up).
- An employer representative provided a summary of corrective actions that have been taken by email:
 - A mail list was implemented with representatives of SFU and Corix to allow Corix to immediately notify SFU of any changes or concerns and SFU to immediately notify Corix of any complaints (implemented December 7, 2021).
 - Facility Services arranged with Corix to only conduct facility start ups after hours (implemented January 22, 2021).
 - Environmental Health and Safety (EHS) reviewed the complaints log and identified key activities that may be a factor in the IAQ concerns (Corix received the log in December 2020 and provided a summary of activities to SFU on May 31, 2021).

- I discussed with the employer representatives that the IAQ investigation must include a record of the complaints, investigation findings, and actions taken. See References section of this IR.
- An employer representative stated that the implementation of these corrective actions has mitigated the number of complaints; however, complaints are still being reported. The employer representative stated that additional IAQ investigations will be conducted (scheduled for January 18, 2022) and filters will be upgraded in the SFU buildings (MERV13 filters with carbon coated pre-filter are planned to be installed by January 17, 2022). Other engineering solutions are being explored with Corix. See References section of this IR.

Upon review of the above mentioned IAQ investigations, I determined the following:

- The direct reading portable gas monitors used during at least the first IAQ investigation were not field calibrated. Direct reading portable gas monitors must be calibrated as per the manufacturer's instructions. See References section of this IR and resources section below.
- The IAQ investigations do not meet the requirements of section 4.79(2)(a) and 4.79(2)(b) of the *OHS Regulation*. See orders #1 and #2.

RESOURCE(S)

I provided links the following resource(s) to the employer via email:

- OSHA's Safety and Health Information Bulletin "Calibration and Testing Direct Reading Portable Gas Monitors"

CONTACT INFORMATION

If you have any questions or require additional information regarding this report, please contact me via the following:

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Occupational Hygiene Officer
Prevention Field Services
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worksafebc.com | P 604.232.5965 | F 604.232.5950
Call Centre 1.888.621.7233

To report a serious accident/incident or a major chemical release, please call:

604.276.3100 in the Lower Mainland
1.888.621.7233 within BC (toll-free)

To report after hours health and safety emergencies, please call:

1.866.922.4357 within BC (toll-free)

Additional information regarding health and safety, including the Workers Compensation Act and Occupational Health and Safety Regulation, may be found at the WorkSafeBC website (www.worksafebc.com).

ORDERS/ITEMS

An employer who fails to comply with Occupational Health and Safety ("OHS") provisions of the *Workers Compensation Act*, the Occupational Health & Safety Regulation, or WorkSafeBC orders may be subject to monetary or other sanctions as prescribed by the *Workers Compensation Act*.

Orders/Items - Full Details

Order/Item No.1 <input type="checkbox"/>	Status: Outstanding	Cited: OHS4.79(2)(a)
<p>An employer representative stated that workers began reporting indoor air quality ("IAQ") concerns as of October 2020. The employer retained two separate third-party consultants to conduct IAQ investigations as follows:</p> <ul style="list-style-type: none"> • An initial IAQ investigation was conducted from March 11, 2021 until April 6, 2021 ("SFU Air Quality Screen Measurements", April 27, 2021). • A subsequent IAQ investigation was conducted from September 17, 2021 until September 27, 2021 ("Corix Biomass Burner SFU Burnaby Campus", October 15, 2021). <p>Neither of the IAQ investigations include an assessment of the ventilation rate or identify whether the carbon dioxide levels within the buildings are less than 650 ppm above the ambient outdoor levels.</p> <p>This is in contravention of the Occupational Health and Safety Regulation Section 4.79(2)(a).</p> <p>An air quality investigation must include assessment of the ventilation rate, unless the indoor carbon dioxide level is less than 650 ppm above ambient outdoor levels.</p> <p>Note: in Subsection (2)(a) carbon dioxide is considered a marker indicator of sufficient outdoor air, not as a toxic air contaminant for which the exposure limit in Table 5-4 would apply. Normally, ambient levels are approximately 350 ppm, but may be higher in locations such as urban areas or during weather conditions such as inversions. Ambient levels may be assumed to be 350 ppm unless sampling establishes otherwise.</p> <p><u>Measures to Ensure Compliance:</u> The employer must provide this Officer a copy of the IAQ investigation by January 28, 2022.</p>		

Orders/Items - Full DetailsOrder/Item No.2 Status: **Outstanding**Cited: **OHS4.79(2)(b)**

An employer representative stated that workers began reporting indoor air quality ("IAQ") concerns as of October 2020. The employer retained two separate third-party consultants to conduct IAQ investigations as follows:

- An initial IAQ investigation was conducted from March 11, 2021 until April 6, 2021 ("SFU Air Quality Screen Measurements", April 27, 2021).
- A subsequent IAQ investigation was conducted from September 17, 2021 until September 27, 2021 ("Corix Biomass Burner SFU Burnaby Campus", October 15, 2021).

The above referenced IAQ investigations do not include an inspection of the ventilation system as required in section 4.78(2) of the *OHS Regulation*.

This is in contravention of the Occupational Health and Safety Regulation Section 4.79(2)(b).

An air quality investigation must include inspection of the ventilation system as required in section 4.78(2).

Measures to Ensure Compliance:

The employer must provide this Officer a copy of the IAQ investigation by January 28, 2022.

REFERENCES

In addition to any orders, or other items, and the information provided in the Inspection Notes section in this Inspection Report, the officer may discuss other health and safety issues with the employer arising out of the inspection. The information below sets out the health and safety requirements discussed with the employer, and unless otherwise noted, violations of these requirements were not observed.

Reference	Details Discussed
<p>OHS4.79(2)(d)</p> <p>An air quality investigation must include a record of the complaint, the findings of the investigation, and any actions taken.</p>	<p>I discussed that an IAQ investigation must include a record of the complaint, findings of the investigation, and any corrective actions taken. I recommended that the employer maintains a record of when the corrective actions were implemented and when any remaining corrective actions will be implemented.</p>
<p>OHS5.53(4)</p> <p>Workplace exposure monitoring and assessment must be conducted using occupational hygiene methods acceptable to the Board.</p>	<p>As per the NIOSH Manual of Analytical Methods (NMAM), 5th Edition, General Considerations for Sampling Airborne Contaminants, states that direct-reading instruments require field calibration. Field calibration is required to ensure that the instrument sensors are responding correctly in the working conditions environment.</p>
<p>OHS3.10</p> <p>Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.</p>	<p>I discussed that reports of unsafe conditions or acts must be investigated and corrective actions implemented without delay.</p>

Employer #	Mailing Address	Classification Unit #	Operating Location
112786	8888 UNIVERSITY DR BURNABY BC V5A 1S6	765010	001

Lab Samples Taken	Direct Readings	Results Presented	Sampling Inspection(s)	Workers onsite during Inspection	Notice of Project Number
N	N	N		8	

Inspection Report Delivered To	Employer Representative Present During Inspection	Worker Representative Present During Inspection	Labour Organizations & Local
Melinda Skura	Melinda Skura	Matthew Plotnikoff	CUPE Loc 3338 Simon Fraser University Faculty Association Administrative and Professional Staff Association (APSA) TSSU Poly Party

WorkSafeBC Officer Conducting Inspection
Ajla Duranovic

*Inspection Time	*Travel Time
7.25 hrs	0.00 hrs

*The time recorded above reflects the inspection time and travel time associated with this inspection report and includes time spent on pre and post-inspection activities. Additional time may be added for subsequent activity.

Request a Review

Any employer, worker, owner, supplier, union, or a member of a deceased worker's family directly affected may, within 45 calendar days of the delivery date of this report, in writing, request the Review Division of WorkSafeBC to conduct a review of an order, or the non-issuance of an order, by contacting the Review Division. Employers requiring assistance may contact the Employers' Advisers Office at 1-800-925-2233.

To submit a request online, visit <https://www.worksafebc.com/en/review-appeal/submit-request>

WorkSafeBC values your feedback. To obtain that feedback, an external market research provider may be contacting you to complete a survey.