



# Alyssa Ehman, MSc, CIH

## Senior Industrial Hygienist

### Professional Summary

Ms. Ehman is a certified industrial hygienist with over 10 years of experience in qualitative and quantitative occupational exposure assessment, data management and analysis, exposure control implementation, program and related safe operating procedure development, training development and facilitation, and interpretation of provincial and federal regulations. She has worked in underground metal ore mining, open pit coal mining and consulting.

Ms. Ehman's experience in exposure investigation and risk assessment has included anticipating exposure risks during project design of water treatment facilities, LNG haul truck trials, and mine maintenance, processing, and supporting infrastructure development. She has also performed exposure risk assessments in existing mine operations, collecting occupational exposure samples to assess effectiveness of exposure controls for crystalline silica, diesel particulate matter, respirable coal dust, welding fume, volatile organic compounds, surface contamination for heavy metals, combustion gases, noise, and various forms of ionizing radiation.

Ms. Ehman has developed training programs for personal protective equipment, respiratory protection fit testing, and gas detection. Her training facilitation has extended to occupational exposure sampling, gas detection, respiratory protection, fit testing, nuclear density gauge safety and radiation protection.

Ms. Ehman has developed and maintained documentation for radiation protection and associated dosimetry programs required by federal regulation for uranium mining and milling. She has been involved in many initiatives and projects to maintain radiation exposures as low as reasonably achievable (ALARA).

### Employment History

- Aura Health and Safety Corporation. Industrial Hygienist, Burnaby, BC, 2019 to present.
- Teck Coal, Lead Occupational Hygiene, Sparwood, BC, 2017 to 2019.
- Teck Coal, Occupational Hygienist (previously Health & Wellness Coordinator), Fording River Operations, Elkford, BC, 2014 – 2017.
- Cameco Corporation, Industrial Hygiene Specialist, Rabbit Lake Operation, SK, 2012 to 2013:
- Cameco Corporation, Radiation Specialist, Rabbit Lake Operation, SK, 2008 to 2012

### Representative Projects

#### Exposure Risk Assessments

Ms. Ehman has completed and assisted in several qualitative exposure risk assessments for projects and entire mine operations. These assessments included process observation, collecting worker information, and reviewing existing occupational exposure data and applying industry knowledge of occupational health hazards. Collectively, Alyssa has used this information to determine similarly exposed groups for applicable health hazards, identify existing controls, and prioritize resources for control implementation and exposure verification through sample collection.

Ms. Ehman has collected chemical and physical occupational exposure samples using standard analytical methods and real-time technology, where possible. Her occupational exposure sampling experience includes both

#### Core Skills

- Exposure risk assessment
- Project design review
- Training facilitator
- Radiation protection
- Program development
- Legislation interpretation

#### Education

- MSc, Occupational Health & Hygiene, Montana Tech of the University of Montana, 2013
- BSc, Toxicology (honours), University of Saskatchewan, SK, Canada, 2007

#### Professional Qualifications

- American Board of Industrial Hygienists, CIH #11259CP, 2017

#### Memberships/affiliations

- American Industrial Hygiene Association BC Yukon Local Section- 2013 to present

#### Location

- Fernie, BC

#### Languages

- English

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personal and area sampling for; respirable crystalline silica, diesel particulate matter, and coal dust; welding fume and metal particulates, volatile organic compounds, kerosene, carbon monoxide, nitrogen dioxide, nitrous oxide, hydrogen sulphide, ammonia, noise dosimetry and surveys, radon gas, radon progeny, long-lived radioactive dust, and gamma radiation. She has performed alpha/beta scans for identifying levels of radioactive contamination and collected surface wipes to determine heavy metal contamination. She has also collected bulk samples of potential asbestos containing material.

Ms. Ehman has also performed task-based sampling strategies. Effectively using real time monitoring and analytical methods at the same time to determine the tasks or areas with the highest risk of exposure for a specific agent. Prioritizing exposure controls in these tasks and areas significantly reduces the total exposure of affected workers.

Ms. Ehman has used Microsoft Excel and dedicated occupational health and exposure databases to manage and statistically analyse small and large data populations. By translating data into usable information, she has verified qualitative exposure risk assessments. She has used this information to justify engineered exposure controls, properly select personal protective equipment, and communicate risk to management and workers.

### **Radiation Protection**

Ms. Ehman worked in the underground uranium mining industry for over 5 years providing mine, maintenance and mill support for maintaining ionizing radiation exposures as low as reasonably achievable. This included supporting both safety and radiation departments in technical aspects of industrial hygiene and radiation protection, training and supporting technical staff, modelling total radiation exposures for underground mine & surface mill personnel, collaborating with mine & ventilation engineers regarding mine plans to optimize radiation exposure reduction, participating in provincial and federal audits and inspections, developing and maintaining program documentation and fulfilling regulatory reporting commitments.

Ms. Ehman supported a mine ventilation project that substantially extended the mine fresh air raise vertically to prevent the recirculation of exhausted mine air. The height and effectiveness of the extended fresh air raise was determined by a creative sampling strategy and data analysis. The project prevented mine evacuations, increased production and ultimately minimized risk of exposure to occupational health hazards.

Ms. Ehman was part of the MCP Altona Recovery project team. This project involved the collection and repackaging of uranium ore concentrate that was spilled in the hold of a shipping vessel. The shipping vessel was safely remediated. The project's success was a result of the effective collaboration of internal company subject matter experts, several contracting companies, and various regulatory jurisdictions.

### **Training Development and Facilitation**

Ms. Ehman has experience in developing training for respiratory protection equipment, hearing loss prevention programs and gas detection. She has created courses in alignment to the Systematic Approach to Training (SAT) to ensure learning objectives are met. She enjoys facilitating training and engaging with all levels of the workforce to achieve a consistent understanding of occupational health exposure risks and how to prevent or lower the risk. She has also learnt a lot from trainees regarding their work and contributions to exposure reduction.

Ms. Ehman has mentored and trained many technicians and junior hygienists throughout her career. As there are limited human resources in the profession of occupational health & hygiene it is important to inspire others to join an increasingly popular field of work.

Ms. Ehman has extensive experience in facilitating respiratory protection training, respiratory protection fit testing, and training individuals how to perform respiratory protection fit tests. She has provided numerous radiation protection courses and mine site orientations covering conventional safety and occupational health & hygiene.

### **Program Development**

Ms. Ehman has developed and supported the development of occupational health and safety, radiation protection, industrial hygiene, alcohol and drug testing and occupational health assessment programs. Programs were developed in alignment with applicable regulatory requirements, Canadian standards and industry best practices, where applicable.

### **Safety Data Sheet (SDS) Review**

Ms. Ehman has provided technical review of product SDS to determine, and provide guidance on appropriate exposure controls prior to product use, or recommend alternate products with lower risk to occupational health, safety and environment.

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### **Presentations**

1. MSc Thesis Project – An Investigation of the Effectiveness of an Air Curtain to Reduce Particulate Exposures on a Mobile Underground Loader, Montana Tech of the University of Montana, 2013.
2. Undergrad Seminar – Rural Drinking Water Quality and Effective Treatment, University of Saskatchewan, College of Toxicology, 2007.