

Minnesota Carbon Monoxide Monitoring

Guy's Construction

MNOSHA + MN Rules Indoor Ventilation/Temperature

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SAMPLE DOCUMENT - NOT FOR COMPLIANCE USE

MINNESOTA-SPECIFIC CO MONITORING REQUIREMENTS

Minnesota (MNOSHA) operates a state plan with specific indoor ventilation and temperature standards that exceed federal OSHA. CO monitoring is critical during Minnesota winters when enclosed spaces are heated with combustion equipment.

- enclosures at construction projects standard

MN Rule 5207.0500

- state-specific high visibility PPE requirements

MN Rule 5207.0100

- written safety program required

MN Statute 182.653 Subd. 8

- sidewalk sheds and lighting requirements

MN Rule 5207.0530-0540

- jobsite shelter requirement

MN Rule 5207.0810

- third physician to conduct examinations, consultations, laboratory tests and discussions with prior physicians as necessary to resolve disagreement
- a diagrammatic sketch of the mechanical installation along with a detailed explanation of the flow, procedures and frequency of well tests, calibration/proving of metering devices and allocation formu
- fiberboard box (4G) or fiber drum (1G) with plastic inner packaging not exceeding 5 kg (11 lbs) and maximum net mass not more than 25 kg (55 lbs)
- the overall status of implementation of the provisions of this Part relating to the identification, inventory, and removal of underwater obstructions
- a list of interested parties (those with interests in the leases and/or units from which production is to be commingled for which the applicant has no existing commingling authority)
- Continuous carbon monoxide monitoring is required in areas where internal combustion engines are operated indoors
- environmental exposure of employees to carbon monoxide whenever internal combustion engines discharge engine exhaust gases indoors or unvented space heaters are operated indoors
- asphyxiation and carbon monoxide poisoning
- carbon monoxide gas from the entire garage
- carbon monoxide poisoning, central nervous system depression, and cancer risk
- handling or use of hazardous chemicals in which all of the following conditions are met: chemical manipulations are carried out on a laboratory scale where the containers used for reactions, transfers
- requirements in paragraph (b) in lieu of maintaining a monitoring system capable of detecting a criticality as described in 10 CFR 70.24
- for Class I, Division 2 Hazardous Locations
- Table H-16 or H-17, and subdivisions (ii) and (iv) of this subparagraph
- as recommended by the manufacturer
- during initial operation, at least quarterly thereafter, and during highest usage periods

MN Rule 5207.0310

- CO air monitoring during initial operation and quarterly thereafter during highest usage periods

MN Rules 5207.0310

- mandatory CO monitoring for indoor engines - no federal equivalent

MN Rule 5207.0310

- hearing conservation program including monitoring and audiometric testing
- high visibility outer garment
- Cores from nearby wells may be accepted if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative
- 60 days before the anniversary date of the establishment of the financial instrument(s)
- reassessment by ICDA or SCCDA following requirements in Subparagraph 1.c
- an application for permit transfer at least 30 days before the proposed permit transfer date
- 3 foot-candles minimum illumination
- Mechanical ventilation systems must be installed to maintain carbon monoxide concentrations below 50 ppm and provide at least 4 air changes per hour
- spray paint vapors from the enclosures to the outside air by means of either mechanical exhaust or window ventilation
- specified ventilation requirements
- Minnesota-specific indoor workplace temperature and ventilation requirements. Minimum temperatures for indoor workplaces during winter.

MN Rules indoor ventilation/temperature

- standards in places of employment
- 20 percent efficiency factor (or lower factor as determined by the Regional Administrator)
- located in bodies of water being actively navigated
- all spacing indicated is measured center to center
- paragraph (q)(11)
- locking in both directions on the lifeline
- adequate ventilation and temperature control
- the provisions of this chapter governing harmful physical agents
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- either laid down, secured to a stationary member as nearly under the head as possible by attachment of a sling to the load block, lifted to a vertical position and secured to the mast (for guy derrick
- designating information of a non-safety nature
- with the Secretary a protest or intervention in accordance with these rules in order to continue to receive copies of the pleadings filed in a specific proceeding
- All deck surfaces of the barge, pontoons, vessel, or other means of flotation used are above water
- the rules and regulations of the Commission as they are applied to oil and gas operations in the application lands along with any procedures or conditions the applicant will voluntarily follow to addr

FEDERAL BASELINE

Federal CO exposure limits and ventilation requirements:

- less than 25 ppm
- lethal hydrogen fluoride (HF), carbon monoxide (CO), carbon dioxide (CO₂), and electrolyte vapors during thermal runaway; BESS containers are PRCS by default

NFPA 855 / UL 9540A testing data

- IC engine forklifts (Class IV/V) produce carbon monoxide in enclosed warehouses; CO monitoring program required under general duty clause; consider switching to electric

OSHA general duty clause

- carbon monoxide monitoring program; CO buildup in enclosed warehouses is a recognized hazard cited under general duty clause

29 CFR 1910.178 / OSHA general duty clause

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MINNESOTA WINTER CONSTRUCTION CO HAZARDS

Minnesota winters create extreme CO risk. Enclosed construction spaces heated by propane, kerosene, or diesel heaters can reach lethal CO levels within minutes if ventilation is inadequate.

- Temporary heaters: ensure adequate ventilation. Open at least one window/door per heater minimum.
- Concrete curing with heaters: monitor CO continuously. Concrete absorbs heat slowly, requiring extended heater operation.
- Generators: NEVER operate gasoline generators inside enclosed or partially enclosed spaces
- Gasoline-powered concrete saws, trowels, compactors: CO accumulates rapidly in enclosed structures
- Vehicle warm-up: do not idle vehicles in attached garages or enclosed loading docks
- Ice rink resurfacers (Zamboni): MN has had CO poisoning incidents from propane/gas-powered resurfacers in enclosed rinks

MONITORING PROTOCOL FOR MN WINTER CONSTRUCTION

- CO monitor required in any enclosed space where combustion equipment operates
- Monitor at breathing zone, continuous during heater operation
- Action levels: 25 ppm (increase ventilation), 50 ppm (evacuate non-essential), 100+ ppm (full evacuation)
- Morning startup: monitor before workers enter spaces that were heated overnight
- Lunch breaks: re-monitor before re-entry if heaters were running in vacant space

MINNESOTA INDOOR TEMPERATURE REQUIREMENTS

- MN Rules require minimum indoor workplace temperatures during occupied hours
- This creates a tension: need to heat spaces (combustion risk) to meet temperature requirements
- Resolution: use electric heat, direct-vent heaters, or ensure adequate ventilation with combustion heaters

