



The Canadian Wind Energy Association is the voice of Canada's wind energy industry, actively promoting the responsible and sustainable growth of wind energy.

The Occupational Health and Safety Committee works collaboratively to provide solutions to health and safety concerns specific to the wind industry in Canada.

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Sources

International Hydraulic Safety Authority,
www.hsac.ca

Construction Equipment Magazine
www.constructionequipment.com/injection

Siemens Gamesa Renewable Energy

What do you need to know?

- Hydraulic injection injuries are severe. Immediate medical attention is required.
- Symptoms may be ignored until many hours later when pain and inflammation increase.
- Misdiagnosis and downgrading severity of injuries may be possible due to the benign appearance of the injection site.
- Access to SDS sheets and incident reporting is a regular practice at wind energy facilities.
- The amount and pressure of the fluid as well as location and time of the injection injury is important to know.
- Hydraulic pressures can exceed 2,000 kPa (3,340 psi). As a result, gloves and long sleeves are not sufficient PPE to prevent injuries.



Photo credit: Siemens Gamesa

Hydraulic Injection Awareness for First Responders

CanWEA Occupational Health and Safety Committee

Hydraulic Injection

Due to the high pressures employed in hydraulic systems a pin-hole leak can result in serious injuries.

How it happens

Aging, fatigued, faulty or otherwise damaged hydraulic equipment suffers a small pin-hole leak that projects a high-pressure stream of hydraulic fluid.

A worker exposed to the stream suffers a puncture in the skin and entry of hydraulic fluid into the tissue.

In the photos below the wind turbine technician is quoted as saying, “It felt like a needle stuck me.”



Associated injuries:

Tissue damage; compartment syndrome; loss of blood supply to the area; progressive death of tissue; bacteria growth; resultant amputation of limb.

The importance of being aware

Hydraulic systems are used in the center of the rotor blades as well as the main “body” or nacelle at the top of the tower. Hydraulic tools are also frequently used.

Left untreated, loss of limb is a likely outcome of injection injuries.

The role of wind farm staff

Wind turbine technicians are trained in high angle rescue and some first aid. They are typically the most qualified personnel on site to rescue and extract an injured worker.

Emergency response plans are in place and rehearsed on site. Communication with EMS and intermediate care is provided until first responders arrive.

Expectations of first responders

Wind farm staff depend on first responders to provide advanced care and transport the patient after they are removed from the wind turbine or substation. It is expected that first responders will conduct an individual assessment of the patient and treat symptoms appropriately.



Photo credit: Siemens Gamesa

Working with wind farm operators

Wind farm operators want to work closely with first responders to plan and train for the worst situations. Be sure to contact any facilities in your region to enable good communication and the best outcome from a potential incident.

Key facts

- Symptoms may not be obvious.
- Initial pain can be related to an insect bite or sharp-prick.
- Hydraulic fluid can be highly caustic causing rapid tissue death.
- Compartments of harder tissue may balloon under the pressure of injection.