



## LIGHTNING SAFETY

**SWP #19000-036**

*Issue Date: April 2017*

*Review Date: April 2022*

*Area: SCEP*

*Document Owner: Environment, Health and Safety Manager*

*Document Contact: Safety/Hygiene Advisor*

---

### **SCOPE AND PURPOSE:**

The purpose of this document is to detail the safe approach when dealing with severe weather at the St. Clair Ethanol facility. This standard applies to all employees, contractors and visitors.

### **ROLES AND RESPONSIBILITIES:**

The **Safety and Hygiene Advisor** is accountable to provide support, as necessary to ensure the safety of all workers and conformance to this Standard.

**Workers and Supervisors** are accountable to evaluate their work tasks in consideration for the forecast for that day.

**Supervisors** are accountable for consistently checking on the forecast and updating their direct reports of any changes that occur.

**Contractors and Workers** are accountable for staying alert when working outdoors and notifying their supervisors of any changes.

### **GUIDANCE AND STANDARDS:**

A single lightning bolt can carry up to 100 million volts of electricity.

April to October is the prime thunderstorm months in Canada. Thunderstorms, and subsequently lightning, occur most often in late afternoon or evening, and around sunrise.

Lightning tends to strike higher ground and prominent objects, especially materials that are good conductors of electricity (i.e. metal).

Thunder can be a good indicator of lightning – loud cracking means it is close, and rumbling means the storm is further away.

The National Lightning Safety Institute recommends using the **Flash-to-Bang Method** to determine the risk associated with a thunderstorm.

#### **Flash-to-Bang Method -**

1. Look for and visually confirm lightning “flash”
2. Start counting the number of “Mississippi” seconds; continue until you can hear a “bang” – confirmation of thunder is heard.
3. Divide the total number of “Mississippi” seconds by three (3). The resulting number equals the kilometer distance you could be from a lightning storm and the corresponding risk of lightning strikes in the area.

**Recommended Preventative Actions -**

Flash to Bang Count (seconds)	Distance of Storm	Action to Take
45 or greater	Storm activity is 15 km or greater	<p>Monitor closely and prepare for possible suspension of all elevated work activities.</p> <p>Shift Supervisor will:</p> <ul style="list-style-type: none"> <li>• Apply the Flash-to-Bang method</li> <li>• Notify the Operations Manager</li> <li>• Note the work being performed and assess whether work can be suspended in the event that the risk of lightning storm activity increases and requires suspension of work activities</li> </ul>
Between 30 and 45	Storm activity between 10 and 15km	<p>Suspend all work performed at elevations</p> <ul style="list-style-type: none"> <li>• Includes, but not limited to, the use of cranes, aerial work platforms, other lifting devices, etc.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• Work may continue at grade</li> <li>• Shift Supervisor will notify the Control Room and Operations Manager of any suspensions to elevated work activities</li> <li>• All affected Safe Work Permits will be suspended. Once work can recommence, all affected Safe Work Permits must be re-validated and re-issued.</li> <li>• Operations Manager will notify the Site Director and EH&amp;S Manager that all work at height has been suspended due to severe weather</li> </ul>
<30	Storm activity <10km	<p>Suspend all outdoor work</p> <ul style="list-style-type: none"> <li>• Once work has been suspended, it cannot be resumed until 30 minutes has passed since the previous sound of thunder or lightning was observed</li> <li>• Shift Supervisor will notify the Control Room and Operations Manager that all outdoor work has been suspended due to severe weather.</li> <li>• All affected Safe Work Permits will be suspended. Once work can recommence, all affected Safe Work Permits must be re-validated</li> </ul> <p>Operations Manager will notify the Site Director and EH&amp;S Manager that all outdoor work has been suspended due to severe weather conditions.</p>

It is recommended that during thunderstorms, workers remain in a well-constructed building (i.e. fully enclosed with a roof, walls and floor with electrical wiring, plumbing, telephone lines, or antennas/grounding the lightning).

Workers should stay away from anything that can conduct electricity, and put as many walls between themselves and the outside as possible. Use battery operated appliances only and limit the use of telephones (especially traditional corded versions).

Should you be unable to reach a well-constructed building, an enclosed metal vehicle (NOT a golf cart) is permissible as long as the vehicle is not parked near any tree or other tall object. Windows should be rolled up and workers should sit with their hands in their lap. Do not touch any part of the metal frame or wired device.

In the event that a safe shelter cannot be reached, workers should stay away from anything that is tall, close to water, and other objects that can conduct electricity. Workers shall take shelter in low-lying areas – valleys or ditches (avoid water). Groups should spread out, with several metres between each person.



# SWS 19000-036 Lightning Safety Standard



Should a worker become caught in a level field far from adequate shelter, the worker should crouch down on the balls of their feet immediately, with feet together, and place their arms around their knees and bend forward. The idea is to be the smallest target possible while minimizing contact with the ground. **NEVER** lie flat on the ground.

In the event of a worker becoming struck by lightning, emergency medical services will be notified (911) and first aid will be administered. Trained first aid responders should not hesitate to provide CPR or mouth-to-mouth resuscitation as there is no risk to the rescuer.

It is imperative that workers remain aware of their surroundings and up to date on their local forecasts. If Environment Canada issues a storm warning, or thunder can be heard, follow the Flash-To-Bang Method and take shelter as needed.

### **REVIEW/REVISION:**

A review of this document will occur following a regulatory change or at a minimum of every 5 years utilizing the "EH&S SOP Review and Sign-Off Sheet" \\file128\stclair\Operations\Employee Resource Centre\Procedures\SOP's & OGS's. The Document Control Administrator will notify the Document Contact - who will steward the review and will engage the Operation Coordinator to support the review from an operations and maintenance perspective.

Other events which trigger review (MOC, Incident Findings) include processes which will initiate review.

### **REFERENCES:**

National Lightning Institute

**END OF SAFE WORK PRACTICE**

<b>REVISIONS</b>			
<b>No.</b>	<b>Date (mm/dd/yyyy)</b>	<b>Author</b>	<b>Description</b>
0	04/20/2017	M. Renaud	Created
1	05/31/2017		Administrative Updates – removed requirement to re-issue permit