Working in Hazardous Conditions: High Winds

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Name
This book is intended to assist the reader in understanding how to work safely in a variety of situations that may occur at a landfill. It is not intended to replace common sense or judgment. The author(s) and publisher(s) of this manual shall not be held responsible in any way for the safety of those using this material for training purposes. Safe operation of every landfill is the responsibility of that facility’s owner, manager, operators and laborers and other staff.

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Introduction

Wind…It affects nearly every region of the United States. From the trade winds that sweep across Hawaii, to the pre-tornado gusts in the Midwest … wind is an issue. And for landfills, high winds pose unique dangers and risks to employees, customers, and equipment. Even windblown items from the waste stream can become a hazard under high-wind conditions.

While even a low wind conditions can pose a risk, when wind speeds rise above 50mph, conditions become dangerous. Trees and power lines can be blown over and vehicles may become difficult to control. Large pieces of waste, like plywood, lumber, Styrofoam or other materials can become airborne and cause severe damage or injury.

Dangerously high winds can occur at virtually any location. At some landfills, high winds occur during certain seasons making it easy to prepare for or at least expect windy conditions. But sometimes, high winds are difficult to predict more than a few days or in some cases a few hours in advance.

Know Your Site’s Wind Patterns

If your landfill has regular or even seasonal high winds, it’s a good idea to become familiar with the wind patterns so you can plan your operation accordingly.
Wind data obtained from an established weather station is frequently provided in the form of a wind rose. A wind rose is a graphic picture of a site’s annual wind patterns.

A portable, hand-held wind meter can also provide you with important information on wind conditions across the site. A basic one provides fairly accurate results and costs from $20 to $40.

**Preparing for High Winds**

Occasionally landfill operators are surprised when high winds occur unexpectedly. However, in many cases, high winds occur during predictable seasons. One of the best ways to predict high winds at your facility is to review historical weather records. Installing an on-site weather station can, over time, provide this information. At many landfills, it may be easier to simply review existing weather information. Here are some potential sources:

- Local college or university
- Local airport
- National Oceanographic and Atmospheric Administration (NOAA)
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- Other recorded information available on the internet
- Local television or radio stations

In addition to a review of historical wind information, you may want to track current weather conditions so that you can have some advance warning of high winds.

The NOAA Weather Radio is the main information system of the National Weather Service (NWS). The NOAA Weather Radio broadcasts warnings, watches, forecasts, and other hazard information 24 hours a day over more than 650 stations in the 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific territories.

**Watch vs. Warning**

When tracking current weather conditions it’s important that you understand the various levels. A severe weather WATCH means that severe weather events are possible in the watch area. A severe weather WARNING means that severe weather has been reported by weather watchers or is indicated by radar. WARNINGS indicate imminent danger to life and property.

**Danger to Equipment**

High winds can affect your equipment in many different ways. Dust can enter the radiator or engine and cause overheating or other mechanical problems. Intense dust
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can limit visibility and over time, windblown dust and debris can pit the windshield and damage the paint on machines.

In conditions of extremely high wind vehicles can tip over. Dump trucks and garbage trucks can be at risk when raised to dump and/or when empty. Large transfer trucks are particularly at risk, especially when empty or when raised up on a tipper.

Tippers are often equipped with a security bar (like a roll bar) to prevent the empty trailers from being blown off the tipper.

In addition to blowing dust, high winds can also mean blowing litter and debris. Machines may require additional maintenance or cleaning during periods of high wind. To protect machine operators, promptly replace broken glass, repair broken door and window latches and replace damaged rubber weather stripping around machine doors.
Potential Risks
Make sure that all employees know where utility shutoffs are located and know how to turn them off, if necessary during extreme weather.

Identify items that should be secured or stored inside a structure.

Have an emergency response plan in place, in case of injury or power outage. Include contact information for emergency response personnel as well as first aid supplies and flashlights.

Danger to Employees and Customers
Customers and employees are probably more vulnerable than equipment to high winds. Blowing debris and dust can create a multitude of hazards.

Employees should always wear dust masks during periods of high wind or whenever large quantities of dust are in the air. Goggles are another important piece of personal protective equipment (PPE). The eyes are very sensitive to dust.
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and other airborne irritants. To ensure good visibility, be sure to clean or replace goggles as needed.
During extremely windy conditions, large items like plywood, sheetrock, and Styrofoam can become airborne and cause serious damage or injury. Watch for loads that contain these types of potentially dangerous items and instruct customers to dump downwind of other customers and vehicles. These loads can also be dumped downwind of (and adjacent to) another, larger load. The larger load will act as a wind barrier and minimize the risk of windblown items.

High winds can also increase the risk to people who are working on the ground. Because of reduced visibility and the distraction of working in a windy environment, litter pickers, spotters and general laborers could be more at risk from trash vehicles or heavy equipment. They may also be injured by windblown items.

Some good general safety guidelines for laborers during periods of high winds include:
   1. Avoid working on ladders or scaffolding
   2. Stay upwind of potential sources of windblown dust and debris if possible
   3. Stay upwind of litter fences that could be blown over
   4. Use caution when manually placing tarps for alternative daily cover
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5. Avoid handling pipes, boards, plywood or other bulky items
6. Watch for downed power lines
7. Don’t work under or around large trees

Trees and Power Lines

Trees and power lines can be blown over by high winds, especially when the ground is saturated from heavy rain.

When operating equipment or trucks during periods of high wind, watch for fallen trees or power lines blocking the road.

Even broken tree branches can be extremely dangerous. For example, tree limbs breaking in winds of only 45 mph can be thrown over 75 feet.

Falling trees or branches can cause downed power lines. When power lines are down, the ground around them can be “energized.” If you find a downed power line, notify your manager immediately so that the utilities can be turned off as soon as possible. Never touch the line or the ground around it. Stay as far away as possible.
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If an electric line falls on your equipment or vehicle, don’t move the vehicle and Do Not Get Out. Never jump from the machine to the ground. Wait for help to arrive.

Litter

Lots of wind often means lots of litter. While you can’t eliminate litter completely, there are some ways to minimize litter.

The majority of litter consists of paper, plastic, and Styrofoam. In situations of extremely high wind, litter may include much larger objects.

Make sure that your litter crew is adequately staffed during and following high wind conditions. At many landfills it may be necessary to bring in additional litter pickers.

Require all loads coming into the landfill to be tarped. Consider charging a small fee for customers that have un tarped loads. This will help minimize litter on haul roads. Also, requiring loose trash to be securely bagged on windy days will help minimize litter at the tipping area.
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Maintain your litter fences. Make sure they are securely anchored and cleaned regularly. Litter fences can blow over and cause damage or injury if they become overloaded with litter.

For example, a 60 mile per hour wind could produce a pressure of over 9 pounds per square foot against a coated litter fence. On a large, portable litter fence measuring 20’ x 15’, this equates to a force of over 2,700 pounds of force.

Here’s an example:
High winds are common at the XYZ landfill. However, one day the winds were stronger than usual, with gusts of over 60 miles per hour. While dismounting for his lunch break, Bill, one of the heavy equipment operators, was struck by a piece of lumber that was tossed out by a customer. Luckily, he was not seriously injured, but the situation could have been deadly.

Alternative Daily Cover
High winds can make it difficult to place tarps or spray-on ADC materials. Many landfill workers have been injured while manually placing ADC tarps when a gust of wind lifted the tarp, causing the worker to “fly” several feet upward only to be violently dropped. As a solution, tarps could be placed mechanically with a tractor or specialized tarping machine.
High winds can also wreak havoc on landfill liners, caps or other fabrics or geomembranes. If not properly anchored, these materials can be pulled or ripped. Repairing wind-damaged liners can be very costly.

**Increased Fire Threat**

Another hazard of high wind is the increased danger of fire. If a fire starts at a landfill, high winds can cause it to travel farther and faster, which can make fire control extremely difficult. During times of high wind, extra care should be taken to monitor incoming loads for ashes, burn barrels, and anything that could be the source of a fire.
Are You Safety Savvy?

Today we’re going to take a test. It’s an easy test. There’s no penalty for wrong answers. If you make a mistake here, nobody gets hurt, nobody gets killed. But please take it seriously. Because hopefully, it can help prepare you for the real test you take everyday …out on the landfill.

Take a look at these photographs. Do you see any safety issues here? Remember, every situation has potential safety issues.

Question 1

It’s a very windy day and several self-haul vehicles are lined up to dump when a contractor comes in with a load of scrap plywood. Any issues here?
Question 2
A scraper is placing cover soil adjacent to the unloading area. Any safety problems here?

Question 3
The litter crew is working downwind of the excavation area. It’s a very windy day and the soil is dry and sandy. How can the litter crew work safe?
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**Question 4**

A landfill uses hand-placed tarps as ADC on a windy day. Any safety issues here?
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Summary
Working at a landfill is hard work. And, working safely is a serious responsibility.

Become familiar with your facility’s safety plan(s). Keep this safety booklet as a future reference. But remember, safety isn’t a plan, it’s an attitude. Use common sense and judgment ...and work safe.

It’s never too soon to start thinking about safety.
Answers

No. 1
- Trucks should be directed to dump downwind
- Instruct to carefully unload material
- Anything else?

No. 2
- Can cause visibility problems for vehicles at unloading area
- Dust could cause personal injury to customers
- Anything else?

No. 3
- Assign them to another location that is not as dusty
- Use a water truck to pre-wet excavation area
- Provide appropriate PPE for workers
- Anything else?
No. 4
  o Tarps should be placed with tractor or automatic tarping machine
  o Workers should be instructed to let go of the tarp if the wind picks it up
  o Workers should wear appropriate PPE
  o Anything else?

Note:
These are only some of the more obvious issues. You may find more.
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This is Your Book.

It is a valuable reference.

Keep it handy and refer to it often.

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