

Non-Hazardous Waste Storage Facilities and High Temperatures

Heat waves are a factor that can increase the number of fires at classified facilities, due to reactions to sunlight and heat. For example, this can cause waste with a low flash-point to self-ignite, aerosol canister pressure to increase, organic matter to ferment, or ignite due to a “magnifying glass effect” through pieces of glass. This phenomenon is observed more particularly at waste processing facilities, and notably in non-hazardous waste storage facilities.

Operators of non-hazardous waste storage facilities, and more particularly of those that process household waste (either from waste processing centres or household waste in closed and most often opaque packaging) encounter difficulties controlling the type of waste entering their facilities. They are reliant on upstream sorting performance and on existing technical and economic capabilities. Although fire risk is often linked to the type of waste processed at facilities, action can be taken in other areas by operators to limit this risk and its consequences, particularly during heat waves.

ARIA 40347 – 28/05/2011 – PYRÉNÉES-ATLANTIQUES

During a **heat wave**, a fire broke out. [...] The site’s employees **smothered the fire by covering it with earth using a digger** and more than twenty firefighters cooled down the affected area with **hoses**. [...] The fire resumed **in the evening 3 days later**. [...] The operator took the following measures:

- **coverage** of the affected section with **inert materials** after spreading out the waste it contained, **separation of the hot area of the section from the continued operating area with a 1 x 0.8m earth barrier**, [...];
- **established continuous on-site monitoring and a stand-by system for the duration of work**, plus a permanent monitoring and stand-by system was recommended after work in the area was completed.

A **night-time temperature check 21 days after the accident** showed that part of the section still exceeded 40°C on the side of the mound, where smoke was seeping out and a smell of burned waste was emerging from cracks in the upper section [...] The operator also modified the **heat wave procedure** on its various landfill sites: **availability of an easily accessible stock of materials** to cover the open area of the operating section with a 0.2m layer whenever issues are encountered, **availability of vehicles** on site outside operating hours with in-cab chemical cartridge respirators, **reduction of operating areas** as much as possible, **covering of the slopes and working face with material as work progresses**. [...]

ARIA 54229 – 19/07/2020 – INDRE-ET-LOIRE

A **fire** broke out [...] A recent large delivery of **dry waste, which is hard to compact**, appears to have caused an influx of oxygen into the affected area. **High temperatures and strong winds** may also have contributed to the fire breaking out. Following the accident, the operator decided to **increase daily coverage** during the summer season. It also increased the **number of fire drills** to boost its employees’ responsiveness.

To find out more:

Synthesis: “Industrial accidents initiated or exacerbated by high temperatures”
BARPI – May 2020

Synthesis: “2017-2019 waste sector accident rate”
BARPI – May 2021



ARIA 44379 – 30/06/2013 – LOIRE

A fire broke out **on a Sunday** [...]

A combination of several factors may have caused the fire to break out: **waste near the side**, i.e. less compacted, **hot, dry weather**, potential presence of **aerosol canisters or smoke bombs** in freshly delivered waste (often the day after sports events).

The operator increased the **frequency of guard rounds**, **reduced the operating area** and switched the emptying bay, **moved the stock of inert materials** used to cover the operating zone closer and **set up 2 fire hoses near the pit**. It also plans to update its **crisis management procedure** and **carry out a drill with the emergency response centre**.

ARIA 55666 – 23/06/2020 – GERS

At around 10.45 p.m., **2 walkers** observed that a fire had broken out at the non-hazardous waste storage facility and called the fire department. A **large plume of smoke was visible**. The thermal imaging camera had not detected anything, and **the operator had not been informed of the incident**. After **forcing entry to the facility**, the emergency response services fought the fire using 3 hoses and prevented it spreading to 1 hectare of waste [...]



ARIA 55842 – 30/07/2020 – CORRÈZE

A fire broke out in **3,000m³ of plastic waste** located in one cell of a non-hazardous waste storage facility [...]. The fire appears to have broken out due to **trench digging work** (for installation of biogas capture and leachate reinjection systems) inside the operating pit, causing spontaneous ignition during a **heat wave**. The high temperatures also caused the **shutdown of the power pump** set up by the firefighters [...]

The following lessons have been learned from feedback on fires that broke out at non-hazardous waste storage facilities during heat waves:

Fire risk prevention

- ✓ Ensure proper compliance with **check-in procedures** when waste arrives on site and reinforce these procedures as much as possible;
- ✓ **Effectively compact** waste, paying special attention to dry waste and areas that are hard to compact (banks, sides);
- ✓ **Cover waste** with inert materials more frequently than usual, particularly if glass waste is observed by operators (to avoid “magnifying glass effects”) and also smoke bomb waste (particularly in the days after major sports events);
- ✓ **Reduce operating area** as much as possible;
- ✓ **Temporarily refuse high NCV waste deliveries** (insulation panels, etc.) and crush bulky waste before it is added to the cell;
- ✓ **Suspend trench works** in the cells and postpone them until cooler periods;
- ✓ **Clear brush** and keep clear the area surrounding the site to avoid any brush fires spreading;
- ✓ **Set up a dedicated organisation** to be triggered as soon as a pre-determined threshold temperature is announced and as soon as a heat wave warning is issued by the French Weather Office;
- ✓ **Carry out drills** before heat waves, **in conjunction with emergency response services**.

Fire risk detection

- ✓ Carry out site **monitoring**, particularly by organising inspection tours during periods of closure or reinforcing existing inspection tours;
- ✓ Carry out **checks using a thermal imaging camera**, at the end of particularly hot days or after an incident to prevent fires breaking back out (which can happen several days later) if the site is not equipped with a fire detection system;
- ✓ **Monitor meteorological parameters** other than temperatures because high winds can accelerate a fire, and heavy rain followed by high temperatures can cause waste to ferment or to spontaneously ignite...

Fire suppression

- ✓ Ensure **accessibility to the site** by emergency response services and set up an **emergency vehicle parking area** (these must not disrupt the movement of site vehicles);
- ✓ Ensure the **availability of the firefighting water reserve** and the possibility of connecting internal or external **emergency systems**, to make up for the unavailability of the mains supply as applicable (e.g. water cut-off due to drought);
- ✓ Check the **compatibility of the equipment used with high temperatures** (e.g.: ensure power pumps can function well in high temperatures);
- ✓ **Add a water tank** near the current operating area where appropriate;
- ✓ Ensure the **availability of the stock of inert materials** near the current operating area and the ability to replenish the stock **immediately** after an incident;
- ✓ Check the **availability of site vehicles, operators and their equipment** (number of vehicles available, operator stand-by procedure, time to arrive on site, in-cab respirator, etc.).

These measures must be included in site operating procedures and operators must be properly informed and trained on the necessary procedures.

If you have any comments or suggestions or want to report an accident or incident, please contact:
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Summaries of events recorded in ARIA are accessible at www.aria.developpement-durable.gouv.fr