

# Industrial risk management and enforcement during the COVID-19 pandemic

## Results of the EU/OECD/UNECE survey on experiences and best practices

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# Why have a survey on pandemic measures and hazardous site management?

Most industrial facilities throughout the world have had to make substantial adjustments to their operations due to the Covid-19 pandemic.

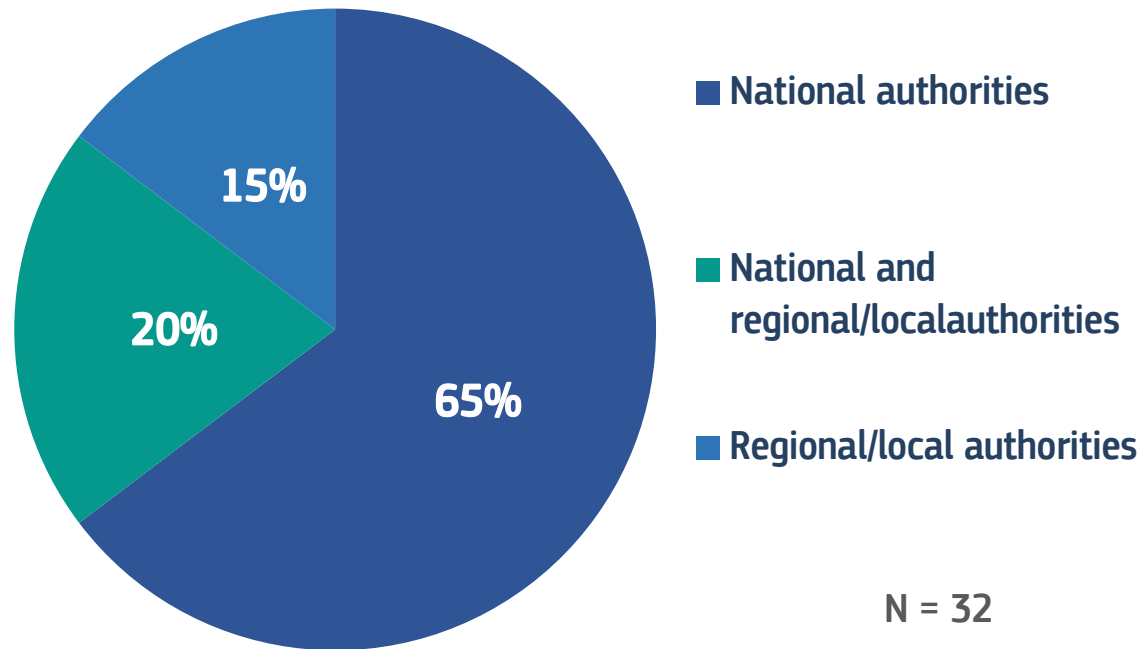
- They have had to **reduce staff** involved in certain operations, for a few weeks and sometimes much longer
- They may have had to **shut down** their site completely for weeks or months during a national or regional lockdown.
- They have had to **re-organise** operations to ensure proper social distancing, enforce mask-wearing, etc.
- They may have experienced **dramatic economic impacts**, such as lower earnings due to a weakened economy, or substantially increased activity due to increased demand due to the pandemic.

The survey aimed to obtain an overview of good risk management practice and to gain insights on:

- **How industries have been coping** with these changes
- **How competent authorities** have tried to **support** them
- **How competent authorities perceive** that the pandemic has influenced risk at hazardous sites

# Who participated in the survey?

Affiliations of survey respondents  
Survey on pandemic measures and hazardous site risk management



The figure represents survey responses on 5/10/2020

The survey was **developed by the EC Joint Research Centre** with the Technical Working Group on Seveso Inspections (TWG 2).

The survey was distributed by the **European Commission to EU and EEA countries and by OECD and UNECE to their Member States**

The survey was **targeted mainly to chemical hazard inspectorates** and was open to any level of government (national, regional, local).

**29 countries** participated in the survey. In total there were **32 respondents** (26 EU/EEA, 25 OECD, and 31 UNECE Member States).

All but two participants were from the European continent.

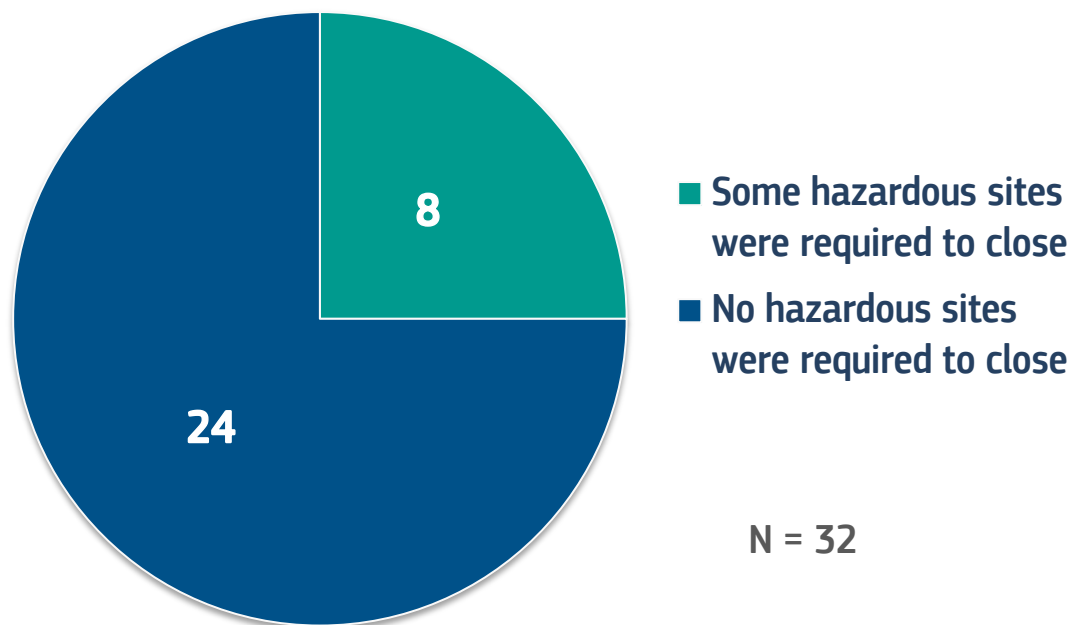
# What kinds of questions did the survey ask?

Questions focused on these main topics:

- **Kinds of pandemic measures affecting industry** in each country
- **Most important challenges** and priorities
- Some **notable good and bad practices** observed
- **Interventions did the competent authorities to support** hazardous sites in implementing pandemic measures
- **How hazardous site inspections have been adapted** to meet pandemic challenges
- **Accidents and near misses**, if any, for which pandemic measures may have been a contributing factor
- **Effect of the pandemic experience on future strategy** for monitoring and enforcement on chemical hazard sites

# Were some hazardous sites closed due to the pandemic and to what extent?

## Lockdown measures and hazardous site closure in responding jurisdictions



The figure represents survey responses on 5/10/2020

For the most part, hazardous sites were not required to shut down due to the pandemic

**In most jurisdictions no hazardous sites were required to close.** Other jurisdictions reported that complete shutdown was required of anywhere from 2–50% of hazardous sites.

It was also reported that **some hazardous sites voluntarily closed down** all or parts of their site, due to reduced demand.

It was common practice for hazardous sites to **send nonessential workers home** to do their jobs via teleworking.

# What kinds of measures did sites implement to prevent spread of the pandemic?

Various measures in place included:

## Teleworking

- Working from home
- Meeting by video conference, etc.
- Limitation of business trips and public events;
- Employees over 65 years of age transferred to remote work

## Personal protection

- Fever checks before entering the premises
- Use of overalls, masks and gloves
- Hand hygiene.
- Airing and wet cleaning of the premises,

## Limiting human contact

- Social distancing at all times at work
- Distribution of work by time and location;
- Limited access of site to third parties
- New work arrangements to minimise human contact
- Minimising use of contract workers
- All meals delivered

## Safety precautions

- Batch process approach favoured over continuous (so each shift could be stopped if necessary Operations stopped if not enough staff

# Mechanisms for delivering process safety advice

To high hazard sites during the Covid-19 pandemic



# Typical process safety advice given by authorities during the Covid-19 pandemic

Representing 14 respondents

## Staffing issues

- **Operators must assure minimum workers are present to keep the site running safely**
- **Operations should be stopped if not enough staff**
- **Maintenance activities (e.g., continuity, staffing )**
- **Availability of professional competences for specialised tasks**
- **Managing fatigue should be monitored and managed**
- **Companies should plan for shut down and startup**
- **Specific guidance on planning turnarounds**
- **Recommending batch processing (instead of continuous) for greater staffing flexibility,**

## Compliance and enforcement

- **Legislative requirements still should be respected**
- **Discretionary enforcement. And compliance guidelines** (e.g., administrative requirement delays, equipment certification)
- **Operators must notify the authorities when resuming the activity**

on site

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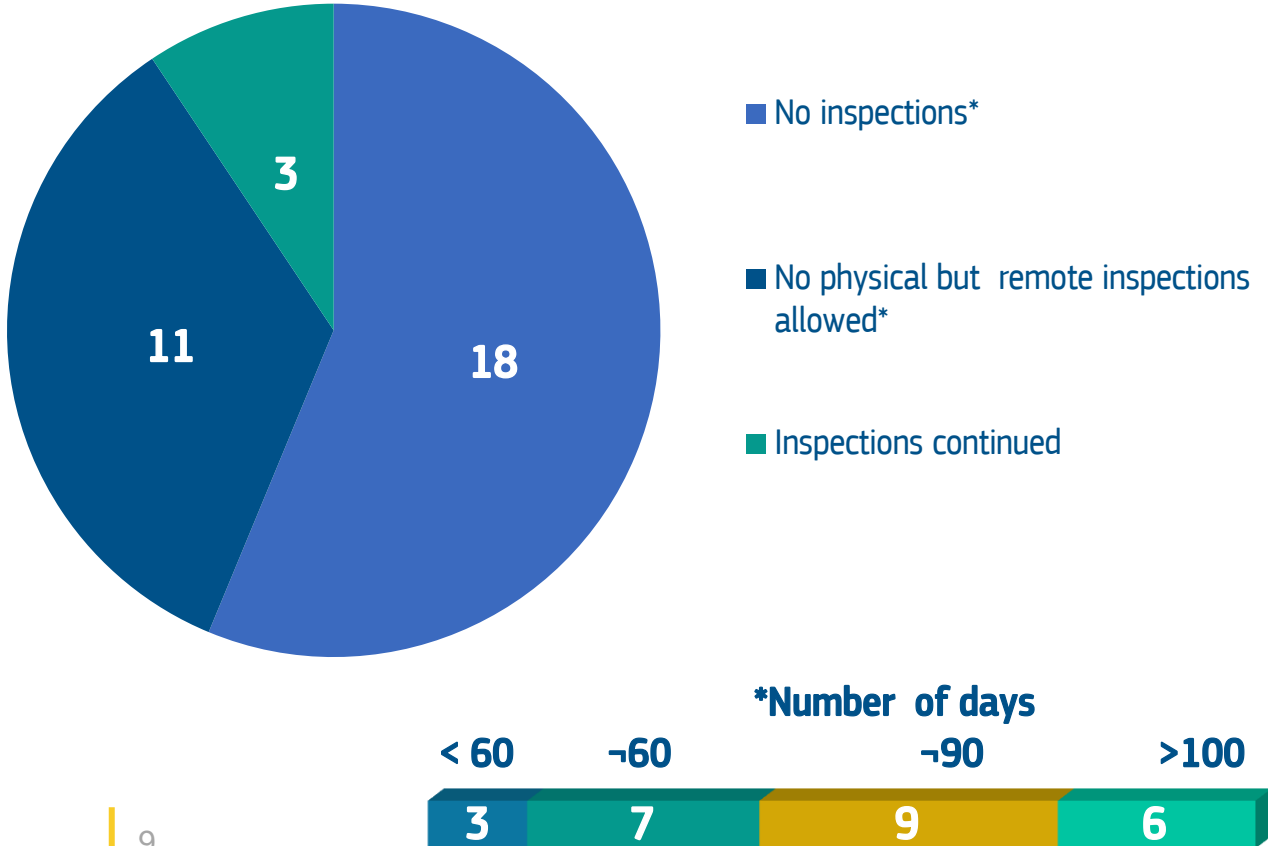
## Safety management system issues

- **Change management processes** for reduced staff were followed
- **SMS** was adapted to reflect new arrangements
- Measures in place for also **resuming normal operations** post-Covid-19
- Sites should **plan for possible delays in obtaining safety critical components** and spare parts
- Several respondents noted that **reduced staffing levels** should already have been part of the SMS (e.g., in case of worker strike)
- **Template for evaluating the site's pandemic response** and lessons learned
- Site must confirm that "**all necessary measures**" have been taken to prevent incidents



# Inspection protocols during the pandemic lockdown

Were inspections of high hazard sites conducted during the pandemic lockdown?



In most jurisdictions, an exception was made to allow physical inspections following an accident, a serious complaint, or other critical condition

When physical inspections restarted, they often included an inspection of pandemic measures

Remote inspection techniques continue to be used in combination with physical inspections in many jurisdictions even after the lockdown.

Inspectorates have invested considerable efforts to adapt their tools and strategies for remote inspections and some times the legislation.

A few jurisdictions had still not restarted physical inspections at the time of the survey (late September 2020)

# How have inspection approaches changed due to the pandemic?

The bullets below represent a collection of responses from various jurisdictions

## Approaches

- **Limited number of inspections.** Some inspection cycles have been postponed to the next year.
- **Close cooperation between operators and authorities** since changes/cancelation are possible even on short notice.
- **Strict implementation of hygiene measures** to avoid health or infection risks to the persons involved. These measures can also differ between different operators,
- **Reduction in the number of participants** to a minimum.
- **Discussions are kept short** as possible
- **Risk prioritization is extra important**, and **establishments with bad performance , recent accidents are prioritised**, e.g., for monitoring of staff impacts, for onsite inspection when onsite inspections are limited, etc.
- **No more exercises, emergency plans tests and trainings** were carried out with the presence of a large number of staff
- **Adaptation of strategy, schedule, materials, etc. for conducting remote**, or partially remote **inspections.**

and in a few jurisdictions

- **No significant change to inspection approaches** once on-site inspections were re-started

# How have inspection of high hazard sites changed thematically due to the pandemic?

The bullets below represent a collection of responses from various jurisdictions

Inspection themes adapted to address specific pandemic safety issues, such as:

- **Questions about Covid-19 measures included**, e.g., what measures were implemented, whether there were enough staff, whether maintenance was postponed
- **Inspections included review of safety management, during the pandemic**, e.g., emergency planning, maintenance, operating procedures with reduced staff, and subsequent re-commissioning or starting-up post lockdown.
- **Locations that had to shut down during the lockdown are asked about controls implemented to ensure site safety** ((installations, warehouses, substances) during its non-functioning state.
- **Special attention to storage and handling conditions** for specific types of substances
- **Interviews include questions on staff resilience** in regard to performance of safety critical tasks, resilience of emergency plans, response arrangements etc. „whether the operational state is altered, if there is enough personnel present to run the plants, etc.
- **Some topics postponed** because they require longer contact times (LOPA assessments for example)

# Challenges and priorities for high hazard site inspections due to the Covid-19 pandemic

The bullets below represent a collection of responses from various jurisdictions

## Everyone's top priority

- **Maintain high levels of protection on site while reducing exposure of personnel and inspectors to the risk of contracting the virus**

## Challenges

- **Re-organizing and adapting inspections**
- **Maintaining morale of the inspection staff** when they could not do their jobs
- **Supporting sites that were critical to the normal functioning of society** and ensuring that their critical staff could keep working (childcare, etc.)
- **Testing the internal and external contingency plans** in a pandemic context
- **Limited inspection of the physical site**
- **Varying ability of some sites to correspond effectively in digital mode**

# Challenges and priorities for operators due to the Covid-19 pandemic

The bullets below represent a collection of responses from various jurisdictions

## Managing safety

- Ensuring **adequate supervision** on site
- **How to handle maintenance** activities, risk-based decisions (postpone or go ahead?)
- **Shutdown and startup**, having backup plans for critical infrastructures
- **Adapting the SMS**, management of change, e.g., to changes in staff , emergency planning, maintenance, IT security, etc.

## Managing staff

- **Protecting staff** from exposure to the virus f, Ensuring that sick employees stay at home.
- **Managing labour** shortages and surpluses, and employees working from home
- **Having access to specialised competences** and certifications

## Survival

- **Keeping the sites open**, especially sites important to society, despite reduced staff
- Maintaining the installations e with respect to **input and output of raw material, energy, products and waste, spare parts.**
- **Financial and economic survival**

# Good practices during Covid-19 pandemic

The bullets below represent a collection of responses from various jurisdictions

## Main message

**Almost all operators have made enormous efforts to adapt quickly** to the new situation and to take the necessary measures. Postponement of maintenance activities. No incidents so far caused by the pandemic measures

## Some examples of good practices

- **Good communication** with authorities, sites in similar situations, etc.
- **Agreements between neighbouring Seveso sites** on exchanging experience and support during similar incidents.
- **Development of quality guidelines and procedures** for the Covid Situation and the Post Covid Strategy in one establishment.
- **Creation of safe operating programmes** due to deferred maintenance turnaround., some examples of successful turnarounds.
- **Execution of high level management of change** evaluations, stopping of production lines to review risks, etc.
- **Systematic approach to maintenance** including d expert consultation to determine which to postpone, continue
- **Strict enforcement of pandemic measures**, rapid adaptation of work spaces and schedules

## Some examples of bad practices

- **Few bad practices**, mostly associated with poor adherence to pandemic measures

# What does the future hold? (1)

## Increased pandemic readiness

- **New./greater attention on site pandemic measures on sites** during inspections, safety report reviews, etc, including after this pandemic subsides

*“The SEVESO documentation should be expanded with a risk analysis related to the effects of introducing restrictions on the functioning of all state standards (social restrictions, e.g. in the movement of employees / quarantine)”*

- **New protocols for inspections implemented for the pandemic** will allow us to react more quickly to pandemic situations in future.  
*According to one respondent, inspector training on CBRN was already sufficient to adapt to pandemic risks*
- Emergency plans will have to be reviewed to address reduced availability of personnel.
- Need to change the strategy for testing internal and external emergency plans.

## Increased attention to site staffing

- **Ensuring minimum staff presence for site safety.** *How is the minimum-staff defined for a given installation? How is it assured that this minimum-staff is present? What are possible measures and proceedings if the minimum-staff is not present?*
- **Impact on high hazard establishments of key operating persons** when working remotely will have to be assessed to optimize the control activities, making the inspections even more functional.

# What does the future hold?

- Influence of remote inspection methods
- **Remote inspections without site visits is not recommended.**
- **Remote inspection methods may become routine** tools, but **used strategically with the onsite inspection**  
*“We will pay more attention to the checklists submitted to the operator and their written replies.”*  
*“Operators that are suitable for remote inspections are, for example, oil ports and oil terminals.”*
- **New awareness of the importance of cybersecurity**, because of the increased reliance on information systems for inspections

## Challenges for the short and medium term

- Routine onsite inspections may not return for some time and predominantly remote inspections will continue for a while in many jurisdictions
- It continues to be difficult to conduct inspections when sites refuse entry
- Planning inspections under pandemic uncertainty is challenging if the law requires advance notification
- Economic crisis may reduce resources for process safety



# Some final thoughts

**There may be important lessons learned for chemical accident risk management, for example, in:**

- **Management of organisational change** and its importance to maintaining site safety in transition times
- **Management of staff changes**, working with staff turnover, staff reductions, and other constraints
- **The limitations of automation for the foreseeable future**, at the moment still very fragmented and only suitable for certain operations
- **The importance of reliable secure IT systems for communication**, not just for operations
- **Why onsite inspections cannot be replaced with remote inspections**, and priorities for onsite inspections
- **How remote inspection methods can make inspections better**, and what should be their focus?
- **Others?**

# Thank you

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