

SEMINARIO DI AGGIORNAMENTO PER ISPETTORI AMBIENTALI ISPRA

ROMA, 29 NOVEMBRE 2021

**Contributo al meeting WPCA – OCSE tenutosi
il 19-21 ottobre 2021**

Fausta DELLI QUADRI

OECD WPCA - generalità

- 19-21 ottobre 2021 si è svolto in VdC il **31° meeting dell'OECD Working Party on chemical Accidents (OECD WPCA)**, periodico incontro tra rappresentanti dei PM OCSE/OECD (Organizzazione per la Cooperazione e lo Sviluppo Economico) finalizzato a favorire un confronto, uno scambio dinamico di esperienze, opinioni e procedure adottate in merito alla prevenzione, controllo, risposta e mitigazione degli incidenti chimici
- obiettivo in linea con la funzione generale dell'OECD (ruolo di assemblea consultiva che consente un confronto delle esperienze politiche per la risoluzione dei problemi comuni, l'identificazione di pratiche commerciali e il coordinamento delle politiche locali e internazionali dei PM, attualmente 37)
- la frequenza annuale degli incontri consente di seguire l'evoluzione parallela di politiche, normative, procedure, programmi sviluppati ed applicati dai singoli PM per la tematica, favorendo la condivisione dei progressi raggiunti e la formulazione di idee e proposte emergenti dallo scambio di esperienze di ogni Paese, rappresentato da esperti di Pubbliche Autorità e/o di organizzazioni internazionali

OECD WPCA – stati di avanzamento attività

- **‘Guidance on Benefits of Regulations for Chemical Accidents Prevention, Preparedness and Response’** (documento che fornisce uno schema di benefits quantitativi-qualitativi attraverso cui poter apprezzare gli effetti positivi della normativa applicata in materia di prevenzione, controllo e risposta agli incidenti chimici): predisposizione bozza con individuazione di casi studio dal capofila del progetto, Canada, in consultazione con lo Steering Group; estensione del progetto al 2021-2024
- **progetto Natech II** in corso: dall’ultimo WPCA, lo Steering Group ha:
 - prodotto una brochure, in collaborazione con altri organismi internazionali, per la sensibilizzazione sui rischi Natech, consegnata durante il meeting
 - redatto una bozza di guida su Natech Risk Management che sarà finalizzata e pubblicata nel 2024
 - preparato una bozza di OdG per seminario congiunto OCSE - UNECE, previsto per novembre/dicembre 2022, nell'ambito del 12° meeting della Conferenza UNECE sugli effetti transfrontalieri degli incidenti industriali (estensione bozza in contesto più ampio, transfrontaliero, raccogliendo casi di studio di esperienze da diversi paesi e industrie sul rischio Natech)

OECD WPCA – stati di avanzamento attività

- **3° revisione delle OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response**, iniziata ad Ottobre 2017 e gestita dallo specifico steering group. Prima bozza della revisione sottoposta al WPCA in marzo 2021, e al CBC in giugno 2021 per commenti. Ulteriore bozza inclusiva dei feedback sopra richiesti è stata preparata per questo 31° meeting del WPCA; per la finalizzazione del documento saranno necessari ancora: finalizzazione dei ‘Golden Rules’, approfondimento capitoli sulla preparazione e risposta all’emergenza, aggiunta di glossario
- progetto **Risk of Accidents involving Nanomaterials**, esteso, per la complessità della materia. L’obiettivo è identificare aspetti di sicurezza connessi con la prevenzione e risposta agli incidenti coinvolgenti nanomateriali. Predisposta bozza di rapporto nel 2014, approvata nell’ultima riunione del WPCA del 2020 e successivamente aggiornata, presentata e discussa nel 31° meeting. Il progetto è guidato dalla Svizzera

OECD WPCA – stati di avanzamento attività

- progetto **Management of Inspections at Hazardous Installations**, mirato a raccogliere esempi di buone pratiche per la gestione delle ispezioni negli impianti pericolosi: 19 contributi già raccolti, tra cui Italia, che andranno a convergere in rapporto tecnico che evidenzierà aspetti comuni e conclusioni generali. Raccolti altri 4 contributi:
 - 2 Estonia: su Sistema informativo sulla sicurezza (per ispettori) e sul Portale sulla sicurezza (per utenti esterni)
 - Stati Uniti: sull'attività di ispezioni in remoto e virtuali durante la pandemia di Covid-19
 - Federazione Russa: su attuazione del meccanismo della “ghigliottina regolamentare” e delle ispezioni Risk-based

Il documento intitolato “Good Practices for the Management of Inspections at Hazardous Installations: Project Report (Case Studies)” è stato pubblicato nel febbraio 2021 nella Series on Chemical Accidents, No. 33. Questo rapporto evidenzia aspetti comuni identificati dagli 11 casi studio raccolti dal progetto fino al 2020

OECD WPCA – stati di avanzamento attività

- revisione dei **Legal Instruments relating to Chemical Accidents**, operata in parallelo con la revisione delle OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response. Lo Steering group si è riunito ogni mese tra febbraio e agosto 2021. Presentato al 31° WPCA per la discussione, mira a rivedere, consolidare e sostituire i tre seguenti atti giuridici:
 - decisione sulla fornitura di informazioni al pubblico e sulla partecipazione del pubblico ai processi decisionali relativi alla prevenzione, preparazione e risposta agli incidenti che coinvolgono sostanze pericolose (n. 0239)
 - decisione sullo scambio di informazioni sugli incidenti che possono causare danni transfrontalieri (n. 0240)
 - raccomandazione relativa alla prevenzione, preparazione e risposta agli incidenti chimici (n. 319)

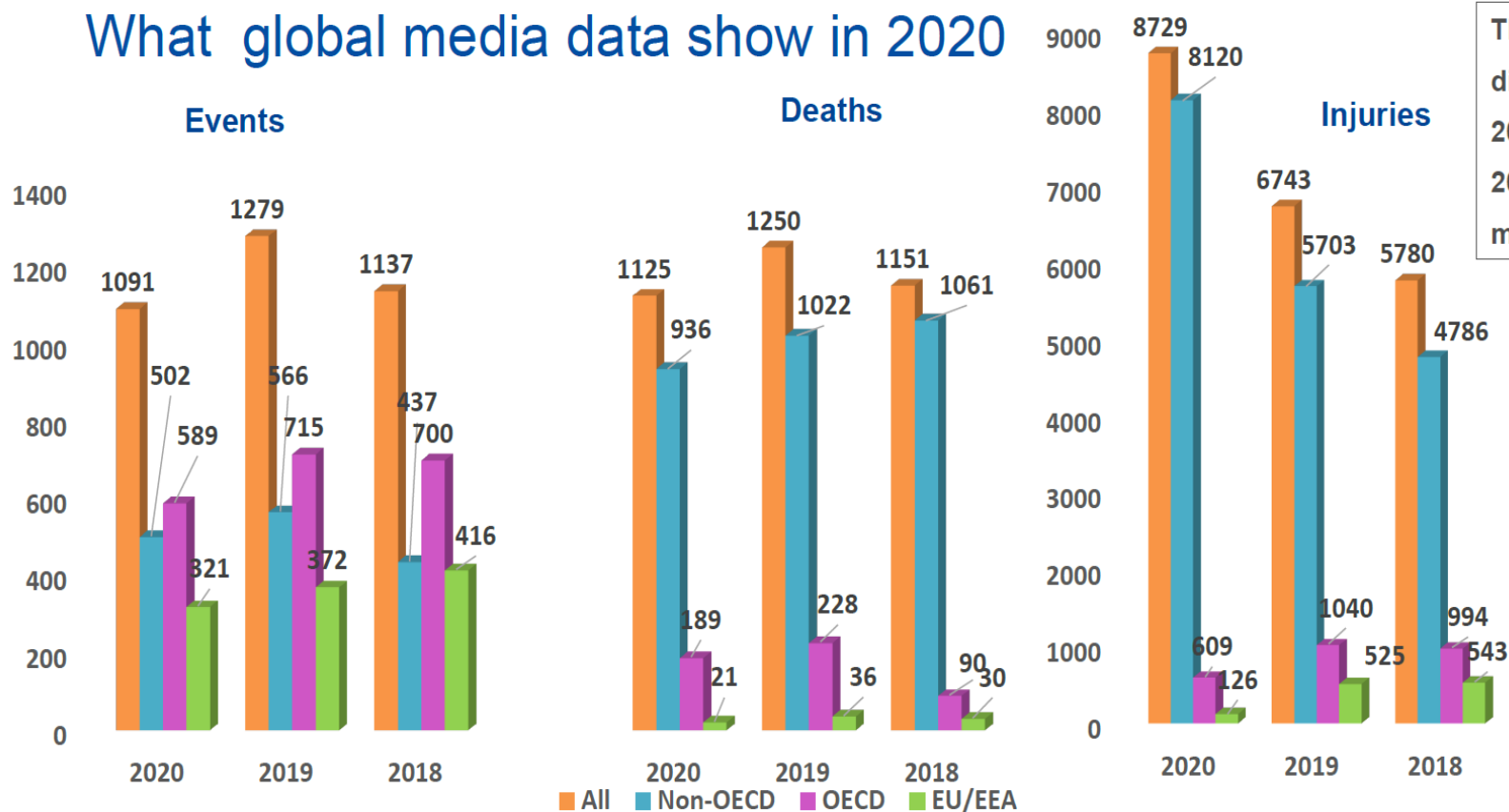
La raccomandazione relativa all'applicazione del principio "chi inquina paga" in caso di inquinamento ambientale resta uno strumento giuridico autonomo e sarà riesaminata in una fase successiva

Analisi - reporting incidenti chimici MAHB-CE

Aggiornamento Report annuale EU-OECD-UNECE

Prospettiva globale su incidenti chimici internazionali nel periodo 2018-2020, dati estratti dal database GMI-CHEM del JRC-UE

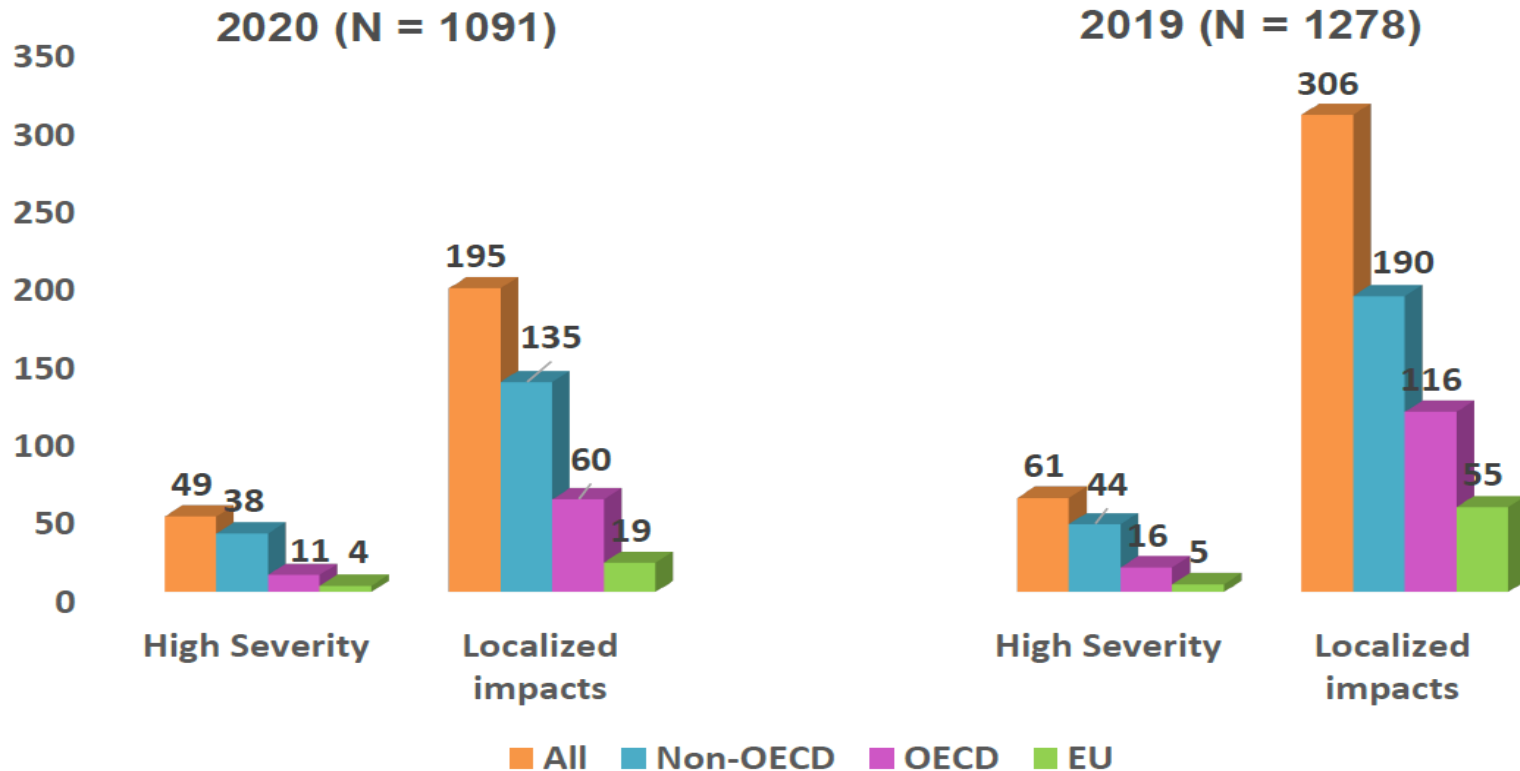
What global media data show in 2020



The Beirut, Lebanon disaster of 4 August 2020 claimed over 200 lives with 6,000 more injured

Analisi - reporting incidenti chimici MAHB-CE

- 2019 negativo in termini di volume di incidenti gravi, ma il 2020 ha avuto un disastro di gran lunga peggiore (Beirut)
- eventi di elevata gravità nel 2019 sono stati più del doppio di quelli del 2018 e leggermente diminuiti nel 2020
- eventi con impatti locali sostanziali sono stati del 77% superiori nel 2019 rispetto al 2018 e del 36% in più rispetto al 2020

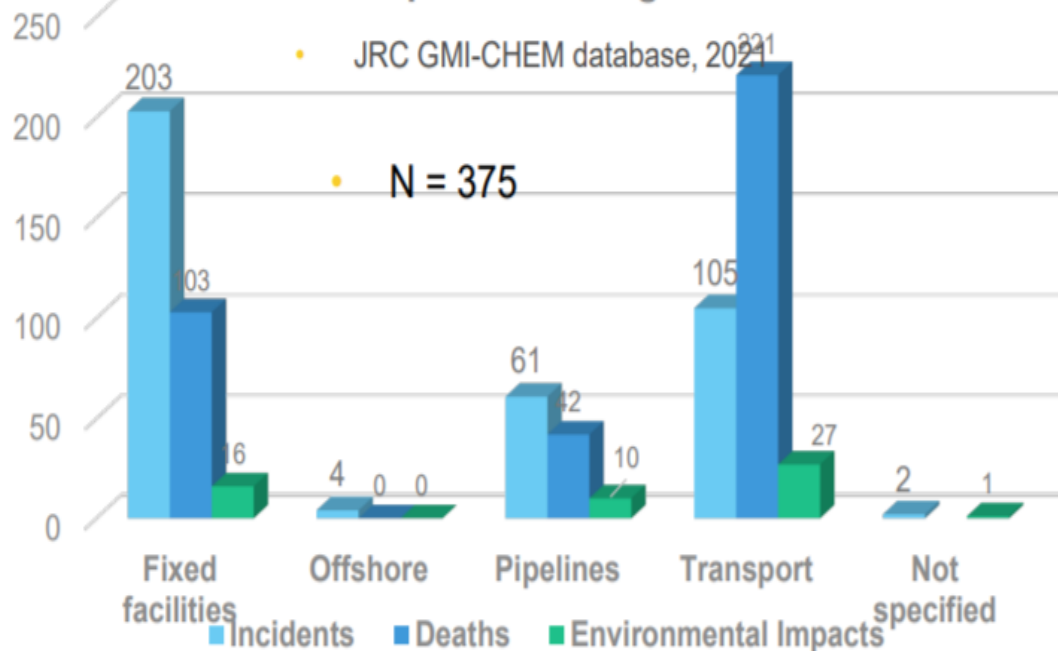


Analisi - reporting incidenti chimici MAHB-CE

la distribuzione degli incidenti più gravi nel 2020 ha interessato prevalentemente il **settore industriale oil and gas**, mettendolo in forte pressione. La maggior parte dei decessi si verifica nei trasporti nei paesi in via di sviluppo

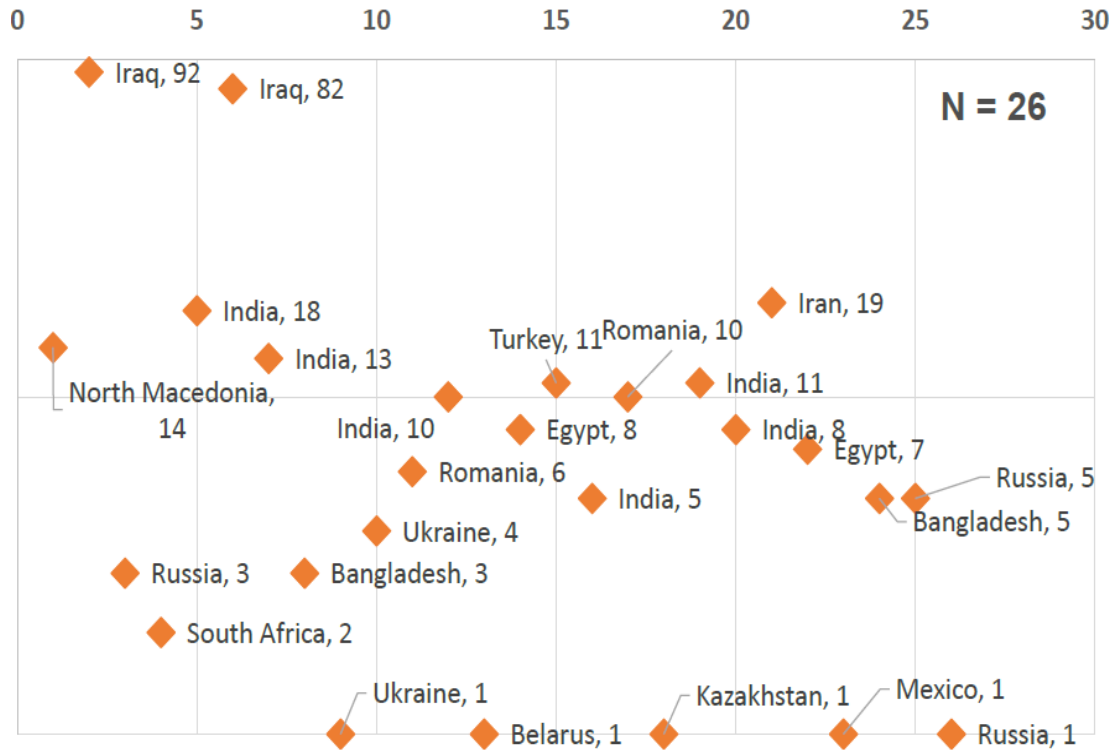
- molteplici fuoriuscite di petrolio da oleodotti, petroliere e piattaforme offshore
- fuoriuscita di petrolio della petroliera porta Israele a chiudere le spiagge - uno dei suoi disastri ecologici più gravi

Chemical incidents in the oil and gas industries
as reported in the global media in 2020



- incendio petroliera con massiccia fuoriuscita di petrolio e disastro ambientale al largo delle coste dello Sri Lanka
- 5 morti e 6 feriti in incendio in piattaforma petrolifera offshore della messicana Pemex
- 7.000 persone evacuate dalle vicinanze di pozzo di petrolio in fiamme nel nord-est dell'India nel maggio-giugno 2020. 2 vigili del fuoco morti

Oxygen-related fires in Covid-19 hospitals increase >3000% during the pandemic



46 fires associated with Covid-19 oxygen therapy have occurred since May 2020, 26 of them have been fatal.

The MAHB alert* (Lessons Learned Bulletin) published in January 2021, but 18 incidents occurred in months after, 11 of them fatal.

14 people died in the most recent incident in North Macedonia in September.

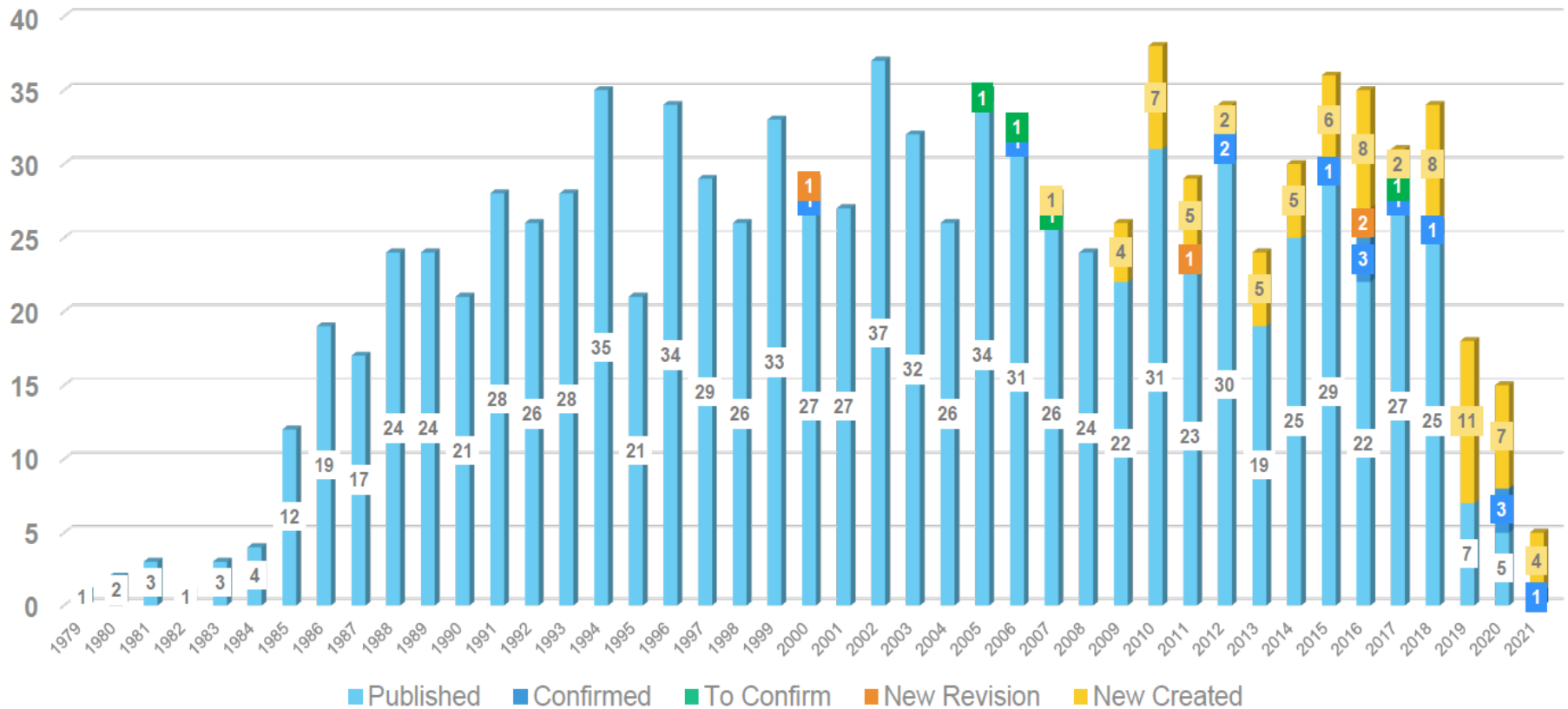
Most incidents occurred in developing countries. Of 5 incidents in the European Union, two were fatal.

In April 2021, due to the JRC intervention, the WHO added oxygen risk management advice to its guidance and training.

*Co-authored by M. Wood, M. Hailwood and K. Koutelos

Major accidents reported to eMARS (established 1984)

Chart Title

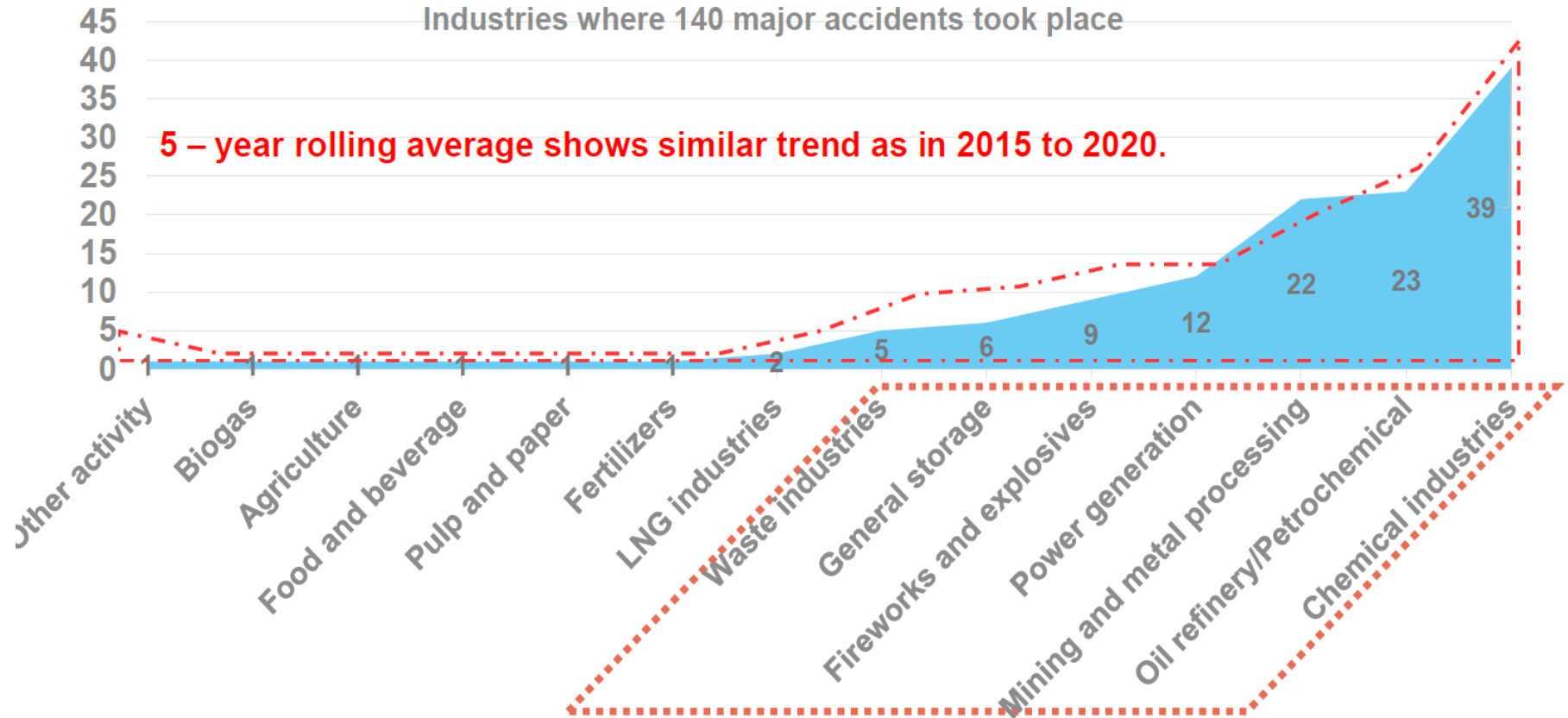


Latest 5 year average (2014-2018) is 33 major accidents per year.
(Reporting for 2019 - 2021 is still ongoing.)

EU Seveso major accidents by industry type 2016 – 2021

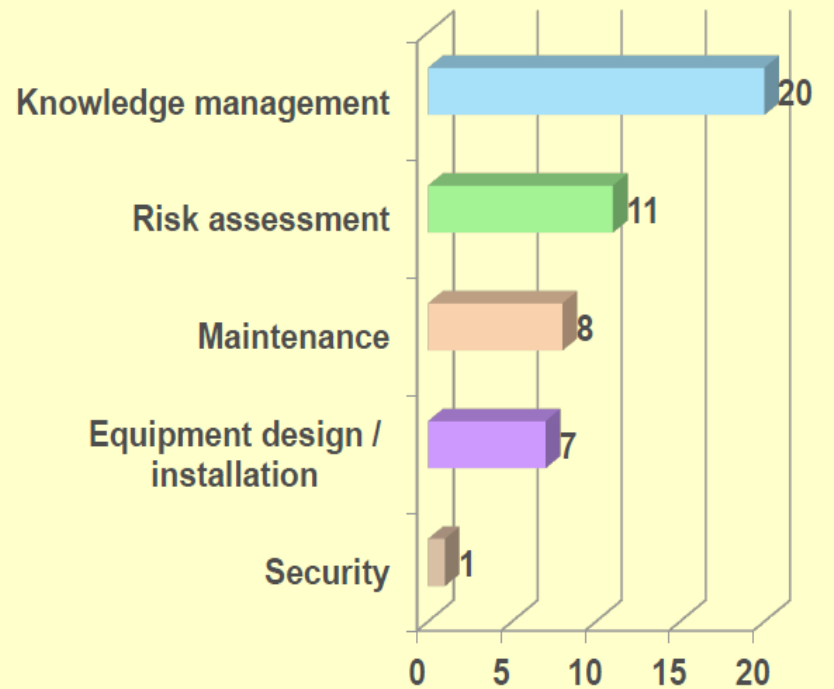
Industries where 140 major accidents took place

5 – year rolling average shows similar trend as in 2015 to 2020.



21 incidents involving tank storage

Underlying causes



Acceptance of deviation
Wrong procedures
Lack of documentation/ historical knowledge
Poor training
Permit to Work failure

Management of change failure
Insufficient barriers to wrong procedure
Insufficient secondary containment
Lack of detection equipment

Inadequate maintenance
Inadequate inspection regime

Poor valve design
Poor design of tank
Poor design/installation of safety equipment
Poor design of loading equipment

Security failure

eMARS database 2016-2021

OECD WPCA – Thematic Session

Sessione speciale su ‘Good Practices in Emergency Preparedness for and Response to Chemical Accidents’, dedicata a condividere le buone pratiche per la preparazione e la risposta alle emergenze; ha riguardato:

- il rischio per i primi soccorritori e l'impegno e la collaborazione dei primi soccorritori nei piani di preparazione e risposta; esempi forniti da UK e Norvegia
- il rischio per le comunità locali e la partecipazione e l'impegno del pubblico; contributo da USA (Colorado Emergency Planning Commission)
- esempi di iniziative nazionali e internazionali per la pianificazione dell'emergenza; esempio da ECHO-CE (Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), European Commission) per gli incidenti di Beirut e Sri Lanka

Le presentazioni e le discussioni di questa sessione tematica alimenteranno la revisione dei capitoli dei ‘Principi guida sulla preparazione, la risposta e la comunicazione con il pubblico e la partecipazione pubblica’

Contributo da ECHO-CE (Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), European Commission)

Preparedness and prevention

Prevention – support to EU MS to prevent risks, reduce harm to people, environment and property

- Risk assessment at the EU level – [Overview of risks EU may face in the future](#)
– CBRN risks identified by most of the EU MS either as a major risk or a low risk with high impact (HiLo).

Preparedness – trainings, exercises, preparedness missions, EU CP experts, CP Modules (ECP/ rescEU)

- Advisory missions – Ukraine Solotvyno – Salt mine
- Training and exercises on CBRN – UCPM ModEx, full CP exercises on CBRN type of events (chemical, radiological, nuclear, soon biological). Soon also for Modex Maritime pollution.



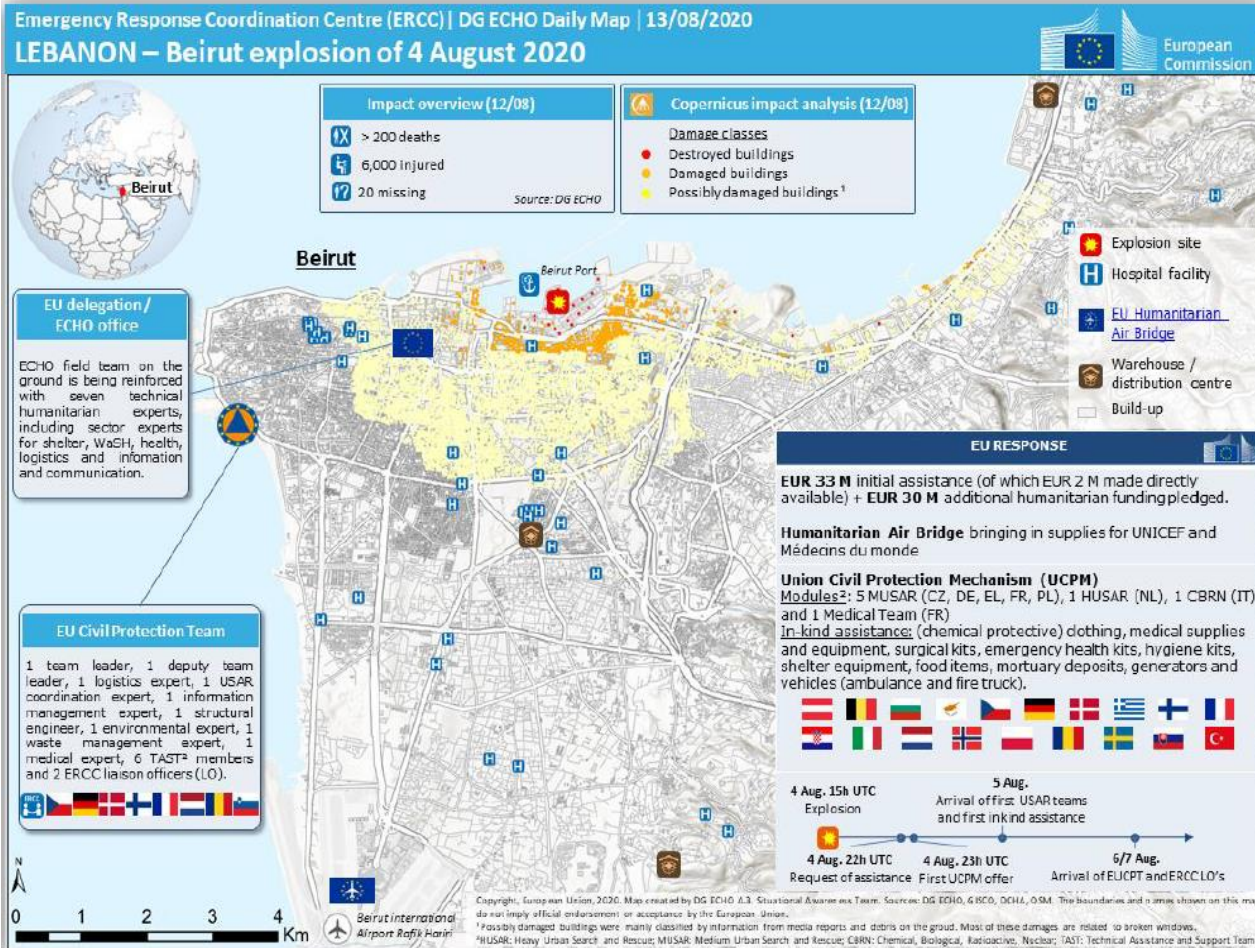
Response

- Industrial accidents (chemicals): Armenia (2017), France (2013), Kenya (2013).
- Explosions: Equatorial Guinea (2021), Lebanon (2020), Congo – Brazzaville (2012)
- Environmental events: Bolivia, Mozambique, Mauritius, the Bahamas – Solomon Island, Colombia (oil spill).
- NaTech: Japan – Fukushima (earthquake, tsunami, nuclear emergency).
- Maritime pollution: Greece, Cyprus, Turkey, Sri Lanka, France
- ... and many more.

Lebanon – Beirut Explosions

EU Response:

- 20 MS/PS offered teams and in-kind assistance
- 300 personnel from the EU joined the response
- EUCP Team: 17 experts from 9 MS/PS (CZ, DE, DK, FI, FR, NL, RO, SE, SI)
- 2 ERCC Liaison Officers
- 7 MS/PS (CZ, FR, DE, EL, NL, PL and IT) deployed 6 USAR, 1 CBRN and 1 medical team.



31° MEETING OECD - WPCA (Working Party on Chemical Accidents)

19-21 October 2021

Italy short report on recent developments related to
Chemical Accidents



INSPECTIONS IN HAZARDOUS INSTALLATIONS DURING COVID-19 CRISIS

AFTER 1 YEAR ...

- **Still operative the new criteria for inspections** according with **Circular of the Ministry of the Interior, on 9th July 2020** set up by ISPRA-CNVVF-INAIL-MATTM Authorities (during COVID-19 pandemic): positive results despite the difficulties due to reduced mobility and to the management of documentation
- Still **reduction of the inspection ‘in site’** only for operative and emergency issues, in respect of the safety measures anti-COVID for all the stakeholders involved. Reduction also due to the **Green-Pass obligation**
- **New procedure application also to the lower tier establishments:** positive results and respected programs in different Regions (ER, Lombardia, Toscana, Abruzzo, ...)
- **Monitoring of the SGS inspections carried out by the MITE:** still different situations in Regions. MITE started timely verification of the inspections carried out, to solve any critical issues

WORKING GROUPS

Coordination activities for the uniform application of D.Lgs. 105/15

- **WG 'guideline on external emergency plans and information for the population'**: draft substantially completed. The final approval should be available by the end of the year. In the meantime, with DPCM 27.08.21, same guideline have been approved for waste storage and treatment activities
- **WG 'Guidelines for the classification of galvanic baths and Assessment of the subjection to Legislative Decree 105/05'**: work in progress almost completed; guidelines draft substantially completed. The final approval should be available by the end of the year
- **WG 'management and control of aging of equipment and plants in the Seveso plants'**: updated version of the guidelines was developed with integration of the method extended to other types of industrial machines (dynamic systems - rotating machines). On March 2021 the new guidelines have been published

WORKING GROUPS

Coordination activities for the uniform application of D.Lgs. 105/15

- **WG ‘Inspection Reports evaluation’**: the survey of the final inspection reports 2020 campaign was completed. Results of the work useful to direct the training activities of the inspection staff and to improve the inspection activities. Possible further development of the activities (guidelines writing)
- **WG ‘Operational experience – analysis of accidents’**: underway checks for access to the INAIL data system, for sharing operational experience data; proposed users are MITE, ISPRA/ARPA and CNVVF; temporary credentials granted to the participants in the WG. Work activities defined by the end of the year
- **WG ‘NaTech’**: work in progress, to proceed through specific risk subgroups, with subsequent integration of the results obtained by taking as initial reference the seismic risks (for which the framework/data are already well defined). Exchange information planned between MITE - Civil Protection, which informed about a session of the Major Risks Committee, dedicated to NaTech risks for Seveso plants, addressing the issue of seismic risk

OTHER ACTIVITIES

Coordination activities for the uniform application of D.Lgs. 105/15

- Since March 2021, **public access to the “Seveso Query” web service has been active**: the application allows Municipalities of Seveso establishments, including neighboring Municipalities close to the establishments, to make the information permanently available to the public, by inserting the link on their institutional website
- **Newsletter proposal for plant managers**, trade associations and consultants to disseminate information on the activities carried out within the Seveso National Coordination. Possible presence of in-depth information, technical and / or regulatory sections in the newsletter. It could be an excellent information tool, to establish a direct communication channel with the managers

SEVESO CHEMICAL PLANT (UPPER TIER) – MAY 2020 – P. MARGHERA (VE)

- establishment: production of stabilizing polymers for the cosmetic market, upper tier
- during a plant modification, by third-party company: hot process to modify the pipe-connection between the Waste Water Unit and the tank TK;
- ignition of atmosphere flammable during the welding works, which led to the explosion of atmospheric tank TK, containing wastewater from the batch plant, consequent large fire
- internal domino effect was generated, which subsequently affected all the units of the plant (processes, storage, transfers, utilities, etc.), in a succession of fires and explosions
- dangerous substance involved: wastewater containing methyl alcohol, ethyl acrylate, mineral ray, xylene (in the TK tank) – almost 130 tons
- the fire involved all production units, directly and by radiation. All the plants have been totally destroyed; 2 external operators involved seriously burned
- still under investigation – information available from e_MARS report, waiting for the legal investigation conclusion

SEVESO CHEMICAL PLANT (UPPER TIER) – MAY 2020 – P. MARGHERA (VE)

LESSONS LEARNED

- constantly submit all types of changes to risk analysis, in accordance with the SMS change management procedure (preliminary risks, during implementation and in the exercise); consequent identification of the prevention and protection measures to be implemented, and the related training activities of the personnel involved
- keep the isolation and inertization conditions of the systems under change/intervention, in order not to change the environmental conditions that may arise origin to the formation of potentially flammable and explosive atmospheres
- in the work permit: attention must always be paid to checks before, during and at the end of the intervention; supervision by the persons in charge, formalization
- correct positioning of the storage of dangerous substances and mixtures in the area, with the related systems fire protection, according to an adequate risk analysis

CHEMICAL ACCIDENTS 2020

SEVESO CHEMICAL PLANT (UPPER TIER) – MAY 2020 – P. MARGHERA (VE)



SEVESO EXPLOSIVES PLANT (UPPER TIER) – DECEMBER 2020 – CHIETI

- activity: demilitarization of conventional-unconventional ammunition (missiles, rockets) with recovery of metal and non-metal scrap and thermal destruction of explosives and propellants; reformulation of explosives for civil use
- an explosion occurred in the area of room no. 80 (oven static), where the thermal destruction of hazardous material was in progress; the materials found in the area after the event were: rockets, hand fires, wood contaminated with TNT, composite propellant
- no significant fires after the event, only a small fire resolved quickly by the emergency response (IEP)
- investigations by legal Authority still in progress; from the first inspections it seems that the accident occurred during the loading operations of the static oven, done through a metal slide. The slide did not report damage, so maybe the explosion occurred at about 2m away, where a box with the material to be destroyed was placed (presence of a small crater)
- the three workers present on site died; they all had long experience within the plant and also outside

CHEMICAL ACCIDENTS 2020

SEVESO EXPLOSIVES PLANT (UPPER TIER) – DECEMBER 2020 – CHIETI



12 units over an area of 20 hectares

SEVESO EXPLOSIVES PLANT (UPPER TIER) – DECEMBER 2020 – CHIETI

LESSONS LEARNED

- Increase the surveillance activities of the operations by the ‘persons in charge’, and the operators to respect the tasks assigned to them
- samely, improve personnel training so that the operations and the handling of hazardous materials are not carried out with excessive confidence
- introduction of video surveillance in the processing rooms, which will allow the recording and surveillance of the operations and activities of the operators
- review of handling procedures, in order to allow identification in real time of all the materials from the processing rooms to the thermal destruction room
- importance of managing the restart of activities, following long-term closure of the plant, through an IFA plan and program, which takes into account the long period of inactivity of the operators and the consequent revision operational procedures, and adequate inspection and maintenance of equipment that has been inactive for a long time

OTHER ACCIDENTS

- Dicembre 2020: oil pipeline storage (upper tier) - following core drilling operations related to soil analysis, damaged a pipeline that transfers the crude oil from the Marine Terminal to the oil pipeline tank storage. Crude oil release in the ground
- December 2020: galvanic plant (upper tier) - nitrogen oxides production caused by the insertion of ferrous material in the tank containing concentrated nitric acid
- August 2021: chemical plant (upper tier) – HCl sol.32% release from storage tank
- August 2021: chemical plant (upper tier) – release of chlorinated air from the hydraulic guard of hypochlorite production plant; light intoxication for 3 workers