



**CVŘ**

Research Centre Řež

Research Centre Řež  
Maintaining Nuclear Safety of Research Reactors  
during a Pandemic

Ján Milčák



## ■ Early in 2020

- The Czech authorities began to respond to the situation in the second half of February 2020, when the epidemiological situation in Italy deteriorated sharply
  - The first three cases of the disease were confirmed on March 1, 2020 (Northern Italy was mentioned as the main source of infection, where many Czechs went skiing to Alps)
  - The first measures against the epidemic were taken by the state on March 3, and on March 10 it was announced that schools had been closed the following day
  - On 12 March at 2 pm, a state of emergency was declared with a number of restrictions for citizens and businesses, and on 14 March, restaurants and other establishments other than the most important ones were closed. At midnight on March 15-16, with state exceptions, the state borders were closed.
  - The first wave of the epidemic culminated in the Czech Republic around April 12, when 4,750 people infected with covid-19 were registered, of which 436 were hospitalized, including about a hundred patients who were in serious condition.
- **The response to the new situation was lax at first, but then very forceful, including significant restrictions at national level**

## ■ Second half of the year 2020

- The positive development of the situation led to a change in the view of the epidemic, which, however, resulted in the gradual development of the situation
- The number of infected and sick people began to grow again during the summer
- In the last weeks of July and the first week of August, the incidence of the disease spread to almost all regions in Czech Republic
- However, in contrast to the spring culmination, there was no similar increase in hospitalizations

## ■ But

- In the first week of September 2020, the Czech Republic ranked among the worst affected countries in Europe in terms of the number of newly infected per million inhabitants
- The daily increase of more than 10,000 people was on October 16, 2020
- Thus again (as in March) the closure of all still open schools, with the exception of kindergartens, the closure of all restaurants, a ban on drinking alcohol in public or restrictions on gatherings, ban on going out at night between nine o'clock in the evening and five o'clock in the morning

- **General purpose research reactor**
  - Irradiation projects for material research
  - Radioisotope production
  - Silicone doping
  - Basic neutron research
  
- **Operated in cycles**
  - 3-5 week campaigning
  - 2-4 week outage for maintenance and fuel manipulation
  
- **Not classified as critical infrastructure**

# Organizational preparedness arrangements for COVID-19

- **Such situation has never been before**
  - Also not covered in emergency plan
  
- **At management level a crisis management group has been established early in the crisis**
  - Part of this group is the director of the company, a representative of the reactor operation, HR management, technical services manager, doctor and support systems representative
  - Thus, the group is able to respond to the situation from the point of view of medical, safety, security and personnel
  
- **Tasks covered by this group**
  - video-meetings to evaluate the situation and defining measures
  - steps evaluated in cooperation with other infrastructures in the Czech Republic
  - assesses the proposed measures and implements them in organization and operation
  - the results of the crisis management meetings are presented to employees regularly

## ■ Defining critical competences

- Workers who can not work from home and are required to be presented by OLC (reactor operators, dosimetric control, shift mechanic etc)
- Other support staff (energy dispatching, firefighters, security staff etc)

## ■ Telecommuting / remote working

- all personnel not required for operation on site was assigned to work from home office or left at home until further notice
- all meetings are minimized / canceled or done by teleconference (if possible / necessary)

## ■ Access restrictions

- all staff minimize contact with the operators and other critical personnel in control room
- only shift personnel and the necessary part of the operation present at the workplace

## ■ Isolation of specific personnel or groups

- as on national level people with symptoms are left home for quarantine
- similarly with people returned after travels or who was in contact with infected

## ■ Restricting site access

- all non-important visit to the site canceled until further notice
- only the necessary visits for operation/service and supply purposes
- set up a system of random temperature measurement of people entering the complex

## ■ Modified local catering system

- seating positions are reduced to ensure sufficient distance
- entrance to the dining room only through the entrance from the area for diners who have an ID card
- disinfection of the dining room and equipment
- minimize the stay in the dining room only for the time strictly necessary only for the consumption of food

## ■ Business trips

- Allowed to places defined by national regulation („green vs red zones“)
- National trips generally suspended (or replaced by video meeting if possible)

## ■ Hygiene measures

- hand dryers, elevators are shut down (or limited in utilization)
- face masks required (degree of restriction according to national rules)
- anti covid solutions in buildings (entrance, halls, toilets) and directly for selected personnel
- contract with a company for the implementation of disinfection of premises in the event of a confirmed infection



- **Minimization of presence of personnel only for necessary actions and operation to fulfill the OLC**
  - separation of selected people only for specific tasks
  - non-shift personnel – limited on to the most important task and safety requirement, other sent for home office
  - form few independent groups to limited presence „at one time” to have possible back-ups
  - cancellation or postponement of some projects and experiments to reduce the need for people in the workplace
  - after agreement, selected personnel were ordered extra shifts so that the second part minimizes travel (and thus reduces the risk of infection)
- **A plan for unplanned shutdown in the event of an epidemic spreading among operating personnel or general lock-down was also prepared**

## ■ Limitation of personnel

- reactor operators sent home to minimize the possibility of infection
- replaced by the staff responsible for the outage and the related activities
- minimized the number of suppliers at the same time
- declaration of infectivity required for entry clearance
- division of the day into individual blocks and limited the presence of people in the given block only to the necessary
- Detailed plans (time schedules) to keep groups separated

- **The positive aspect was that in 2020 no major reconstructions on reactor were planned, thus they were not affected by a possible shortage on the part of the supplier**
- **Postponed activities from the beginning of the year (when it was not much known what will happen in the near future) was successfully implemented in the subsequent moderate period before the second wave**
- **Necessary cooperation with external entities consistently planned and verified status and readiness for implementation, including adjustments to the regime itself to minimize the risk of transmission**

## ■ INSARR mission

- Year 2020 is for renewal of the operating license under which the INSARR mission was invited
- The mission itself has been postponed several times, but finally carried out during the summer thanks to the commitment of IAEA staff

## ■ Transport of spent fuel and fresh fuel

- Large-scale event that requires the cooperation of many entities, including police
- Carried out without downtime or interruption thanks to precise planning; an alternate is always appointed for most essential activities

# Positive things associated with a pandemic

- **Large-scale deployment of technologies for long-distance meetings and training (if possible)**
- **The pressure to work outside the workplace, which in some cases has a positive effect on performance (for those with long-distance commuting, etc.)**
- **Strengthening team responsibility (avoiding risky contacts / behaviour when knowing that it can subsequently endanger colleagues)**

## ■ Till today

- No general lock-down has been declared
- No case of a positively tested operator was confirmed
- Random cases of the positively tested are isolated and thus we limit community spread in company
- Most of the projects in the field of reactor use are proceeding according to plan, but the fact is already known that limited deliveries (eg. from abroad) will lead to delays in the implementation of projects in the near future
- Suppliers of special services for ensuring security (special tests, etc.) so far confirm their ability to meet obligations (but there are also cases where, for example, a foreign company is not able to send a workers - it does not pose major problems yet)
- Overall restrictions in social life in some cases lead to a limitation of orders for reactor services and impacts on the financial side of the operation can be expected

**Thanks for your attention**



[www.cvrez.cz](http://www.cvrez.cz)

Hlavní 130, 250 68 Řež  
Czech Republic