Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) COVID-19 situation management

(as of May 2020, update as of March 2021)

Presentation:	The purpose of this paper is to present the COVID-19 management established within the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) to handle the continuous service of the German nuclear safety and radioprotection authority and the choices taken to do so.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety management of the COVID-19 situation

National background	
General	
German authorities instructions regularly delivered	yes
Clear established and regularly updated provisions	Yes. Corona crisis team issues regularly updated provisions and/or recommendations. All BMU staff are currently working from home when possible.
BMU	
Provisions for the BMU	Are decided by BMU in consistence with our general national provisions
Contingency plan	Both a General Contingency Plan and a Specific Addition for Pandemic Situations were developed in 2018 and are updated annually.
Staff of BMU	About 800
Missions of the BMU	
Sustained missions	
Currently	
Key activities	**Public information**: on-going • The supervision is carried out by the Länder authorities. • The necessary supervisory visits take place to the extent necessary in compliance with hygiene and precautionary measures. • Options for contact minimization are used where this is possible from a supervisory perspective (e.g. video/ telephone conferences). • There is a regular telephone conference between the department heads of BMU and the Länder authorities. • The accessibility of the administrative staff is still given. Many employees work from home. Work can be maintained in this form in the long term. *Update as of March 2021:*

	• COVID-19 rapid antigen tests (self-tests) have been available to all employees of BMU if they need to come to the office for work-related reasons. • BMU requested the Reactor Safety Commission to evaluate remote inspection methods from a safety perspective, taking into account the experience gained in dealing with the Corona pandemic.
Inspections	
	• Necessary inspections are carried out. Regarding expert participation in inspections: in the case of recurring in-service inspections, which are carried out several times a year, but only once a year with the supervision of an expert, the supervision can be temporarily suspended, provided that this is compatible with the inspection periods or the supervision could be carried out remotely in an effective manner. The authority's discretion to decide on exemptions is covered by the operating regulations. Exceptions to this may be tests in which the expert conducts the test, tests in accordance with conventional regulations in accordance with the Industrial Safety Ordinance and tests for which measurements are provided for the derivation and setting of limit values by the expert. Regarding remote inspection practices: • Where it was/is possible from a supervisory perspective e.g. the following measures were/are taken: - telephone and video conferences instead of meetings on-site, - relocation of meetings, - ”remote inspections“ of the control room: the inspector requests a selected sample of shift records to be electronically transmitted, then these records are examined and discussed – together with other information – with the shift personnel by phone. • A useful remote inspection technique that is used routinely (not only during the pandemic) is the “remote monitoring system”. By this IT tool, essential operational parameters (e. g. reactor power, emergency power supply, position of important valves, radioactive emissions) are transmitted electronically to the (home) office of the supervisory authority (update every ten minutes in normal, i.e. non-emergency mode).
Facilities (NPP)	
Continuity plan	The German NPP have developed plans for prevention, control and contingency. They have general pandemic plans, which they adapted for the specific case of coronavirus (such as the incubation period of the virus). The competent nuclear regulatory authorities

	of the Länder are informed about the respective plant-specific precautionary measures.
Staffing	• Reduced staff on-site and strict access regulations especially to sensitive locations for example main control room (see also below)
Planned maintenance	Measures for the first refuelling outage (begin 11th April 2020) under pandemic conditions in a German NPP (*as of 3rd May 2020*): • The **protection concept** includes principles of the licensee's preventive strategy. The objective of the protection concept is to effectively prevent infection chains. Amongst other things the following barriers are carried out: avoidance of contact, hygiene behaviour, staff reduction on-site, medical controls and organizational measures. It implements the requirements of the responsible public health authorities. • The **organisation of the emergency response team** of the NPP stipulates that it gets support of the NPP's own working groups newly built and staffed with personnel from across all departments. The working groups support the development and implementation of measures such as information of personnel (personnel of the NPP and external service personnel), reduction of meetings to the absolutely necessary extent (change to video / telephone conferences), special protection of the operating personnel (main control room access regulations, separation of personnel of the NPP and service personnel), access regulations for the NPP, personnel keeping a log book of personal contacts on a daily basis (to keep track of contacts in the case of an infection; contacts are to be listed from the time they are present on-site, during the working phase and up until 14 days after the working phase), distance regulations for meeting rooms / offices / containers, disinfection measures, checking the inventory of protective equipment, ordering additional face masks and disinfectants as well as preparing emergency shift plans which were coordinated with the works council. • The **preventive measures** include amongst other things a corona test of all personnel (personnel of the NPP and external service personnel), a daily fever measurement before access is given to the site, an additional corona test in case of any abnormalities in the fever measurement or flu-like symptoms, the issuing of face masks (mouth-nose protection or higher-quality, duty to wear a face mask) and a briefing of the personnel regarding the correct application, personnel keep a log book of personal contacts on a daily basis, the use of a security service to ensure compliance with the general rules of conduct (e.g. distance in queues). For work in the controlled area, a reduction in the scope of work, an exact time frame for the work and a mask wearing duty according to risk assessment (FFP2 / 3 masks and safety glasses) are stipulated, if

	possible. The number of people in the controlled area should be limited by access controls to the changing rooms in front of and in the controlled area as well as by a reduction in the number of electronic dosimeters. A "hygiene team" has the task of defining disinfection requirements and cycles as well as monitoring the implementation for all personnel. Regular disinfection is intended for workplaces, sanitary rooms, doorknobs, etc., as well as for personnel contamination monitors. A local surgery and a quarantine room were set up on-site. • As part of the **implementation of measures**, "contact-sensitive locations" were identified for which measures were derived. For the main control room for example, strict access regulations, special protective measures such as the requirement to wash hands every two hours and to hand over shifts in less than 15 minutes were implemented. Rules of conduct are visible everywhere (main control room access regulations, distance, separation, isolation, hygiene ...). The licensee provided the managers of the NPP with a decision event tree for dealing with suspected infection cases, which is a decision-making aid for the further place of work (plant or home). • In the refuelling outage, all safety-related maintenance and repair measures as well as periodic inspections are carried out. The personnel planning for the refuelling stipulates a reduction in the scope of work and an adjustment of the work processes. The original planning was based on a three-shift operation for three weeks with 660-950 service personnel per week. In the new planning the refuelling outage is scheduled for six weeks with 100-250 service personnel per week. Service personnel are already working in the NPP for the ongoing preparation of the refuelling. *Update as of November 2020:* • All planned inspections and periodic tests as well as maintenance work were carried out in this first refuelling outage under pandemic conditions in a German NPP. No cases of coronavirus infection occurred during the outage which was completed on 24th May 2020. Every employee of the external partner companies pledged themselves to comply with the general rules of conduct and those specified by the power plant. Full supply with food and other necessities was offered on-site as well as organisation of lodging and transportation. • For the refuelling outage in a second NPP (begin 8th May 2020), the experiences made in the first NPP were used, comparable measures were taken according to the regulations regularly applicable in Germany at that time. They mainly related to separation and spacing measures, the reduction of personnel in the

	plant and to contact tracking in the case of an infection (personnel keeping a log book of personal contacts on a daily basis). All safety-related maintenance and repair measures as well as periodic inspections were carried out. An adapted shift system, shifting working hours and postponing personnel-intensive not safety-relevant work, for example in the main cooling water area on the cooling tower, resulted in the reduction of the number of additional external employees during the outage by around a factor of two. The outage was completed after around three weeks on 31st May 2020 without the occurrence of any coronavirus infection. • Further refuelling outages at two-unit sites with one unit in operation and the other one in decommissioning considered the halt of decommissioning activities during the outage in order to reduce the number of personnel simultaneously present on the site. • In the meanwhile in all six German NPP the refuelling outages were already carried out under pandemic conditions. All safety-related maintenance and repair measures as well as periodic inspections were carried out. Experience from previous refuelling outages in other German NPP were taken into account. Comparable measures were taken according to the regulations regularly applicable in Germany at that time. In sum, extensive and thoroughly planned infection prevention measures were taken in all NPP. • All six outages were completed without the occurrence of any coronavirus infection. *Update as of January 2021*: • In one German NPP already a second early outage was carried out as planned and completed by end of November 2020. • Few cases of coronavirus infections occur in the plants, at the competent regulatory authorities and expert organisations from time to time. The experiences so far have shown that all were essentially prepared for a pandemic situation, so that the hygiene and precautionary concepts seem to be effective up to now. *Update as of March 2021:* • The first of four refuelling outages in German NPPs in 2021 started few days ago. Experience made last year regarding the Corona Pandemic during outages is being taken into consideration.
Other nuclear facilities	
Research Reactors	*Update as of March 2020:*

	The production of necessary medical radioisotopes in case of demand is possible in one research reactor which in compliance with hygiene and precautionary measures. . The other reactor for production of the medical relevant isotopes is still out of operation due to the outage and is scheduled to be back in operation by the end of March. The research and training reactors are resuming normal operations. They can perform limited scientific experiments and some practical training for students. Access restrictions to the research reactor facilities (science institute) were developed: • In general, admission to the facility is only possible for the research reactor staff necessary for the respective research reactor´s operational state. Own personnel is as much as possible working from home. The operational groups have to wear masks whenever distances cannot be maintained. • Control room entry is kept to a minimum. • Access to the reactor by external persons (e.g. contractors, authorized experts) is limited to work necessary for safety/security. Exempt is access in case of emergencies. • External persons need to declare themselves free of symptoms and not having visited a foreign risk area in the two weeks preceding the visit. • Training and job interviews are generally done only by video conference. If physical presence is unavoidable and distances must be kept or FFP2 masks worn.
Fuel Fabrication	One fuel fabrication facility is operating in Germany. Due to the given circumstances, the operator developed a hygiene concept and precautionary measures. In addition, the operator has to provide a weekly status report to the regulatory body. Access restrictions apply to the facility. • External persons (e.g. contractors, authorized experts) must fill in declarations of information or questionnaires before entering the site. These relate to travels to areas of risk as well as contacts. Related inquiries are also performed by regulatory body personnel. • Working students, trainees and other additional staff are granted leave for the whole of the period. Further measures include: • Contact between personal is kept to a minimum necessary (e.g. rearrangement of office occupancy, installation of additional changing rooms, reduction of meetings and participants, provisions for the access to the canteen etc.).

	• Additional protective clothing provided
Uranium enrichment	One uranium enrichment is operating in Germany. Due to the given circumstances, the operator developed precautionary measures. In addition, the operator has to provide a weekly status report to the regulatory body. Access restrictions apply to the facility. • Majority of administrative staff is working from home. • External persons (e.g. contractors, authorized experts) must fill in declarations of information or questionnaires before entering the site. These relate to travels to areas of risk as well as contacts. Related inquiries are also performed by regulatory body personnel.
Spent fuel and HAW storage facilities	16 storage facilities for spent fuel and HAW are operating in Germany by two state owned operators. Due to the given circumstances, the operator developed precautionary measures. From mid of March on, the teams on-site were split into groups in order to avoid complete loss of workforce. Staff on-site has to keep distance between each other. If closer contact is unavoidable provided masks have to be worn. In addition some operational aspects are complied with: • Storage and de-storage and all other operations are reduced or deferred. • The storage concept (dry storage in accident-proof dual purpose casks) assures fulfillment of all protection goals. • The implementation of maintenance measures is ensured, for example, by personnel exchanges between storage facilities.
Radiation Protection (including medical staff and applications)	In matters of radiation protection the regulatory bodies of the federal countries have been encouraged to use, where appropriate, their margin of discretion widely when applying the rules of Radiation Protection Law in order to meet the particular challenges due to the COVID-19 pandemic. The regulatory bodies may also deviate from legally non-binding regulatory guidance instruments where their

	application seems to be inappropriate, e.g. where the availability of the required medical staff according to these guidance instruments cannot be ensured.
Crisis management	
Emergency shift	Through teleworking, the availability of a sufficient number of healthy staff members is guaranteed. Staff work in the BMU is not carried out in staff rooms but from the employee's own offices to minimize the risk of infection.
Calls to the emergency shift	The call of the emergency staff is guaranteed by the established alarm channels. There is a 24/7 on-call service which, in case of an emergency, triggers an alarm chain to set up the Radiological Situation Centre.
BMU Daily running	
Staff	
Teleworking	Teleworking for everybody.
Specific cases	If necessary for specific reasons/critical functions, people can work in their offices in the Ministry. The Ministry remains open. In public areas of the Ministry, facial masks are advised.
Material	
Personal computer	Staff are using BMU-issued tablets or other devices ("Sina") enabled with some communication tools such as Jitsi.meet. Zoom is regarded as not safe enough but we are allowed to join (not initiate) zoom conferences.
Phones	Office phones are available.
Others	Remote access is available to basically all staff. Emails Audio conferences Video conferences Within BMU, there is also Skype possibility
Communication with stakeholders	
Paper mail	Is possible but limited for practical purposes, also phone calls and emails responding to the public
Others	Phone and email communication as usual
Meetings	In general, only virtual meetings. Most meetings are cancelled and replaced through written procedures or audio/video conferences.