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Operation of Indus Synchrotron Radiation Sources and its management during COVID-19 period

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Synchrotron Radiation Sources (SRS) Indus-1 and Indus-2 at RRCAT, Indore (India) are being operated in round-the-clock mode as a national facility. Indus-1 is a 450 MeV, 125 mA electron storage ring emitting radiation from mid-IR to soft x-ray with a critical wavelength of ~ 61 Å. Indus-2 is a 2.5 GeV, 200 mA electron storage ring providing synchrotron radiation emitted from its bending magnets has broad spectrum covering soft and hard X-ray regions with a critical wavelength of ~2 Å. Normally both the machines are operated for ~ 320 days in a year. Seventeen beamlines on Indus-2 and seven beamlines on Indus-1 are commissioned and are being utilized by a large number of researchers from universities, academic institutions and national laboratories. The facility is operated under licence issued by Atomic Energy Regulatory Board (AERB) and by following all the prescribed safety norms. Trained and qualified personnel are deployed for the operation of the facility.

The outbreak of COVID-19 pandemic posed many challenges in smooth operation of the facility. The facility had to be shutdown in March 2020, in the wake of nationwide lockdown declared by the government which lasted for more than two months. Measures were undertaken to ensure the safety of sub-systems and the Indus complex during lockdown and safe start-up of the facility in phased manner after the lockdown.

Post lockdown, operating the machines with constraint of working with reduced manpower, implementing the measures to contain the spread of COVID-19 among operation/maintenance staff and running the facility in compliance with the guidelines issued by the local administrative authorities from time to time for containment of virus, were also some of the key issues which were handled during the pandemic. This paper describes all these challenges and how they were overcome.

The second wave of COVID-19 which started in India by the end of March 2021, was much more devastating and severe. This affected a large number of the operation/ maintenance staff as well as their family members. In this tough situation the operation of the facility was maintained. By the third week of April 2021 lockdown was imposed again by local administration and the facility was shutdown. This time the facility was normalized much faster with the experience of previous year.

Finally, measures taken for containing the spread of COVID-19 during shift operation and long term measures like improving ventilation of the complex, additional exhaust fans, installing UV based air purification in control room and wash rooms, online meetings of coordination committee etc. which became 'new normal' are discussed in this paper.

Session

Session II: Running a Beam Particle Accelerator during the COVID-19 pandemic.

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