

MANAGING PROCUREMENTS IN THE TIME OF COVID-19: SNS-PPU AS A CASE STUDY*

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THPTEV014

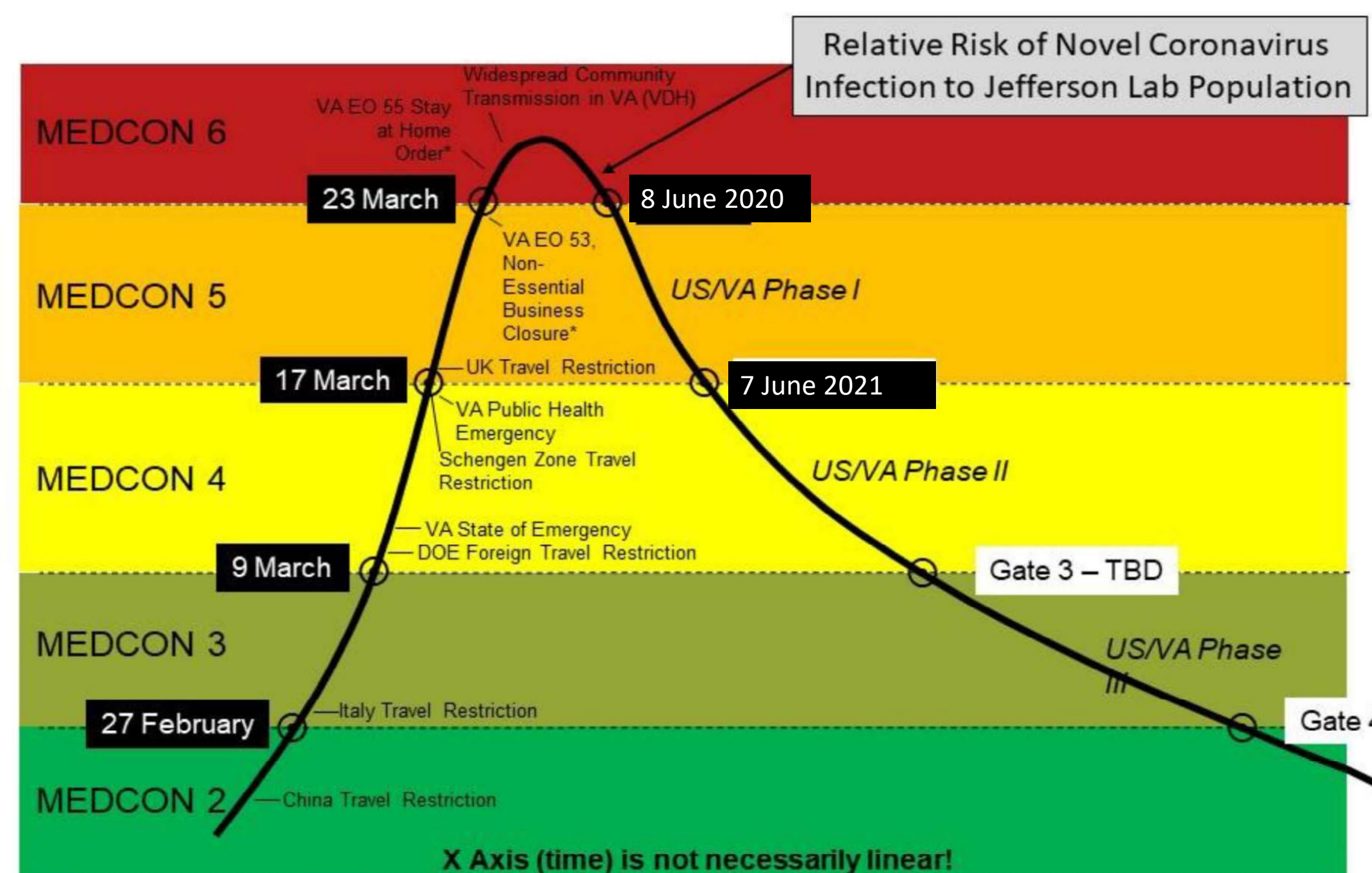
Abstract

In early 2020, COVID-19 swept across the world. The accelerator industry, like many others, was impacted by disease, delays, shortages, and new working conditions. All Thomas Jefferson National Accelerator Facility (JLab) employees were sent home in mid-March 2020, with many still working remotely now. At the time, JLab was working on the Proton Power Upgrade (PPU) to the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL). Procurements had been placed and were being managed, parts were being received and inspected. This paper details the JLab procurement plan for the SNS PPU project, and the mitigations that were developed to continue to support this project smoothly under the limitations imposed by COVID-19.

Background

The Proton Power Upgrade will increase the beam power of the SNS proton accelerator at Oak Ridge National Laboratory from 1.4 to 2.8 MW and increase beam energy by 30%. As part of the PPU upgrade, eight cryomodules, each containing four high-beta superconducting cavities, will be added to the existing linac. (Seven of these cryomodules were part of the original project scope, with the last added in 2021.)

JLab is responsible for procuring all components to support construction of the cryomodules, except for the cavities and fundamental power couplers which are still received, inspected and installed at JLab. The procurement activities for over thirty separate components, as well as for a number of smaller items and hardware, were well underway by early 2020, as was the spread of COVID-19.



COVID-19 IMPACT

On March 17, 2020, JLab entered “MEDCON-6” status due to concerns about the increasing spread of COVID-19, and all but a few critical JLab employees were sent home. All inspection, testing and assembly activities ceased and were not able to resume, even partially, until mid-June, 2020, with JLab’s reclassification to MEDCON-5 status. This still restricted many operations but allowed a subset of staff to return to work on site to perform hands-on activities.

In addition, COVID-19 work limitations and infections at vendors caused additional delays.

Acknowledgments

Many thanks to the JLab staff, too many to name, who worked diligently despite COVID-19 to ensure a successful project.

MEDCON-6 Procurement Strategy:

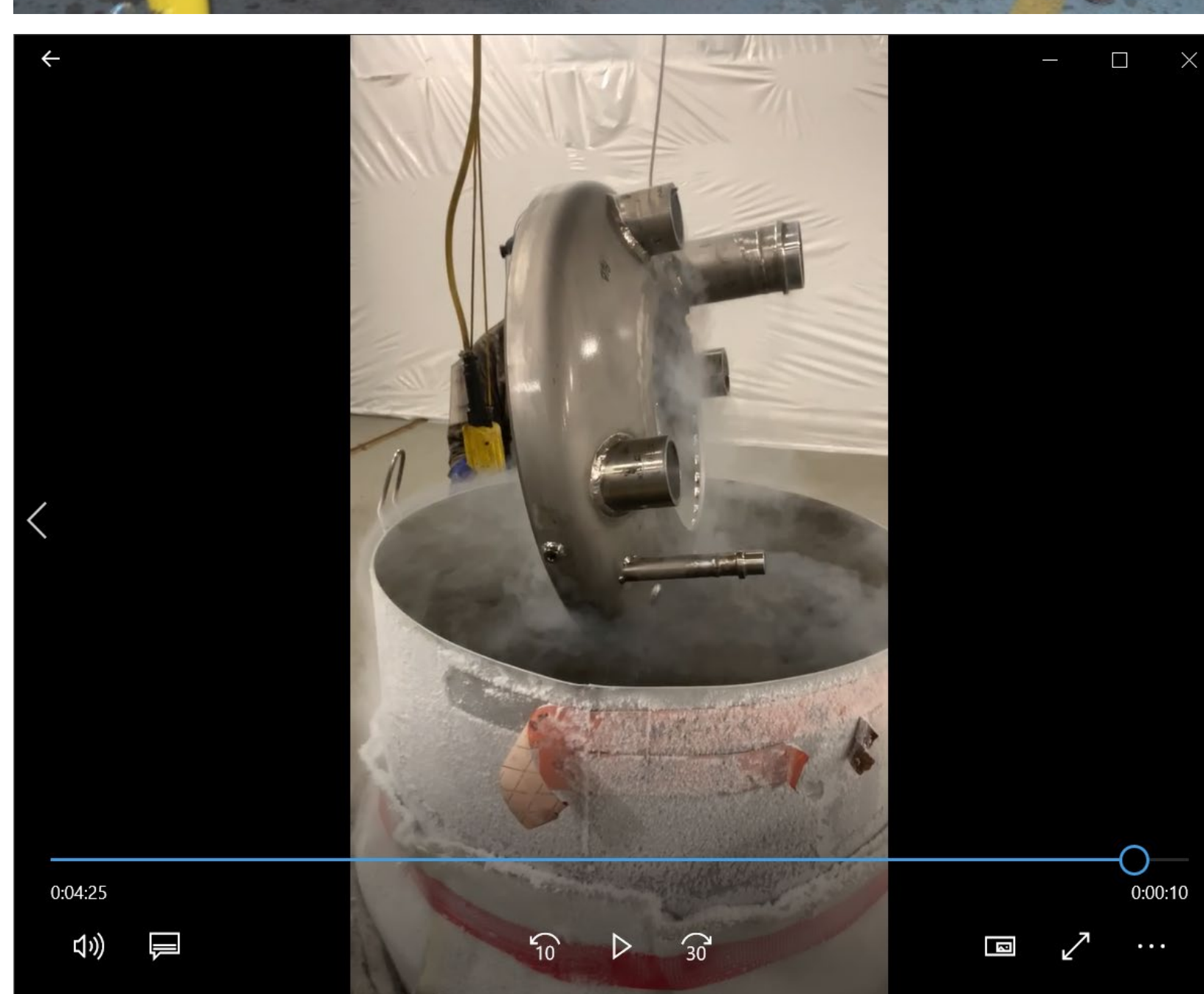
- Small items such as catalog parts were delivered to JLab and stored
- Larger items (such as helium vessels) were received only on Fridays and stored
- Items too large to be handled by one person alone (such as vacuum vessels) could not be received, and were held at the vendor until JLab returned to MEDCON-5
- Vendors agreed to extend warranties to start after JLab returned to work in exchange for timely payments
- JLab engineers and procurement officers continued to work from home to monitor contract and production status



After JLab resumed MEDCON-5 status and staff returned to work, all staff were required to wear masks at all times, or full-body personal protective equipment (PPE) and respirators if they had to work within six feet of each other.



JLab contracted with vendors to perform additional inspections and assemblies that could not be done at JLab to maintain schedule.



JLab monitored progress and inspections/testing remotely through live or recorded video, as well as phone calls and photos.

Conclusion

The past year has been unprecedented, and has required creativity and adaptivity to keep the SNS PPU project at JLab on track. The project faced three months of limited operations at JLab and over a year of mitigations imposed on staff, such as remote work and inability to travel. There were delays due to COVID-19 at multiple vendors. Nevertheless, by developing and deploying new methods of managing procurements, JLab was able to minimize the impact of COVID-19 on PPU.

Today, the project has successfully completed the first string assembly with good performance indices for both cost and schedule, and is on track to deliver all cryomodules to PPU in time to support their upgraded accelerator.