

APS OPERATIONS UPDATE



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PSC All Hands Meeting

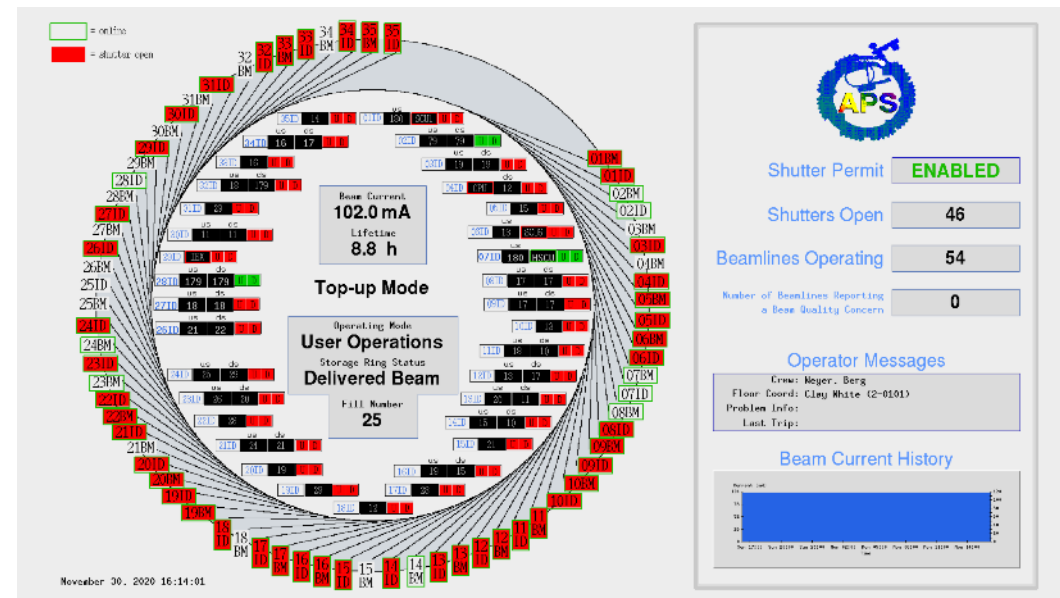
January 27, 2021

APS OPERATIONS UPDATE

- Chronology (brief):
 - As the COVID-19 pandemic has evolved, the APS had responded with the following actions:
 - March 21, 2020: Argonne moves to Minimum Safe Operations at 5 PM CT after Illinois stay-at-home order. Only COVID-19 and proprietary pharma research permitted via mail-in/remote access.
 - Late May: APS expands to non-COVID experiments, only remote access permitted (no onsite users).
 - June 1: APS 10-day shutdown for protection system validations/cal.
 - June 15: Argonne site moves to Limited Operations.
 - Aug 14 to Sept 14: APS planned shutdown, aligned with NSLS-II.
 - Oct 1: Start of 2020-3 run; limited onsite Argonne employee users.
 - Dec 17 to Jan 26: APS planned shutdown; 2021-1 run start on Jan 26.

- Accelerator, Beamline, and Facility current status:

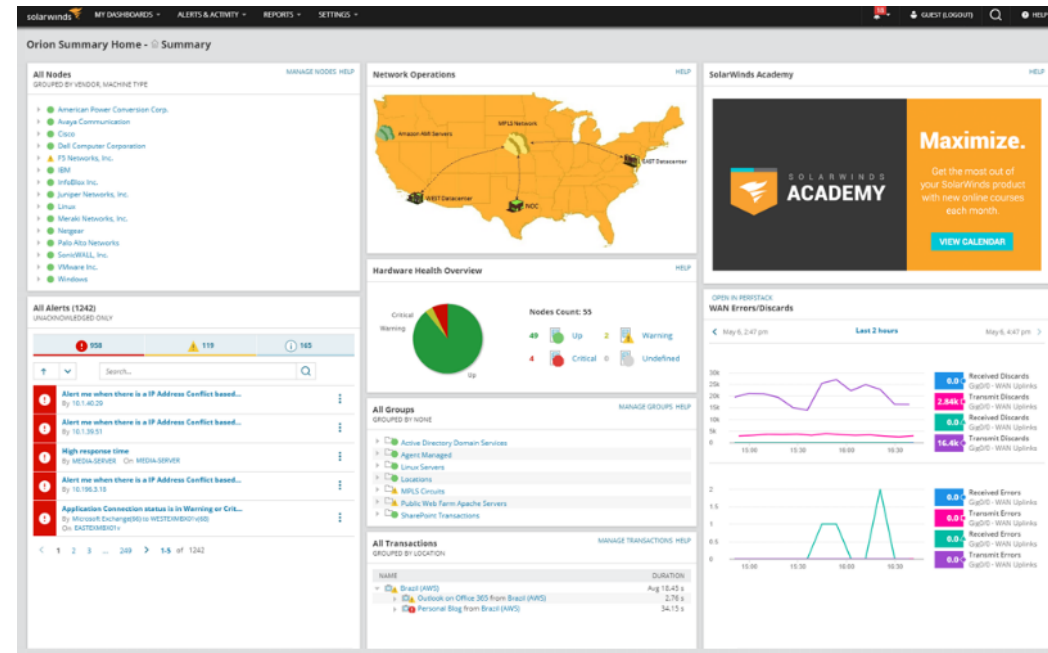
- The APS accelerator complex continues to provide stored beam for users at high reliability. The 2020-3 user run had a number of early, impactful faults.
- Beamlines are enabled for COVID, proprietary pharma and non-COVID research. Majority of experiments continue as mail-in/remote access with limited *in situ* experiments that are within established staffing and sample risk thresholds.
- The APS regularly has ~175-250 staff onsite at any given time, in direct support of APS-U and APS Operations work scopes.



APS Operations dashboard on Nov 30, 2020

SOLARWINDS VULNERABILITY

- SolarWinds provides IT services in support of managing core services and configurations – 300,000 customers – several government and Fortune 500 companies.
- Nation State-led compromise of SolarWinds – malicious code added to software updates available from March–June 2020 to SolarWinds customers.
- Alert of SolarWinds incident provided by DOE on Sunday, December 13, 2020.
- Argonne has five installations of SolarWinds – (3) installations ran a vulnerable version from April – Sept 2020.
- Argonne conducted immediate analysis of provided indicators of compromise – no indication of compromise at Argonne identified.
- As a proactive measure, the (3) systems have been taken offline and will be rebuilt or replaced upon direction of DOE and DHS.
- Argonne BIS, Cyber, and APS IT continue to review new intel from DHS/DOE and respond to data calls. Continues to be no indication of further issues. Waiting on DOE approval to rebuild/replace, which is estimated to be near-term.



Example of SolarWinds Orion dashboard for network management

FACILITY PREPARATION FOR APS UPGRADE

- Numerous facility improvement projects ongoing in 400- and 300-Area.
- 400A Mezzanine construction was completed and received final beneficial occupancy in Oct 2020.
- Group and equipment moves started soon thereafter.
- Space affords larger working and temporary storage area footprint, as well as specialized test areas and benches for APS-U receipts.



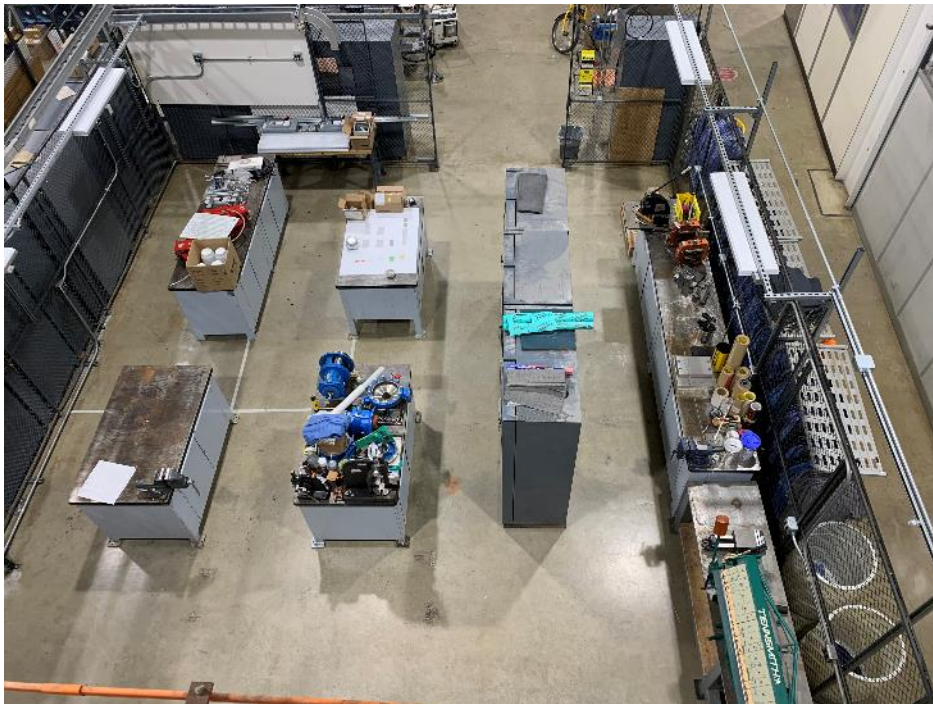
Power Supply Controller Test Stand (top) and Power Supply Magnet Loads (bottom)



400A mezzanine structure near complete in Sept 2020

FACILITY PREPARATION FOR APS UPGRADE

- To create room for the BLS Cryogenic System and the future Sector 38 Beam Size Monitor (BSM) hutch in the EAA, several groups were required to relocate equipment / tools.
- Power Systems Group has completed a move out of EAA and into 400A. MOM Group has begun moving in evacuated PS Group area.
- Floor space for the future BLS Cryo System is in process of cleaning, preparation.



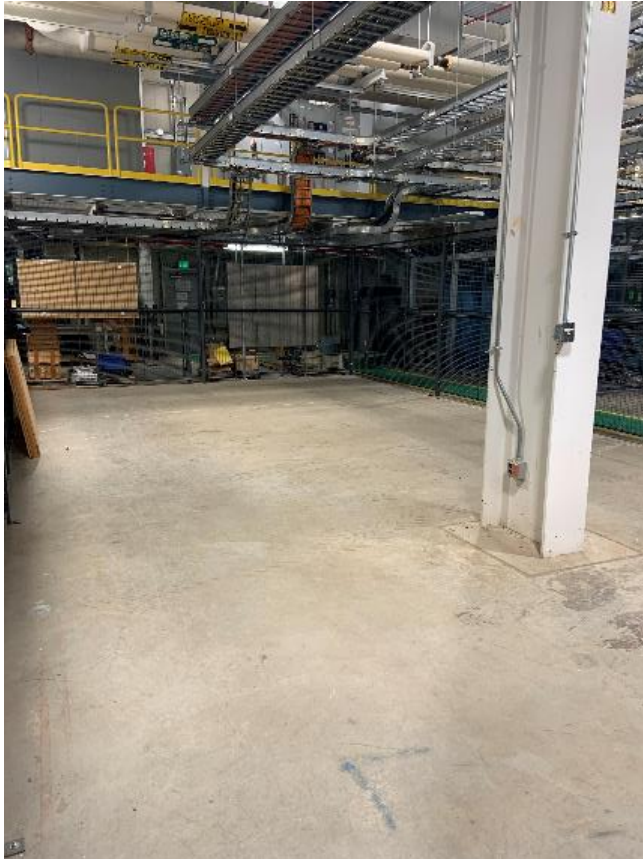
*Above: New MOM Shop Area
(formerly PS Group Area)*



*Above: Old MOM Shop Area in the process of moving to
make room for APS-U BLS Cryo system footprint*

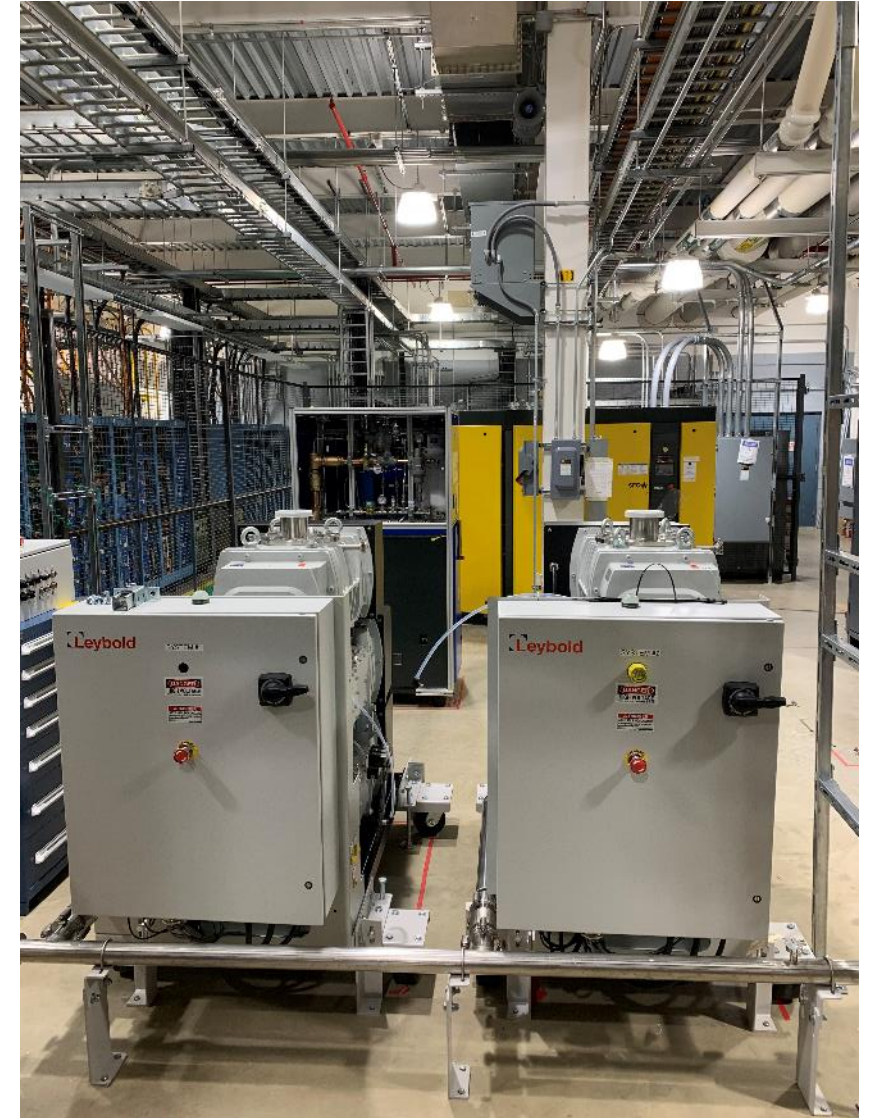
FACILITY PREPARATION FOR APS UPGRADE

- BLS Cryo footprint is required in Bldg. 420 as well, resulting in large preparatory effort.
- Equipment continues to be accepted and placed in Bldg. 420, as well as tied into power system.



Right: VP1 & VP2 vacuum pumps in foreground and S1 and S2 compressors in background

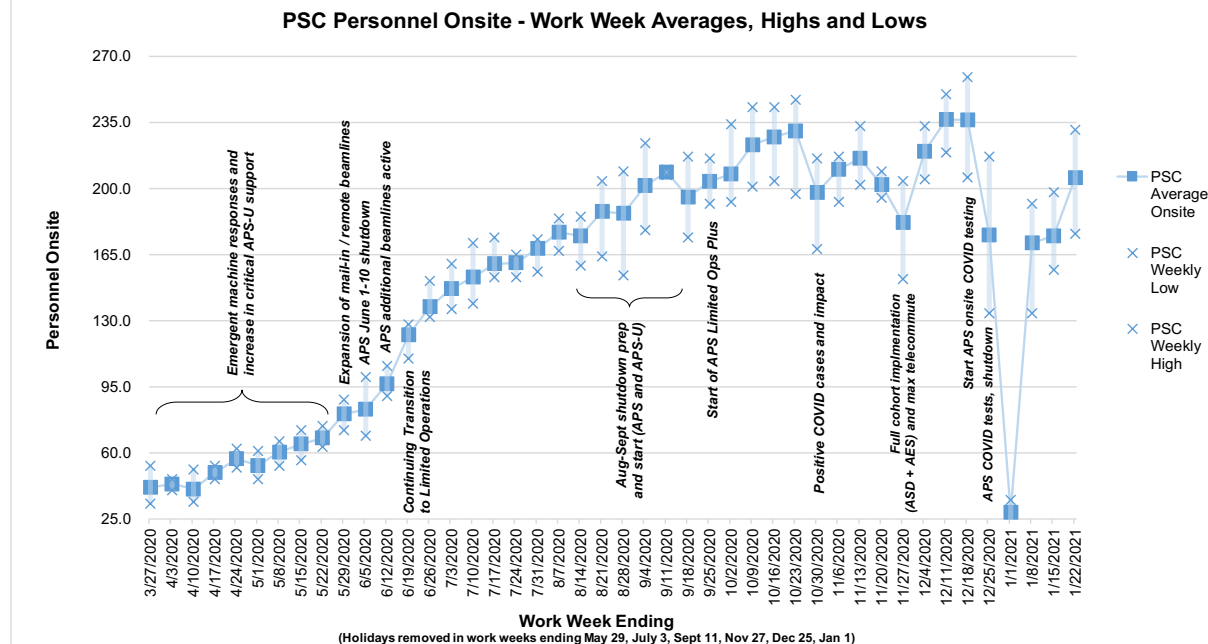
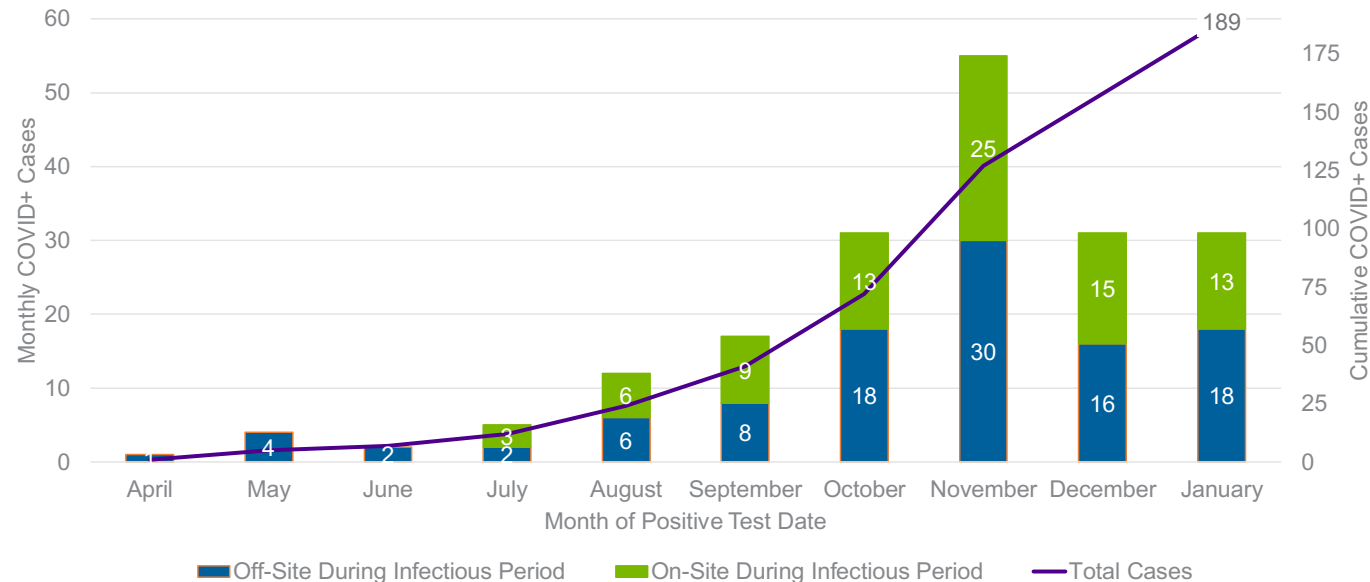
Left: Space prepared in Bldg. 420 for BLS cryo needs



COVID AND APS OPERATIONS

- As of Jan 25, Argonne has a total of 189 positive COVID cases.
- Majority (56%) of positive cases have been offsite during the infectious period.
- APS operations, inclusive of APS Upgrade personnel, CAT operations staff, and the limited external onsite users total up to ~250 personnel per day.
- User program: Majority remote access, with limited Argonne employee and external users.
- Additional COVID prevention measures have been undertaken, as detailed on subsequent slides.
- These are complementary measures to the primary tenets of face coverings, distancing, washing hands.

Argonne Positive COVID Cases
as of January 25, 2021



APS COHORT MODEL IMPLEMENTATION

- Forcing function: Positive cases onsite with large contact tracing impacts locally.
- Community spread increases in Illinois (and Region 8) in mid-October, before holiday break.
- Group Leaders asked to model and implement cohorts with goal of dramatically reducing transmission potential by physical separation.
- Shifts are intended to be temporary and will continue to monitor situation and adapt based on operational needs and safety considerations.

Daily coronavirus cases: Confirmed and probable

7-day average for 3 days before and 3 days after date. As of Jan. 20.

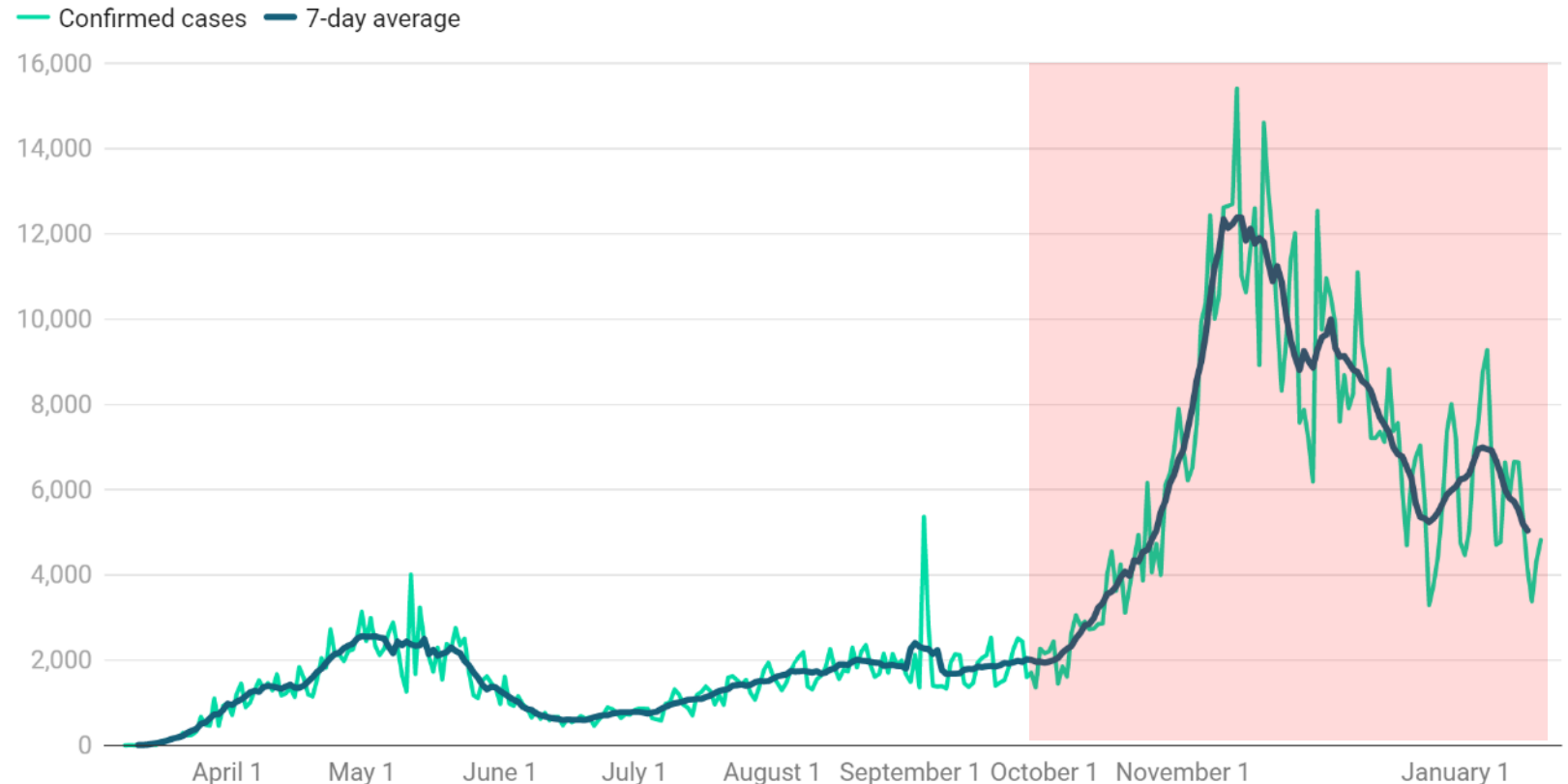
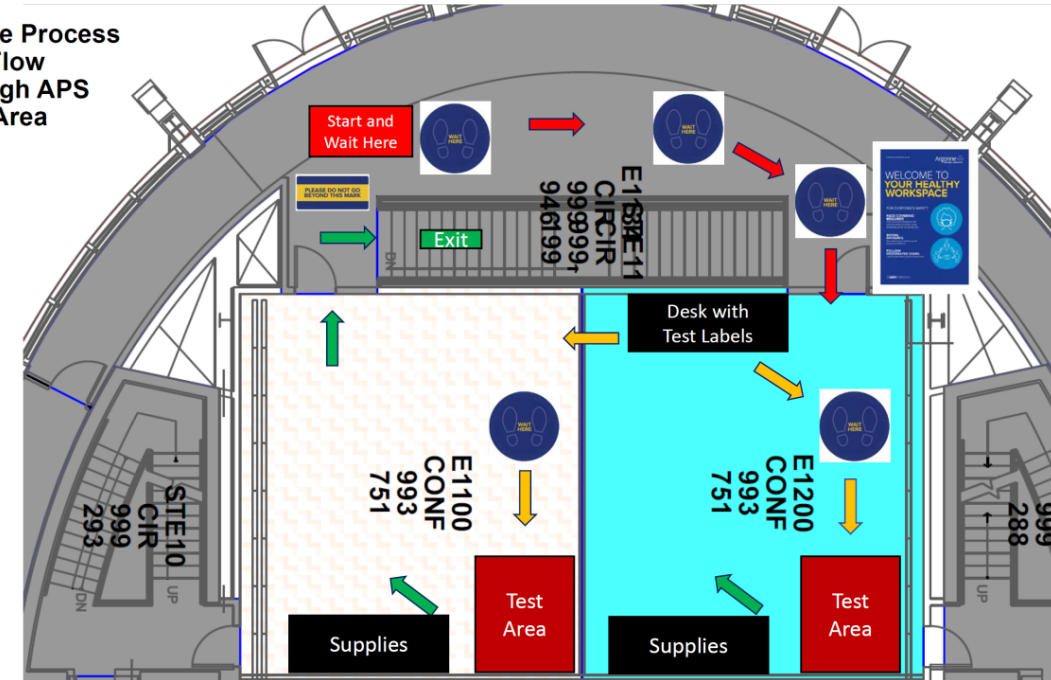


Chart: Chicago Tribune dataviz team • Source: [Illinois Department of Public Health](#) • [Get the data](#) • Created with [Datawrapper](#)

APS ONSITE COVID TESTING

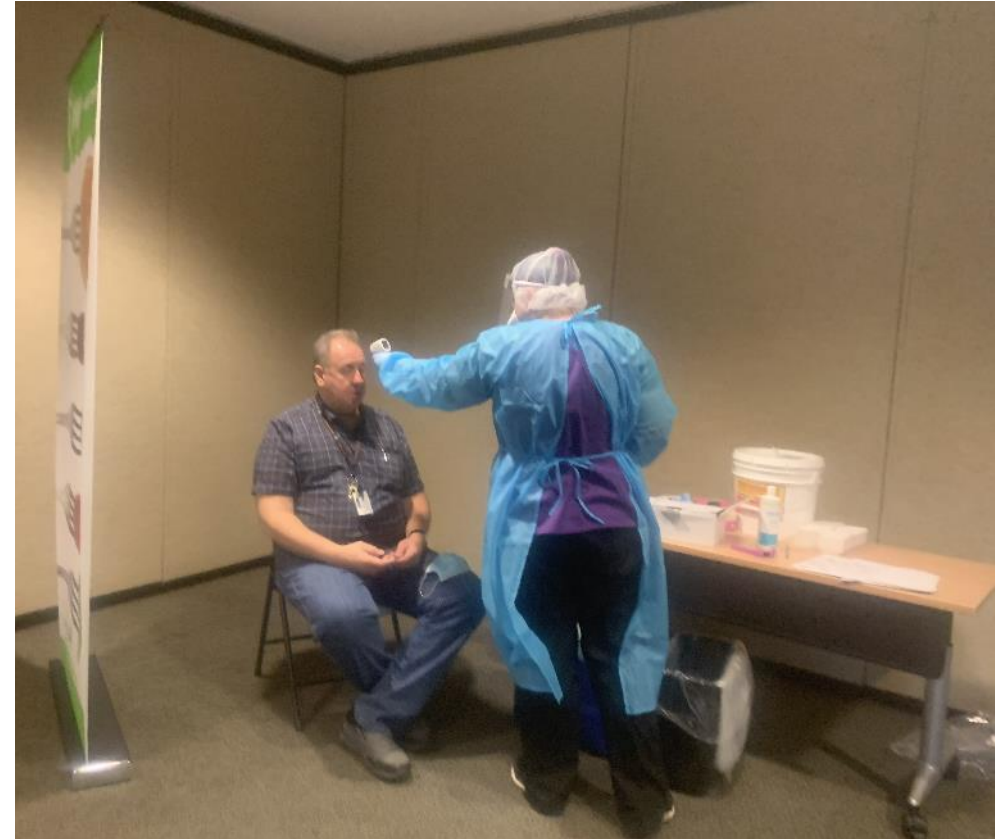
- Forcing function: Very high community spread coupled with a maintenance shutdown requiring larger onsite presence, bookended by holiday periods.
- Decision made to enact recurring COVID testing for those that will have a regular onsite presence during the shutdown.
 - **Supplemented existing COVID controls**
- APS satellite testing area set up in 402 E1100/1200.
 - Separate entrance and exits for single-direction flow
 - Total of 154 participants identified meeting testing criteria for onsite presence, nature of work / higher potential for close proximity
 - Argonne HEW staff onsite at 2 separate stations, to perform mid-nasal swab PCR testing.
 - Daily courier from HEW to U of C Health Center for processing test results (received in ~ 24 hrs).
- Results from Dec 1 to Jan 7: **4 positives (asymptomatic) catches out of 806 tests conducted; additional 2 positive cases (symptomatic) in PSC during this time period, outside of recurring testing**

Queue Process and Flow through APS Test Area



LAB-WIDE COVID SCREENING PROGRAM

- Dec 18 memo from Argonne cited the success of the APS COVID testing program and adoption of the screening on a Lab-wide basis.
- Lab-wide testing started Mon Jan 11, replacing the APS COVID testing.
- PSC roster moved over to Lab-wide testing roster. Total of ~609 employees from across Argonne enrolled, as well as contractors, other employment categories.
- Lab conducting ~100-120 tests/day, Monday through Friday. Total of 4 testing locations; APS maintains the satellite testing location in 402 E1100/1200.
- Results to date: **9 positives (asymptomatic) out of 1,134 results through COB Thurs Jan 21**



Ed Wrobel (AES/IT) having temperature scanned prior to mid-nasal swab PCR test

CONTACT TRACING WEARABLES

- Ultra-Wideband (UWB) technology, measures proximity 6x-12x more accurately than Bluetooth
- Features
 - No location tracking or Personally Identifiable Information (PII) collected
 - Minimal effort for use: Assignment and sync
 - Web accessible data for contact tracing
 - Configurable distance and alert settings
- Device
 - Records other devices in proximity
 - Provides tactile and visual feedback alerts; no audible alert
 - Simple clip attachment to apparel, lanyard; weighs only 1.6 ounces; small size
 - Battery lasts 2+ months, no daily recharging needed
- Kiosk
 - iPad with Instant-Trace app running
 - Contact data is uploaded to the cloud when worker scans device QR code
 - Availability forthcoming to scan using your mobile phone or tablet (in addition to kiosk)
- Web Dashboard & Reports



*Instant-Trace badge
(above) and
scanning kiosk
(right)*

CONTACT TRACING WEARABLE - TIMELINE

Pilot Groups – Mid-December 2020 Start

Shipping and Receiving – Infra Svcs

Health and Wellness – ESHQ

Building Maintenance – Infra Svcs

Fire Department – Infra Svcs

Utilities High Voltage – Infra Svcs

Biology – CELS

Mechanical Operations & Maintenance – PSC

(badges handed out Dec 10-11; first dashboard data reviewed Dec 15)

▪ **Next phase: Expansion of Contact Tracing Wearables Program**

- APS and APS-U orders for badges/kiosks with Procurement as of week of Jan 11
- Roster criteria remains those routinely onsite with a high potential for close-proximity work
- Coupled with program expansion across the Lab: ESHQ, Infra. Svcs., research directorates

▪ **First positive case of individual in pilot: Badge validated, no close contacts**