

BEST PRACTICES FOR CONTROL CENTERS TO LIMIT THE SPREAD OF THE CORONAVIRUS

STAFF

- Identify critical staff and minimum staffing levels, to include support staff that might be needed to support assets and systems on site.
- Reinforce proper personal hygiene including hand washing and use of disinfectants
- Discourage face to face meetings – utilize video conferencing, conference calls instead
- Consider use of “Reserve Operators” that could augment staff as operators become unavailable due to illness. This could consist of past operators in new positions, retired operators, etc.
- Reinforce that all illnesses should be reported immediately
- Staff should be required to stay home if they are feeling ill. Consider screening staff for a fever prior to entering the control center. Utilize dispatcher self-screening questionnaire.
- Consider “mutual assistance” relationships with other transmission or generation operators if illnesses significantly affect your staff

INFECTION PREVENTION CONTROL WITHIN THE CONTROL CENTER

- Make alcohol sanitizers available throughout the control center
- Implement enhanced cleaning throughout the control room including common areas such as kitchens and bathrooms as well as individual workstations
 - Require dispatch staff to clean / disinfect workstations including keyboards, mouse, telephone handsets etc. at the beginning and end of every shift
 - Utilize disposable plates/cutlery in control center kitchens to mitigate risk of spreading the virus
- Engineering Controls
 - Increase ventilation in the control room
 - Increase percentage of fresh air in the control room
 - Use enhanced filtration for control room air supply
 - Install physical barriers between operators – hanging plastic sneeze guards or something similar between them.
- Social Distancing
 - Manage infection risk during shift turnover
 - Consider working 12 hour shifts to reduce the potential for spreading the virus during shift turnover

- Utilize spare control center work stations when available so that incoming shift can use a “clean” workstation
- Utilize primary and backup control centers such that subsequent shifts report to the alternate control center - – day shift at site A; night shift at site B with extensive cleaning at off shift locations
- Dedicate staff to one control center or the other if applicable
- Where possible keep at least six feet distance during interactions amongst control room staff
- Discourage the use of telephone handsets. If telephone handsets must be shared they must be disinfected after use to ensure they are clean for the next user.
- Utilize dedicated headsets for each dispatcher
- Encourage / require use of Personal Protective Equipment (PPE) such as face masks and gloves

REDUCE POTENTIAL EXPOSURE

- Limit (eliminate) business travel
- Limit (eliminate) facility tours
- Limit control room access to dispatch personnel only, but consider how to handle support personnel that might need to physically access equipment in an emergency situation. This should be controlled by security staff.
- Break up control room staff into two groups with one group reporting to one control center and the other group reporting to an alternate control center. Alternate operations between the two control centers. Do not mix crews between the two control centers.
- Consider having non-essential personnel work from home or some alternate location to limit interaction with critical staff
- Identify control room staff that has done personal travel abroad or has had a close family member travel abroad and have them work from home for two weeks to ensure they have not contracted the virus before returning to campus.
- Develop plans (with identified triggers) to sequester sufficient staff on-site to operate the system around the clock
- Dedicate cleaning/custodial staff to the control center only with specific work instructions on how and what to clean. Cleaning materials shall be selected in accordance with the EPA Registered disinfectants list.
- Consider dedicated hotel facilities nearby or trailer accommodations for extended shelter in place operations

CONTROL ROOM STAFF SEQUESTRATION

- There is not a “one size fits all” criteria for determining when to sequester control room staff. The criteria should be part of a larger pandemic response plan that includes, among other things, preventive measures to mitigate risk to control room staff, actions to reduce potential exposure, robust effective

cleaning, and staffing plans that exploit social distancing best practices. Sequestering staff can be very disruptive for the personnel involved and their families and given that, the decision to sequester staff should not be taken lightly. Criteria used to make a decision about sequestering staff could include:

- The rate of infection in the vicinity of the control center and if there is community spreading of the virus.
 - Percentage of the community in the vicinity of the control center infected by the virus.
 - Confirmed infection of control room staff, and if so, how many.
 - Number of available and healthy control room staff that do not fall into a high risk category.
- Logistics to house critical control room staff on-site should be developed in advance and should include bedding, entertainment, laundry services, and dining services. Accommodations for sequestered staff should be designed to promote social distancing and minimize the potential for spreading the virus.
 - If sequestering staff is required in part due to infected control room staff, immediately home quarantine all staff that was on shift with the impacted operator and have them await further instructions on when they are allowed to return to work.
 - Control room staff should be advised in advance to pack a bag with several days of clothes, medications, toiletries and any other essential personal items in case they need to be sequestered on-site for a staffing emergency.
 - Consider on-site medical care including appropriate health screening for sequestered staff.

“DIRTY” CONTROL ROOM

- Consider use of a “dirty” control room if you have staff that has tested positive for COVID-19, but are asymptomatic. This would not be a preferred mode of operation and should only be considered after every effort to maintain control center minimum staffing have been exhausted.
- Could be utilized in instances when a dispatcher tests positive – the infected dispatcher would be removed from the rotation and the other dispatchers on his/her shift would get tested and continue to work in the “Dirty” control room until their tests came back. Ideally this would only be considered if there were not enough qualified dispatchers to backfill the entire shift while the test was being processed. Aggressive cleaning practices should continue within the control room to ensure additional dispatchers do not become infected.
- Access controls should be put in place to isolate potentially infected control room staff from the general employee population.
- Appropriate HR policies should be in place prior to implementing.
- Appropriate steps should be taken to disinfect the entire facility prior to the facility being utilized by staff that had not been infected by COVID-19.

EMERGENCY RESPONSE

- Utilize an executive level crisis management team to monitor the outbreak, assist with coordinating efforts throughout the company and engage external federal and state agencies as required.

- Utilize an operational leadership crisis management team to support operations and report to the executive team.
- Utilize pandemic response processes and procedures.

OUTAGE MANAGEMENT

- Coordinate with transmission entities on planned outages that may be impacted by the virus due to personnel or commodity limitations. Adjust operating plans accordingly.
- Coordinate with generation entities on planned outages that may be impacted by the virus due to personnel or commodity limitations. Adjust operating plans accordingly.
- Coordinate with other industries that may impact critical infrastructure.
- Perform N-1-1 analysis in order to identify potential for unreliable operation in the event generating units become unavailable. Recall transmission outages as necessary to maintain reliability.

RECOVERY STRATEGIES

- Develop and utilize criteria for unwinding or backing out of pandemic specific policies.

LESSONS LEARNED

- Leverage lessons learned from China and Europe on the impact and response to the virus
- Capture lessons learned as they may have application to other aspects of business continuity planning
- Reference the NERC 2010 Report and its recommendations on responding to high impact low frequency events at https://www.nerc.com/pa/Stand/Geomagnetic%20Disturbance%20Resources%20DL/HILF_112012.pdf#search=High%20Impact%20Low%20Frequency%20Risk%20AND%20JUNE%202010%20%20%20%202010

GENERATING PLANT BEST PRACTICES COLLECTED THROUGH EDART GO SURVEY

EMERGENCY RESPONSE

- All plant personnel have been issued essential personnel cards and letters in the event they must travel in a lockdown situation. This documentation should be utilized in the event of road closures or travel restrictions. If possible, provide critical staff with critical infrastructure travel waiver signed by the local sheriff
- Chemicals & supplies have been received for the site to remain operational for an additional 4-6 weeks
- Establish mobile hotspots so required remote workers have connection with station network and internet.
- Implementing "reserve ready" teams that can be put into action quickly in the event of sickness.

- Increasing capacity of critical chemicals / gases where possible and changing re-order points to maintain highest possible capacity of critical chemicals/ gases.
- Maximum levels (Within SPCC Limits) of consumables relating to the safe & reliable operation of plant on are on-site.
- Maximum levels of consumables relating to the safe and reliable operation of plant are on-site. In the event of a plant lock-down, bedding materials, washer/dryer, personal hygiene products, and food supplies are on-site
- Maximum levels of PPE are being maintained to prevent shortages.
- Plan for and provide rest or sleeping quarters if extended stay is required.
- Procured >14 days of supplies and designated a “sequester in place” team if needed.
- Stock non-perishable food for extended stay potential.
- Arrange for site delivery of additional food and hygiene items if extended stay required.
- Supply separated employees with own microwave, refrigerator and coffee maker plus stock of non-perishable food.
- Test crews prior to start of rotation to ensure Operators are healthy and not carrying the virus.
- Set up a hotline and email for employees to report temperatures over 100.4 to allow faster detection
- Set up a COVID-19 specific time code for tracking symptomatic employee's time during COVID-19 testing/quarantining

REDUCE POTENTIAL EXPOSURE

- Allow only one employee in any company vehicle at a time. Vehicle must be wiped down with sanitizing wipes after use.
- Approved contractors or visitors are physically separated including vehicles.
- Avoid grasping shared surfaces such as door handles. Use your knuckles or hips or a paper towel or disposable glove.
- Change maintenance shift schedule to limit interaction with rotating shift.
- Contractor designated areas for safety training, lock out tag out, & issuing of Safe Work Permits
- Disinfect all shared items before use and when finished.
- Do not leave food or drinks out in the open.
- Eliminate containers of shared food.
- Enhanced Cleaning Separation of Operations Personnel into two "shifts" in both MOC and at CT plants
- Limit interaction with deliveries i.e... FedEx, UPS. Have packages dropped without signature. Use own pen if signature required on anything.
- No contractors allowed in the admin building.
- No refilling water cups from water dispensers unless container is sanitized.
- Non-operations personnel & contractors are not allowed in the plant control room at anytime

- Pre-facility entry screening initiated for all entrants including; employees, delivery personnel, and emergency contractors
- Pre-screening all visitors and contractors for potential exposure or symptoms before arrival on site.
- Screening station setup at a single gate with all other gates closed. Staff to scan all individuals entering the site to ensure exposure and symptoms/fit for duty are monitored and controlled.
 - Staff scanning personnel should use a procedure with sufficient detail to ensure they are not cross contaminating anyone.
- Provide personal Keyboard and Mouse for Operators.
- Self-perform janitorial services in work area.
- Separate facilities and wash stations for contractors.
- Separate restroom facilities and assign staff to designated facilities. Use portable facilities with sanitizer stations.
- Setup contractor designated areas to limit interactions and common spaces with plant staff,
- Showers used at the plant only when it is an emergency.
- Signs posted at front gate and intercom stating requirements for site entry.
- Special area for drop off for all deliveries, mail etc. has been established.
- Use signs to direct people to permitted locations.
- Where possible, and in accordance with applicable codes (i.e. fire codes) prop doors open so that the door handles are not touched.
- Reduce scope of Spring Planned Outages by supplementing with short duration Maintenance Outages during off-peak hours
- Remove contractors from plant site, only consider emergency work with management approval
- Cancel all interviews until deemed safe
- Establish a COVID-19 communications board to communicate all updated information and precautions related to the virus
- Place storage shed(s) in plant parking lot for all UPS, FEDEX, or US mail deliveries to prevent direct contact with plant staff
- Provide all employees with oral thermometers for self-checking their temperate
- Establish a practice of quarantining employees that may have been exposed to COVID-19 through contact with a family member with suspected exposure to the virus
- Ensure that any person exposed to the affected employee is quarantined until negative testing results are achieved
- Establish control room inner perimeters. Only Control Room Attendants, Foreman, Shift Supervisors, and Instrument Technicians should be permitted within the inner perimeter.

STAFFING

- Maintain a 14 day food supply level.
- Each operation shift is staffed with minimum personnel.

- Management staff rotate on site time and work from home while maintaining workplace safety, compliance and reliability.
- Management staff splint into (2) teams, and alternate week working from home to segregate further from rotating shifts.
- Rotate schedule for administrative, management and maintenance team to limit interactions as much as possible.
- Select volunteer team for lockdown.

USEFUL INDUSTRY LINKS

EPRI COVID-19 Impacts and Practices Webcast

<https://epri.webex.com/recordingservice/sites/epri/recording/ac07a7a80d2e49f49d9a0684edb5d738>

Electricity Subsector Coordinating Council (ESCC) – Assessing and Mitigating the Novel Coronavirus (COVID-19) Resource Guide

https://www.electricitysubsector.org/-/media/Files/ESCC/Documents/ESCC_COVID_Resource_Guide_v2-03242020

DOCUMENT MANAGEMENT

This is considered a living document and updates will be made frequently. Suggestions for new Best Practices are strongly encouraged. Contact Paul Dajewski at Paul.Dajewski@pjm.com with any recommendations.