



Task Force for Air Quality

January 2020

Report to Interim Chancellor, Ron Gerhard

In November 2017 and November 2018, the Northern California region was impacted by significant wildfires and the smoke associated with these fires. In 2018 the Colleges of the Chabot-Las Positas Community College District were impacted with poor air quality as a result of the drift of the wildfire smoke from these fires. At the time of the wildfire smoke events conflicting information was being provided to multiple public health and environmental agencies in our area, which created confusion and complicated the decision-making process regarding the District and College response to the dynamically changing and worsening air quality within the region and at the Colleges.

Upon the request of Interim Chancellor Ron Gerhard, a task force was developed to study the District and College response to air quality issues and to formulate District Policy and Procedures related to future events of the magnitude and scale seen in the past three years. This report represents the completed efforts of the task force and contains recommendations for implementation of additional system and future actions by the College's and the District when faced with similar events.

The task force met and discussed a broad range of topics around air quality on the college campus and within buildings owned and operated by the District. The committee reviewed the Resolution 1802 presented to the Board of Trustees on January 31, 2019 by Student Trustee, Garrett Culbertson, from the Las Positas College Student Government which called for the District to create a formal air quality policy. Additionally, the group discussed the Air Quality Standards Index and associated levels within the index and what these levels mean and how they can be interpreted by users and the College Administrators in the time of worsening air quality. The different types and methods for air filtration within District owned facilities was discussed with information provided by technical experts from the Maintenance and Operation department. The known response to the 2017 and 2018 wildfire events were reviewed for local impacts on the Colleges and the response were evaluated against the data available for the local micro-climates of the Colleges. The use of and guidelines around the use of N-95 particle masks were discussed and training materials were reviewed, the need to have on hand a stock of masks for voluntary use by the Faculty, Staff and Students of the District was discussed and a recommendation is included in the report. The CAL/OSHA Section 5141.1 and OSH Section 573 Protection from Wildfire Smoke for Outdoor Employees were reviewed and discussed. The responses from other public education institutions were reviewed and following the publication by the University of California Office of the President report on Wildfire Smoke and Air Quality was

published in September 2019 this document was reviewed and recommended for adoption of the AQI-Based Decision-Making Matrix as published within the report.

The task force proposes the attached Policy and Procedure be adopted for use by the District and the associated AQI-Based Decision-Making Matrix be implemented along with consideration of the following recommendations.

Recommendations:

- 1) Fully implement and comply with the CAL/OSHA emergency rule including N95 respirator distribution for outdoor workers, reduction to exposure, and fit testing and distribution of required information when the AQI exceeds 500.
- 2) Utilize the EPA [AirNow](#) “Current Conditions AQI” as the official AQI data source for decision-making and operational actions.
- 3) Adopt the AQI-Based Decision-Making Matrix as the standard for wildfire smoke event and recommendations policy.
- 4) Assess current stock of N95 respirators and particle masks and ensure sufficient quantities to meet CAL/OSHA Section 5141.1 and any additional planned location-based response actions (only make N95’s available with proper use instruction).
- 5) Maintenance and Operations staff to develop campus specific pre-event building HVAC system inspection and maintenance.
- 6) Develop or update policies and procedures related to academic accommodations if the delivery of instruction is interrupted due to academic class cancelations due to wildfire smoke.
- 7) Identify on campus facilities that could serve as temporary “cleaner air spaces/centers” during a wildfire smoke event.
- 8) Consider developing pre-scripted messages for each college community that summarize expected actions, AQI-based decision thresholds, exposure reduction measures, limitations and associated risks, resource links, etc.
- 9) Investigate, purchase and install outdoor air quality monitor sensors for PM2.5 at each College to improve real-time local PM2.5 data to better assess is local air quality conditions are deteriorating or improving. Link systems to websites for display and tie to HAVC controls if available technology exists.
- 10) District Vendor or M&O should maintain at least one portable PM monitor to be used for general indoor air quality (IAQ) investigations and for guidance during wildfire smoke events.

On behalf of all committee members, we would like to thank the Interim Chancellor for the opportunity to work on this important issue of the District and for consideration of the recommendation and the draft policy and procedure.



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Wildfire Smoke and Air Quality Policy and Procedures

In order to maintain a safe learning, teaching and working environment at Chabot and Las Positas College, all district personnel will be made aware of the following policy on Wildfire Smoke and Air Quality enumerated below.

I. Policy

The District, to better protect outdoor workers from the impacts of wildfire smoke exposure, all locations shall be prepared to comply with new wildfire smoke regulations (CAL/OSHA Section 5141.1) including but not limited to exposure and harm reduction, N95 respirator distribution to outdoor workers (as defined) for voluntary user (AQI 151-500) and mandatory use, fit testing, training and documentation when the AWI is above 500. The District also standardizes on use of the US EPA [AirNow Website](#) as the official source of AQI information.

Because student, non-outdoor workers, faculty and staff may be impacted by wildfire smoke exposure as well the district shall implement the AQI-Based Decision Making Matrix, developed by the UC Office of the President, for recommendations for each AQI category following the public health and science based decision approach established by the UC OoP for voluntary use of N95 use. If the local institution issues beyond the CAL/OSHA Section 5141.1 N95's to the students, faculty and staff they will also issue guidance and information regarding the limitations and possible negative health impacts of respirator use.

II. Procedures

- A) Wildfire Smoke Regulatory Context – In July 2019, CAL/OSHA issues new regulatory *Section 5141.1 – Protection from Wildfire Smoke*. The regulation is specific to outdoor workers employed by the District but does contain AQI levels and guidelines for multiple air quality levels with voluntary guidelines and specifies mandatory training and test fit for outdoor workers at AQI levels in excess of 500. Vendors, Contractors or non-District personnel should follow the advice of their own employers or personal physician.
- B) Air Quality Monitoring – There are a number of online sources that report AQI, these sites vary in the time duration of the measurement, location, quality of measurement equipment, which may or may not be appropriate for changing conditions and multiple locations served by the District during

an air quality event. CAL/OSHA, the US EPA and the University of California Office of the President recommend using the current Air Quality Index posted on the US EPA [AirNow website](#) as the official source for outdoor AWI information for PM 2.5 particulates. District locations should begin monitoring local weather conditions and wildfire activity during forecasted high fire danger conditions, particularly during “red flag” warnings issued by the National Weather Service. Additionally, the District will investigate and where appropriate install local sensors to improve real time PM2.5 data to better access local air quality conditions.

- a. As soon as local or distant wildfires have the potential or predicted potential to effect District locations, an integrated approach to monitoring local smoke conditions should begin. This should include monitoring official AWI websites for changing local conditions, monitoring site specific air monitors (if available), and use of local sensors (if available) to determine real time trends and rapid changes in local air quality conditions.

C) Indoor Air Quality – The common advisory for wildfire smoke exposure is to stay indoors. If the building has the ability to limit the intrusion of outdoor smoke from coming in the building and buildings effectively circulate and filter the indoor air.

- a. Building Inventory – District Maintenance staff shall inventory existing buildings to determine which buildings contain filtering mechanisms that render the building occupants exempt from CAL/OSHA Section 5141.1. The list of buildings shall be maintained on the District website.
- b. Building Engineering Control – During wildfire events, building HVAC systems shall be operated continuously while occupied in order to provide the minimum quantity of outdoor air ventilation as required by the building codes to which the building was designed. Before the peak wildfire season, and during prolong smoke events if necessary, staff should inspect HVAC systems, make necessary repairs and conduct appropriate maintenance. Filters should fit snugly into their frames and should have gaskets or sealant on all perimeter edges to ensure air does not leak around the filters. District locations should consider installation of the highest efficiency filters hat do not exceed the static pressure limits of the HVAC systems as specified by the manufacturer or system designer. Temporary restrictions of outside air should be considered when appropriate, which may create a positively pressured building and limit infiltration through open doors.



- c. Cleaner Air Spaces – Campuses should identify buildings with high quality HVAC filters and controls which may be considered cleaner air spaces on campus and to the extent feasible make available to the College community these spaces in the event of prolonged wildfire smoke events.

- D) AQI Based Decision Making Matrix – The decision to implement measures should be made at the local level with communication and coordination with District and sister college administration. The actions should be aligned with proven AQI-based health risks and impacts, in order to protect the college community. The AQI-Based Decision Making Matrix (Appendix 1) lists recommended actions or actions local locations should consider implementing for each AQI category. This does not preclude the local administrator from using other information to inform the decision making process. The matrix is intended for use in wildfire smoke conditions which result in worsening and unhealthy air quality, it does not apply to smog related or direct threat of fire hazard. Actions for athletic events should follow the guidelines of the California Community College Athletic Association. Outside groups renting District or College facilities should follow the guidelines established by the District and implemented by the College at the time of the event.

- E) Curtailment of Operations – When wildfire smoke causes unhealthy air quality conditions for a prolonged period of time it may be necessary to temporarily curtail operations to better protect the health and safety of the College community. The authority to curtail campus operations rests with the Chancellor or designee, which may include Executive Staff, College Presidents, Crisis Management Staff or others. The College should have policies and procedures in place to account for and address an interruption in the academic calendar. Communication of decisions and decision criteria should be an integral part of the response planning effort for wildfire events. The Colleges are encouraged to include Academic Senate representatives, Student Government leaders and other impacted community members in the decision and decision criteria planning.

References:

CLPCCD Administrative Procedure 3505 – Emergency Preparedness Plan
Education Code Sections
Bay Area Air Quality Management District
Environmental Protection Agency – Air Now



University of California Presidents Office report on Wildfire Smoke and Air Quality (Sept. 2019)

AQI-Based Decision-Making Matrix

- The matrix is designed for use when wildfire smoke conditions result in worsening and unhealthy air quality. It does *not* apply if there is a direct threat of wildfire and/or other significant hazard to the location, or for smog-related air quality conditions.
- *Required actions* are in **bolded red text**. These are definitive actions that must take place when - but not before - the corresponding AQI threshold is met.
- Non-bolded actions are recommended for consideration and should be implemented at the location's discretion.
- The Chancellor/College President or Senior Leadership Group at the impacted location is responsible for decision-making and implementing measures based on the matrix.
- The matrix is not a stand-alone document. It should be used in conjunction with existing local response plans, protocols, and procedures including the *Emergency Operations Plan*.
- If building indoor air quality is measured at a level consistent with the AQI thresholds, applicable mitigation measures should be implemented if feasible, and required actions listed in the matrix should be taken.
- Contractors working at CLPCCD locations should follow the advice of their own employers.
- The Child Development Center actions apply to CLPCCD-managed facilities only.
- The matrix incorporates actions required by Cal/OSHA Section 5141.1 including voluntary use of N95 respirators for outdoor workers at an AQI of 151-500 and mandatory N95 respiratory use, fit testing, respirator training and documentation when the AQI is above 500. At an AQI > 151, employees in buildings without filtered ventilation systems should be relocated to buildings with filtered air. If they cannot be relocated, they are subject to the actions required by Cal/OSHA Section 5141.1 where feasible.
- College sponsored outdoor events held at off-campus locations are subject to actions associated with that location's AQI levels.
- Actions for athletic practice and competition were based on current Community College Collegiate Athletic Association (CCCAA) guidance. Decisions regarding the cancellation and/or rescheduling of athletic competitions should be made in accordance with CCCAA. Rescheduling of athletic competitions may take place when the AQI lowers to an acceptable level.
- Locations should ensure timely communication of AQI-based decisions and expected actions via multiple and redundant communication methods.
- Higher AQI thresholds automatically incorporate all guidance and actions associated with lower AQI level

Levels of Health Concern	Current PM2.5 AQI Value	Who is Affected?	Actions	
Good	0-50	None Expected	No Action Anticipated	
Moderate	51-100	Unusually Sensitive Individuals (people with lung and heart disease) may be affected.	Outdoor Workers/ Volunteers	<ul style="list-style-type: none"> Unusually sensitive people may require work accommodations.
			Academic Classes	No Action Anticipated
			Campus Operations	No Action Anticipated
			Athletics & Outdoor Rec	No Action Anticipated
			Outdoor Camps/Events	No Action Anticipated
			Early Childhood Lab School	No Action Anticipated
			Communication	Recommended Communications – None Anticipated
Unhealthy for Sensitive Groups	101-150	Sensitive groups including people with heart or lung disease, older adults, pregnant women, and children.	Outdoor Workers/ Volunteers	<ul style="list-style-type: none"> Workers in sensitive groups may require work accommodations.
			Academic Classes	No Action Anticipated
			Campus Operations	<ul style="list-style-type: none"> Consider closing building doors and windows to reduce outdoor air intake.
			Athletics & Outdoor Rec	<ul style="list-style-type: none"> Medical/athletic staff/outdoor recreation staff should consult with individuals who fall into the sensitive groups about participation in practice, competition, and/or outdoor events.
			Outdoor Camps/Events	<ul style="list-style-type: none"> At higher end of range, consider moving activities indoors.
			Early Childhood Lab School	<ul style="list-style-type: none"> For longer activities, take more breaks and do less intense activities
			Communication	Recommended Communications – Email to Staff/Faculty & Students regarding consultation with personal physician

Levels of Health Concern	Current PM2.5 AQI Value	Who is Affected?	Actions	
Unhealthy	151-200	Everyone	Outdoor Workers/ Volunteers	<ul style="list-style-type: none"> • Limit outdoor work and prolonged or heavy exertion if practicable. • Reassign employees who work outdoors for more than one hour or provide N95 respirators for voluntary use.
			Academic Classes	<ul style="list-style-type: none"> • Consider academic accommodations for students and faculty with pre-existing health conditions. • Consider cancelling or moving outdoor classes indoors.
			Campus Operations	<ul style="list-style-type: none"> • Consider making N95 respirators and use/care guidance available for voluntary use. • As feasible, modify filtered mechanical ventilation systems to reduce outdoor air intake.
			Athletics & Outdoor Rec	<ul style="list-style-type: none"> • Medical/athletic training staff should closely monitor the health of all athletes in practice and competition. Modifications to athletic activities should be considered and implemented as necessary. • Shorten/modify outdoor recreational activity to limit prolonged or heavy exertion.
			Outdoor Camps/Events	<ul style="list-style-type: none"> • Consider cancellation of more intense outdoor events or move events indoors.
			Early Childhood Lab School	<ul style="list-style-type: none"> • For <i>all</i> outdoor activities, take more breaks and do less intense activities. • Consider moving longer or more intense activities indoors or rescheduling them to another day or time
			Communication	<p>Recommended Communications – Daily email to Staff/Faculty & Students regarding consultation with personal physician during the course of event</p>

Levels of Health Concern	Current PM2.5 AQI Value	Who is Affected?	Actions	
Very Unhealthy	201-300	Everyone	Outdoor Workers/ Volunteers	<ul style="list-style-type: none"> • Suspend outdoor work. If work is absolutely necessary, provide N95 respirators for voluntary use
			Academic Classes	<ul style="list-style-type: none"> • College President, in consultation with the Chancellor and College Leadership or designee, cancel or restructure classes if current AQI levels have maintained in this range and are expected to continue.
			Campus Operations	<ul style="list-style-type: none"> • To the extent possible, curtail campus operations. • Consider monitoring indoor air quality and implement mitigation actions if indoor AQI is within this range.
			Athletics/Out Door Rec	<ul style="list-style-type: none"> • Outdoor athletic activities should be moved indoors or delayed/postponed/relocated • Cancel or move indoors outdoor recreational activities.
			Outdoor Camps/Events	<ul style="list-style-type: none"> • Cancel outdoor events involving activity (e.g., sports). • Consider cancellation of outdoor events that do not involve activity (e.g., concerts).
			Early Childhood Lab School	<ul style="list-style-type: none"> • Close school if current AQI levels have maintained in this range and are expected to continue.
			Communication	Recommended Communications – Everbridge Text alert to Staff/Faculty & Students regarding twice daily

Levels of Health Concern	Current PM2.5 AQI Value	Who is Affected?	Actions	
Hazardous	301-500	Everyone	Outdoor Workers/ Volunteers	<ul style="list-style-type: none"> • Follow recommendations for the Very Unhealthy category.
			Academic Classes	<ul style="list-style-type: none"> • Follow recommendations for the Very Unhealthy category.
			Campus Operations	<ul style="list-style-type: none"> • Follow recommendations for the Very Unhealthy category.
			Athletics/Out Door Rec	<ul style="list-style-type: none"> • Cancel or move indoors all outdoor athletic and recreation events/activities. • Consider cancellation of indoor events/activities based on indoor air quality measurements.
			Outdoor Camps/Events	<ul style="list-style-type: none"> • Cancel all outdoor events and camp activities • Consider cancellation of indoor camps that require participants or families to travel to and from campus.
			Early Childhood Lab School	<ul style="list-style-type: none"> • Follow recommendations for the Very Unhealthy category.
			Communication	Recommended Communications – Everbridge Text alert to Staff/Faculty & Students regarding twice daily
Beyond the AQI	> 500	Everyone	All groups	<ul style="list-style-type: none"> • Follow recommendations for the Hazardous Category. • Suspend outdoor work and activities. If outdoor work is absolutely necessary, N95 respirators are mandatory and require training and fit testing.

N95 RESPIRATOR TRAINING

The following training guide covers the Cal/OSHA (8 CCR Section 5144) training requirements for disposable N95 filtering facepiece respirator users.

I. What Is An N95 Filtering Facepiece Respirator?



N95 filtering facepiece respirators are *air-purifying* respirators certified by the National Institute of Occupational Safety and Health (NIOSH) to have filter efficiency level of 95% or greater against particulate aerosols free of oil and greater than 0.3 microns in size.

Examples of airborne contaminants that N95 respirators filter out include dusts, fumes, mists and microbial agents such as tuberculosis bacteria & flu virus.

II. When Are N95 Respirators Required?

Depending on your job responsibilities, N95 respirators may be required as personal protective equipment. Individuals may be required to wear N95 for tasks such as entering isolation rooms, and other activities involving close contact with potentially infected persons.

III. Approval for Required N95 Use:

Per Cal/OSHA, personnel who are required by their employer to wear respirators, shall be approved after completing the following:

- 1) *Medical Evaluation/ Clearance*: to determine if users are physically fit to wear a respirator.
- 2) *Training*: to ensure users are familiar with N95 respirators, their proper use and protective limitations. Training consists of reviewing this document and taking the [training quiz](#) and is required on an **annual** basis.
- 3) *Fit-Testing*: to determine which respirator model/size provides the proper fit for the user. Such fit-test is required on an **annual** basis.

IV. Capabilities and Limitations of N95 Respirators

- 1) N95 respirators **ONLY** filter out particulate contaminants.
- 2) N95 respirators do not protect you from:
 - Chemical vapors/ gases
 - Oxygen deficient atmosphere
 - High risk exposures such as those created by aerosol-generating procedures (i.e., bronchoscopy, autopsy) and asbestos handling.
- 3) N95 respirators are disposable – one time use only.

V. Effective Use of N95 Respirators

The effectiveness of N95 respirators relies on how well the respirator seals to the user's face.

To ensure N95 respirators work effectively:

- 1) **ONLY** use the respirator model and size for which you have been fit-tested by EH&S. N95 respirators vary by model and size. Improper fit will likely result in inadequate protection.
- 2) **DO NOT** use the respirator with beards or other facial hair, which may interfere with the direct contact between your face and the sealing surface of the respirator.
- 3) Conduct a seal-check **every time** you put the respirator on (before entering area of concern).
- 4) If the respirator becomes damaged, soiled or you experience problems with using the respirator (breathing becomes difficult, dizziness, irritation, etc.), leave the work area immediately and remove the respirator when you are no longer exposed to the potential airborne hazard. Inform your supervisor about the issue.

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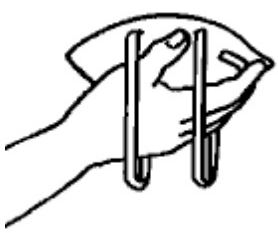



VI. Further Medical Evaluation/ Training/ Fit-Testing

- 1) Medical re-evaluation is required if user reports medical signs/ symptoms that are related to the ability to use a respirator, or if changes in the work place/ activities may result in a substantial increase in the physiological burden placed on the respirator user. For N95 medical re-evaluation, call 725-5308.
- 2) Fit-Testing needs to be repeated annually and whenever changes in the work place/ activities or type of respirator used affect the respirator fit [i.e. facial/ dental changes and changes in body weight (more than 10-20 lbs)].
- 3) Training needs to be repeated annually and whenever inadequacies in user's knowledge or use of the respirator indicate that the user has not retained the requisite understanding or skill to wear a respirator.

VII. Inspection

Prior to wearing the N95 respirator, inspect the respirator for damage and contamination. Verify all components of the respirator are in good condition (e.g. straps, nose piece, etc.)

VIII. Wearing The Respirator & Seal-Checking Procedures

<p>1) Hold the respirator in one hand, with the nose piece at the fingertips and let the head straps hang loosely in front of the respirator.</p>	
<p>2) Place respirator under the chin, with the nosepiece up.</p> <p>While holding the respirator with one hand, pull the top strap over your head, resting it at the top back of your head.</p> <p>Pull the bottom strap over your head, and place it around your neck, below your ears.</p>	
<p>3) Using <u>both</u> hands, mold the nose piece to the shape of your nose by pushing inward with your fingertips.</p> <p>Note that pinching the molding piece with 1 hand will likely result in less effective respirator fit.</p>	
<p>4) Seal-check: cover respirator completely w/ both hands, and exhale sharply.</p> <p>If air blows on your face or eyes, readjust the respirator according to Steps 3 & 4. Do not use respirator until you pass the seal-check (no leakage).</p>	
<p>5) To remove the respirator, hold the respirator with one gloved hand. With the other hand, pull the bottom strap over your head, and then pull the top strap off. <i>If respirator was used in a medical facility or if there is any evidence that respirator may be contaminated, dispose of it as a bio-hazardous waste.</i></p>	

If you have any questions regarding N95 respirators, contact Stanford Univ. EH&S at 723-0448