

**Northern Sonoma County
Air Pollution Control District**

**AB 617 Community Air Protection Program
Grant Report**

**Grant # G17-CAPP-22 Amendment 1
And
G18-CAPP-22**

Fiscal Grant Term: 2017-2018 and 2018-2019

**Submitted to the California Air Resources Board on:
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1. Contact Information

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2. Timeline

Work Task	Completed
Grant Agreement Execution	7/9/2018
District Resolution	6/6/2018
Deployment of Purple Air Units	11/23/2018
Analysis of Purple Air Results during Event	11/23/2018
Preparation of AQI Guidance Document, Web Resource Page	11/15/2018
Presentation at Meeting with SCOE and School Districts	12/5/2018
Assistance with Preparation of AQI Guidance for Schools	4/5/2019
Final Report	6/28/2019

3. Summary of Completed Tasks

The following summary describes the Northern Sonoma County Air Pollution Control District's ("District's") Community Air Protection implementation campaign for Grant

Numbers G17-CAPP-22 and G18-CAPP-22. The District was not selected by CARB for a community project, but it elected to devote its Community Air Protection (CAP) funds to a campaign that incorporates CAP categories. First, with the District's deployment of Purple Air sensors and analysis of those sensors, the District formalized its community-based air monitoring campaign. In addition, the District devoted CAP funds to community wildfire response, especially in the context of school response to wildfire smoke events. The District expects to experience more exposure in coming years due to increased incidence of wildfires in our area. Wildfire events are of great concern to our community, having been impacted by several smoke events over the last few years and especially having been physically impacted by wildfire during the Tubbs fire in 2017. The District recognizes the likelihood of wildfire events impacting our area in the years to come, with each event constituting a significant exposure burden. Though the District contains no designated low income or disadvantaged communities, this effort funded by Community Air Protection funds supports the health and well-being of some of our most vulnerable populations: school age children.

The District's CAP campaign incorporated the following tasks: deployment of Purple Air sensors; analysis and interpretation of Purple Air sensor data over time, indoor and outdoor, and in comparison with established Federal Equivalent Method (FEM) monitors during a wildfire event; communication and training of the public with regards to interpretation of air monitors and sensors via the AQI Guidance Document; collaboration with Sonoma County Office of Education (SCOE) and area school districts to share technical knowledge of air sensors and the air monitoring network; and assistance with preparation of local and statewide air quality guidelines for schools.

a) Deployment of Purple Air Units

Between September 7 and November 23, 2018, the District deployed and installed eight Purple Air units to various areas throughout the district, as well as neighboring areas just south of the District boundary (Bay Area AQMD territory). Expanding the Purple Air network was one way the District contributed to its community air monitoring effort.

b) Analysis of Purple Air Results during Event

Beginning on November 8, 2018 and through late November 2018, the Camp Fire caused significant smoke impacts in the District. Using its ambient air monitoring network, in addition to the network of Purple Air sensors it deployed and additional Purple Air sensors and an eBAM deployed during the event, the District gathered air quality data for analysis and was able to track reliability of Purple Air sensor data as compared to FEM air monitor data during this extreme wildfire smoke event. In addition, the district tracked indoor Purple Air readings in comparison with outdoor readings, and observed the difference recorded by its indoor Purple Air sensor when an indoor air purifier was introduced, thereby generating some real world data about the effectiveness of consumer grade indoor air purifiers. Results of these studies are shown in the presentation in Attachment 1, which the District presented at a Primary Quality Assurance Organization training on June 6, 2019.

c) Preparation of AQI Guidance Document

During the Camp Fire event, the District identified a knowledge gap in the community with regards to air monitoring. Given the new technology presented by

Purple Air, there was some question among air quality professionals about the reliability and accuracy of these new air pollution sensors. There was also a general misunderstanding among the public about the difference between the Purple Air sensors, and the official FEM monitors represented in the AirNow network. The District prepared the AQI Guidance Document and published it to the web in order to explain how to interpret the data put out by the various air pollution monitors and sensors. In addition, the District published other air quality resources related to wildfire smoke during that time. The District referenced the Guidance Document when interfacing with school districts, in an effort to assist with crafting appropriate guidelines for schools' response to wildfire smoke conditions. The document is included in Attachment 2.

d) Presentation at Meeting with SCOE and School Districts

During the Camp Fire event, the District observed some AQI guidelines released by the Sonoma County Office of Education ("SCOE") that relied on air quality data from Purple Air sensors. SCOE and its associates had set an arbitrary threshold of 275 AQI for the recommended closure of schools, with the thought process being that Purple Air was more desirable because there was a greater amount of data points than those provided by the FEM network AirNow, and because Purple Air sensors tend to read higher than FEMs, a higher threshold (than neighboring Napa County's guidelines threshold of 150 AQI) would be appropriate.

Seeing some gaps in logic in this approach, the District wanted to make sure that SCOE and school districts/school administrators had a thorough technical understanding of AQI and of the different types of sensors available, so the District offered its expertise to SCOE. SCOE asked the District to do a presentation to SCOE and school district representatives in order to explain air monitoring instrumentation and give school administrators better understanding of the air quality equipment they were relying upon to make their decisions.

At the SCOE meeting on December 5, 2018, the District presented information about Purple Air sensors versus FEM air monitors (presentation included in Attachment 3). This presentation was influential in the development of more informed SCOE and school district policies.

e) Assistance with Preparation of SCOE and Statewide AQI Guidance for Schools

The District's presentation prompted SCOE and school district superintendents to revise their wildfire event school guidelines. The District was an active participant in the guideline revisions, making ample comments throughout the process. The finalized local SCOE/school district guidelines were then used to influence the creation of statewide guidelines, which were requested and spearheaded by California Senator Mike McGuire. The finalized statewide guidelines are included as Attachment 4.

Through the District's offering of technical expertise and collaboration in SCOE's guideline writing process, the District was able to influence local and statewide policymaking with regards to wildfire smoke response for schools. If the District had not reached out, SCOE and the school districts might not have gleaned as much understanding about interpreting air quality results from air pollution sensors

and FEM monitors, and might not have revised their guidelines in such a comprehensive way. Having now established a relationship with SCOE and the school districts, the District has an easy avenue for future collaborations in service of its CAP/community air monitoring campaign addressing the significant exposure burden of wildfire events for schoolchildren.

4. Grant Funds

a. Received so far: **\$8,998**

b. Remaining: **\$5,000.00 FY 17/18; \$22,659 FY 18/19**

5. Itemized Invoice Information

The following is a summary of staff time used in the foregoing tasks. As several different District staff members participated in this effort, a weighted average of staff labor rates is used for the purposes of this calculation.

Community Air Protection Tasks Performed by NSCAPCD Staff for FY 17/18 (from March 1, 2018 to January 31, 2019)	Staff Hours Worked	Dollar Amount
2018 District Grant Services Weighted Labor Rate	\$93/hour	
Deployment of Purple Air Units	80	
Analysis of Purple Air Results during Event	72	
Preparation of AQI Guidance Document	64	
Presentation at Meeting with SCOE and School Districts	72	
Subtotal for FY 17/18	288	\$26,784
Community Air Protection Tasks Performed by NSCAPCD Staff for FY 18/19 (from February 1, 2019 to January 31, 2020)		
Assistance with Preparation of SCOE and Statewide AQI Guidance for Schools	48	
Final Report	32	
Subtotal for FY 18/19	80	\$7,440
Total	368	\$34,224
Grant Disbursement Received July 2018		\$8,998

Grant Invoice Amount: FY 17/18 (from available funds for 17/18)		\$5,000
Grant Invoice Amount: FY 18/19 (from subtotal above)		\$7,440
Total Grant Invoice Amount		\$12,440
Remaining Grant funds from FY 18/19, to be reimbursed in the future		\$15,219

Attachment 1: NSCAPCD Purple Air Presentation

Attachment 2: Guidance Document for Air Monitoring Data

**Attachment 3: NSCAPCD Presentation to
Sonoma County Office of Education**

Attachment 4: Statewide School Guidance Document