State of Hawaii
2021
Air Monitoring Network Plan

Submitted to the U.S. EPA Region 9
July 1, 2021

Prepared by:
State of Hawaii
Department of Health

Environmental Management Division
Clean Air Branch
and
State Laboratories Division
Air Quality Monitoring Section
Document Control Number
HDOH – AMNP – 2021 - v01

This page intentionally left blank

Table of Contents

List of Tables

List of Figures

Acronyms and Definitions

AADT	Annual Average Daily Traffic
AQI	Air Quality Index
AQMS	Hawaii Department of Health Air Quality Monitoring Section
AQS	Environmental Protection Agency Air Quality System
BAM	Beta-Attenuation Mass Monitor
CAB	State of Hawaii Department of Health Clean Air Branch
CBSA	Core-Based Statistical Areas
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DOH	Hawaii State Department of Health
DOT	Hawaii State Department of Transportation
DRR	Data Requirements Rule
DWS	Hawaii County Department of Water Supply
ECA	(North American) Emissions Control Area (Maritime)
EPA	United States Environmental Protection Agency
EMD	State of Hawaii Department of Health Environmental Management Division
FEM	Federal Equivalent Method
FRM	Federal Reference Method
H_2S	Hydrogen Sulfide
HECO	Hawaiian Electric Company
IMPROVE	Integrated Monitoring of Protected Visual Environments
LERZ	Kilauea Volcano Lower East Rift Zone
MSA	Metropolitan Statistical Area
MSL	Mean Sea Level
MWC	Municipal Waste Combustor
NAAQS	National Ambient Air Quality Standards
NCore	National Core Multi-Pollutant Monitoring Stations
NEI	National Emissions Inventory
NO_2	Nitrogen Dioxide
O_3	Ozone
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
PGV	Puna Geothermal Ventures
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in aerodynamic diameter
PM_{10}	Particulate matter less than or equal to 10 microns in aerodynamic diameter
$PM_{10-2.5}$	Particulate matter coarse
PQAO	Primary Quality Assurance Organization
PPB	Parts per billion
PPM	Parts per million
PSD	Prevention of Significant Deterioration
PWEI	Population Weighted Emissions Index
QC	Quality Control
SLAMS	State and Local Air Monitoring Stations
SLD	State Laboratories Division
SLDIT	State Laboratories Division Information Technology
SO_2	Sulfur Dioxide
SPM(S)	Special Purpose Monitoring (Stations)
STN	Speciation Trends Network
TPY	Tons per Year
TSA	Technical Systems Audit
TSP	Total suspended particulates
VMAP	Vog Measurement and Prediction Project
VOG	Haze due to volcanic emissions
WD	Wind direction
WS	Wind speed
$\mu g/m^3$	micrograms per cubic meter of air

Introduction

The State of Hawaii Department of Health (DOH) plans, operates and maintains the statewide ambient air quality monitoring network. Monitoring data is used for a variety of reasons including determining compliance with National Ambient Air Quality Standards (NAAQS), timely reporting of the U.S. Environmental Protection Agency's (EPA) Air Quality Index (AQI), tracking and characterizing air quality trends, evaluating emission control strategies, and supporting health studies.

The DOH manages all the State and Local Air Monitoring Stations (SLAMS), Special Purpose Monitoring Stations (SPMS), and the National Core Multi-Pollutant Monitoring Station (NCore). Additionally, Hawaii has two Interagency Monitoring of Protected Visual Environments (IMPROVE) stations located at Haleakala National Park on Maui and Volcanoes National Park on the island of Hawaii. The IMPROVE stations are operated and maintained by the National Park Service through their federal land management agency. DOH is also overseeing two ambient air stations on the island of Oahu that are operated by Hawaiian Electric Company (HECO) to meet the Data Requirements Rule (DRR).

This annual review evaluates the state's existing ambient air monitoring network to determine adequacy in meeting monitoring objectives, optimizes the network by closing, moving or adding stations, and ensures that air quality issues important to the state are being addressed. The review ensures that the network is providing adequate, quality assured and useful data to meet the needs of stakeholders.

This plan encompasses the 18-month period from July 1, 2021 through December 31, 2022. However, unplanned modifications may occur due to limited resources such as, funding reductions, staffing shortages, unanticipated site issues, or changes in EPA monitoring requirements. This plan is being submitted to the EPA Region 9 according to the Code of Federal Regulations (CFR), Title 40, Part 58, Section 58.10.

Notification of the plan availability for public inspection was provided through public notices published on May 17, 2021 in the daily newspapers of all counties. The plan was available for review on the Clean Air Branch website, http://health.hawaii.gov/cab, for 30 days from May 17, 2021 to June 15, 2021 (due to social distancing protocols put in place in response to the COVID-19 pandemic, the plan was only available online and not at all county District Health offices). Documentation of public notification is provided in **Appendix A**. No comments were received.

The commenting period for the 2020 Air Monitoring Network Plan ended on July 2, 2020, one day after it was submitted on July 1, 2020. No comments were received for the entire commenting period. A copy of the affidavit provided by the Maui daily newspaper for the 2020 plan was inadvertently omitted from the submittal; it is included in Appendix A of this year's plan.

1.0 Network Purpose and Design

1.1 Overview

EPA established NAAQS for the following criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter 10 microns or less in aerodynamic diameter (PM_{10}) and particulate matter 2.5 microns or less in aerodynamic diameter ($PM_{2.5}$). Additionally, there is a state standard for hydrogen sulfide (H_2S) that was established primarily to monitor the ambient air effects of geothermal energy production activities on the island of Hawaii. In 2011 the state established the NCore station as required by 40 CFR 58. The NCore station monitors for $PM_{2.5}$, speciated $PM_{2.5}$, particulate matter coarse ($PM_{10\text{-}2.5}$), O_3, SO_2, CO, nitrogen oxides ($NO/NO_2/NO_y$) and the meteorological parameters wind speed, wind direction, ambient temperature and relative humidity. Hawaii's air quality surveillance network consists of compliance stations monitoring for criteria pollutants as well as the NCore station and special purpose monitoring stations.

The annual network review ensures that Hawaii continues to meet monitoring and siting requirements, the three basic monitoring objectives, addresses the six site types in 40 CFR 58 Appendix D, provides information for non-regulatory data goals and the requirements of 40 CFR 58 appendices A, C, D, and E as follows:

- *Appendix A: Quality Assurance Requirements for SLAMS, SPMSs and PSD Air Monitoring*
- *Appendix C: Ambient Air Quality Monitoring Methodology*
- *Appendix D: Network Design Criteria for Ambient Air Quality Monitoring*
- *Appendix E: Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring*

1.1.1 SLAMS

SLAMS are established primarily to demonstrate compliance with the NAAQS, and to meet minimum monitoring requirements as required in 40 CFR 58 Appendix D. All SLAMS must meet quality assurance, methodology, and siting requirements of 40 CFR 58 Appendix A, C and E, respectively. All data is submitted to EPA's Air Quality System (AQS) within 90 days at the end of each calendar quarter, as required in 40 CFR 58.16.

EPA mandated that each state establish a minimum of one NCore station to support tracking of long-term trends of criteria and non-criteria pollutants, model evaluation, long-term health and ecosystem assessments, and other scientific and technological studies. Hawaii's NCore station became fully operational on January 1, 2011. The SLAMS network excludes SPMS but includes NCore.

1.1.2 SPMS

SPMS are operated for specific areas of interest to the state and is not part of the minimum monitoring requirements. Hawaii's SPM network is established primarily to monitor air quality impacts of emissions from Kilauea volcano, hydrogen sulfide (H_2S) emissions from geothermal energy production and impacts from cruise ships

on the island of Kauai. The DOH utilizes Federal Reference Method (FRM) or Federal Equivalent Method (FEM) analyzers for all criteria SPMS, meets the quality assurance requirements of 40 CFR 58 Appendix A and E, and submits criteria pollutant data to AQS. All data from SPMS which have operated for more than 24 months is eligible for comparison to respective NAAQS.

1.2 Network Design and Review Process

The network review process is conducted to determine if any changes or modifications to the network are necessary. Changes such as meeting new NAAQS monitoring requirements, utilizing newer and better technology, reducing or eliminating redundancy and low value monitoring, ensuring that sufficient data is being collected using the best technology, and that all siting and quality assurance requirements are met.

Modification decisions are made using a variety of tools, including but not limited to: data trend analyses; performance and technical systems audits; regular site inspections; cost and value analyses; assessment of unfavorable site changes such as loss of lease or construction that adversely affect data collection; and the need to address special studies or new regulatory as well as non-regulatory monitoring objectives.

1.2.1 Monitoring Objectives and Site Types

Ambient air monitoring networks must be designed to meet three basic objectives as stated in 40 CFR 58 Appendix D:

1) Provide air pollution data to the general public in a timely manner.
2) Support compliance with NAAQS and emissions strategy development.
3) Support air pollution research studies.

The state's ambient air monitoring network achieves all three objectives as follows:

1) Air pollution data from all SLAMS and SPMS are exhibited near real-time on the DOH public website. Additionally, continuous $PM_{2.5}$ and O_3 data is provided to EPA's AIRNow website for use in calculating the AQI, SO_2 data is provided for the Hawaii SO_2 Short Term Advisory, and $PM_{2.5}$ and SO_2 data is provided to the Vog Measurement and Prediction Project (VMAP).
2) Data from SLAMS are used to demonstrate compliance with the NAAQS and in development and tracking of emissions control strategies. Similarly, data from the NCore station is used to demonstrate compliance with the NAAQS and to track long-term trends of criteria and non-criteria pollutants as well as support emissions control strategies.
3) All SLAMS, SPMS, and NCore monitoring provide valuable information in support of air pollution, health and other scientific studies.

In order for the network to support the three basic objectives outlined above, it must be designed with a variety of monitoring site types. The six general site types are:

1) Determine the highest pollutant concentrations expected in the network.
2) Measure typical concentrations in areas of high population density.
3) Determine the impact of significant sources or source categories on air quality.
4) Determine general background concentrations.

5) Determine the extent of regional pollutant transport between populated areas.
6) Measure pollution impacts on visibility, vegetation, crops, animals, and buildings.

The site type for each station in the network is included in its detailed description in Section 3.0 of this document.

1.2.2 $PM_{2.5}$ Network Changes

According to 40 CFR 58.10 (c), this network plan must document how the state will provide for a review of changes to a $PM_{2.5}$ monitoring network that impact the location of a violating $PM_{2.5}$ monitor or the creation or change to a community monitoring zone, including a description of the proposed use of spatial averaging for purposes of making comparisons to the annual $PM_{2.5}$ NAAQS as set forth in Part 50 Appendix N. The agency must also document the process for obtaining public comment and include any comments received through the public notification process within the submitted plan.

The state does not have, nor is intending to create, any community monitoring zones and does not utilize spatial averaging for comparison to the $PM_{2.5}$ NAAQS. The state has in place a public notification procedure which includes posting notice in the newspapers of all counties and on the agency web site allowing for public viewing and comments of the changes that are in the annual network plan document.

1.3 Organizational Structure and Responsibilities

The DOH Clean Air Branch (CAB) is the state agency responsible for planning, management, and regulatory activities associated with the state's air program. The HDOH serves as the Primary Quality Assurance Organization (PQAO) with two separate divisions within the DOH responsible for quality assurance oversight and data collection.

The CAB in the Environmental Management Division (EMD) is responsible for the overall planning, siting, and quality assurance oversight of the ambient air monitoring program, is organizationally independent of data collection activities. The Air Quality Monitoring Section (AQMS) of the State Laboratories Division (SLD) is responsible for all data collection activities including installing, operating, maintaining ambient air monitoring equipment and stations, providing valid quality assured, documented and defensible data that meet EPA QA requirements. The SLD - IT provides quality assured data to AQS. AQMS contracts out laboratory support for co-located $PM_{2.5}$ mass analyses.

2.0 Network Evaluation

There are minimum monitoring requirements for PM_{10}, $PM_{2.5}$, O_3, SO_2, and Pb for each Metropolitan Statistical Area (MSA) in the state as described in 40 CFR 58 Appendix D. In 2013, the U.S. Office of Management and Budget designated two MSAs in the State of Hawaii, Urban Honolulu and Kahului-Wailuku-Lahaina (Maui County, excluding Kalawao County). The 2019 census population was estimated at 974,563 for the Urban Honolulu MSA (hereafter called Honolulu) and 167,417 for the Kahului-Wailuku-Lahaina MSA (hereafter called Maui). The 2020 census population was estimated at 1,407,006 for the state, down 0.6% from the 2019 estimate of 1,415,615 (according to the Department of Business and Economic Development and Tourism, demographic 2020 census data will be released between August and September 2021, breakdown by MSAs were not available). There are five counties in the state: Kauai (islands of Niihau and Kauai); City & County of Honolulu (island of Oahu); Maui (islands of Maui, Molokai, Lanai, Kahoolawe, excluding Kalawao County); Kalawao (Kalaupapa Settlement on Molokai) and Hawaii (island of Hawaii).

2.1 PM_{10} Network

The minimum number of required PM_{10} monitoring stations for the MSA is dependent upon population and concentration measurements. High concentration areas are those for which the ambient PM_{10} data show concentrations exceeding the PM_{10} NAAQS by 20 percent or more. Medium and low concentration areas are those for which ambient PM_{10} data show concentrations exceeding 80 percent of the NAAQS, and concentrations less than 80 percent of the NAAQS, respectively.

PM_{10} data for 2020 showed the Honolulu MSA to be a low concentration area (Table 2-1) and, therefore, is required to have one to two PM_{10} monitors (Table 2-2). In the absence of a PM_{10} design value for the newly designated Maui MSA and with a population <250,000, no PM_{10} monitoring is required in that MSA. The state meets the minimum PM_{10} monitoring requirements with three PM_{10} stations in the Honolulu MSA.

Table 2-1. PM_{10} Network and Concentrations for the Honolulu MSA[1]

Site Name	AQS No.	2020 Maximum 24-Hr Value (µg/m³)	Percent of 24-Hr NAAQS	Sampling Frequency
Honolulu	150031001	22	15	Continuous
Kapolei	150030010	43	29	Continuous
Pearl City	150032004	26	17	Continuous

[1] There is currently no PM_{10} monitor operating in the Maui MSA

Table 2-2. PM_{10} Minimum Monitoring Requirements for Each MSA

MSA Population Category (2010 Census) (40 CFR 58 Appendix D Table D-4)	High Concentration ≥120% of NAAQS (≥180 µg/m³)	Medium Concentration >80% of NAAQS (>120 µg/m³)	Low Concentration <80% of NAAQS (<120 µg/m³)[1]
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	**1-2**
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

MSA	2019 Census Population (estimated)	Highest 24-hr Value (2020)	Required # of Monitors	# of Active Monitors in the MSA	# of Monitors Needed
Honolulu	974,563	43 µg/m³	1-2	3	0
Maui	167,417	No data available	0[1]	0	0

[1] 40 CFR Part 58 Appendix D Section 4.6 Table D-4 states that in the absence of a design value, these minimum monitoring requirements apply.

Figure 2-1 is a map of the current PM_{10} sites in the state. All of the PM_{10} stations are in the Honolulu MSA.

Figure 2-1. PM_{10} Network

2.2 $PM_{2.5}$ Network

The state must operate a minimum number of required $PM_{2.5}$ monitors based on population and the most recent 3-year design value in each MSA. There are four $PM_{2.5}$ SLAMS in the Honolulu MSA and one SLAMS in the Maui MSA with complete design values. The design value for the annual $PM_{2.5}$ standard is the most current 3-year average annual mean for each site. The design value for the 24-hour $PM_{2.5}$ standard is the most current 3-year average of annual 98th percentile 24-hour values recorded at each monitoring site. Table 2-3 shows the annual and daily design values for complete data years 2018 to 2020.

The most recent 3-year design values in the Honolulu and Maui MSAs were less than 85% of any $PM_{2.5}$ NAAQS. Table 2-4 shows that the state operates more than the minimum monitoring requirements for $PM_{2.5}$ in each MSA. Additionally, in 2020, the state operated one SPMS in the Maui MSA and ten SPMS on the island of Hawaii for volcanic emissions, and one SPMS on the island of Kauai to monitor cruise ship emissions.

Part of DOH's response to the 2018 eruption at the Lower East Rift Zone (LERZ) of Kilauea volcano, was to supplement the existing $PM_{2.5}$ network with additional SPMS sites on Hawaii island. Six new SPMS sites were identified, and temporary monitors were set up in communities around the island.

At the time of this plan's publication, a few of the monitors are still operating at the temporary locations but are slated to be relocated to the selected SPMS/long-term sites. See Section 2.12 for discussion on site modifications and Section 3.0 for detailed location information.

The IMPROVE monitoring station (HACR1) at Haleakala National Park on Maui, operated by the National Park Service, serves as the background/transport $PM_{2.5}$ site for the state's network. All primary $PM_{2.5}$ monitors operated by the state are continuous FEM. Figure 2-2 shows the map locations of all the $PM_{2.5}$ stations in the state, including the IMPROVE monitor and SPMS (existing stations as well as the six new stations being established).

Table 2-3. $PM_{2.5}$ Network and Concentrations for Each MSA

Site	AQS No.	Sampling Frequency	Annual Design Value (µg/m^3) 2018 – 2020	Percent of Annual NAAQS (12µg/m^3)	Daily Design Value (µg/m^3) 2018-2020	Percent of 24-Hour NAAQS (35 µg/m^3)
Honolulu MSA						
Honolulu	150031001	Continuous	3.3	28	7	20
Kapolei	150030010	Continuous	2.6	22	7	20
Pearl City	150032004	Continuous	3.2	27	7	20
Sand Island	150031004	Continuous	**3.8**	32	**7**	20
Maui MSA						
Kihei	150090006	Continuous	**3.9**	33	**12**	34

NOTE: Haleakala IMPROVE (150099001) is the $PM_{2.5}$ background/transport site for Hawaii and is operated and maintained by the NPS

Table 2-4. $PM_{2.5}$ Minimum Monitoring Requirements for Each MSA

MSA Population Category (2010 Census) (40 CFR 58 Appendix D Table D-5)	Most recent 3-year Design Value ≥85% of any $PM_{2.5}$ NAAQS (≥29.75 µg/m³ for 24-hr standard; ≥10.2 µg/m³ for annual standard)	Most recent 3-year Design Value <85% of any $PM_{2.5}$ NAAQS (<29.75 µg/m³ for 24-hour standard; <10.2 µg/m³ for annual standard)
>1,000,000	3	2
500,000-1,000,000	2	**1**
50,000-<500,000	1	0

MSA	2019 Census Population (estimated)	Highest Annual Design Value 2018 – 2020	Highest Daily Design Value 2018-2020	Required No. of Monitors	Number of Active Monitors in the MSA	Number of Monitors Needed
Honolulu	974,563	3.8	7	1	4	0
Maui	167,417	3.9	12	0	1 SLAMS/ 1 SPMS	0

Appendix A to 40 CFR 58 requires that 15 percent of each $PM_{2.5}$ monitoring method be co-located. The state currently operates four SLAMS, one NCore and twelve SPMS FEM monitors (seventeen total), all of which are using Method 209 except for one that is using Method 170. Since the state is requesting temporary closures and modifications, the number of co-located will be adjusted accordingly.

One co-located monitor is required for the one station using Method 170. One FRM co-located monitor is operating at the Kapolei NCore station to meet this requirement.

Two co-located monitors are currently required for the sixteen stations using Method 209. One FRM co-located monitor is operating at the Pearl City station, and a $PM_{2.5}$ FEM is co-located at the Kona station. The state will adjust the number of co-located FRM and/or FEM monitors as needed, pending approvals for temporary site closure and as the installation of long-term stations are completed.

Table 2-5 summarizes the $PM_{2.5}$ co-located network at the time of plan publication.

Table 2-5. $PM_{2.5}$ Co-located Network

Method Code	# Primary Monitors	# Required Co-located	# Active Co-located FRM	# Active Co-located FEM (same method designation as primary)
170	1	1	1	0
209	16	2	1	1

Figure 2-2. $PM_{2.5}$ Network

2.3 O_3 Network

The state must operate a minimum number of O_3 monitors depending upon MSA population and typical peak concentrations. NCore sites are intended to complement O_3 data collection but can be used to meet the minimum monitoring requirements.

The O_3 monitoring season for the state of Hawaii is 12-months from January to December. The O_3 design value is the 3-year average of the fourth-highest daily maximum 8-hour concentrations measured at each monitor.

The most recent O_3 design value concentrations at the Sand Island and Kapolei NCore stations in the Honolulu MSA showed less than 85% of the O_3 NAAQS (Table 2-6). The Maui MSA does not have any O_3 monitoring. However, with a 2019 census population estimated at 167,417, according to 40 CFR Part 58 Appendix D Table D-2 and, as shown in Table 2-7 below, in the absence of a design value, no O_3 monitor is required in that MSA. The state meets the minimum O_3 network monitoring requirements.

Table 2-6. O_3 Design Values for the Honolulu MSA

Stations in the MSA	8-Hour Design Value 2018 – 2020	2019 MSA Census Population	Required # of Monitors	# of Active Monitors in the MSA	# of Monitors Needed
Sand Island (150031004)	0.047	974,563 (estimated)	1	2	0
Kapolei (150030010)	0.048				
There is no O_3 monitor in the Maui MSA		167,417 (estimated)	0	0	0

Table 2-7. O_3 Minimum Monitoring Requirements for Each MSA

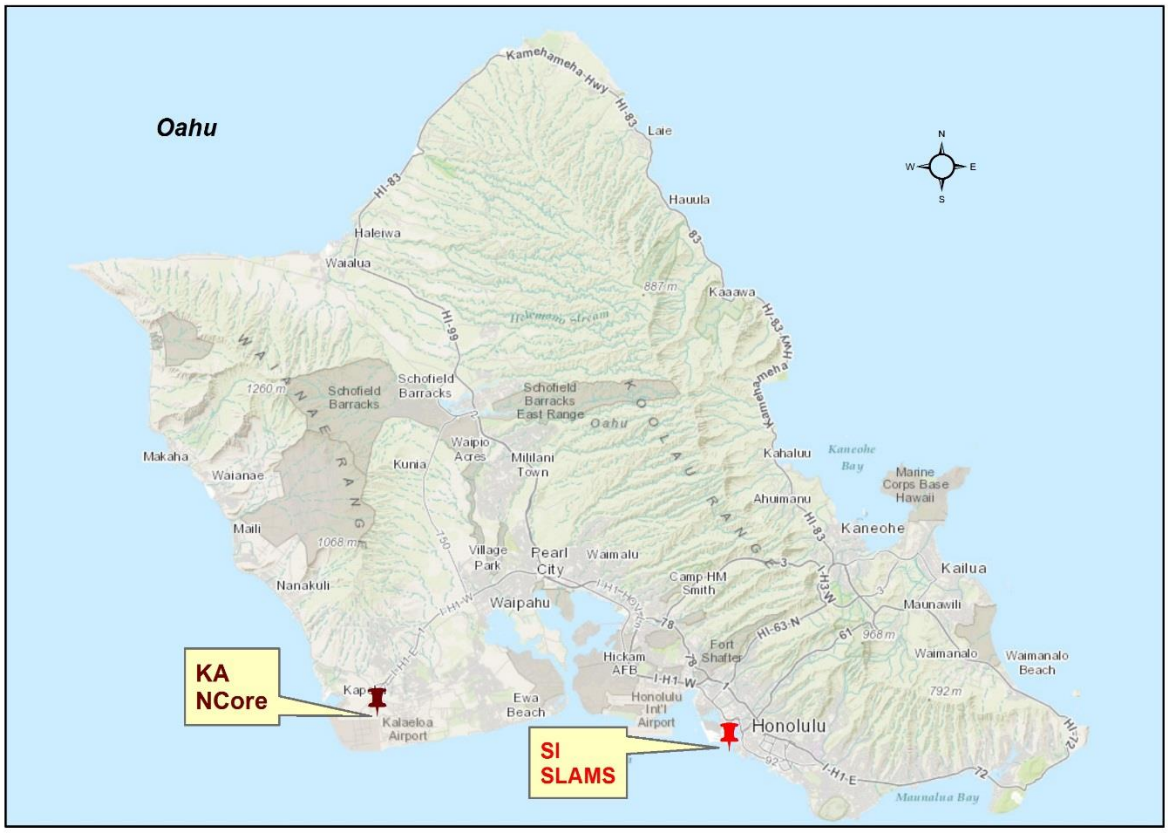
MSA Population Category (40 CFR 58 Appendix D Table D-2)	Most recent 3-year design value ≥85% of any O_3 NAAQS (≥.064 ppm, 8-hr standard)	Most recent 3-year design value <85% of any O_3 NAAQS (<.064 ppm, 8-hr standard)[1]
>10 million	4	2
4-10 million	3	1
350,000-<4 million	2	**1**
50,000-<350,000	1	0

[1] According to 40 CFR part 58 Appendix D, Table D-2, these minimum monitoring requirements apply in the absence of a design value.

40 CFR Part 58.10 requires that states with Moderate and above 8-hour O_3 nonattainment areas and states in the Ozone Transport Region as defined in 40 CFR 51.900 shall develop and implement an Enhanced Monitoring Plan (EMP) detailing enhanced O_3 and O_3 precursor monitoring activities to be performed. The EMP shall be submitted to the EPA Regional Administrator no later than October 1, 2019 or two years following the effective date of a designation to a classification of Moderate or above O_3 nonattainment, whichever is later. Hawaii is in attainment with the 8-hour O_3 standard and thus is not required to submit an EMP.

Figure 2-3 shows the map locations of the SLAM and NCore O_3 stations. Both stations are in the Honolulu MSA.

Figure 2-3. O_3 Network



2.4 Pb Network

With a 2010 census population of 953,207 in the Honolulu MSA, the state was previously required to conduct non-source-oriented Pb monitoring at the Kapolei NCore site (Table 2-8). This NCore site began collecting Pb data on January 1, 2012. Appendix D to 40 CFR Part 58 also requires source-oriented Pb monitoring for sources emitting 0.50 or more tons per year (TPY) according to the most recent emissions inventory. There are no sources in the state emitting 0.5 or more TPY of Pb. No Pb monitoring is required in the Maui MSA.

Since the beginning, the station recorded concentrations of Pb well below the standard, at approximately one to two percent of the standard. Per a letter dated October 29, 2018, EPA approved the discontinuation of the Pb monitoring at the Kapolei NCore station. Pb monitoring was discontinued on December 31, 2018.

Table 2-8. Minimum Pb Monitoring Requirement at NCore

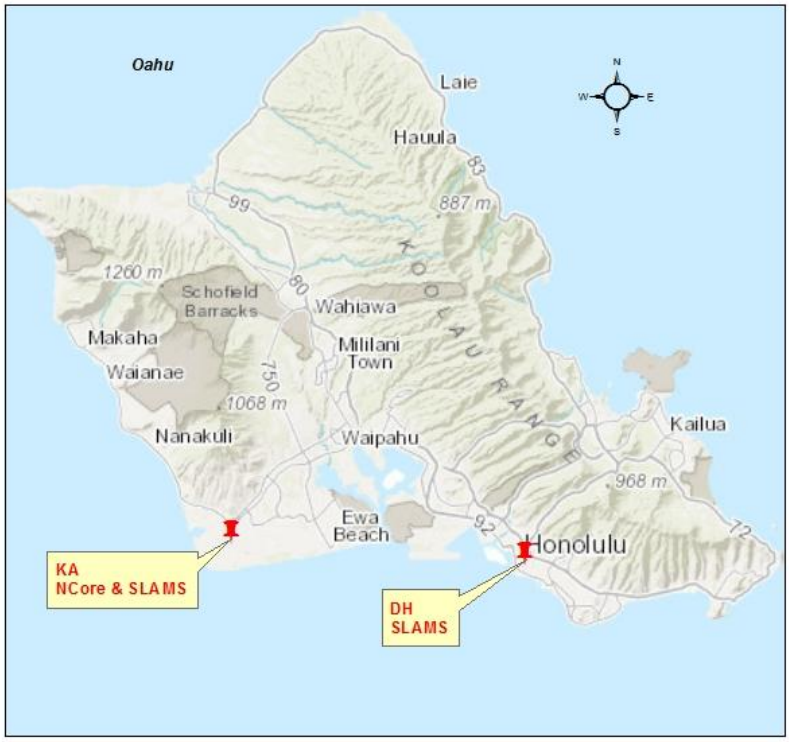
NCore	AQS ID	CBSA	2019 Census Population (estimated)	# Required Monitors	# Active Monitors	# Monitors Needed
KA	150030010	Honolulu	974,563	*0	*0	0

* Per EPA letter dated October 29, 2018, the Pb monitoring at Kapolei NCore was approved to be discontinued

2.5 CO Network

The state operates two SLAMS and one SLAMS/NCore CO monitors in the Honolulu MSA. Figure 2-4 shows the locations of the CO sites in the state. 40 CFR Part 58, Appendix D Section 4.2.2 requires one co-located CO monitor at near-road NO_2 sites in Core-based Statistical Areas (CBSA) with populations ≥1,000,000. The Honolulu MSA had a 2019 census population estimated at 974,563 and therefore is not currently required to co-locate a CO monitor. No CO monitoring is required in the Maui MSA.

Figure 2-4. CO Network



2.6 NO_2 Network

Near-road NO_2 monitoring requirement for CBSAs with a population of greater than 500,000 but less than one million, which includes the Honolulu MSA, has been removed by EPA as of December 22, 2016. The population and Annual Average Daily Traffic (AADT) for the Honolulu CBSA will be monitored, and in the event, they hit the minimum threshold in the future, the near-road monitoring will be implemented.

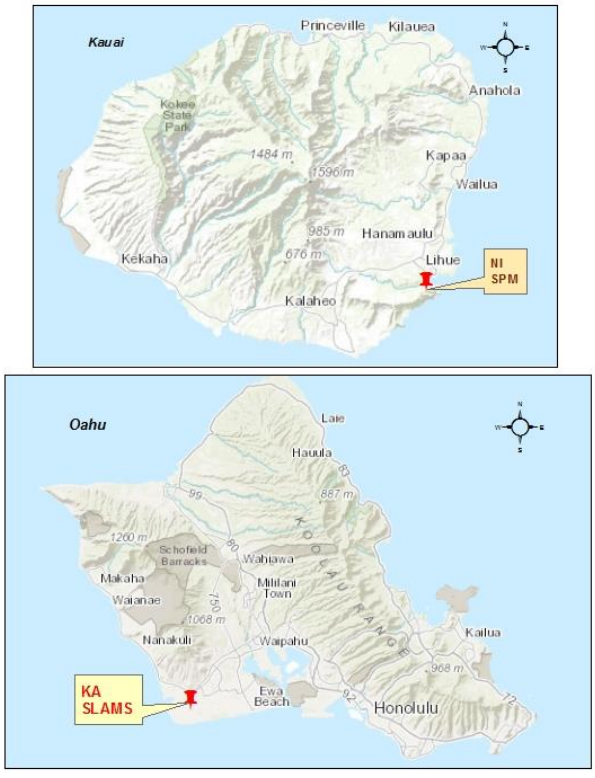
40 CFR Part 58, Appendix D Section 4.3.3 requires area wide NO_2 monitoring in the location of highest expected concentration in a CBSA with a population ≥1,000,000. The Honolulu MSA had a 2019 census population estimated at 974,563 and therefore is not currently required to have area-wide monitoring. DOH will continue to work with EPA to determine the appropriate timeline associated with this requirement. The state currently has one SLAMS NO_2 station in the MSA which measures typical concentration in areas of high population density but would also be the location of highest expected concentration, making it suitable as the area-wide monitoring location. There is one SPMS on the island of Kauai and no NO_2 monitoring is required in the Maui MSA.

Table 2-9. Minimum Near-Road NO_2 Monitoring Requirements for the MSA

CBSA	2019 Census Population (estimated)	Max AADT Counts (2019)[1]	# Required Monitors	# Monitors to be operational by 1/1/2017
Honolulu	974,563	263,152	0	0

[1] 2019 estimated average AADT provided by the State of Hawaii Department of Transportation

Figure 2-5. NO_2 Network



2.7 SO_2 Network

EPA has established the Population Weighted Emissions Index (PWEI) to determine required SO_2 monitoring. The PWEI is calculated by multiplying the population of each CBSA with the total amount of SO_2 in TPY emitted within the CBSA area and dividing the result by one million. According to this calculation, Hawaii is required to operate one SO_2 monitor in the Honolulu MSA and none in the Maui MSA (Table 2-10). The state currently operates two SLAMS SO_2 monitors in the Honolulu MSA, and one at the NCore station in Kapolei; it therefore meets the minimum number of required SO_2 stations. There are no requirements for a SO_2 monitor in the Maui MSA.

The state also has a station on the island of Kauai that monitors for cruise ship emissions. This is a SPM station which includes FEM monitoring for SO_2, follows all requirements of 40 CFR 58 Appendices A, D, and E, and as of April 2, 2013, has been operating for more than 24 months and is eligible for comparison with the NAAQS.

On December 20, 2020, a new volcanic event starts as lava began erupting from inside Halemaumau Crater at the summit of Kilauea volcano. SO_2 emissions from the summit was estimated at approximately 40,000 tons per day for the first three days after the eruption began, cut in half to 20,000 tons per day two days later, and dropped again to 5,000 tons per day the very next day. Since February 11, 2021, the emissions continued to gradually decrease and has steadied to a range from 650 to 1,200 tons per day. SO_2 emissions continues to be a concern on the island of Hawaii due to the unpredictable potential for significant increase of volcanic emissions at any time. There are currently six stations monitoring SO_2 due to volcanic emissions, two of which are SLAM stations (Hilo and Kona) and four (Mountain View, Pahala, Ocean View and the more recently established temporary station at Naalehu) are SPMS that use FEM monitors and follow all the requirements of 40 CFR 58 Appendices A, D, and E. Mountain View, Pahala, Ocean View have been operating for more than 24 months and therefore are subject to NAAQS comparison.

As a part of DOH's response to the air quality issues caused by the 2018 LERZ eruption at the Kilauea volcano and due to the continuing volcanic activity on Hawaii Island, the CAB identified six additional sites/locations for long term monitoring to provide air quality data, advisories and notification to the public in order to protect their health. The six sites identified are in the following communities: Waikoloa, Kailua-Kona, Honaunau, Naalehu, Keaau and Pahoa. Of the six stations Naalehu and Keaau are installed and operating at temporary locations. Pahoa was shut down on December 20, 2018 and remains closed.

See Section 2.12 for discussion on site modifications and Section 3.0 for detailed location information. Figure 2-6 shows the locations of the SLAMS and the three SPMS stations discussed.

The state is also required by 40 CFR Part 51, Subpart BB, Data Requirements Rule, to characterize maximum 1-hour ambient concentrations of SO_2 through either ambient air quality monitoring or air quality modeling analysis. The state has two air stations, Kahe and Waiau, to monitor four sources that has been identified as having SO_2 emissions data of 2,000 tons or more (see detailed site description for more information). The start date for these stations began in January 2017 and both have completed the

required three years of data collection. After review of the three year of data collected, it was determined that Waiau met the DRR requirement to shut down.

40 CFR Part 58, 58.14 allows for approvals to be granted when requests to shut down monitors will not compromise data collection needed for implementation of the NAAQS, the requirements in 40 CFR Part 58 Appendix D continue to be met, and that specific criteria for discontinuing monitors operated to satisfy that rule.

DOH's request to shut down the DRR monitor at Waiau (AQS ID: 15-003-4100), was submitted to EPA on May 15, 2020 (see Appendix B of this plan) for approval upon the satisfaction of the specific criteria in 40 CFR Part 51, Subpart BB, 51.1203, Section (c)(3). In the request, DOH represented the monitors were operated solely for the purpose of satisfying the 2015 SO_2 DRR (80 FR 51052) for the listed DRR source, and addressed the following:

HECO Waiau Generating Station Valid 3-year Design Value of 16 PPB

In order for EPA to process the request, DOH submitted data to AQS for the specified, qualifying monitor for CY 2017-2019, and certified the data on April 24, 2020 so that a design value may be calculated (per 40 CFR Part 50, Appendix T) that meets the requirements under 40 CFR 51.1203(c)(3). If data collected from the monitor during either its first or second 3-year period of operation produces a valid design value no greater than 50% of the NAAQS (which is 37.5 ppb), the monitor is eligible for shut down so long as it is not: located in an area designated as nonattainment of the 2010 SO_2 NAAQS; being used to satisfy other ambient SO_2 minimum monitoring requirements listed in 40 CFR Part 58, Appendix D, section 4.4; or otherwise required as part of a SIP, permit, attainment plan or maintenance plan.

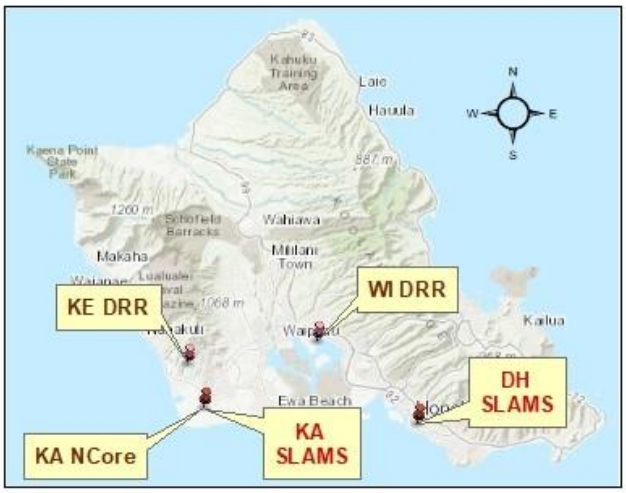
Pending EPA approval, the DOH intends to shut down the Waiau monitor within the next 18 months.

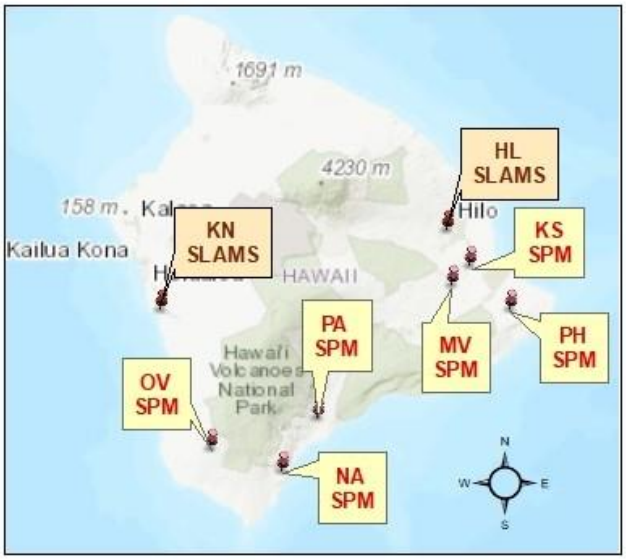
Table 2-10. Minimum SO_2 Monitoring Requirements

CBSA	County	2019 Census Population (estimated)	Total SO_2 (tons/year) 2017 NEI	PWEI[1]	DRR[2] Sources Using Monitoring	# Required Monitors	# Active Monitors	# Monitors Needed
Honolulu	City & County of Honolulu	974,563	13,159	12,824	4	1	2 SLAMS 1 SLAMS/ NCore	0
Maui	Maui	167,417	2,688	450	0	0	0	0

[1] According to 40 CFR 58 Appendix D, if the PWEI for a CBSA is ≥ 5,000 but < 100,000, a minimum of one SO_2 monitor is required.
[2] Data Requirements Rule for the 2010 1-Hour SO_2 Primary NAAQS.

Figure 2-6. SO_2 Network





2.8 NCore

The Kapolei NCore station is located in the residential, commercial, and industrial community on the southwest side of Oahu. Kapolei is the "second city" next to Honolulu with county, state and federal agencies having established offices in the area. The NCore parameters are: NO/NO_y, trace-level SO_2, trace-level CO, O_3, $PM_{10-2.5}$, $PM_{2.5}$ speciation and the meteorological parameters wind speed, wind direction, temperature and relative humidity.

By correspondence dated October 30, 2009, EPA approved Kapolei as the NCore station and it became fully operational on January 1, 2011.

40 CFR Part 58, Appendix D Section 5 (a) requires the state to collect and report Photochemical Assessment Monitoring Station (PAMS) measurements at each NCore site located in a CBSA with a population ≥1,000,000. The Honolulu MSA had a 2019 census population estimated at 974,563 and therefore is not currently required to operate a PAMS. DOH will continue to work with EPA to determine the appropriate timeline associated with this requirement.

2.9 H_2S Network

The state has a one-hour H_2S standard of 25 parts per billion (ppb) established primarily to determine the effects of geothermal energy exploration and production on the island of Hawaii. Puna Geothermal Ventures (PGV) is a 41-megawatt geothermal power plant located in the lower east rift zone of the Kilauea volcano.

DOH established a station at the Leilani Community Association Center, downwind of the facility, to monitor ambient levels of H_2S due to geothermal exploration and operations. H_2S sampling began on September 17, 2019 at a temporary location and was relocated to its permanent location on the same property on September 18, 2020.

2.10 Site Closures

40 CFR part 58, Appendix A, §2.1.3 states: The PQAO/monitoring organization's quality system must have adequate resources both in personnel and funding to plan, implement, assess, and report on the achievement of the requirements of this appendix and its' approved QAPP. The ongoing COVID-19 pandemic's travel and budget restrictions resulted in insufficient AQMS resources (staff and equipment) to collect quality assured, documented and defensible data. Additionally, a Technical Systems Audit (TSA) conducted by EPA in July 2020 found that "Inadequate resources were adversely impacting the quality of the data produced by HDOH's ambient air monitoring program."

Therefore, DOH is proposing to address the resource issues by temporarily reducing the size of the ambient monitoring network (i.e., identify lower-value monitoring sites and request temporary closure approvals from the EPA) while developing a plan to acquire additional resources. Factors in the decision to temporarily close certain stations or parameters include, but are not limited to:

- Ensuring that the remaining monitoring stations in the network continue to meet or exceeds any minimum requirements for the parameter.
- Ensuring that the purpose or objectives for the monitoring was retained.
- Ensuring that DOH continue to provide useful high-quality data.
- Ensuring that funding or cost savings was considered in temporary closure of a station or parameter.

As such, after a review of the air monitoring network, the state is requesting to temporarily close the following stations within the next 18 months; 3-year design values of each parameter from each station from 2016-2018, 2017-2019 and 2018-2020 are included in Appendix B of this plan.

2.10.1 Pearl City (150032004) SLAMS
Pearl City, Oahu, Hawaii
Parameters: PM_{10}, $PM_{2.5}$ and $PM_{2.5}$ Co-located

This site is located in a commercial and highly populated residential area and has been operating since 1994. As discussed in Section 2.1 of this plan, PM_{10} data for 2020 showed the Honolulu MSA to be a low concentration area and, therefore, is required to have one to two PM_{10} monitors. The state currently meets the minimum PM_{10} monitoring requirements with three PM_{10} stations in the Honolulu MSA; with the temporary closure of the Pearl City station, there will be two PM_{10} stations remaining in the Honolulu MSA.

As discussed in Section 2.2 of this plan, the most recent 3-year design values in the Honolulu MSA were less than 85% of any $PM_{2.5}$ NAAQS and that the state currently operates 4 $PM_{2.5}$ monitors in the MSA, more than the minimum 1 monitor required for the MSA. The co-located FRM $PM_{2.5}$ sampler currently operated at the site will be relocated to the Sand Island station.

2.10.2 Kihei (150090006) SLAMS
Kihei, Maui, Hawaii
Parameter: $PM_{2.5}$

This site was established to monitor the impacts from sugar cane burning and has been operating since 1999. With the last harvest season occurring in 2016, the company shut down its sugar cane growing operations, sugar cane is no longer burned and harvested, therefore monitoring is not necessary at this time. As discussed in Section 2.2 of this plan, the most recent 3-year design values in the Maui MSA were less than 85% of any $PM_{2.5}$ NAAQS and with its smaller population, no $PM_{2.5}$ monitor is required for the Maui MSA.

2.10.3 Kahului (150090025) SPMS
Kahului, Maui, Hawaii
Parameter: $PM_{2.5}$

This site was established to measure typical concentrations of air pollutants in areas of high population density and has been operating since 2015. No $PM_{2.5}$ monitor is required for the Maui MSA.

2.10.4 Niumalu (150070007) SPMS
Niumalu, Kauai, Hawaii
Parameters: NO_2, SO_2 and $PM_{2.5}$

This site was established to measure the impacts from cruise ship emissions on nearby communities and has been operating since April 2011. Since the implementation of the new lower ECA fuel sulfur requirements for cruise ships, this station has been providing information on the effects of lowered fuel sulfur on ambient SO_2. SO_2 data at this site has consistently showed that although there is a correlation to the cruise ships being in the harbor and increases in SO_2 emissions, the values have been well below the NAAQS.

NO_2 values have also been consistent with the SO_2 data in that it has shown that although there is a correlation to the cruise ships being in the harbor and slight increases in NO_2 emissions, the values have been well below the NAAQS.

As discussed in Section 2.2 of this plan, with its smaller population, there are no requirement to have a $PM_{2.5}$ monitor in Kauai. $PM_{2.5}$ data from this station have also been well below the NAAQS.

2.10.5 Honaunau (150013032) SPMS
Honaunau, Hawaii
Parameter: $PM_{2.5}$

This temporary site began sampling in August 2018 to monitor $PM_{2.5}$ due to volcanic emissions as a part of DOH's response to the air quality issues caused by the 2018 LERZ eruption at the Kilauea volcano. The major reason for the request to close this station is that it will be extremely difficult and costly to obtain electricity to the monitor. The small rural communities served by the station will still be able to access data from the Kona and Ocean View stations. There will still be 4 other $PM_{2.5}$ monitors remaining on the west side of Hawaii island.

2.10.6 Waiau (150034100)
DRR site, Oahu, Hawaii
Parameter: SO_2

As previously discussed in detail in Section 2.7, the Waiau station began collecting data on January 1, 2017, and since the end of 2019, has completed the required 3 years of data collection. DOH submitted a request to close this station and is waiting for EPA's review and approval, this site will continue to operate until approval is granted.

2.11 Site Additions

There are no plans to add any sites in the next 18 months.

2.12 Site Modifications

2.12.1 Leilani Community Association Center (150012025) SPMS Pahoa, Hawaii Parameters: H_2S (non-criteria) and SO_2

This station was relocated from its temporary location on this property to its current location and has been operating there since September 20, 2020.

2.12.2 Kapolei (150030010) SLAMS/NCore Kapolei, Oahu, Hawaii Parameters: CO and SO_2

The 2019 and 2020 network plans both included details regarding the relocation of the current site to a previously approved area on the same property approximately 50 feet to the south of the current location. DOH has been recently notified by the City and County of Honolulu Board of Water Supply (BWS), the owner of the property, that the base yard project for the site is temporarily on hold and a timeline to move forward has not been determined. Per Region 9, no formal relocation request is needed if this site is only to be moved a short distance.

As stated previously in Section 2.10 of this plan, the state is proposing to reduce the size of its air monitoring network. Since trace CO and trace SO_2 are required to be monitored at the NCore station, to reduce duplication, the CO and SO_2 monitors at the Kapolei SLAMS site can be discontinued without losing any monitoring coverage in the network.

2.12.3 Sand Island (150031004) SLAMS Honolulu, Oahu, Hawaii Parameter: $PM_{2.5}$ FRM

The $PM_{2.5}$ FRM sampler that is currently operating at the Pearl City station will be relocated to the Sand Island station as the state is proposing to temporarily close the Pearl City Station, as previously discussed in Section 2.10 of this plan.

Carrying over from the 2020 network plan, long-term locations have been selected for these following sites, where currently the monitors are set up at temporary locations. Some of these locations do not meet siting guidelines, which is one of the reasons they will be re-located. Detailed site descriptions are included for four of the five temporary stations. Pahoa was taken offline due to construction activities.

2.12.4 Keaau (150013027) SPMS; AQS ID for Long-term TBD Kamehameha Schools Hawaii, Keaau, Hawaii Parameters: $PM_{2.5}$ and SO_2

This station was selected to be sited in an open area near the Switch Gear Building on the school campus. AQMS had set up a temporary monitoring station elsewhere on campus in response to the LERZ emergency, approximately 650 meters to the northwest of where the long-term station is to be placed. It has been monitoring for $PM_{2.5}$ and SO_2 as a non-regulatory temporary station since June 14, 2018. AQMS

will need to relocate the monitoring equipment to the selected long-term site once the site is prepped, utilities obtained, and the installation of the monitoring station is completed.

2.12.5 Naalehu-TP (150013028) SPMS and Naalehu-TS (150013033) SPMS Naalehu Volunteer Fire Station and Naalehu Elementary School, Naalehu, Hawaii Parameters: $PM_{2.5}$ and SO_2

The United States Geographical Survey Seismograph Building on the Naalehu school campus was selected to monitor SO_2 and $PM_{2.5}$. The SO_2 monitor has been sampling at this location since September 9, 2018 as a non-regulatory temporary station. However, AQMS decided to set up the $PM_{2.5}$ monitor at the Naalehu Volunteer Fire Station instead of on the school campus; sampling began June 19, 2018 and continues at this temporary location.

Due to the school's decision to use the building for another purpose, monitoring will be relocated to another location on school's campus once an appropriate location is identified.

2.12.6 Pahoa (AQS TBD) Pahoa High School, 15-3038 Pahoa Village Road, Pahoa, Hawaii Parameters: $PM_{2.5}$ and SO_2

The long-term site selected for the monitoring station at the Pahoa school is an open area behind the school gymnasium. When the 2018 LERZ eruption began, AQMS had set up a non-regulatory temporary station in another location on campus to monitored for $PM_{2.5}$, SO_2 and H_2S that operated from May 17, 2018 until December 20, 2018. At the time of this plan's publication, monitoring at the long-term location has not been set up and there is currently no monitoring at the Pahoa school.

2.12.7 Waikoloa-Temporary (150013030) SPMS Waikoloa Elementary School, Waikoloa, Hawaii and Waikoloa-Long-term (150012021) DWS Lalamilo (Parker 610), TMK 3-6-8-002-019, Waikoloa, Hawaii Parameters: $PM_{2.5}$

The non-regulatory temporary site for the Waikoloa $PM_{2.5}$ sampler is located at the Waikoloa Elementary School has been in operation since June 29, 2018.

The long-term site was selected at a former DOH station (AQS 150012021) which operated from 2012 to 2014. Since this was a former monitoring location, installation of the sampler and powering the existing utility pole is all that is required to complete the reestablishment of this long-term site. Awaiting AQMS to relocate the temporary monitor to its long-term location.

There are no plans to modify any of the other current sites in the next 18 months.

2.13 Summary of Network and Changes

Table 2-11 summarizes the state's 2021 network monitors and planned changes. Since it has been determined that no criteria monitors are currently required in the Maui MSA, only monitors required for the Honolulu MSA are addressed in the table. Sections 2.10 to 2.12 detail station closures, additions and equipment or network modifications, and is summarized in Table 2-12.

As indicated in table 2-11, the monitors used for all criteria pollutants are FRM or FEM and follow the requirements of 40 CFR 58 and Appendices A, C, D, E and G. Hawaii's air monitoring network meets or exceeds the minimum required monitoring for each parameter.

Table 2-11. Number of Monitors by Pollutant or Program

N/A = Not applicable

Pollutant/ Program	SLAMS Only	SPMS	SLAMS/NCore	No. of Co-located	Total in MSA[1,2]	Total in State[2]	Total Required in MSA[1]	Meets EPA Required Minimum?	Planned Additions	Planned Closures
CO (FRM)	2	0	1	N/A	3	3	N/A	N/A	0	1
NO_2 (FRM)	1	1	---	N/A	1	2	N/A	N/A	0	1
SO_2 (FEM)	5	6	1	N/A	3	12	1	YES	1	2
O_3 (FEM)	1	0	1	N/A	2	2	1	YES	0	0
NO/NO_y	N/A	N/A	1 (NCore)	N/A	1	1	1	YES	0	0
PM_{10} (FEM)	2	0	1	N/A	3	3	1-2	YES	0	1
$PM_{2.5}$ (all are FEM)	4	12	1	2 FRM 1 FEM	4	17[3]	1	YES	1	4
$PM_{2.5}$ Speciation	0	0	1 (NCore/ Supplemental Speciation)	N/A	1	1	1 (NCore)	YES	0	0
$PM_{10-2.5}$	N/A	N/A	1 (NCore)	N/A	1	1	1 (NCore)	YES	0	0
H_2S	N/A	1[4]	N/A	N/A	0	1	N/A	N/A	0	0

[1] As promulgated in 40 CFR 58 Appendix D, the minimum monitoring requirements apply to Metropolitan Statistical Areas (MSA). Currently, only the Honolulu MSA has requirements for minimum criteria pollutant monitoring.
[2] Total refers to the number of primary monitors only and does not count co-located monitors.
[3] One of the seventeen is using Method 170 and sixteen are using Method 209.
[4] The H_2S and SO_2 monitors were relocated the final selected location on the property of the Leilani Community Association Center; sampling began on September 20, 2020.

Table 2-12. Summary of Network Changes

Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
City and County of Honolulu				
Pearl City	150032004	SLAMS	PM_{10}, $PM_{2.5}$, $PM_{2.5\ FRM}$	**Station proposed for temporary closure:** This site is in a commercial and highly populated residential area and has been operating since 1994. As discussed in Section 2.1 of this plan, PM_{10} data for 2020 showed the Honolulu MSA to be a low concentration area and, therefore, is required to have one to two PM_{10} monitors. The state currently meets the minimum PM_{10} monitoring requirements with three PM_{10} stations in the Honolulu MSA; with the closure of the Pearl City station, there will be two PM_{10} stations remaining in the Honolulu MSA. As discussed in Section 2.2 of this plan, the most recent 3-year design values in the Honolulu MSA were less than 85% of any $PM_{2.5}$ NAAQS and that the state currently operates 4 $PM_{2.5}$ monitors in the MSA, more than the minimum 1 monitor required for the MSA. The co-located FRM $PM_{2.5}$ sampler currently operated at the site will be relocated to the Sand Island station. To address staffing and resource shortages, pending EPA approval, this site may be closed sometime in the next 18 months.
Waiau	150034100	DRR/ SLAMS	SO_2	**Station to be closed:** This station began collecting data on January 1, 2017, to address the data requirements rule and since the end of 2019, has completed the required 3 years of data collection. A request for closure was submitted on May 15, 2020 and pending EPA data review and approval, this site may be closed sometime in the next 18 months.
Kapolei/ NCore	150030010	SLAMS/ NCore	All, CO, SO_2	**Site modification:** The property where this station is located was undergoing site renovations and construction to become a base yard for BWS, the property owner. Recently BWS notified CAB that the construction of the base yard and the relocation of the station was on hold until further notice. Since trace CO and trace SO2 are required to be monitored at the NCore station, the CO and SO2 monitors at the SLAMS site can be discontinued with minimal impact. Upon EPA approval, the sampling of CO and SO_2 at the SLAMS site may be discontinued within the next 18 months.
Sand Island	150031004	SPMS	$PM_{2.5}$	**Site modification:** Pending EPA approval, the FRM co-located sampler at the Pearl City station will be relocated to Sand Island as DOH proposes to temporarily close that station sometime within the next 18 months.

Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
Maui County				
Kihei	150090006	SLAMS	$PM_{2.5}$	**Station proposed for temporary closure:** This site was established to monitor the impacts from sugar cane burning and has been operating since 1999. With the last harvest season occurring in 2016, the need no longer exists. As discussed in Section 2.2 of this plan, the most recent 3-year design values in the Maui MSA were less than 85% of any $PM_{2.5}$ NAAQS and with its smaller population, no $PM_{2.5}$ monitor is required for the Maui MSA. To address staffing and resource shortages, pending EPA approval, this site may be closed sometime within the next 18 months.
Kahului	150092025	SPMS	$PM_{2.5}$	**Station proposed for temporary closure:** This site was established to measure typical concentrations of air pollutants in areas of high population density and has been operating since 2015. No $PM_{2.5}$ monitor is required for the Maui MSA. To address staffing and resource shortages, pending EPA approval, this site may be closed sometime within the next 18 months.
Hawaii County				
Honaunau	150013032	SPMS	$PM_{2.5}$	**Station to be closed:** This temporary site began sampling in August 2018 to monitor for volcanic emissions in response to the 2018 eruption at Kilauea. The small rural communities served by the station will still be able to access data from the Kona and Ocean View stations. There will still be 4 other $PM_{2.5}$ monitors remaining on the west side of Hawaii island. The major reason for the request to close this station is that it will be extremely difficult and costly to obtain electricity to the monitor. To address staffing and resource shortages, pending EPA approval, this site may be closed sometime within the next 18 months.
Leilani Community Association Center	150012025	SPMS	H_2S, SO_2	**Site modification:** This station was relocated from its temporary location to its current location on the same property and has been operating there since September 20, 2020.

Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
Keaau	150013027	SPMS	SO_2, $PM_{2.5}$	**Site modification:** This station has been monitoring for $PM_{2.5}$ and SO_2 as a non-regulatory temporary station since June 14, 2018 at a temporary location on the Kamehameha Schools Hawaii campus. AQMS still needs to relocate the monitoring equipment to long-term site on the school campus. The plan is to have this relocation completed within the next 18 months.
Naalehu-TP & Naalehu-TS	150013028 & 150013033	SPMS	$PM_{2.5}$, SO_2	**Site modifications:** The United States Geographical Survey Seismograph Building on the Naalehu school campus was selected to monitor SO_2 and $PM_{2.5}$. The SO_2 monitor has been sampling at this location since September 9, 2018 as a non-regulatory temporary station. However, AQMS decided to set up the $PM_{2.5}$ monitor at the Naalehu Volunteer Fire Station instead of on the school campus; sampling began June 19, 2018 and continues at this temporary location. Due to the school's decision to use the building for another purpose, monitoring will be relocated to another location on school's campus once an appropriate location is identified.
Pahoa	TBD	SPMS	$PM_{2.5}$, SO_2	**Site modification:** The long-term site selected for the monitoring station at the Pahoa school is an open area behind the school gymnasium. When the 2018 LERZ eruption began, AQMS had set up a non-regulatory temporary station in another location on campus to monitor for $PM_{2.5}$, SO_2 and H_2S that operated from May 17, 2018 until December 20, 2018. Currently, monitoring at the long-term location has not been set up and there is still no monitoring conducted at the Pahoa school site. The plan is to begin sampling within the next 18 months once preparations are completed at the selected long-term location on campus.
Waikoloa	150013030	SPMS	$PM_{2.5}$	**Site modification:** The non-regulatory temporary site for the Waikoloa $PM_{2.5}$ sampler located at the Waikoloa Elementary School has been in operation since June 29, 2018. The long-term site was selected at a former DOH station (AQS 150012021) which operated from 2012 to 2014. Since this was a former monitoring location, installation of the sampler and powering the existing utility pole was all that was required to complete the reestablishment of this long-term site. AQMS has yet to relocate the temporary monitor to its long-term location.

Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
Kauai County				
Niumalu	150070007	SPMS	SO_2, NO_2, $PM_{2.5}$	**Station proposed for temporary closure:** This site was established to measure the impacts from cruise ship emissions on nearby communities and has been operating since April 2011. Since the implementation of the new lower ECA fuel sulfur requirements for cruise ships, this station has been providing information on the effects of lowered fuel sulfur on ambient SO_2. SO_2 data at this site has consistently showed that although there is a correlation to the cruise ships being in the harbor and increases in SO2 emissions, the values have been well below the NAAQS. NO_2 values have also been consistent with the SO_2 data in that it has shown that although there is a correlation to the cruise ships being in the harbor and slight increases in NO_2 emissions, the values have been well below the NAAQS. As discussed in Section 2.2 of this plan, with its smaller population, there are no requirement to have a $PM_{2.5}$ monitor in Kauai. $PM_{2.5}$ data from this station has also been well below the NAAQS. To address staffing and resource shortages, pending EPA approval, this site may be closed sometime in the next 18 months.

The operation of each monitor meets the requirements of appendices A, B, C, D, and E of 40 CFR Part 58, where applicable.

3.0 Detailed Site Descriptions

Following are descriptions and photos of each station in the state's current ambient air monitoring network, including temporary and proposed SPMS long-term stations. The descriptions include area location, traffic, probe siting, monitor information and adherence to quality assurance.

DOH Air Quality Monitoring Section of the State Laboratories Division (AQMS) is the collecting and reporting agency for all stations and monitors operating in the state.

Table 3-1. State of Hawaii Ambient Air Monitoring Network

ID	AQS No.	Site Name	Basic Monitoring Objective(s)[1]	Parameters
DH	150031001	Honolulu	1,2	$PM_{2.5}$, PM_{10}, SO_2
KA SLAMS/ NCore	150030010	Kapolei	1,2,3	$PM_{2.5}$, $PM_{2.5}$ co-located, PM_{10}, ($PM_{10-2.5}$), trace SO_2, SO_2, NO_2, NO/NO_y, trace CO, CO, O_3, $PM_{2.5}$ speciation, WS, WD, RH, Ambient Temperature
PC	150032004	Pearl City	1,2	$PM_{2.5}$, $PM_{2.5}$ co-located, PM_{10}
SI	150031004	Sand Island	1,2	$PM_{2.5}$, O_3
KH	150090006	Kihei	1,2,3	$PM_{2.5}$
KL	150090025	Kahului	1, 2	$PM_{2.5}$
NI	150070007	Niumalu	1,2,3	$PM_{2.5}$, SO_2, NO_2
HL (SLAMS)	150011006	Hilo	1,2,3	SO_2
HL (SPMS)	150011006	Hilo	1,2,3	$PM_{2.5}$
KN SLAMS)	150011012	Kona	1,2,3	SO_2
KN (SPMS)	150011012	Kona	1,2,3	$PM_{2.5}$, $PM_{2.5}$ co-located FEM
MV	150012023	Mt. View	1,2,3	$PM_{2.5}$, SO_2
OV	150012020	Ocean View	1,2,3	$PM_{2.5}$, SO_2
PA	150012016	Pahala	1,2,3	$PM_{2.5}$, SO_2
LE	150012025	Leilani CAC	1,3	H_2S, SO_2
HN	150013032	Honaunau	1,2,3	$PM_{2.5}$
KK	150013034	Kailua-Kona	1,2,3	$PM_{2.5}$
KS-T	150013027	Keaau (Temporary)	1,2,3	$PM_{2.5}$, SO_2
KS-LT	TBD	Keaau (Long-term)	1,2,3	$PM_{2.5}$, SO_2
NA-TP	150013028	Naalehu (Temporary $PM_{2.5}$)	1,2,3	$PM_{2.5}$
NA-TS	150013033	Naalehu (Temporary SO_2)	1,2,3	SO_2
WL-T	150013030	Waikoloa (Temporary)	1,2,3	$PM_{2.5}$
WL-LT	150012021	Waikoloa (Long-term)	1,2,3	$PM_{2.5}$
KE	150034001	Kahe	1,2,3	SO_2
WI	150034100	Waiau	1,2,3	SO_2

[1] Basic Monitoring Objectives:

1) Public information
2) NAAQS compliance
3) Support research

(DH) HONOLULU			
AQS: 150031001	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 1250 Punchbowl St., Honolulu, HI 96813			
Latitude: 21.30758 Longitude: -157.85542			Elevation: 20 m MSL
Location Description: This station is located on the roof of the state Department of Health building in downtown Honolulu. The surrounding streets are busy thoroughfares serving the downtown area. The area includes a major hospital (Queen's Medical Center), the state capitol, other state, county, commercial and business buildings as well as residential condominiums. This station has been operating since 1972.			

DH TRAFFIC DESCRIPTION			
Type of Roadway	Punchbowl	S. Beretania	Vineyard
Freeway			
Major Street or Highway	X	X	X
Distance from air intake (m)	30	122	610
Direction from air inlet	E	S	N
Composition of roadway	asphalt	asphalt	Asphalt
Number of traffic lanes	5	6	6
Average daily traffic	19,800 [1]	20,100 [1]	34,800 [1]
Average vehicle speed (est. mph)	20	25	25
Traffic one way or two	2	1	2
Street parking?	No	No	No
[1] Source: State of Hawaii Department of Transportation (2016 count)			

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(DH) Honolulu continued

DH MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{10}	**$PM_{2.5}$**	**SO_2**	**CO**
POC/FRM or FEM	1/FEM	3/FEM	6/FEM	1/FRM
Type of Monitor	SLAMS	SLAMS	SLAMS	SLAMS
AQS parameter code	81102	88101	42401	42101
Manufacturer	Met One	Met One	TECO	API
Model No.	BAM1020	BAM 1022	43iQ	T300
AQS method code	122	209	060	093
Monitoring start date	7/1/2009	4/9/2018	9/27/2019	10/15/2019
Monitoring frequency	Continuous	Continuous	Continuous	Continuous
Probe material	N/A	N/A	Glass	Glass
Residence time (sec)	N/A	N/A	14.9	8.77
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	N/A
Location of probe	building roof	building roof	building roof	building roof
Building dimensions (H) (m)	12	12	12	12
Horizontal distance from supporting structure (m)	9	11	9	9
Vertical distance above supporting structure (m)	1.8	2.1	1.2	1.2
Height of probe above ground (m)	13.8	14.1	13.2	13.2
Distance (m) & direction from drip line of tree(s)	24 E	24 E	27 E	27 E
Horizontal distance from edge of nearest traffic lane (m)	27	27	30	30
Horizontal distance from nearest parking lot (m)	24	24	24	24
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	9 ESE, 2.7	12 ESE, 2.7	9 ESE, 2.7	9 ESE 2.7
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from furnace or incineration flues	234 S/SW	234 S/SW	238 S/SW	238 S/SW
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	P	P	P	P
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Middle
Applicable NAAQS averaging time(s)	24-hr	24-hr, annual	1-hr, 3-hr, annual	1-hr, 8-hr
Sampling season	12 months	12 months	12 months	12 months
Site type[1]	2	2	2	1
Purpose of Monitor[2]	1, 2	1, 2	1, 2	1, 2
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	Yes	N/A	N/A
DATA QUALITY				
Last PEP	N/A	10/24/19	N/A	N/A
Last NPAP (2017 NPAP done for O_3 only in SI site)	N/A	N/A	6/27/18	6/27/18
Date of last annual independent performance audit (CAB)	N/A	N/A	11/20/20	11/20/20
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	N/A
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (PM)	6/4/20, 11/20/20	6/4/20, 11/20/20	N/A	N/A
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	Quarterly
Frequency of 1-pt. QC check (gases)	N/A	N/A	Weekly	Weekly
Frequency of multi-point gas calibration	N/A	N/A	60 days	60 days
Annual data certification submitted	5/1/21	5/1/21	5/1/21	5/1/21
Changes in the next 18 months?	None	None	None	None

(KA) KAPOLEI SLAMS and NCORE			
AQS: 150030010	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 2052 Lauwiliwili St., Kapolei, HI 96707			
Latitude: 21.32374 Longitude: -158.08861			Elevation: 17.9 m MSL

Location Description:
Located in the Kapolei Business Park in the city of Kapolei, the area is a mix of business, commercial, and government activities surrounded by an ever-expanding residential community. The site is also approximately 1.25 km northeast (upwind) of the state's largest industrial park on the southwest coast of Oahu. The station has been operating as a SLAMS station since 2002.
On October 30, 2009, EPA approved the Kapolei station as the state's NCore site and in addition to the SLAMS parameters, the station began collecting the required NCore parameters on January 1, 2011. The station shelters will be replaced with new ones and relocated due to construction of a new baseyard at the current site.

KA TRAFFIC DESCRIPTION		
Type of Roadway	Kalaeloa Blvd.	Lauwiliwili St.
Freeway		
Major Street or Highway	X	
Local Street or Road		X
Distance from air intake (m)	379	167
Direction from air inlet	NW	W
Composition of roadway	Asphalt	Asphalt
Number of traffic lanes	4	2
Average daily traffic	36,607 [1]	[2] Estimated: <5,000
Average vehicle speed (est. mph)	35	30
Traffic one way or two	2	2
Street parking?	No	Yes

[1] Source: State of Hawaii Department of Transportation (2016 count)
[2] Estimate only, no data available, local road

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{10}	**$PM_{2.5}$ Primary**	**$PM_{2.5}$ Co-loc**	**$PM_{10-2.5}$**
POC/FRM or FEM	3/FEM	1/FEM	2/FRM	uses $PM_{2.5}/PM_{10}$
Type of Monitor	SLAMS/NCore	SLAMS/NCore	SLAMS/NCore	NCore
AQS parameter code	81102	88101	88101	86101
Manufacturer	Met One	Met One	BGI	
Model No.	BAM1020	BAM 1020	PQ200/VSCC	
AQS method code	122	170	142	
Monitoring start date	1/1/2011	1/1/2011	1/1/2011	
Monitoring frequency	Continuous	Continuous	1/3 days	
Probe material	N/A	N/A	N/A	
Residence time (sec)	N/A	N/A	N/A	
Manual PM instrument flow rate (liters per minute)	N/A	N/A	16.7	
Distance between co-located monitors	N/A	4 m	4 m	
Analytical laboratory	N/A	N/A	Pace Analytical	
Location of probe	shelter roof	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	
Vertical distance above supporting structure (m)	1	1.7	1.7 (>2)	
Height of probe above ground (m)	5	5.7	5.7	
Distance (m) & direction from drip line of tree(s)	17 N	17 N	13 N	
Horizontal distance from edge of nearest traffic lane (m)	167	165	169	
Horizontal distance from nearest parking lot (m)	87	83	87	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	170 E, 9	170 E, 9	170 E, 9	
Distance (m) & direction from furnace or incineration flues	None	N/A	None	
Unrestricted airflow	360°	360°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	V	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Applicable NAAQS averaging time(s)	24-hr	24-hr, annual	24-hr, annual	N/A
Sampling season	12 months	12 months	12 months	12 months
Site type[1]	2	2	QC	2
Purpose of Monitor[2]	1, 2	1, 2	QC	4
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	Yes	Yes	N/A
DATA QUALITY				
Last PEP	N/A	10/22/19	N/A	
Last NPAP	N/A	N/A	N/A	
Date of last annual independent performance audit (CAB)	N/A	N/A	N/A	
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	Monthly	
Dates of last 2 semi-annual flow rate audits (PM)	6/16/20, 11/23/20	6/16/20, 11/23/20	6/16/20, 11/23/20	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	N/A	N/A	
Frequency of multi-point gas calibration	N/A	N/A	N/A	
Annual data certification submitted	5/1/21	5/1/21	5/1/21	
Changes in the next 18 months?	None	None	None	None

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	CO	**SO_2**	**NO_2**	**O_3**
POC/FRM or FEM	1/FRM	1/FEM	1/FRM	1/FRM
Type of Monitor	SLAMS	SLAMS	SLAMS	SLAMS/NCore
AQS parameter code	42101	42401	42602	44201
Manufacturer	TAPI	TECO	TAPI	TECO
Model No.	T300	43i	T500U	49i
AQS method code	093	060	212	047
Monitoring start date	7/29/2016	7/14/2015	10/5/2006	1/9/2014
Monitoring frequency	Continuous	Continuous	Continuous	Continuous
Probe material	Glass	Glass	Glass	Glass
Residence time (sec)	12.5	18.0	13.2	18.1
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	N/A
Location of probe	shelter roof	shelter roof	shelter roof	shelter roof
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	1.1	1.1	1.1	1
Height of probe above ground (m)	5.1	5.1	5.1	5
Distance (m) & direction from drip line of tree(s)	19 N	19 N	19 N	12 N
Horizontal distance from edge of nearest traffic lane (m)	167	167	167	162
Horizontal distance from nearest parking lot (m)	87	87	87	82
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	170 E, 9	170 E, 9	170 E, 9	165 E, 9
Distance (m) & direction from furnace or incineration flues	None	None	None	None
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	V	V	V	V
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Applicable NAAQS averaging time(s)	1-hr; 8-hr	1-hr; 3-hr; annual	1-hr, annual	8-hr
Sampling season	12 months	12 months	12 months	12 months
Site type[1]	2	2	2	2
Purpose of Monitor[2]	1, 2	1, 2	1, 2	1,2
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	N/A	N/A	N/A
DATA QUALITY				
Last PEP	N/A	N/A	N/A	N/A
Last NPAP	10/22/19	10/22/19	10/22/19	10/22/19
Date of last annual independent performance audit (CAB)	11/23/20	11/23/20	11/23/20	11/23/20
Frequency of flow rate verification (automated PM)	N/A	N/A	N/A	N/A
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (PM)	N/A	N/A	N/A	N/A
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	Quarterly
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	Weekly	Weekly
Frequency of multi-point gas calibration	60 days	60 days	60 days	60 days
Annual data certification submitted	5/1/21	5/1/21	5/1/21	5/1/21
Changes in the next 18 months?	Discontinue	Discontinue	None	None

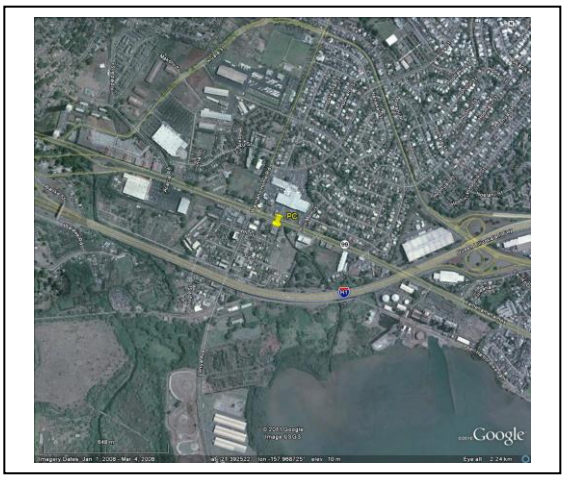
(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	Trace CO	**Trace SO_2**	**NO/NOy**	**$PM_{2.5}$ Spec.**
POC/FRM or FEM	2/FRM	2/FEM	1/FRM	N/A
Type of Monitor	SLAMS/NCore	SLAMS/NCore	NCore	NCore/Supp. Speciation
AQS parameter code	42101	42401	42601/42600	Various
Manufacturer	API	API	API	Met-One/URG
Model No.	M300EU	M100EU	T200U	SASS/300N
AQS method code	093	600	099	810/136
Monitoring start date	9/30/2014	1/1/2011	1/14/2016	7/24/2019
Monitoring frequency	Continuous	Continuous	Continuous	1/3 days
Probe material	Glass	Glass	Glass	N/A
Residence time (sec)	14.7	16.1	13.2	N/A
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	EPA contract
Location of probe	shelter roof	shelter roof	shelter roof	shelter roof
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	1	1	1	1.7/1.6
Height of probe above ground (m)	5	5	5	5.7/5.6
Distance (m) & direction from drip line of tree(s)	12 N	12 N	12 N	13N/11N
Horizontal distance from edge of nearest traffic lane (m)	162	162	162	165
Horizontal distance from nearest parking lot (m)	82	82	82	85
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	165 E, 9	165 E, 9	165 E, 9	168 E, 9
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	V	V	V	V
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Applicable NAAQS averaging time(s)	1-hr; 8-hr	1-hr; 3-hr; annual	N/A	N/A
Sampling season	12 months	12 months	12 months	12 months
Site type[1]	2	2	2	2
Purpose of Monitor[2]	1,2,4	1,2,4	4	4
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	N/A	N/A	N/A
DATA QUALITY				
Last PEP	N/A	N/A	N/A	N/A
Last NPAP	12/5/12	12/5/12	12/5/12	N/A
Date of last annual independent performance audit (CAB)	11/23/20	11/23/20	11/23/20	N/A
Frequency of flow rate verification (automated PM)	N/A	N/A	N/A	N/A
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	N/A	Monthly
Dates of last 2 semi-annual flow rate audits (manual $PM_{2.5}$)	N/A	N/A	N/A	6/16/20, 11/23/20
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	Quarterly
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	Weekly	N/A
Frequency of multi-point gas calibration	60 days	60 days	60 days	N/A
Annual data certification submitted	5/1/21	5/1/21	5/1/21	5/1/21
Changes in the next 18 months?	None	None	None	None

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	RH	**WS**	**WD**	**AT**
POC/FRM or FEM	POC 1	POC 1	POC 1	POC 1
Type of Monitor	NCore	NCore	NCore	NCore
AQS parameter code	62201	61103	61104	62101
Manufacturer	RM Young	RM Young	RM Young	RM Young
Model No.	05103VP	05103VP	05103VP	05103VP
AQS method code	014	020	020	020
Monitoring start date	1/1/2011	1/1/2011	1/1/2011	1/1/2011
Monitoring frequency	Continuous	Continuous	Continuous	Continuous
Probe material	N/A	N/A	N/A	N/A
Residence time (sec)	N/A	N/A	N/A	N/A
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	N/A
Location of probe	10m tower	10m tower	10m tower	10m tower
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	N/A	N/A	N/A	N/A
Height of probe above ground (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from drip line of tree(s)	N/A	N/A	N/A	N/A
Horizontal distance from edge of nearest traffic lane (m)	N/A	N/A	N/A	N/A
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	V	V	V	V
SITE REPRESENTATIVENESS				
Spatial scale	N/A	N/A	N/A	N/A
Applicable NAAQS averaging time(s)	N/A	N/A	N/A	N/A
Sampling season	12 months	12 months	12 months	12 months
Site type[1]	N/A	N/A	N/A	N/A
Purpose of Monitor[2]	N/A	N/A	N/A	N/A
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	N/A	N/A	N/A
DATA QUALITY				
Last PEP	N/A	N/A	N/A	N/A
Last NPAP	N/A	N/A	N/A	N/A
Date of last annual independent performance audit (CAB)	11/23/20	11/23/20	11/23/20	11/23/20
Frequency of flow rate verification (automated PM)	N/A	N/A	N/A	N/A
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (manual $PM_{2.5}$)	N/A	N/A	N/A	N/A
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	N/A	N/A	N/A	N/A
Frequency of 1-pt. QC check (gases)	N/A	N/A	N/A	N/A
Frequency of multi-point gas calibration	N/A	N/A	N/A	N/A
Annual data certification submitted	5/1/21	5/1/21	5/1/21	5/1/21
Changes in the next 18 months?	None	None	None	None

(PC) PEARL CITY			
AQS: 150032004	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 860 4th St., Pearl City, HI 96782			
Latitude: 21.39283 Longitude: -157.96913			Elevation: 23.1 m MSL
Location Description: This site is located on the roof of the Department of Health's Leeward Health Center in a commercial and highly populated residential area. The station is west of Hawaiian Electric Company's Waiau Generating Station and is approximately 3 miles NW of the Pearl Harbor Naval Complex. This station has been operating since 1994.			



PC TRAFFIC DESCRIPTION			
Type of Roadway	4th St.	Lehua Ave.	Kam. Hwy.
Freeway			
Major Street or Highway		X	X
Local Street or Road	X		
Distance from air intake (m)	50	138	58
Direction from air inlet	S	W	N
Composition of roadway	asphalt	asphalt	asphalt
Number of traffic lanes	2	4	6
Average daily traffic	[2] Estimated: <2,000	8,900 [1]	59,100 [1]
Average vehicle speed (est. mph)	20	30	35
Traffic one way or two	2	2	2
Street parking?	Yes	No	No

[1] Source: State of Hawaii Department of Transportation (2016 count)
[2] Estimate only, no data available, small side street used by a few local businesses and residences

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(PC) Pearl City continued

PC MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{10}	**$PM_{2.5}$ Primary**	**$PM_{2.5}$ Co-loc**	
POC/FRM or FEM	3/FEM	4/FEM	2/FRM	
Type of Monitor	SLAMS	SLAMS	SPMS	
AQS parameter code	81102	88101	88101	
Manufacturer	Met One	Met One	BGI	
Model No.	BAM1020	BAM 1022	PQ200	
AQS method code	122	209	142	
Monitoring start date	9/29/2007	2/13/2019	4/1/2020	
Monitoring frequency	Continuous	Continuous	1/6 days	
Probe material	N/A	N/A	N/A	
Residence time (sec)	N/A	N/A	N/A	
Distance between co-located monitors	N/A	1.8	1.8	
Analytical laboratory	N/A	N/A	IML	
Location of probe	building roof	building roof	building roof	
Building dimensions (H) (m)	12	12	12	
Horizontal distance from supporting structure (m)	14	14	9.8	
Vertical distance above supporting structure (m)	2.5	2.2	2	
Height of probe above ground (m)	14.5	14.1	14	
Distance (m) & direction from drip line of tree(s)	20 E	20 E	20 E	
Horizontal distance from edge of nearest traffic lane (m)	58	58	50	
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	10.1 S, 3.2	10.1 S, 3.2	10.1 S, 3.2	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	N/A	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	
Unrestricted airflow	360°	360°	360°	
Located in paved (P) or vegetative (V) ground?	P	P	P	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr	24-hr, annual	24-hr, annual	
Sampling season	12 months	12 months	12 months	
Site type[1]	1	1	3	
Purpose of Monitor[2]	1, 2	1, 2	1, 2, 4	
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	Yes	Yes	
DATA QUALITY				
Last PEP	N/A	6/26/18	N/A	
Last NPAP	N/A	N/A	N/A	
Date of last annual independent performance audit (CAB)	N/A	N/A	N/A	
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	Monthly	
Dates of last 2 semi-annual flow rate audits (PM)	5/28/20, 12/16/20	5/28/20, 12/16/20	5/28/20, 12/16/20	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	N/A	N/A	
Frequency of multi-point gas calibration	N/A	N/A	N/A	
Annual data certification submitted	5/1/21	5/1/21	5/1/21	
Changes in the next 18 months?	Discontinue	Discontinue	Relocate to SI	

(SI) SAND ISLAND			
AQS: 150031004	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 1039 Sand Island Parkway, Honolulu, HI 96819			
Latitude: 21.30384 Longitude: -157.87117			Elevation: 5.3 m MSL
Location Description: Station is located in the University of Hawaii's Anuenue Fisheries near the entrance to the Sand Island Recreational Area. Sand Island is downwind of downtown Honolulu, across from Honolulu Harbor. This station has been operating since 1980.			

SI TRAFFIC DESCRIPTION	
Type of Roadway	Sand Island Parkway
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	37
Direction from air inlet	W
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	14,000 [1]
Average vehicle speed (est. mph)	30
Traffic one way or two	2
Street parking?	No
[1] Source: State of Hawaii Department of Transportation (2016 count)	

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(SI) Sand Island continued

SI MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**O_3**		
POC/FRM or FEM	2/FEM	2/FRM		
Type of Monitor	SLAMS	SLAMS		
AQS parameter code	88101	44201		
Manufacturer	Met One	TECO		
Model No.	BAM1022	49C		
AQS method code	209	047		
Monitoring start date	2/13/2019	1/1/1980		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	14.9		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	shelter roof	shelter roof		
Shelter dimensions (H x W x D) (m)	3x2x5	3x2x5		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	1.1	2.1		
Height of probe above ground (m)	4.1	5.1		
Distance (m) & direction from drip line of tree(s)	15 E	15 E		
Horizontal distance from edge of nearest traffic lane (m)	37	37		
Horizontal distance from nearest parking lot (m)	40	40		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	14 N, 5.5	14 N, 5.5		
Distance (m) & direction from furnace or incineration flues	N/A	N/A		
Unrestricted airflow	360°	360°		
Located in paved (P) or vegetative (V) ground?	gravel	gravel		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	8-hr		
Sampling season	12 months	12 months		
Site type[1]	5	1		
Purpose of Monitor[2]	1, 2	1, 2, 3		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y	N/A		
DATA QUALITY				
Last PEP	6/22/18	N/A		
Last NPAP	N/A	6/14/17		
Date of last annual independent performance audit (CAB)	N/A	12/14/20		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	6/9/20, 12/14/20	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	None	None		

(KH) KIHEI			
AQS: 150090006	Type: SLAMS	County: Maui	MSA: Maui
Address: TMK 2-3-9-4:28 Hale Piilani Park, Kihei, HI 96753			
Latitude: 20.780997	Longitude: -156.44637		Elevation: 46.5 m MSL
Location Description: This station is located in the Hale Piilani subdivision's park in upper Kihei and surrounded primarily by agricultural land. The station was established to monitor the effects of agricultural burning. This station has been operating since 1999 monitoring for particulates.			

KH TRAFFIC DESCRIPTION		
Type of Roadway	Kaiolohia	Kaiwahine
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	114	118
Direction from air inlet	NW	S
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	[1] Estimated <3,000	[1] Estimated <3,000
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	Yes	Yes
[1] Estimated only, no data available, roads are for local residential access		

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KH) Kihei continued

KH MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	2/FEM			
Type of Monitor	SLAMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	2/11/2019			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	shelter roof			
Shelter dimensions (H x W x D) (m)	4 x 2 x 5			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	1			
Height of probe above ground (m)	5			
Distance (m) & direction from drip line of tree(s)	15.2 NNW			
Horizontal distance from edge of nearest traffic lane (m)	154.5			
Horizontal distance from nearest parking lot (m)	105.2			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	15.2 NNW, 7.6			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y			
DATA QUALITY				
Last PEP	10/23/19			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	6/30/20, 12/22/20			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Discontinue			

(KL) KAHULUI			
AQS: 150090025	Type: SPMS	County: Maui	MSA: Maui
Address: TMK 2-3-8-007-153 Mauilani Parkway, Kahului, HI 96732			
Latitude: 20.869444	Longitude: -156.492417		Elevation: 55.5 m MSL
Location Description: This station is located off of Mauilani Parkway in Kahului and surrounded primarily by residential land. The station was established to measure typical concentrations of air pollutants in areas of high population density. This station began monitoring for $PM_{2.5}$ on January 13, 2015.			

KL TRAFFIC DESCRIPTION	
Type of Roadway	Mauilani Parkway
Freeway	
Major Street or Highway	
Local Street or Road	X
Distance from air intake (m)	80
Direction from air inlet	S
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	<1500[1]
Average vehicle speed (est. mph)	30
Traffic one way or two	2
Street parking?	No
[1] Estimate only, no data available, local road	

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KL) Kahului continued

KL MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM 1022			
AQS method code	209			
Monitoring start date	2/11/2019			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	N/A			
Height of probe above ground (m)	2.7			
Distance (m) & direction from drip line of tree(s)	15.2 NE			
Horizontal distance from edge of nearest traffic lane (m)	70			
Horizontal distance from nearest parking lot (m)	N/A			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height above probe (m)	15.2 NE, 6.1			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	P			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	2, 3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Yes			
DATA QUALITY				
Last PEP	10/23/19			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	6/30/20, 12/22/20			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Discontinue			

.

(NI) NIUMALU			
AQS: 150070007	Type: SPMS	County: Kauai	MSA: Not in a MSA
Address: 2342 Hulemalu Rd., Lihue, HI 96766			
Latitude: 21.9495 Longitude: -159.365			Elevation: 11 m MSL
Location Description: Located on a private residential property approximately 1 mile downwind of Nawiliwili Harbor, this station was established to monitor the impact of cruise ship emissions on nearby communities. With the new lower ECA fuel sulfur requirements for cruise ships, this station provides information on the effects of lowered fuel sulfur on ambient SO_2. This station began operating in April 2011.			

NI TRAFFIC DESCRIPTION		
Type of Roadway	Hulemalu Rd.	Niumalu Rd.
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	44.4	309.7
Direction from air inlet	NW	NE
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	1
Average daily traffic	100 [1]	30 [1]
Average vehicle speed (est. mph)	15	20
Traffic one way or two	2	2
Street parking?	No	No
[1] Estimated only, no data available, roads are for local residential access		

For “Site Representativeness” in the following table:

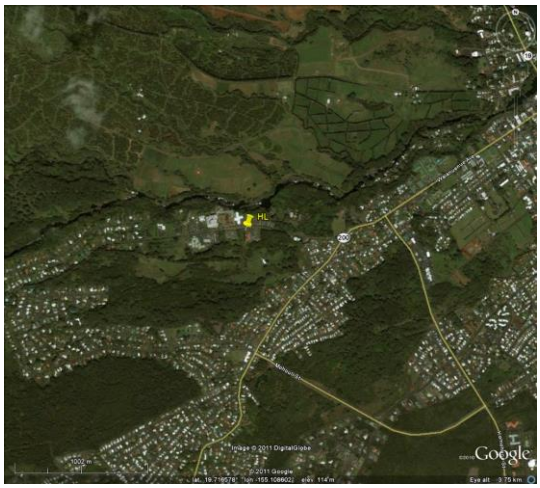
[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(NI) Niumalu continued

NI MONITOR INFORMATION (N/A = Not Applicable)				
	SO_2	**NO_2**	**$PM_{2.5}$**	
POC/FRM or FEM	1/FEM	2/FRM	1/FEM	
Type of Monitor	SPMS	SPMS	SPMS	
AQS parameter code	42401	42602	88101	
Manufacturer	TECO	API	Met One	
Model No.	43iQ	T500U 182	BAM 1022	
AQS method code	060	212	209	
Monitoring start date	8/29/2019	4/1/2011	8/29/2019	
Monitoring frequency	Continuous	Continuous	Continuous	
Probe material	Glass	Glass	N/A	
Residence time (sec)	13.2	8.2	N/A	
Distance between co-located monitors	N/A	N/A	N/A	
Analytical laboratory	N/A	N/A	N/A	
Location of probe	shelter roof	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	3x5x2.4	3x5x2.4	3x5x2.4	
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	
Vertical distance above supporting structure (m)	1	1	1	
Height of probe above ground (m)	4	4	4	
Distance (m) & direction from drip line of tree(s)	17.8 ESE	17.8 ESE	17.8 ESE	
Horizontal distance from edge of nearest traffic lane (m)	44.4	44.4	44.4	
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	14.6 W, 7.2	14.6 W, 7.2	14.6 W, 7.2	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	
Unrestricted airflow	360°	360°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	V	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	1-hr, 3-hr, annual	1-hr, annual	24-hr, annual	
Sampling season	12 months	12 months	12 months	
Site type[1]	3	3	3	
Purpose of Monitor[2]	1, 2, 4	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	N/A	Y	
DATA QUALITY				
Last PEP	N/A	N/A	10/19/16	
Last NPAP	6/19/18	6/19/18	N/A	
Date of last annual independent performance audit (CAB)	12/9/20	12/9/20	N/A	
Frequency of flow rate verification (automated PM)	N/A	N/A	Monthly	
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	N/A	N/A	6/29/20, 12/9/20	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	N/A	
Frequency of multi-point gas calibration	60 days	60 days	N/A	
Annual data certification submitted	5/1/21	5/1/21	5/1/21	
Changes in the next 18 months?	Discontinue	Discontinue	Discontinue	

(HL) HILO			
AQS: 150011006	Type: SLAMS (SO_2); SPMS ($PM_{2.5}$)	County: Hawaii	MSA: Not in a MSA
Address: 1099 Waianuenue Ave., Hilo, HI 96720			
Latitude: 19.71756 Longitude: -155.11053			Elevation: 136.8 m MSL
Location Description: Located on the grounds of the Adult Rehabilitation Center of Hilo, near the Hilo Medical Center, this site was originally established to monitor volcanic emissions during non-prevalent wind conditions. This station has been operating since 1997. The shelter is scheduled to be replaced; the date is to be determined.			



DESCRIPTION	HL TRAFFIC
Type of Roadway	Waianuenue Ave.
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	20
Direction from air inlet	N
Composition of roadway	Asphalt
Number of traffic lanes	2
Average daily traffic	8,400[1]
Average vehicle speed (est. mph)	35
Traffic one way or two	2
Street parking?	No
[1] Source: State of Hawaii Department of Transportation (2016 count)	

For "Site Representativeness" in the following table:

[1]Site Types: 1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes: 1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(HL) Hilo continued

HL MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**SO_2**		
POC/FRM or FEM	1/FEM	1/FEM		
Type of Monitor	SPMS	SLAMS		
AQS parameter code	88101	42401		
Manufacturer	Met-One	TECO		
Model No.	BAM 1022	43i		
AQS method code	209	060		
Monitoring start date	1/1/2018	1/1/2007		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	15.5		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	shelter roof	shelter roof		
Shelter dimensions (H x W x D) (m)	3x4.9x2.4	3x4.9x2.4		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	2.1	1.2		
Height of probe above ground (m)	5.5	4.8		
Distance (m) & direction from drip line of tree(s)	15 N	15 N		
Horizontal distance from edge of nearest traffic lane (m)	20	20		
Horizontal distance from nearest parking lot (m)	25	25		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A		
Distance (m) & direction from furnace or incineration flues	29 NNW (10m stack height)	29 NNW (10m stack height)		
Unrestricted airflow	360°	360°		
Located in paved (P) or vegetative (V) ground?	V	V		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr, annual		
Sampling season	12 months	12 months		
Site type[1]	3	3		
Purpose of Monitor[2]	1, 2, 4	1, 2, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y	N/A		
DATA QUALITY				
Last PEP	6/9/19	N/A		
Last NPAP	N/A	6/10/19		
Date of last annual independent performance audit (CAB)	N/A	12/7/20		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	5/1/20, 12/7/20	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	None	None		

(KN) KONA			
AQS: 150011012	Type: SLAMS (SO_2) SPMS ($PM_{2.5}$)	County: Hawaii	MSA: Not in a MSA
Address: 81-1043 Konawaena School Rd., Kona, HI 96750			
Latitude: 19.50978 Longitude: -155.91342			Elevation: 517.2 m MSL
Location Description: This station is located on the upper campus of Konawaena High School. It was established to measure impacts from volcanic emissions. The station has been operating at this site since 2005. The shelter is scheduled to be replaced; the date is to be determined.			

KN TRAFFIC DESCRIPTION		
Type of Roadway	Konawaena School Rd.	Mamalahoa Hwy.
Freeway		
Major Street or Highway		X
Local Street or Road	X	
Distance from air intake (m)	17	702
Direction from air inlet	N	W
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	1	2
Average daily traffic	500 [2]	16,300 [1]
Average vehicle speed (est. mph)	10	55
Traffic one way or two	2	2
Street parking?	No	No

[1] Source: State of Hawaii Department of Transportation (2016 count)
[2] Estimated only, no data available. This is a road used for school access only and station is at the top of the road where there would be less ingress/egress.

For "Site Representativeness" in the following table:

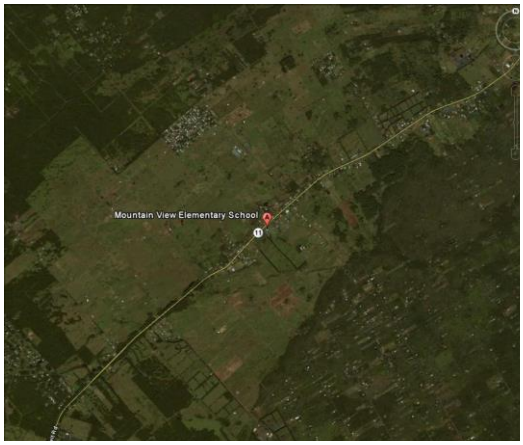
[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KN) Kona continued

KN MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$ Primary	**$PM_{2.5}$ Co-Lo**	**SO_2**	
POC/FRM or FEM	1/FEM	2/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	SLAMS	
AQS parameter code	88101	88101	42401	
Manufacturer	Met-One	Met-One	TECO	
Model No.	BAM 1022	BAM 1022	43iQ	
AQS method code	209	209	060	
Monitoring start date	3/5/2019	3/5/2019	9/13/2005	
Monitoring frequency	Continuous	Continuous	Continuous	
Probe material	N/A	N/A	Glass	
Residence time (sec)	N/A	N/A	16.7	
Distance between co-located monitors (m)	2.5	2.5	N/A	
Analytical laboratory	N/A	N/A	N/A	
Location of probe	stand-alone shelter on ground	stand-alone shelter on ground	shelter roof	
Shelter dimensions (H x W x D) (m)	N/A	N/A	3x2.4x5	
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	
Vertical distance above supporting structure (m)	N/A	N/A	1.1	
Height of probe above ground (m)	2.1	2.1	4.1	
Distance (m) & direction from drip line of tree(s)	15.2 W	15.2 W	38 NE	
Horizontal distance from edge of nearest traffic lane (m)	30	30	30	
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	3.4 S, 3	3.4 S, 3	21 SSW, 9	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	
Unrestricted airflow	270°	270°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	V	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	12 months	
Site type[1]	3	QC	3	
Purpose of Monitor[2]	1, 2, 4	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y	Y	N/A	
DATA QUALITY				
Last PEP	6/4/19	N/A	N/A	
Last NPAP	N/A	N/A	6/4/19	
Date of last annual independent performance audit (CAB)	N/A	N/A	12/2/20	
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	4/29/20, 12/2/20	4/29/20, 12/2/20	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	N/A	60 days	
Annual data certification submitted	5/1/21	5/1/21	5/1/21	
Changes in the next 18 months?	None	None	Replace shelter	

(MV) MOUNTAIN VIEW			
AQS: 150012023	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 18-1235 Volcano Rd., Mt. View, HI 96771			
Latitude: 19.57002 Longitude: -155.08046			Elevation: 436.5 m MSL
Location Description: This station is located on the grounds of the Mountain View Elementary School. The original Mountain View station, which began in December 2007, was moved at the ending of 2010 approximately 1.8 miles southwest to this current location. Due to the proximity of this community to the Kilauea volcano, it was established to monitor volcanic emissions during non-trade wind days. The shelter is scheduled to be replaced; the date is to be determined.			



	MV TRAFFIC DESCRIPTION
Type of Roadway	Volcano Rd.
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	30.5
Direction from air inlet	N
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	13,400 [1]
Average vehicle speed (est. mph)	40
Traffic one way or two	2
Street parking?	No
[1] Source: State of Hawaii Department of Transportation (2016 count)	

For “Site Representativeness” in the following table:

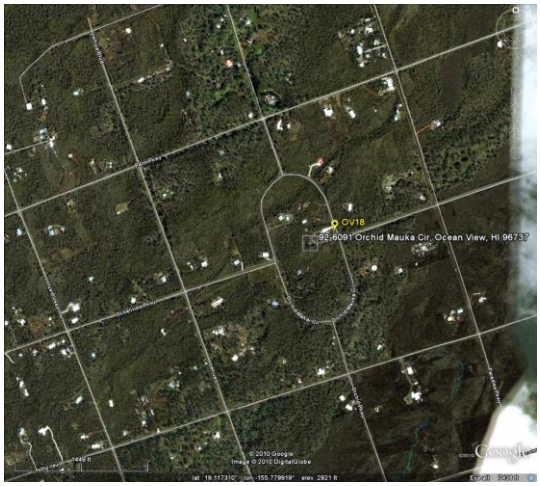
[1]Site Types: 1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes: 1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(MV) Mt. View continued

MV MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**SO_2**		
POC/FRM or FEM	1/FEM	1/FEM		
Type of Monitor	SPMS	SPMS		
AQS parameter code	88101	42401		
Manufacturer	Met-One	TECO		
Model No.	BAM 1022	43i		
AQS method code	209	060		
Monitoring start date	5/29/2019	12/8/2010		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	17.8		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	shelter roof	shelter roof		
Shelter dimensions (H x W x D) (m)	3x2.4x5	3x2.4x5		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	2.1	1		
Height of probe above ground (m)	2.1	4		
Distance (m) & direction from drip line of tree(s)	18 W	18 W		
Horizontal distance from edge of nearest traffic lane (m)	30.5	30.5		
Horizontal distance from nearest parking lot (m)	46.5	46.5		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A		
Distance (m) & direction from furnace or incineration flues	N/A	N/A		
Unrestricted airflow	360°	360°		
Located in paved (P) or vegetative (V) ground?	V	V		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual		
Sampling season	12 months	12 months		
Site type[1]	3	3		
Purpose of Monitor[2]	1, 2, 4	1, 2, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y	N/A		
DATA QUALITY				
Last PEP	6/6/19	N/A		
Last NPAP	N/A	6/6/19		
Date of last annual independent performance audit (CAB)	N/A	12/7/20		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	4/30/20, 12/7/20	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	None	Rep[lace shelter		

(OV) OCEAN VIEW			
AQS: 150012020	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 92-6091 Orchid Mauka Circle, Ocean View, HI 96737			
Latitude: 19.11756 Longitude: -155.77814			Elevation: 862.6 m MSL
Location Description: This station established in 2010 is located on the grounds of the Ocean View Fire Station. During normal trade-winds, volcanic emissions are carried into this residential/agricultural community. This shelter is scheduled to be replaced; the date is to be determined.			



OV TRAFFIC DESCRIPTION	
Type of Roadway	Orchid Mauka Circ.
Freeway	
Major Street or Highway	
Local Street or Road	X
Distance from air intake (m)	13.6
Direction from air inlet	ENE
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	< 3,000 [1]
Average vehicle speed (est. mph)	25
Traffic one way or two	2
Street parking?	No
[1] Estimated only, local residential street, no data available	

For “Site Representativeness” in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(OV) Ocean View continued

OV MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**SO_2**		
POC/FRM or FEM	1/FEM	1/FEM		
Type of Monitor	SPMS	SPMS		
AQS parameter code	88101	42401		
Manufacturer	Met-One	TECO		
Model No.	BAM 1022	43iQ		
AQS method code	209	060		
Monitoring start date	5/1/2019	4/1/2010		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	15.3		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	Stand-alone PM shelter on station stairs platform	shelter roof		
Shelter dimensions (H x W x D) (m)	N/A	3x2.4x5		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	2.1	1.1		
Height of probe above ground (m)	3.1	4.1		
Distance (m) & direction from drip line of tree(s)	3	N/A		
Horizontal distance from edge of nearest traffic lane (m)	13.6	13.6		
Horizontal distance from nearest parking lot (m)	6.4	6.4		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	0.6 W/ 3.4 (station shelter)	N/A		
Distance (m) & direction from furnace or incineration flues	N/A	N/A		
Unrestricted airflow	270°	360°		
Located in paved (P) or vegetative (V) ground?	gravel	gravel		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual		
Sampling season	12 months	12 months		
Site type[1]	3, 6	3, 6		
Purpose of Monitor[2]	1, 2, 4	1, 2, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y	N/A		
DATA QUALITY				
Last PEP	6/4/19	N/A		
Last NPAP	N/A	6/21/16		
Date of last annual independent performance audit (CAB)	N/A	12/4/20		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	4/30/20, 12/4/20	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	None	Replace shelter		

(PA) PAHALA			
AQS: 150012016	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 96-3150 Pikake St., Pahala, HI 96777			
Latitude: 19.2039 Longitude: -155.48018			Elevation: 320 m MSL
Location Description: This station is located on the grounds of the Ka'u High/Pahala Elementary School. During normal trade-winds, volcanic emissions are carried into this rural community. The station began operating in 2007. The shelter is scheduled to be replaced; the date is to be determined.			

PA TRAFFIC DESCRIPTION		
Type of Roadway	Puahala	Pumeli
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	226	61
Direction from air inlet	E	N
Composition of roadway	Asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	< 3,000 [1]	< 3,000 [1]
Average vehicle speed (est. mph)	25 mph	25 mph
Traffic one way or two	2	2
Street parking?	No	No
[1] Estimated only, no data available. Local roads for a community with a 2010 population of about 1,400		

For "Site Representativeness" in the following table:

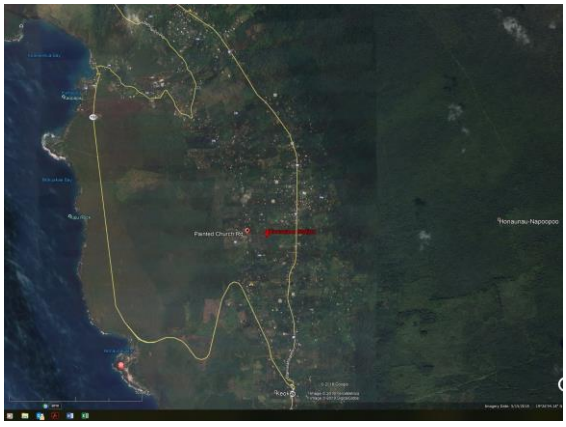
[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(PA) Pahala continued

PA MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**SO_2**		
POC/FRM or FEM	1/FEM	1/FEM		
Type of Monitor	SPMS	SPMS		
AQS parameter code	88101	42401		
Manufacturer	Met-One	TECO		
Model No.	BAM 1022	43iQ		
AQS method code	209	060		
Monitoring start date	2/26/2019	8/10/2007		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	17.9		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	stand-alone shelter on ground	shelter roof		
Shelter dimensions (H x W x D) (m)	N/A	2.4x2.4x6		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	2.1	1.2		
Height of probe above ground (m)	2.1	3.6		
Distance (m) & direction from drip line of tree(s)	11 N	11 N		
Horizontal distance from edge of nearest traffic lane (m)	48	48		
Horizontal distance from nearest parking lot (m)	73	73		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	2 W/ 2.7 (building)	N/A		
Distance (m) & direction from furnace or incineration flues	N/A	N/A		
Unrestricted airflow	270°	360°		
Located in paved (P) or vegetative (V) ground?	V	V		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual		
Sampling season	12 months	12 months		
Site type[1]	3	3		
Purpose of Monitor[2]	1, 2, 4	1, 2, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	Y	N/A		
DATA QUALITY				
Last PEP	6/6/19	N/A		
Last NPAP	N/A	6/22/16		
Date of last annual independent performance audit (CAB)	N/A	12/4/20		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	4/30/20, 12/4/20	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	None	Replace shelter		

(HN) HONAUNAU			
AQS: 150013032	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Department of Water Supply Keei Well C, Painted Church Road, Honaunau, HI 96726			
Latitude: 19.44276389 Longitude: -155.88583333			Elevation: 274.3 m MSL
Location Description: This station is located in a residential subdivision within a fenced area that contains a Hawaii County Department of Water Supply water tank and pump house. The station was established to monitor the effects of volcanic emissions and has been operating since August 16, 2018 monitoring for $PM_{2.5}$.			



HN TRAFFIC DESCRIPTION		
Type of Roadway	Painted Church Road	Mamalahoa Highway
Freeway		
Major Street or Highway		X
Local Street or Road	X	
Distance from air intake (m)	364	603
Direction from air inlet	NW	S
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	[2] Estimated <2,000	6,700 [1]
Average vehicle speed (est. mph)	20	45
Traffic one way or two	2	2
Street parking?	No	No
[1] Source: State of Hawaii Department of Transportation (2016 count) [2] Estimated only, no data available, roads are for local residential access		

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(HN) Honaunau continued

HN MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	8/16/2018			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	1.8x1.1x0.6			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	N/A			
Height of probe above ground (m)	2.2			
Distance (m) & direction from drip line of tree(s)	16.8 NE			
Horizontal distance from edge of nearest traffic lane (m)	63			
Horizontal distance from nearest parking lot (m)	N/A (residential/rural)			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	3 N, 3			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	270°			
Located in paved (P) or vegetative (V) ground?	gravel			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	4/29/20, 12/2/20			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Discontinue			

(KK) KAILUA-KONA			
AQS: 150013028	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Department of Water Supply Puapua'a Reservoir, Kailua-Kona, HI 96740			
Latitude: 19.61815833 Longitude: -155.9711111			Elevation: 92.4 m MSL
Location Description: This station is located in the middle Kailua-Kona town within a fenced area that contains a County of Hawaii water reservoir and pump house. The station was established to monitor the effects of volcanic emissions and has been operating since November 21, 2018 monitoring for $PM_{2.5}$.			

KK TRAFFIC DESCRIPTION			
Type of Roadway	Kuakini Highway	Walua Road	Queen Kaahumanu Hwy
Freeway			
Major Street or Highway	X		X
Local Street or Road		X (no through traffic)	
Distance from air intake (m)	125	42	145
Direction from air inlet	NW	S	E
Composition of roadway	asphalt	asphalt	Asphalt
Number of traffic lanes	2	2	2
Average daily traffic	8,200 [1]	[2] Estimated <50	22,900 [1]
Average vehicle speed (est. mph)	45	25	45
Traffic one way or two	2	2	2
Street parking?	No	No	No

[1] Source: State of Hawaii Department of Transportation (2016 count)
[2] Estimated only, no data available, road is for local business access

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KK) Kailua-Kona continued

KK MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	11/15/2018			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	2.2			
Height of probe above ground (m)	2.2			
Distance (m) & direction from drip line of tree(s)	19.8 SE			
Horizontal distance from edge of nearest traffic lane (m)	42			
Horizontal distance from nearest parking lot (m)	25			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	3 NE/3			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	180°			
Located in paved (P) or vegetative (V) ground?	gravel			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	4/29/20, 12/2/20			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Secure electrical			

(KS-T) KEAAU – Temporary			
AQS: 150013027	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Kamehameha Schools Hawaii Campus, 16-714 Volcano Road, Keaau, HI 96749			
Latitude: 19.60533889 Longitude: -155.05138889			Elevation: 179.8 m MSL
Location Description: This temporary station is located in the town of Keaau on the Kamehameha Schools Hawaii campus. The station began monitoring for $PM_{2.5}$ and SO_2 on June 14, 2018. The monitors at this temporary station are to be relocated to the long-term location approximately 827 meters to the SSE (see detailed site description for Keeau – Long-term).			

KS TRAFFIC DESCRIPTION	
Type of Roadway	Volcano Road/Mamalahoa Highway
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	720
Direction from air inlet	W
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	13,400 [1]
Average vehicle speed (est. mph)	45
Traffic one way or two	2
Street parking?	No
[1] Source: State of Hawaii Department of Transportation (2016 count)	

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KS-T) Keaau – Temporary continued

KS-T MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**SO_2**		
POC/FRM or FEM	1/FEM	1/FEM		
Type of Monitor	SPMS	SPMS		
AQS parameter code	88101	42401		
Manufacturer	Met One	TECO		
Model No.	BAM1022	43iQ		
AQS method code	209	060		
Monitoring start date	6/14/2018	6/14/2018		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	10.2		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	stand-alone shelter on ground	shelter roof		
Shelter dimensions (H x W x D) (m)	N/A	2.4 x 2.0 x 3.7		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	No info available	No info available		
Height of probe above ground (m)	No info available	No info available		
Distance (m) & direction from drip line of tree(s)	No info available	No info available		
Horizontal distance from edge of nearest traffic lane (m)	720	720		
Horizontal distance from nearest parking lot (m)	No info available	No info available		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	No info available		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	No info available	No info available		
Distance (m) & direction from furnace or incineration flues	No info available	No info available		
Unrestricted airflow	No info available	No info available		
Located in paved (P) or vegetative (V) ground?	P/V	P/V		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual		
Sampling season	12 months	12 months		
Site type[1]	3	3		
Purpose of Monitor[2]	1, 2, 4	1, 2, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N	N/A		
DATA QUALITY				
Last PEP	Not Done	N/A		
Last NPAP	N/A	Not Done		
Date of last annual independent performance audit (CAB)	N/A	Not Done		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	5/11/20, 12/31/20	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	Move to long-term site	Move to long-term site		

(KS-LT) KEAAU – Long-term			
AQS: TBD	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Kamehameha Schools Hawaii Campus, 16-714 Volcano Road, Keaau, HI 96749			
Latitude: 19.60533889 Longitude: -155.05138889			Elevation: 179.8 m MSL
Location Description: This station is to be located in the town of Keaau, at the Switch Gear Building of the Kamehameha Schools Hawaii campus, and will monitor the effects of volcanic emissions in the communities between the Hilo and Mountain View stations. The monitors for this station are currently located at the Keeau – Temporary station, approximately 827 meters to the NNW and will need to relocate here.			

No Photo

KS TRAFFIC DESCRIPTION	
Type of Roadway	Volcano Road/Mamalahoa Highway
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	28
Direction from air inlet	NW
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	13,400 [1]
Average vehicle speed (est. mph)	45
Traffic one way or two	2
Street parking?	No
[1] Source: State of Hawaii Department of Transportation (2016 count)	

For "Site Representativeness" in the following table:

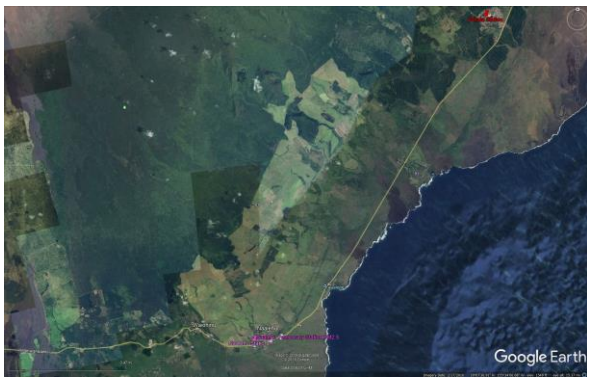
[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KS-LT) Keaau – Long-term continued

KS-LT MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$	**SO_2**		
POC/FRM or FEM	1/FEM	1/FEM		
Type of Monitor	SPMS	SPMS		
AQS parameter code	88101	42401		
Manufacturer	Met One	TECO		
Model No.	BAM1022	43i		
AQS method code	209	060		
Monitoring start date	TBD	TBD		
Monitoring frequency	Continuous	Continuous		
Probe material	N/A	Glass		
Residence time (sec)	N/A	No info available		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	stand-alone shelter on ground	shelter roof		
Shelter dimensions (H x W x D) (m)	N/A	2.4 x 2.0 x 3.7		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	TBD	TBD		
Height of probe above ground (m)	TBD	TBD		
Distance (m) & direction from drip line of tree(s)	TBD	TBD		
Horizontal distance from edge of nearest traffic lane (m)	TBD	TBD		
Horizontal distance from nearest parking lot (m)	TBD	TBD		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	TBD	TBD		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	TBD	TBD		
Distance (m) & direction from furnace or incineration flues	TBD	TBD		
Unrestricted airflow	TBD	TBD		
Located in paved (P) or vegetative (V) ground?	TBD	TBD		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual		
Sampling season	12 months	12 months		
Site type[1]	3	3		
Purpose of Monitor[2]	1, 2, 4	1, 2, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N	N/A		
DATA QUALITY				
Last PEP	Not Done	N/A		
Last NPAP	N/A	N/A		
Date of last annual independent performance audit (CAB)	N/A	N/A		
Frequency of flow rate verification (automated PM)	Monthly	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)		N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	N/A	Weekly		
Frequency of multi-point gas calibration	N/A	60 days		
Annual data certification submitted	N/A	N/A		
Changes in the next 18 months?	Site installation	Site installation		

(NA-TP) NAALEHU – Temporary $PM_{2.5}$			
AQS: 150013033	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Naalehu Volunteer Fire Station, Kaalaiki Road, Naalehu, HI 96772			
Latitude: 19.061379	Longitude: -155.586748		Elevation: 207.9 m MSL
Location Description: This station is located at the Naalehu Volunteer Fire Station. During normal trade-winds, volcanic emissions are carried into this rural community. This station has been operating since June 19, 2018 monitoring for $PM_{2.5}$ and will need to relocate to the final selected long-term site. Relocation is to be completed at a date to be determined.			



NA TRAFFIC DESCRIPTION		
Type of Roadway	Kaalaiki Road	Mamalahoa Hwy.
Freeway		
Major Street or Highway		X
Local Street or Road	X	
Distance from air intake (m)	48	90
Direction from air inlet	E	S
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	< 500 [1]	3,700 [2]
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	Yes	No
[1] Estimated only, local traffic only. [2] Source: State of Hawaii Department of Transportation (2016 count).		

For "Site Representativeness" in the following table:

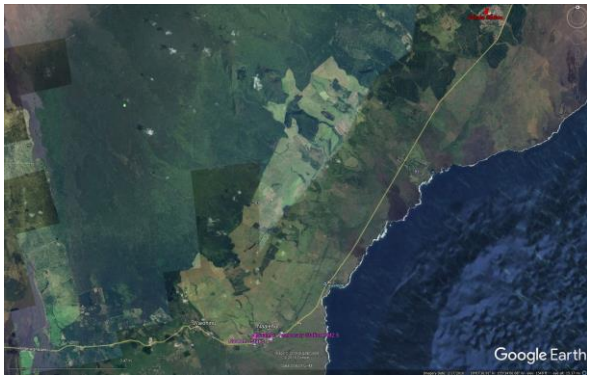
[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(NA-TP) Naalehu – Temporary $PM_{2.5}$ continued

NA-TP MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	6/19/2018			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	2.1			
Height of probe above ground (m)	2.1			
Distance (m) & direction from drip line of tree(s)	16.8 SW			
Horizontal distance from edge of nearest traffic lane (m)	48			
Horizontal distance from nearest parking lot (m)	51			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	180°			
Located in paved (P) or vegetative (V) ground?	P/V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	4/30/20, 12/4/20			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Relocation			

(NA-TS) NAALEHU – SO_2			
AQS: 150013033	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Naalehu Elementary School, 95-5547 Mamalahoa Hwy., Naalehu, HI 96772			
Latitude: 19.060656	Longitude: -155.579167		Elevation: 196.3 m MSL
Location Description: This station is located inside the USGS Seismograph building on the campus of Naalehu Elementary School. This station has been operating since September 6, 2018 monitoring for SO_2 and will be relocated to another location on the school's campus once an appropriate location is identified.			



NA TRAFFIC DESCRIPTION		
Type of Roadway	Mamalahoa HIghway	Ohai Road
Freeway		
Major Street or Highway	X	
Local Street or Road		X
Distance from air intake (m)	114	79
Direction from air inlet	N	W
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	3,700 [1]	< 100 [2]
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	No	No
[1] Source: State of Hawaii Department of Transportation (2016 count)		

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(NA) Naalehu – SO_2 continued

NA-TS MONITOR INFORMATION (N/A = Not Applicable)				
	SO_2			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	42401			
Manufacturer	TECO			
Model No.	43iQ			
AQS method code	060			
Monitoring start date	9/6/2018			
Monitoring frequency	Continuous			
Probe material	Glass			
Residence time (sec)	9.7			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	shelter roof			
Shelter dimensions (H x W x D) (m)				
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	1			
Height of probe above ground (m)	3			
Distance (m) & direction from drip line of tree(s)	No info available			
Horizontal distance from edge of nearest traffic lane (m)	114			
Horizontal distance from nearest parking lot (m)	114			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	1-hr, 3-hr; annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	Not Done			
Date of last annual independent performance audit (CAB)	12/31/20			
Frequency of flow rate verification (automated PM)	N/A			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	N/A			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	Weekly			
Frequency of multi-point gas calibration	60 days			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Relocation			

(WL-T) WAIKOLOA – Temporary			
AQS: 150013030	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 68-1730 Hooko Street, Waikoloa, HI 96738			
Latitude: 19.945325	Longitude: -155.79138889		Elevation: 259.1 m MSL
Location Description: This temporary station is located at the Waikoloa Elementary School. This station began monitoring for $PM_{2.5}$ on June 29, 2018. The monitor at this temporary station is to be relocated to the long-term location ~2.28 miles to the NNW (see detailed site description for Waikoloa – Long-term).			

WL TRAFFIC DESCRIPTION		
Type of Roadway	Paniolo Avenue	Hooko Street
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	153	4,580
Direction from air inlet	ESE	N
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	<3,000 [1]	<1,000 [1]
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	No	No
[1] Estimated only, no data available, roads are for local residential access		

For “Site Representativeness” in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(WL-T) Waikoloa – Temporary continued

WL-T MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	6/29/18			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	N/A			
Height of probe above ground (m)	~ 2.1			
Distance (m) & direction from drip line of tree(s)	No info available			
Horizontal distance from edge of nearest traffic lane (m)	154			
Horizontal distance from nearest parking lot (m)	150			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	No info available			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	270°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	4/29/20, 12/2/20			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	5/1/21			
Changes in the next 18 months?	Relocate			

(WL-LT) WAIKOLOA – Long-Term			
AQS: 150012021	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: TMK 3-6-8-002-019, Waikoloa, HI 96738			
Latitude: 19.977467	Longitude: -155.798067		Elevation: 180.1 m MSL
Location Description: This station is to be located within a fenced area that contains a County of Hawaii water tank and pump house, approximately 3 km northeast of Waikoloa. The monitor for this station is currently located at the temporary station at Waikoloa E.S. and will need to relocate here at a date to be determined. This station will monitor for $PM_{2.5}$.			

WL TRAFFIC DESCRIPTION		
Type of Roadway	Queen Kaahumanu Hwy.	Waikoloa Road
Freeway		
Major Street or Highway	X	
Local Street or Road		X
Distance from air intake (m)	2,143	4,580
Direction from air inlet	W	N
Composition of roadway	asphalt	asphalt
Number of traffic lanes	2	2
Average daily traffic	11,900 [1]	8,200 [1]
Average vehicle speed (est. mph)	55	55
Traffic one way or two	2	2
Street parking?	No	No
[1] Source: State of Hawaii Department of Transportation (2016 count)		

For "Site Representativeness" in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(WL-LT) Waikoloa – Long-term continued

WL-LT MONITOR INFORMATION (N/A = Not Applicable)				
	$PM_{2.5}$			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	TBD			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	TBD			
Height of probe above ground (m)	TBD			
Distance (m) & direction from drip line of tree(s)	TBD			
Horizontal distance from edge of nearest traffic lane (m)	TBD			
Horizontal distance from nearest parking lot (m)	N/A			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	TBD			
Distance (m) & direction from furnace or incineration flues	TBD			
Unrestricted airflow	TBD			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	1, 2, 4			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	N/A			
Date of last annual independent performance audit (CAB)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)				
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	N/A			
Changes in the next 18 months?	Installation			

(LE) LEILANI COMMUNITY ASSOCIATION CENTER			
AQS: 150012025	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Leilani Community Association Center, 13-3441 Moku Street, Pahoa, Hawaii 96778			
Latitude: 19.46566667 Longitude: - 154.91444444			Elevation: 243 m MSL
Location Description: This station is located in a residential subdivision within a fenced area that contains the Leilani Community Association Center. The station was established to monitor emissions from the nearby geothermal energy facility and has been monitoring for H_2S since September 17, 2019. The monitors were moved to a more long-term location at the center and began sampling there on September 20, 2020.			

LE TRAFFIC DESCRIPTION		
Type of Roadway	Leilani Avenue	Moku Street
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	130	201
Direction from air inlet	S	W
Composition of roadway	asphalt	asphalt
Number of traffic lanes	2	2
Average daily traffic	[1] Estimated <2,000	[1] Estimated <200
Average vehicle speed (est. mph)	25	20
Traffic one way or two	2	2
Street parking?	No	No
[1] Estimated only, no data available, roads are for local residential access		

For “Site Representativeness” in the following table:

[1]Site Types: 1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes: 1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(LE) Leilani Community Association Center continued

LE MONITOR INFORMATION (N/A = Not Applicable)				
	H_2S	**SO_2**		
POC/FRM or FEM	N/A	1/FEM		
Type of Monitor	SPMS	SPMS		
AQS parameter code	N/A	42401		
Manufacturer	TECO	TECO		
Model No.	450I	43IQ		
AQS method code	N/A	060		
Monitoring start date	9/17/2019	9/12/2019		
Monitoring frequency	Continuous	Continuous		
Probe material	Teflon	Stainless Steel		
Residence time (sec)	11.89	14.15		
Distance between co-located monitors	N/A	N/A		
Analytical laboratory	N/A	N/A		
Location of probe	shelter roof	shelter roof		
Shelter dimensions (H x W x D) (m)	3x2.3x7	3x2.3x7		
Horizontal distance from supporting structure (m)	N/A	N/A		
Vertical distance above supporting structure (m)	1.0	1.0		
Height of probe above ground (m)	4	4		
Distance (m) & direction from drip line of tree(s)	11 ESE	11 ESE		
Horizontal distance from edge of nearest traffic lane (m)	130	130		
Horizontal distance from nearest parking lot (m)	146	146		
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A		
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A		
Distance (m) & direction from furnace or incineration flues	N/A	N/A		
Unrestricted airflow	360°	360°		
Located in paved (P) or vegetative (V) ground?	gravel	gravel		
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood		
Applicable NAAQS averaging time(s)	1-hour state standard 25 ppb	1-hour		
Sampling season	12 months	12 months		
Site type[1]	3	3		
Purpose of Monitor[2]	1, 4	1, 4		
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A	N/A		
DATA QUALITY				
Last PEP	N/A	N/A		
Last NPAP	N/A	None yet		
Date of last annual independent performance audit (CAB)	Not audited in 2020	Not audited in 2020		
Frequency of flow rate verification (automated PM)	N/A	N/A		
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (PM)	N/A	N/A		
Frequency of 1-point flow rate verification (Pb)	N/A	N/A		
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A		
Precision & accuracy submitted to AQS	Quarterly	Quarterly		
Frequency of 1-pt. QC check (gases)	Weekly	Weekly		
Frequency of multi-point gas calibration	6 months	6 months		
Annual data certification submitted	5/1/21	5/1/21		
Changes in the next 18 months?	None	None		

KAHE (Data Requirements Rule)			
AQS: 150034001	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: Palehua Road, Makakilo, Oahu			
Latitude: 21.3678	Longitude: -158.1053		Elevation: 388 m MSL
Location Description: This station is located on the hillside south of Palehua Road and overlooks the Pacific Ocean. The area around the station is undeveloped and is currently used for cattle grazing. The station is approximately 2.7 kilometers northeast of the Kahe Generating Station. The city of Makakilo is located to the east and southeast. The areas immediately to the west through north are undeveloped.			

TRAFFIC DESCRIPTION			
Type of Roadway	Palehua Road	Farrington Highway	
Freeway			
Major Street or Highway	X	X	
Distance from air intake (m)	12.8	2,750	
Direction from air inlet	N	SW	
Composition of roadway	asphalt	asphalt	
Number of traffic lanes	1	4	
Average daily traffic	20 (estimate)	52,300[1]	
Average vehicle speed (est. mph)	15	40	
Traffic one way or two	2	2	
Street parking?	No	No	
[1] Source: State of Hawaii Department of Transportation 2015 count			

For “Site Representativeness” in the following table:

[1]Site Types: 1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes: 1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(KE) Kahe continued

KAHE MONITOR INFORMATION (N/A = Not Applicable)				
	SO_2			
POC/FRM or FEM	1/FEM			
Type of Monitor	SLAMS			
AQS parameter code	42401			
Manufacturer	Thermo Scientific			
Model No.	43i-TLE			
AQS method code	060			
Monitoring start date	12/16/2016			
Monitoring frequency	Continuous			
Probe material	Borosilicate glass			
Residence time (sec)	18.1			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	Shelter roof			
Building dimensions (H) (m)	3.3			
Horizontal distance from supporting structure (m)	0			
Vertical distance above supporting structure (m)	1.0			
Height of probe above ground (m)	4.3			
Distance (m) & direction from drip line of tree(s))	N/A			
Horizontal distance from edge of nearest traffic lane (m)	12.8			
Horizontal distance from nearest parking lot (m)	N/A			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A			
Distance (m) & direction from furnace or incineration flues	2,740 SW			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	1-hr			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	2, 3			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	NA			
Date of last annual independent performance audit	11/18/20			
Frequency of flow rate verification (automated PM)	N/A			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	N/A			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	N/A			
Frequency of 1-pt. QC check (gases)	Biweekly			
Frequency of multi-point gas calibration	Quarterly			
Annual data certification submitted	4/24/21			
Changes in the next 18 months?	None			

WAIAU (Data Requirements Rule)			
AQS: 150034100	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 689 Kamehameha Highway, Pearl City, Oahu			
Latitude: 21.3909	Longitude: -157.9653		Elevation: 7 m MSL
Location Description: This station is located in an urban area and is approximately 400 meters northwest of the Waiau Power Generating Station in, Pearl City, Oahu. The station is surrounded by a residential area to the north, the H-1 Freeway from the east to southwest and the business district to the west.			

TRAFFIC DESCRIPTION			
Type of Roadway	H-1	Kamehameha Highway	
Freeway	X		
Major Street or Highway		X	
Distance from air intake (m)	59	114	
Direction from air inlet	SSE	NE	
Composition of roadway	Concrete	Asphalt	
Number of traffic lanes	6	4	
Average daily traffic	231,589[1]		
Average vehicle speed (est. mph)	55	35	
Traffic one way or two	2	2	
Street parking?	No	No	
[1] Source: State of Hawaii Department of Transportation 2015 count			

For “Site Representativeness” in the following table:

[1]Site Types:
1) located to determine the highest concentrations;
2) located to measure typical concentrations in areas of high population density;
3) located to determine the impact of significant sources or source categories on air quality;
4) located to determine general background concentration levels;
5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

[2] Purposes:
1) Provide air pollution data to the general public in a timely manner;
2) Support compliance with ambient air quality standards;
3) Support emissions strategy development and track trends in air pollution abatement control measures;
4) Support for air pollution research

(WI) Waiau continued

WAIAU MONITOR INFORMATION (N/A = Not Applicable)				
	SO_2			
POC/FRM or FEM	1/FEM			
Type of Monitor	SLAMS			
AQS parameter code	42401			
Manufacturer	Thermo Scientific			
Model No.	43i-TLE			
AQS method code	060			
Monitoring start date	12/12/16			
Monitoring frequency	Continuous			
Probe material	Borosilicate glass			
Residence time (sec)	18.5			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	Shelter roof			
Building dimensions (H) (m)	3.3			
Horizontal distance from supporting structure (m)	0			
Vertical distance above supporting structure (m)	1.0			
Height of probe above ground (m)	4.3			
Distance (m) & direction from drip line of tree(s)	20 WSW, 36 SSW			
Horizontal distance from edge of nearest traffic lane (m)	59			
Horizontal distance from nearest parking lot (m)	30			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	23 NNW, 5			
Distance (m) & direction from furnace or incineration flues	415 SE			
Unrestricted airflow	360			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	neighborhood			
Applicable NAAQS averaging time(s)	1-hr			
Sampling season	12 months			
Site type[1]	3			
Purpose of Monitor[2]	2, 3			
Suitable for comparison against the annual $PM_{2.5}$ NAAQS?	N/A			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	N/A			
Date of last annual independent performance audit	11/19/20			
Frequency of flow rate verification (automated PM)	N/A			
Frequency of flow rate verification (manual $PM_{2.5}$)	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	N/A			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	N/A			
Frequency of 1-pt. QC check (gases)	Biweekly			
Frequency of multi-point gas calibration	Quarterly			
Annual data certification submitted	4/24/21			
Changes in the next 18 months?	Discontinue			

Appendix A

Public Notice Documentation

Due to the social distancing protocols put in place in response to the current COVID-19 pandemic, the 2021 Air Monitoring Network Plan was made available for public viewing online only on the Clean Air Branch web site.

Public notification of the availability of the Plan for public inspection was published in the major newspapers on all counties. The public comment period was for 30 days from May 17, 2021 to June 15, 2021.

The public notice was published in the following newspapers for the following counties:

- Kauai County: The Garden Island
- City and County of Honolulu: The Star Advertiser
- Maui County: The Maui News
- Hawaii County: West Hawaii Today and Hawaii Tribune Herald (East Hawaii)

Documentations of the public notice are attached.

No comments to the plan were received.

The commenting period for the 2020 Air Monitoring Network Plan ended on July 2, 2020, one day after it was submitted on July 1, 2020. No comments were received for the entire commenting period. A copy of the affidavit provided by the Maui daily newspaper for the 2020 plan was inadvertently omitted from the submittal; it is included here.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE

STATE OF HAWAII }
} SS.
City and County of Honolulu }

MAY 17 2021
Doc. Date: _____ **# Pages:** 1
Notary Name: COLLEEN E. SORANAKA First Judicial **Circuit**
Doc. Description: Affidavit of Publication

MAY 17 2021
Notary Signature Date

COLLEEN E. SORANAKA ★ NOTARY PUBLIC ★ No. 90-263 ★ STATE OF HAWAII

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 1 times on:
05/17/2021

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Lisa Sakakida

Subscribed to and sworn before me this 17th day of May A.D. 20 21

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024

Ad # 0001327276

COLLEEN E. SORANAKA ★ NOTARY PUBLIC ★ No. 90-263 ★ STATE OF HAWAII

ICSP NO.: _____

PUBLIC NOTICE
(Docket No. 21-CA-PA-06)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2021 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at http://health.hawaii.gov/cab. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by June 15, 2021. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(TGI1327276 5/17/21)

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: MAY 17 2021 **# Pages:** 1

Notary Name: COLLEEN E. SORANAKA First Judicial **Circuit**

Doc. Description: Affidavit of Publication

MAY 17 2021

Notary Signature Date

COLLEEN E. SORANAKA NOTARY PUBLIC No. 90-263 STATE OF HAWAII

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 1 times on:
05/17/2021

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Lisa Sakakida

Subscribed to and sworn before me this 17th day of May A.D. 20 21

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024

Ad # 0001327295

COLLEEN E. SORANAKA NOTARY PUBLIC No. 90-263 STATE OF HAWAII

ICSP NO.: _____

PUBLIC NOTICE
(Docket No. 21-CA-PA-06)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2021 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at http://health.hawaii.gov/cab. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by June 15, 2021. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(SA1327295 5/17/21)

AFFIDAVIT OF PUBLICATION

STATE OF HAWAII,
County of Maui. } ss.

Kara Durr being duly sworn deposes and says, that she is in Advertising Sales of the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a newspaper published in Wailuku, County of Maui, State of Hawaii; that the ordered publication as to PUBLIC NOTICE (Docket No. 21-CA-PA-06) of which the annexed is a true and correct printed notice, was published 1 time in THE MAUI NEWS, aforesaid, commencing on the 17th day of May, 2021, and ending on the 17th day of May, 2021, one day inclusive), to-wit: on May 17, 2021

and that affiant is not a party to or in any way interested in the above entitled matter.

This 1 page PUBLIC NOTICE, dated May 17, 2021, was subscribed and sworn to before me this 20th day of May, 2021, in the Second Circuit of the State of Hawaii, by Kara Durr.

Notary Public, Second Judicial Circuit, State of Hawaii

Kimberly Uradomo
Commission expires: 7/2/2022

KIMBERLY URADOMO NOTARY 06-397 PUBLIC STATE OF HAWAII

PUBLIC NOTICE
(Docket No. 21-CA-PA-06)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2021 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at http://health.hawaii.gov/cab. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by June 15, 2021. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.

(MN: May 15, 2021)

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: MAY 17 2021 **# Pages:** 1
Notary Name: COLLEEN E. SORANAKA First Judicial **Circuit**
Doc. Description: Affidavit of Publication
MAY 17 2021
Notary Signature Date

COLLEEN E. SORANAKA NOTARY PUBLIC No. 90-263 STATE OF HAWAII

PUBLIC NOTICE
(Docket No. 21-CA-PA-06)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2021 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at http://health.hawaii.gov/cab. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by June 15, 2021. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(WHT1327291 5/17/21)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 1 times on:
05/17/2021

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Lisa Sakakida

Subscribed to and sworn before me this 17th day of May A.D. 20 21

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024

Ad # 0001327291

COLLEEN E. SORANAKA NOTARY PUBLIC No. 90-263 STATE OF HAWAII

ICSP NO.: _____

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE

}
}
}
}
}
}
}

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: MAY 17 2021 **# Pages:** 1

Notary Name: COLLEEN E. SORANAKA First Judicial Circuit

Doc. Description: Affidavit of Publication

MAY 17 2021

Notary Signature Date

COLLEEN E. SORANAKA
NOTARY PUBLIC
No. 90-263
STATE OF HAWAII

PUBLIC NOTICE
(Docket No. 21-CA-PA-06)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2021 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at http://health.hawaii.gov/cab. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by June 15, 2021. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(HTH1327294 5/17/21)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 1 times on:
05/17/2021

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Lisa Sakakida

Subscribed to and sworn before me this 17th day of May A.D. 2021

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024

COLLEEN E. SORANAKA
NOTARY PUBLIC
No. 90-263
STATE OF HAWAII

Ad # 0001327294

ICSP NO.: _____

AFFIDAVIT OF PUBLICATION

STATE OF HAWAII, }
County of Maui. } ss.

Kara Durr being duly sworn deposes and says, that she is an Advertising Clerk of the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a newspaper published in Wailuku, County of Maui, State of Hawaii; that the ordered publication as to PUBLIC NOTICE DOCKET #20-CA-PA-04 of which the annexed is a true and correct printed notice, was published 1 time in THE MAUI NEWS, aforesaid, commencing on the 3rd day of June, 2020, and ending on the 3rd day of June, 2020, one day inclusive), to-wit: on June 3, 2020 and that affiant is not a party to or in any way interested in the above entitled matter.

PUBLIC NOTICE
(Docket No. 20-CA-PA-04)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2020 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at http://health.hawaii.gov/cab. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by July 2, 2020. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.

(MN: June 3, 2020)

This 1 page PUBLIC NOTICE, dated June 3, 2020, was subscribed and sworn to before me this 3rd day of June, 2020, in the Second Circuit of the State of Hawaii, by Kara Durr

Notary Public, Second Judicial Circuit, State of Hawaii
BETTY E. UEHARA
My Commission expires on 09-26-2023

BETTY E. UEHARA NOTARY PUBLIC No. 83-344 STATE OF HAWAII

Appendix B

Supporting Documentation

for

The Request to Discontinue CO and SO_2 Monitoring at the Kapolei SLAMS Station

and

To Close the Pearl City, Kihei, Kahului and Honaunau Stations

Table B-1. $PM_{2.5}$ Data Completion Percentages

Site	AQS No.	Completion Percentage 2016	Completion Percentage 2017	Completion Percentage 2018	Completion Percentage 2019	Completion Percentage 2020
Pearl City	150032004	99	98	96	98	94
Kihei	150090006	97	96	93	98	91
Kahului	150092025	93 [1]	89 [2]	85 [3]	89 [4]	91
Niumalu	150070007	97	96	89	96	88 [5]

[1] 2016 1st quarter completeness percentage <75% but >50%, substitution test allowed.
[2] 2017 1st quarter completeness percentage <75% but >50%, substitution test allowed.
[3] 2018 4th quarter completeness percentage <75% but >50%, substitution test allowed.
[4] 2019 1st quarter completeness percentage <75% but >50%, substitution test allowed.
[5] 2020 3rd quarter completeness percentage <75% but >50%, substitution test allowed.

Table B-2. $PM_{2.5}$ Annual Design Values for Station Closures

Site	AQS No.	Annual Design Value ($\mu g/m^3$) 2016 – 2018	Annual Design Value ($\mu g/m^3$) 2017 – 2019	Annual Design Value ($\mu g/m^3$) 2018 – 2020	Percent of Annual NAAQS (12 $\mu g/m^3$)
Pearl City	150032004	3.3	3.6	3.2	28 / 30 / 27
Kihei	150090006	4.1	4.2	3.8	34 / 35 / 32
Kahului	150092025	3.3 [1]	3.5 [1]	3.7 [1]	28 / 29 / 31
Niumalu	150070007	2.9	2.7	2.9 [1]	24 / 23 / 24

[1] Design value valid after completing quarterly substitution test per 40 CFR 50 Appendix N.4.1.c.ii.

Table B-3. $PM_{2.5}$ 24-Hour Design Values for Station Closures

Site	AQS No.	24-Hour Design Value ($\mu g/m^3$) 2016 – 2018	24-Hour Design Value ($\mu g/m^3$) 2017 – 2019	24-Hour Design Value ($\mu g/m^3$) 2018 – 2020	Percent of 24-Hour NAAQS (35 $\mu g/m^3$)
Pearl City	150032004	11.6	9.8	7.2	33 / 28 / 21
Kihei	150090006	11.3	12.9	11.6	32 / 37 / 33
Kahului	150092025	9.9 [1]	8.6 [1]	7.7 [1]	28 / 25 / 22
Niumalu	150070007	8.8	8.3	8.1 [1]	25 / 24 / 23

[1] Design value valid after completing quarterly substitution test per 40 CFR 50 Appendix N.4.2.c.i.

Table B-4. PM_{10} Data Completion Percentages

Site	AQS No.	Completion Percentage 2016	Completion Percentage 2017	Completion Percentage 2018	Completion Percentage 2019	Completion Percentage 2020
Pearl City	150032004	99	96	97	96	94

Table B-5. PM_{10} Design Values for Station Closure

Site	AQS No.	24-Hour Design Value* 2016-2018	24-Hour Design Value* 2017-2019	24-Hour Design Value* 2018-2020
Pearl City	150032004	0	0	0

* The standards are attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3, is equal to or less than one.

Table B-6. SO_2 Data Completion Percentages

Site	AQS No.	Completion Percentage 2016	Completion Percentage 2017	Completion Percentage 2018	Completion Percentage 2019	Completion Percentage 2020
Kapolei	150030010	92	93	94	89	94
Niumalu	150070007	74 [1]	93	88	88 [2]	93

[1] 2016 1st quarter completeness percentage at 14%, substitution test not allowed.
[2] 2019 3rd quarter completeness percentage <75% but >50%, substitution test allowed.

Table B-7. SO_2 Design Values for Station Closures

Site	AQS No.	Design Value (ppb) 2016 – 2018	Design Value (ppb) 2017 – 2019	Design Value (ppb) 2018 – 2020	Percent of 1-Hour NAAQS (75 ppb)
Kapolei	150030010	7.3	6.0	6.2	10 / 8 / 8
Niumalu	150070007	4.3 [1]	2.2 [2]	2.7 [2]	6 / 3 / 4

[1] Design value needs EPA approval per 40 CFR 50 Appendix T.3.c.iii(d); substitution test not allowed per 40 CFR 50 Appendix T.3.c.ii.
[2] Design value valid after completing quarterly substitution test per 40 CFR 50 Appendix T.3.c.ii.

Table B-8. NO_2 Completion Percentages

Site	AQS No.	Completion Percentage 2016	Completion Percentage 2017	Completion Percentage 2018	Completion Percentage 2019	Completion Percentage 2020
Niumalu	150070007	74 [1]	68 [2]	91	96	97

[1] 2016 1st quarter completeness percentage at 14%, substitution test not allowed for 1-Hour design value.
[2] 2017 1st, 2nd, and 4th quarters completeness percentage <75% but >50%, substitution test allowed for 1-Hour design value.

Table B-9. NO_2 Annual Design Values for Station Closure

Site	AQS No.	Design Value (ppb) 2016	Design Value (ppb) 2017	Design Value (ppb) 2018	Design Value (ppb) 2019	Design Value (ppb) 2020
Niumalu	150070007	3 [1]	2 [1]	5	4	3

[1] Design value needs EPA approval per 40 CFR 50 Appendix S.3.1.c.

Table B-10. NO_2 1-hour Design Values for Station Closure

Site	AQS No.	Design Value (ppb) 2016 – 2018	Design Value (ppb) 2017 – 2019	Design Value (ppb) 2018 – 2020	Percent of 1-Hour NAAQS (100 ppb)
Niumalu	150070007	34.9 [1]	36.2 [2]	37.0	35 / 36 / 37

[1] Design value needs EPA approval per 40 CFR 50 Appendix S.3.2.d; substitution test not allowed per 40 CFR 50 Appendix S.3.2.c.ii.
[2] Design value valid after completing quarterly substitution test per 40 CFR 50 Appendix S.3.2.c.ii.

Table B-11. CO Data Completion Percentages

Site	AQS No.	Completion Percentage 2016	Completion Percentage 2017	Completion Percentage 2018	Completion Percentage 2019	Completion Percentage 2020
Kapolei	150030010	88	94	92	92	97

Table B-12. Exceedance of CO 1-Hour and 8-Hour NAAQS

Site	AQS No.	Number of Exceedances 2016	Number of Exceedances 2017	Number of Exceedances 2018	Number of Exceedances 2019	Number of Exceedances 2020
Kapolei	150030010	0	0	0	0	0

* The standards are not to be exceeded more than once per; 1-Hour standard is 35 ppm and the 8-Hour standard is 9 ppm.

The Honaunau Station has not been in operation for more than 3 years, therefore, there is not enough data to calculate design values.