

North Coast Unified Air Quality Management District

2015 Annual Network Plan and Assessment For Ambient Air Monitoring

July 1, 2015



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Air Quality Management District
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Definition of Terms

AAC	Atmospheric Analysis and Consulting
AQS	Air Quality System
BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
E-BAM	Emergency Beta-Attenuation Monitor
FEM	Federal Equivalency Method
FRM	Federal Reference Method
MSA	Micropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NOAA	National Oceanographic and Atmospheric Administration
NCUAQMD	North Coast Unified Air Quality Management District
POC	Parameter Occurrence Code
PQAO	Primary Quality Assurance Organization
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Station
SPM	Special Purpose Monitor
TRS	Total Reduced Sulfur

Executive Summary

The North Coast Unified Air Quality Management District's (District) "2015 Annual Network Plan and Assessment for Ambient Air Monitoring" is an examination and evaluation of the District's network of ambient air pollution monitoring stations. This annual review of the District's air monitoring network is required by Title 40, Code of Federal Regulations, Part 58.10 (40 CFR 58.10). The report meets the requirements for an annual network plan as listed in 40 CFR 58.10, Appendix A.

The District is located in the far northwestern portion of California. It has jurisdiction over Humboldt, Del Norte, and Trinity Counties, which together cover 7,753 square miles. It is bordered on the west by the Pacific Ocean and extends from the Oregon Border south approximately 140 miles to the Mendocino County line. Eureka, the county seat of Humboldt County, is 284 miles north of San Francisco, 466 miles south of Portland, Oregon and on the coast of the Pacific Ocean. The area is made up of varied terrain, from coastal wetlands to rugged mountains. Inversions and diurnal offshore wind patterns are common.

The air in Humboldt, Del Norte and Trinity County is considered to be unclassified, or in attainment of state and federal ambient air quality standards except for the State's 24-hour PM₁₀ standard in Humboldt County. The two pollutants of greatest concern are ozone and particulate matter. The county's sunny climate, pollution-trapping mountains and valleys, along with the growing population, all contribute to the problem.

The District maintains a network of air pollution monitoring equipment. The District is rich with monitoring network history. Total Reduced Sulfur (TRS) started to be monitored in the 70s at Fort Humboldt, fueled by concerns about practices at the pulp mills. Numerous special studies, including speciation, have occurred around Humboldt Bay. The first time the California Air Resources Board (ARB) mobile monitoring trailer was deployed it was to Humboldt County to investigate concerns around the Humboldt Flakeboard Panel plant in Arcata. Beginning in 1986, PM₁₀ monitoring began with a solitary PM₁₀ monitoring station. Currently there are four stations in operation.

The District only has a few major Title V sources which are located within Humboldt County: Eel River Power (Scotia), PG&E Humboldt Bay Generating Station (Eureka), DG Fairhaven (Samoa), and the Blue Lake Power Plant (Blue Lake). In addition to these major sources, the District is impacted by several large saw mills, minor industrial sources, and mobile sources throughout the traffic corridors. The District is also challenged by wood smoke in the winter and wildfires in the summer.

This report will be available for a 30-day public inspection period. Any comments received during the public inspection period will be forwarded to the United States Environmental Protection Agency (EPA) concurrently with submittal of the plan. This report may be viewed on the District's website, www.ncuaqmd.org and hardcopies are available for review at District's office. Written comments should be submitted to the North Coast Unified Air Quality Management District, Attn: Comments on Annual Network Monitoring Plan, 707 L Street, Eureka, California, 95501.

Annual Network Plan

Network Design

The District operated four monitoring sites in 2014. The following maps show the locations of the monitoring sites. Tables 1 and 2 list the pollutants measured at each site.

Table 1. List of Special Purpose Monitoring Sites

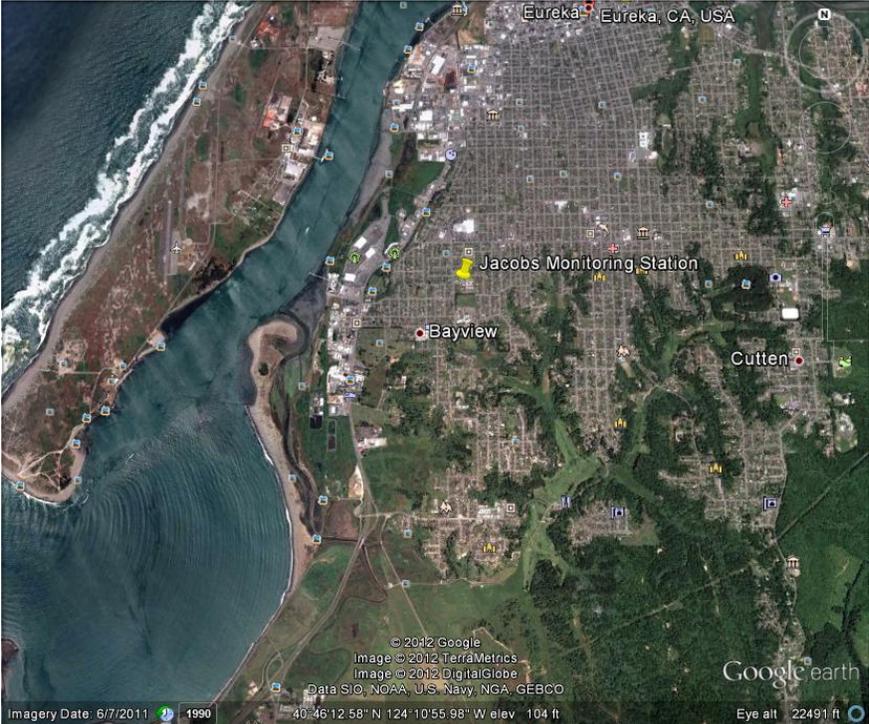
Site Name	AQS Site #	Pollutant Monitored
Humboldt Hill	060231005	PM _{2.5} , O ₃ , NO ₂ , CO, SO ₂
Crescent City	060150006	PM _{2.5}

Table 2. List of State and Local Air Monitoring Sites

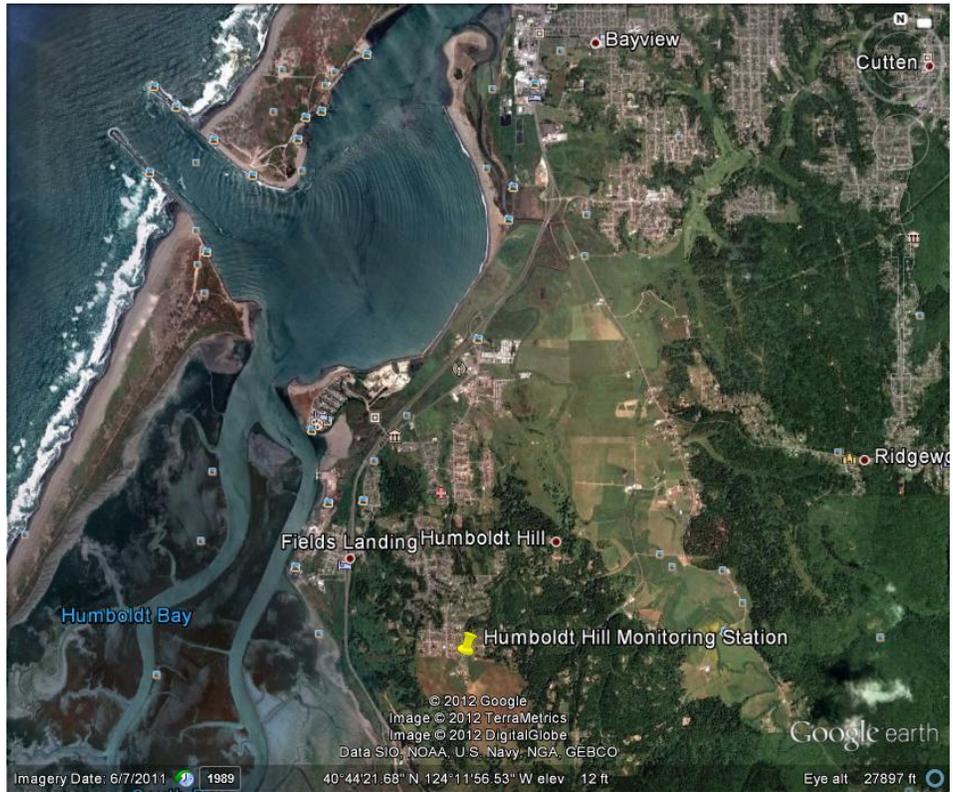
Site Name	AQS Site #	Pollutants Monitored
Jacobs	060231004	PM ₁₀ , PM _{2.5} , O ₃ , NO ₂ , CO, SO ₂
Weaverville	061050002	PM _{2.5}

Monitoring Station Locations

Jacobs Monitoring Station (717 South Ave, Eureka, Humboldt County)



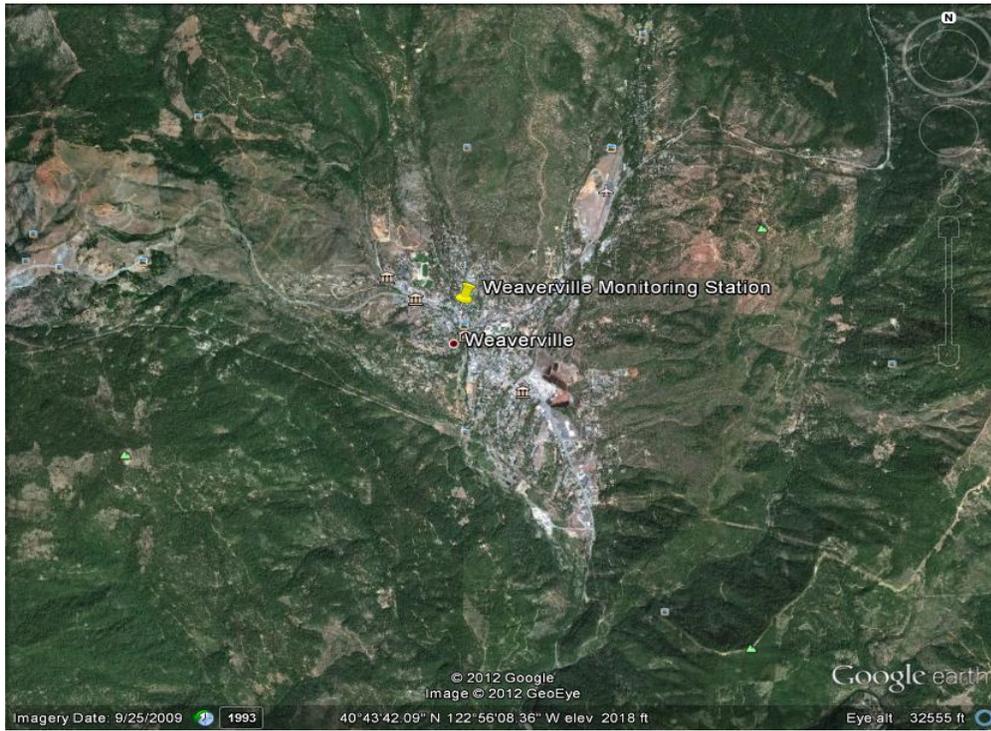
Humboldt Hill Monitoring Station (7333 Humboldt Hill Rd., Eureka, Humboldt County)



Crescent City Monitoring Station, (994 G Street, Crescent City, Del Norte County)



Weaverville Monitoring Station, (11 Court Street, Weaverville, Trinity County)



Minimum Monitoring Requirements

This network meets the minimum monitoring requirements for all criteria pollutants (Tables 3-11).

Ozone

Table 3. Minimum Monitoring Requirements for Ozone.

Micropolitan Statistical Area	County	Pop. In Year 2010	4th highest 8-hour max. (ppm) (2012-2014)	3 year design value	SLAMS Monitors Required	Active SLAMS Monitors	Active SPM Monitors	Monitors Needed
Eureka-Arcata-Fortuna	Humboldt	134,623	Jacobs 0.045	Jacobs 0.044	0	1	1	0
			Humboldt Hill 0.046	Humboldt Hill 0.044				
Crescent City	Del Norte	28,610	-	-	0	0	0	0
none	Trinity	13,786	-	-	0	0	0	0

No monitors are required for either a SIP or Maintenance Plan. The District monitors Ozone as an examination of population exposure levels. The Ozone monitor at Humboldt Hill usually registers levels slightly above the monitor at Jacobs, but the difference usually on a scale of less than 10 ppb, and is not consistent. District does not feel the distinction of a 'max ozone monitor' is warranted.

PM 2.5

Table 4. Minimum Monitoring Requirements for FRM PM_{2.5}.

Micropolitan Statistical Area	County	Pop. In Year 2010	Annual Design Value (ug/m ³) (2012-2014)	Daily Design Value (ug/m ³) (2012-2014)	FRM Monitors Required	SLAMS Monitors Active	SPM Monitors Active	Monitors Needed
Eureka, Arcata, Fortuna	Humboldt	134,623	Jacobs 7.3	Jacobs 23	0	1	1	0
			Humboldt Hill 5.7	Humboldt Hill 14				
Crescent City	Del Norte	28,610	-	-	0	0	0	0
none	Trinity	13,786	-	-	0	0	0	0

The District does not feel the distinction of a 'max PM_{2.5}' instrument is warranted due to the number of variables affecting which monitor registers higher levels on any given day.

Table 5. Minimum Monitoring Requirements for Continuous PM_{2.5} monitors.

Micropolitan Statistical Area	County	Pop. In Year 2010	SLAMS FEM monitors required	SLAMS Monitors Active	SPM Monitors Active
Eureka, Arcata, Fortuna	Humboldt	134,623	0	0	1*
Crescent City	Del Norte	28,610	0	0	1*
none	Trinity	13,786	0	1	0

* Grimm 180

Table 6. Collocation of continuous PM_{2.5} monitors

Method Code	# Primary Monitors	Required Collocated monitors	Active Collocated FRM monitors	Active Collocated FEM Monitors
195	2*	0	1	0
731	1	0	0	0

* Grimm 180 at Humboldt Hill requested to be POC 2
Collocation is a responsibility of the PQAQ.

No PM_{2.5} monitors are required for either a SIP or Maintenance Plan.

PM10

Table 7. Minimum Monitoring Requirements for PM₁₀.

Micropolitan Statistical Area	County	Population in Year 2010	Max Concentration (2012-2014) (ug/m ³)	SLAMS Monitors Required	SLAMS Monitors Active	SPM Monitors Active	Monitors Needed
Eureka, Arcata, Fortuna	Humboldt	134,623	Jacobs 104	0	1	0	0
Crescent City	Del Norte	28,610	-	0	0	0	0
none	Trinity	13,786	-	0	0	0	0

Regular PM10 monitoring ceased in Del Norte and Trinity Counties as of January 2014.

NO₂

Table 8. Minimum Monitoring Requirements for NO₂.

Micropolitan Statistical Area	County	Pop. in Year 2010	Annual Design Value (ppb) (2012-2014)	SLAMS Monitors Required	Active SLAMS Monitors	Active SPM Monitors	Monitors Needed
Eureka-Arcata, Fortuna	Humboldt	134,623	Jacobs 2.5	0	1	1	0
			Humboldt Hill 0.6				
Crescent City	Del Norte	28,610	-	0	0	0	0
none	Trinity	13,786	-	0	0	0	0

No monitors are required for SIP or Maintenance Plans. The District monitors NO₂ in Humboldt County to examine population exposure. Based on population, no near-road NO₂ monitors are required within the District boundaries.

SO₂

Table 9. Minimum Monitoring Requirements for SO₂.

Micro-politian Statistical Area	County	Pop. in Year 2010	Annual Design Value (ppb) (2012-2014)	Max 24 hour (ppb) (2012-2014)	Max 1 hour (ppb) (2012-2014)	SLAMS Monitors Required	Active SLAMS Monitors	Active SPM Monitors	Monitors Needed
Eureka-Arcata, Fortuna	Humboldt	134,623	Jacobs 0.4	Jacobs 1.2	Jacobs 1.4	0	1	1	0
			Humboldt Hill 0.2	Humboldt Hill 1.0	Humboldt Hill 1.2				
Crescent City	Del Norte	28,610	-	-	-	0	0	0	0
none	Trinity	13,786	-	-	-	0	0	0	0

No monitors are required for SIP or Maintenance Plans. The District is not required to monitor SO₂. The District monitors SO₂ in Humboldt County to examine population exposure.

CO

Table 10. Minimum Monitoring Requirements for CO.

Micro-politian Statistical Area	County	Pop. in Year 2010	8-hour Design Value (ppm) (2012-2014)	1 hour. Design Value (2012-2014)	SLAMS Monitors Required	Col-located Monitors Required	Active SLAMS Monitors	Active SPM Monitors	Monitors Needed
Eureka-Arcata-Fortuna	Humboldt	134,623	Jacobs 0.9	Jacobs 1.9	0	0	1	1	0
			Humboldt Hill 0.8	Humboldt Hill 0.9					
Crescent City	Del Norte	28,610	-	-	0	0	0	0	0
none	Trinity	13,786	-	-	0	0	0	0	0

No monitors are required for SIP or Maintenance Plans. The District is not required to monitor CO. The District monitors CO in Humboldt County to examine population exposure.

Pb

Table 11. Minimum Monitoring Requirements for Pb.

MSA	County	Pop. In Year 2010	Annual Design Value	Monitors Required	Active Monitors	Monitors Needed
Eureka, Arcata, Fortuna	Humboldt	134,623	-	0	0	0
Crescent City	Del Norte	28,610	-	0	0	0
none	Trinity	13,786	-	0	0	0

No monitors are required for SIP or Maintenance Plans. The District is not required to monitor Pb and does not do so.

Quality Control

The District is a member of the ARB Primary Quality Assurance Organization (PQAO). All District ambient air monitoring meets stringent ARB Quality Control and Quality Assurance requirements. ARB audit records and site information for the District can be found on the ARB website at <http://www.arb.ca.gov/aaqm/qmosqual/qmosqual.htm>, or obtained by contacting the District at (707) 443-3093.

District PM_{2.5} FRM filters are analyzed by the Bay Area Air Quality Management District (BAAQMD). The Bay Area Air Quality Management District Laboratory meets stringent Federal Requirements for Quality Control and Quality Assurance. Information regarding the laboratory can be found on the BAAQMD website at <http://www.baaqmd.gov>.

Collocation

The District is a member of the ARB PQAO and relies on the ARB PQAO network to satisfy all collocation requirements. CFR 58 App A 3.2.5 suggests to the District that it is the PQAO's responsibility to show that this requirement is met for all instruments used within a PQAO network.

The District does not have any collocated manual PM₁₀ samplers. The District shut down the manual PM₁₀ sampling program on Dec 31, 2013.

The District does not have any permanently collocated PM_{2.5} samplers. It currently operates one collocated FRM PM_{2.5} sampler. A FEM Grimm 180 has been collocated with this instrument since March 2013 at Humboldt Hill, for the purpose of comparing the FEM data to an FRM instrument. Removal of the PM_{2.5} Grimm 180 from the District's network is planned for 2015. The District sought to establish the FRM as POC 1 in 2014. No decision has been issued to date.

Recent or Proposed Modifications to Network

Effective July 1, 2014, Del Norte and Trinity Counties were designated as Attainment for PM₁₀. The filter based PM₁₀ monitoring program was discontinued as of December 31,

2013. PM₁₀ continues being monitored in Humboldt County at the Jacob station, using a FEM PM₁₀ BAM1020.

The District discontinued the Eureka I street station, which included PM₁₀ and PM_{2.5} samplers, the Crescent City FRM PM₁₀ sampler, and the Weaverville FRM PM₁₀ sampler on December 31, 2013. The Eureka I street FRM PM_{2.5} instrument was moved to the Jacobs station, and began collecting data on January 1, 2014. As a SPM, it did not require EPA approval to begin operation.

The PM₁₀ redesignation has allowed the District to monitor PM_{2.5} in the recently redesignated counties. The District plans to monitor PM with a non-FEM GRIMM 180 instrument in Crescent City beginning in July 2015. This Grimm 180 monitor is located a short distance from the original Crescent City monitoring location. It is a SPM monitor, and as such does not require EPA approval to begin operation. Weaverville began monitoring PM_{2.5} with a non-regulatory PM_{2.5} BAM1020 in March 2015. It is located at the same station as the discontinued FRM PM₁₀. It is also a SPM monitor, as thus did not require EPA approval to begin operation.

The District conducted a study March 2013 through November 2014, to compare a Grimm 180 PM_{2.5} to a Thermo 2000i PM_{2.5}. Data shows the Grimm 180 data is significantly biased when compared to the PM_{2.5} FRM and is not suitable for national comparison. A waiver for this instrument is requested for all existing District Grimm data (2011-2014). It is not anticipated that any appropriate change in the standard operating procedure used with the Grimm 180 will make the Grimm instrument's data comparable to FRM data. Thus, the Grimm 180s in the District network will be converted to measure non-FEM PM_{1.0} and non-FEM PM₁₀ in 2015.

Review of Changes to PM_{2.5} Monitoring Network

The District has not changed the location of any violating PM_{2.5} monitor. Any changes to the District's PM_{2.5} network are reviewed by EPA Region 9. The District has never eliminated an FRM PM_{2.5} sampler from the network. If a violating PM_{2.5} monitor ever needs to be moved, we plan to use the annual network plan inspection/comment process to provide for the review of the change.

In 2014, the District participated in the Federal Fine Particulates monitoring program by operating instruments at the Jacobs, Humboldt Hill, Crescent City and Weaverville stations. PM_{2.5} was monitored with FRM instruments at the Jacobs and Humboldt Hill sites. These FRM instruments are suitable for national comparison.

The District discontinued the Eureka I street PM_{2.5} monitor December 31, 2013. That R&P FRM 2000 instrument was relocated to the nearby Jacobs Station.

PM₁₀ Redesignation has allowed the District to monitor Particulate Matter of smaller sizes in the recently redesignated counties. The District deployed a non-regulatory PM_{2.5} BAM1020 to Weaverville, with operations beginning March of 2015. This unit is located at the same station as the discontinued FRM PM₁₀. It is a SPM monitor, thus did not require EPA approval to begin operation.

Grimm 180 monitors are currently located Humboldt Hill Station and Crescent City. The current configuration is set to measure FEM PM_{2.5}. The Grimm 180 in Crescent City is located a short distance from the original Crescent City monitoring location. It is a SPM monitor, and as such did not require EPA approval to begin operation. The Humboldt Hill Grimm was collocated with a FRM Thermo 2000i for the purpose of evaluating Grimm performance.

This collocation study ran March 2013 through December 2014. The data between the two instruments was found to be significantly biased. R Square was found to be 0.138, and Multiple R was 0.371. The data and report are attached in Appendix A of this Network Plan.

The District seeks a waiver of all Grimm 180 data (2011-2014). It is not anticipated that any appropriate change in the standard operating procedure used with the Grimm 180 will make the Grimm instrument's data comparable to FRM data. Because it is not possible to alter the SOP of the Grimm to improve its correlation to FRM measurements, and because the Grimm 180 does not meet District requirements for a PM_{2.5} FEM, both Grimm 180s will be converted to measure PM_{1.0} in 2015. Attachment A of this document details the District's waiver request. Until the question of PM_{2.5} accuracy is addressed by the EPA, this will be the most effective use of the Grimm 180 within the District's network.

Current Particulate Matter research reveals that it is the smaller particles which potentially have the greatest health ramifications. As such, the District believes it will be useful to monitor for the smaller particles. PM_{1.0} is monitored locally at Trinidad Head, so measuring PM_{1.0} will expand the local PM_{1.0} network.

The District owns auditing equipment for the Grimm 180, and conducts audits according to Grimm specifications. The ARB has recently purchased Grimm 180 auditing equipment, and plans to begin auditing the Grimm 180 in May of 2015.

Data Submission Requirements

Data and Precision/Accuracy reports are submitted to ARB no later than 60 days after the quarter of record. The ARB uploads District data to the National Air Quality System (AQS) no later than 90 days after the quarter of record. The ARB submits the annual data certification no later than May 1st of each year.

Data Availability

The District's air quality data is available on the AQS database. It can also be obtained directly from the District, in the form of monthly reports. Please contact the District at 707-443-3093 to request copies of these reports.

Detailed Site Information

Site Name: Jacobs

The Jacobs site was established in December of 2006. It is located on the south side of Eureka and is expected to represent neighborhood scale air quality.

Site Name	Jacobs					
AQS ID	060231004					
GIS coordinates	103.91015E 4514.83731N WGS84					
Location	Alice Birney Elementary School					
Address	717 South Ave, Eureka					
County	Humboldt					
Dist. to road (meters)	50					
Traffic count (AADT)	3100 (2007)					
Representative statistical area name	Eureka, Arcata, Fortuna					
Groundcover	grass					
PEP audit?	Information maintained by EPA					
NPAP audit?	Information maintained by EPA					
PM ₁₀ Flow audits	Performed every 2 weeks by NCUAQMD, Performed biannually by ARB					
PM _{2.5} Flow audits	Performed monthly by NCUAQMD, Performed biannually by ARB					
Gaseous audits	Following the requirement in QA Volume II, performance audits are performed annually by ARB					
Date of most recent ARB audit	May 13, 2015					
Dates of two most recent semi-annual PM ₁₀ flow audits	September 25, 2014 May 13, 2015					
Dates of two most recent semi-annual PM _{2.5} flow audits by ARB	September 25, 2014 May 13, 2015					
Gaseous One-point control checks	Performed a minimum of once every two weeks					
Gaseous instrument calibrations	Performed by ARB bi-annually					
Representative Area	Humboldt County Micropolitan Statistical Area, Eureka-Arcata-Fortuna, suburban					
Pollutant	O₃	NO₂	CO	SO₂	PM_{2.5}	PM₁₀
Parameter Code	44201	42602	42101	42401	88101	85101
POC	1	1	1	1	1	1
Basic Monitoring Objective	NAAQS comparison	NAAQS comparison	NAAQS comparison	NAAQS comparison	NAAQS comparison	NAAQS comparison
Site Type	Population exposure	Population exposure	Population exposure	Population exposure	Population exposure	Population exposure

Site Name	Jacobs					
Pollutant	O ₃	NO ₂	CO	SO ₂	PM _{2.5}	PM ₁₀
Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	Special purpose
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Photometric EQOA-0880-047	Chemiluminescence RFNA-1289-074	Gas Filter correlation RFCA-0981-054	Pulsed Florescence EQSA-0486-060	Low Volume RFPS-0498-117	EQPM-0798-122
Instrument manufacturer and model	Thermo 49i	Thermo 42i	Thermo 48i	Thermo 43i	R&P 2000	Met One Bam1020
FRM/FEM/ARM	FEM	FRM	FRM	FEM	FRM	FEM
Collecting Agency	NCUAQMD	NCUAQMD	NCUAQMD	NCUAQMD	NCUAQMD	NCUAQMD
Analytical Lab	N/A	N/A	N/A	N/A	BAAQMD	N/A
Reporting Agency	ARB	ARB	ARB	ARB	BAAQMD	ARB
Start date	Dec 15, 2006	Dec 15, 2006	Dec 15, 2006	Dec 15, 2006	Dec 25, 2006	Jan 1, 2014
Current Sampling Frequency	continuous	continuous	continuous	continuous	1:3	continuous
Sampling season	Year round	Year round	Year round	Year round	Year round	Year round
Probe height (meters)	4.5	4.5	4.5	4.5	6	6
Distance from supporting structure (meters)	1.9	1.9	1.9	1.9	2	2
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof (meters)	19	19	19	19	19	19
Distance from trees (meters)	15	15	15	15	15	17
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow (degrees)	360	360	360	360	360	360
Probe material	Teflon	Teflon	Teflon	Teflon	N/A	N/A
Residence time (seconds)	6	8	5	7	N/A	N/A
Will there be changes within the next 18 months?	No	No	No	No	No	No
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	N/A	N/A	N/A	Yes	N/A

Site Name: Humboldt Hill

The Humboldt Hill site was established in June 2011. It is located on Humboldt Hill on the south side of Eureka and is expected to represent neighborhood scale air quality.

Site Name	Humboldt Hill					
AQS ID	060231005					
GIS coordinates	40.71528 (N) -124.20139 (W)					
Location	Humboldt Hill Summit					
Address	7333 Humboldt Hill Road, Eureka					
County	Humboldt					
Dist. to road	25					
Traffic count	Unknown, less than 50					
Groundcover	grass					
PEP audit?	Information maintained by EPA					
NPAP audit?	Information maintained by EPA					
PM _{2.5} Flow audits	FRM: Performed monthly by NCUAQMD, Performed biannually by ARB			FEM: Quarterly by NCUAQMD		
Gaseous audits	Following the requirement in QA Volume II, performance audits are performed annually by ARB					
Dates of two most recent semi-annual PM _{2.5} flow audits by ARB	FRM method: September 25, 2014 May 15, 2015			FEM Method: Not Performed		
Date of most recent ARB audit	May 15, 2015			May 15, 2015		
Gaseous One-point control checks	Performed a minimum of once per two weeks					
Gaseous Instrument Calibrations	Performed bi-annually by ARB					
Representative Area	Humboldt County Micropolitan Statistical Area, Eureka-Arcata-Fortuna, suburban					
Pollutant	O₃	NO₂	CO	SO₂	PM_{2.5}	PM_{2.5}
Parameter code	44201	42602	42101	42401	88101	88101
POC	1	1	1	1	1	1
Basic Monitoring Objective	NAAQS comparison	NAAQS comparison	NAAQS comparison	NAAQS comparison	Air pollution data	Air pollution Data
Site Type	Population exposure	Population exposure	Population exposure	Population exposure	Population exposure	Population exposure
Monitor Type	SPM	SPM	SPM	SPM	SPM	Special purpose

Site Name	Humboldt Hill					
Pollutant	O ₃	NO ₂	CO	SO ₂	PM _{2.5}	PM _{2.5}
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Photometric EQOA-0880-047	Chemiluminescence RFNA-1289-074	Gas Filter correlation RFCA-0981-054	Pulsed Florescence EQSA-0486-060	Low Volume RFPS-0498-117	Light scatter EQPM-0311-195
Instrument manufacturer and model	Thermo 49i	Thermo 42i	Thermo 48i	Thermo 43i	R&P 2000	Grimm 180
FRM/FEM/ARM	FEM	FRM	FRM	FEM	FRM	FEM
Collecting Agency	NCUAQMD	NCUAQMD	NCUAQMD	NCUAQMD	NCUAQMD	NCUAQMD
Analytical Lab	N/A	N/A	N/A	N/A	BAAQMD	N/A
Reporting Agency	ARB	ARB	ARB	ARB	ARB	ARB
Start date	June 20, 2011	June 20, 2011	June 20, 2011	June 20, 2011	March 20, 2013	June 20, 2011
Current Sampling Frequency	continuous	continuous	continuous	continuous	1:3	continuous
Sampling season	Year round	Year round	Year round	Year round	Year round	Year round
Probe height (meters)	4.5	4.5	4.5	4.5	6	6
Distance from supporting structure (meters)	1.9	1.9	1.9	1.9	2	1.2
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof (meters)	15	15	15	15	15	15
Distance from trees (meters)	93	93	93	93	93	93
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow (degrees)	360	360	360	360	360	360

Site Name	Humboldt Hill					
Pollutant	O ₃	NO ₂	CO	SO ₂	PM _{2.5}	PM _{2.5}
Probe material	Teflon	Teflon	Teflon	Teflon	N/A	Stainless steel
Residence time (seconds)	6	6	5	8	N/A	N/A
Will there be changes within the next 18 months?	No	No	No	No	No	Yes
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	N/A	N/A	N/A	Yes	No. 40 CFR 58.11 (e) assessment indicated failure, waiver is requested.

Site Name: Weaverville

The Weaverville site was established in 1995. It is located in downtown Weaverville near HWY 299 and is expected to represent neighborhood air quality.

Site Name	Weaverville
AQS ID	061050002
GIS coordinates	104.95617E 4509.31330N WGS84
Location	Trinity County Courthouse
Address	11 Court Street, Weaverville
County	Trinity
Dist. to road	21 meters to highway 299
Traffic count	5,100 AADT for HWY 299
Groundcover	Paved
PEP audit	Information maintained by EPA
NPAP audit	Information maintained by EPA
PM _{2.5} Flow audits	Performed biweekly by NCUAQMD, Performed biannually by ARB
Date of most recent ARB audit	Instrument has not yet been audited
Dates of two most recent semi-annual PM _{2.5} flow audits by ARB	Instrument has not yet been audited
Representative Area	Rural, no MSA in Trinity County
Pollutant	PM_{2.5}
Parameter Code	88101
POC	1
Basic monitor objective	Air Pollution Data
Site Type	Population exposure
Monitor Type	SPM
Spatial scale	Neighborhood
Sampling method	none
Instrument manufacturer and model	Met One Bam1020
FRM/FEM/ARM	Non-FEM
Collecting Agency	NCUAQMD
Analytical Lab	N/A
Reporting Agency	ARB
Start date	March 2015
Current Sampling Frequency	continuous
Sampling season	Year round
Probe height (meters)	N/A
Distance from supporting structure (meters)	N/A
Distance from obstructions on roof (meters)	10

Site Name	Weaverville
Pollutant	PM_{2.5}
Distance from obstructions not on roof (meters)	20
Distance from trees (meters)	15
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow (degrees)	270 (restricted in East)
Primary wind direction	West
Probe material	N/A
Residence time	N/A
Will there be changes within the next 18 months?	No
Is it suitable for comparison against the annual PM _{2.5} ?	No

Site Name: Crescent City

The Crescent City site was established in 1998. Although it has been moved three times due to logistical problems, all sites have been in close proximity to each other. It is currently located at the Elk Crescent Middle School. It is expected to represent neighborhood scale air quality.

Site Name	Crescent City
AQS ID	060150006
GIS coordinates	41° 45' 21" N 124° 12' 13" W
Location	Elk Crescent Middle School
Address	994 G Street
County	Del Norte
Dist. to road	64 meters to 9 th Street
Traffic count	13400 AADT HWY101 CRESCENT CITY, ON L STREET AT 9TH STREET
Groundcover	Paved/grass
PEP audit	Information maintained by EPA
NPAP audit	Information maintained by EPA
Flow audit	Performed quarterly by NCUAQMD
Date of most recent ARB audit	Not yet audited
Dates of two most recent semi-annual flow audits	Not yet audited
Representative Area	Del Norte County, Micropolitan Statistical Area, Crescent City Urban
Pollutant	PM_{2.5}
Parameter Code	88501
POC	1
Basic Monitoring Objectives	Air Pollution Data
Site Type	Population exposure
Monitor Type	SPM
Spatial scale	Neighborhood
Sampling method	Light scatter EQPM-0311-195
Instrument manufacturer and model	Grimm 180
FRM/FEM/ARM	FEM
Collecting Agency	NCUAQMD
Analytical Lab	N/A
Reporting Agency	ARB
Start date	Delayed, as of May 2015
Current Sampling Frequency	Continuous
Sampling season	Year round
Probe height	5.3
Distance from supporting structure	1.2

Site Name	Crescent City
Pollutant	PM _{2.5}
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	30 meters
Distance from trees	93 meters
Distance to furnace or incinerator flue	49 meters
Distance between collocated monitors	N/A
Unrestricted airflow (degrees)	315 (restricted in North)
Primary Wind Direction	South
Probe material	N/A
Residence time	N/A
Will there be changes within the next 18 months?	Yes
Is it suitable for comparison against the annual PM _{2.5} ?	No

Network Assessment

Monitoring Objectives

The District's domain of responsibility is the three counties which make up the northern portion of the North Coast Air Basin. The monitoring objectives of the District are the same as those found in the Code of Federal Regulations (CFR), part 58, appendix D: 1) to determine the highest concentrations expected to occur in the area covered by the network, 2) to determine representative concentrations in areas of high population density, 3) to determine the impact on ambient pollution levels of significant sources or source categories, 4) to determine background concentration levels, 5) to determine extent of regional pollution transport among populated area, and in support of secondary standards, and 6) to determine welfare-related impacts in more rural and remote areas- such as visibility impairment and effects on vegetation. These objectives are met to the greatest extent allowed by the size and funding of the District. The District prioritizes monitoring goals in the order listed above.

The District monitors for six criteria pollutants. It operates four monitoring stations: two which are complete stations that monitor all six pollutants, and two that are particulate only stations. Due to budget constraints, none of the stations are background stations. However, NOAA operates an Observatory within the District, which can be leveraged for background particulate and ozone levels.

Because the District is located in a region extremely susceptible to wildfire events of significant duration, the District views wildfire smoke monitoring as a primary responsibility of the District. The District owns three E-BAMs and operates a fourth, which is owned by Humboldt County. These units are deployed on an as needed basis during wildfire events. The objectives of the units are: 1) to determine the highest concentrations expected to occur in the area covered by the network, and 2) to determine representative concentrations in areas of high population density.

Monitoring Efficiency

The primary users of the monitoring data are District staff, users of the ARB ADAM database and EPA Air Quality System, County Health Departments of Humboldt, Trinity, and Del Norte Counties, Tribal Health Departments, and the United States Forest Service. The District compares its monitoring data to the Federal Ambient Air Quality Standards, and the California State Ambient Air Quality Standards. Current standards are listed in the table below:

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁸	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5}) ⁸	24 Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12.0 µg/m ³		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO ₂) ⁹	1 Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹⁰	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹⁰	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) ¹⁰	—	
Lead ^{11,12}	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹²	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m ³		
Visibility Reducing Particles ¹³	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹¹	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (6/4/13)

The District is heavily impacted by wood smoke. The District monitors for wood smoke through particulate monitoring and carbon monoxide monitoring. Peaks in particulate matter can often be correlated with low temperatures, as woodstoves are a common heat source in the area. The District has worked with the ARB in the past to investigate speciation of local particulate matter, in particular using levoglucosan as a tracer.

Monitoring data becomes particularly important to the Health Departments during times of wildfire. District data has been used to substantiate health-related Federal Declarations of Emergency in both Humboldt and Trinity Counties. Humboldt was the first County in California to issue a Declaration of Emergency based on Air Quality.

The population estimates for two Micropolitan Statistical Areas included in the District indicate only slight changes in population since the last Network Assessment, in 2010. As of 2014, the Crescent City area is estimated to have decreased by 6.0% in population, Trinity County is estimated to have decreased by 5%, and the Eureka-Arcata-Fortuna area population is estimated to have grown just 0.1%. Population change has not influenced the monitoring program.

The proposed Ozone NAAQS change, anticipated fall of 2015, is not expected to impact monitoring needs in the District. District ozone levels are below the lowest proposed NAAQS level, thus regardless of where the new standard is finally set, the District is expected to remain in attainment for ozone. The District plans to continue assisting other agencies who wish to maintain ozone equipment at District monitoring locations to assist with transport investigations.

The District operates four monitoring stations. These stations have been summarized in the Network Plan. Overviews of the assessment of each individual station follow:

Summary of Stations:

Station	AQS number	pollutant	Year start	Expected NAAQS exceed-ances	Micropolitan Area Served	Design value change 2010-2015	Assigned Value to NCUAQMD Network	Plan
Jacobs	060231004	ozone	2006	none	Eureka-Arcata-Fortuna	-0.03	Critical-primary SLAMS Humboldt County	keep
Jacobs	060231004	carbon monoxide	2006	none	Eureka-Arcata-Fortuna	-0.4	Critical-primary SLAMS Humboldt County	keep
Jacobs	060231004	sulfur dioxide	2006	none	Eureka-Arcata-Fortuna	+0.4	Critical-primary SLAMS Humboldt County	keep
Jacobs	060231004	Nitrogen dioxide	2006	none	Eureka-Arcata-Fortuna	-0.5	Critical-primary SLAMS Humboldt County	keep
Jacobs	060231004	PM ₁₀	2006	4	Eureka-Arcata-Fortuna	+44	Critical-primary SLAMS Humboldt County	keep
Jacobs	060231004	PM _{2.5}	2006	none	Eureka-Arcata-Fortuna	-1	Critical-primary SLAMS Humboldt County	keep
Humboldt Hill	060231005	ozone	2011	none	Eureka-Arcata-Fortuna	N/A	Critical-source monitoring	keep
Humboldt Hill	060231005	carbon monoxide	2011	none	Eureka-Arcata-Fortuna	N/A	Critical-source monitoring	keep
Humboldt Hill	060231005	sulfur dioxide	2011	none	Eureka-Arcata-Fortuna	N/A	Critical-source monitoring	keep
Humboldt Hill	060231005	Nitrogen dioxide	2011	none	Eureka-Arcata-Fortuna	N/A	Critical-source monitoring	keep
Humboldt Hill	060231005	PM _{2.5}	2011	none	Eureka-Arcata-Fortuna	N/A	Critical-source monitoring	keep
Weaverville	061050002	PM _{2.5}	2011	none	n/a	N/A	Critical-SLAMS, only Trinity County station	keep
Crescent City	060150006	PM _{2.5}	2014	none	Crescent City	N/A	Critical-SLAMS, only Del Norte County station	keep

Jacobs

This is one of two gaseous monitoring stations within the District. It measures six pollutants. It also has a meteorological station measuring four parameters.

FRM PM10: During 2009-2013, conditions exceeded the state standard two times. The highest concentration recorded in that time was 64 $\mu\text{g}/\text{m}^3$.

FEM PM10: During 2014 conditions exceeded the state standard four times. The highest concentration recorded in that time was 104 $\mu\text{g}/\text{m}^3$.

FRM PM2.5 During 2009-2014, conditions did not exceed the federal standard. The highest concentration recorded in that time was 28.1 $\mu\text{g}/\text{m}^3$.

CO: From 2009-2014, CA AAQs have not been exceeded.

O3: From 2009-2014, CA AAQs have not been exceeded.

NOX From 2009-2014, CA AAQs have not been exceeded.

SO2: From 2009-2014, CA AAQs have not been exceeded.

This station is used to: establish regulatory compliance, complete emission reduction evaluations, monitor air quality impacts of an emission source, perform trend tracking and historical consistency comparisons and to perform accountability and performance measurements. It is valuable both because of its location downwind of several title five sources, and because it is a full station, allowing for a comparison of the various pollutants at a single location. This station is needed for geographical and population representation.

Humboldt Hill Monitoring Station

This is one of two gaseous monitoring stations within the District. It measures six pollutants. It also has a meteorological station measuring four parameters.

FRM PM10 During 2011-2013, conditions did not exceed the federal standard. The highest concentration recorded in that time was 44 $\mu\text{g}/\text{m}^3$.

FRM PM2.5 During 2011-2014, conditions did not exceed the federal standard. The highest concentration recorded in that time was 22.2 $\mu\text{g}/\text{m}^3$.

CO: From 2011-2014, CA AAQs have not been exceeded.

O3: From 2011-2014, CA AAQs have not been exceeded.

NOX From 2011-2014, CA AAQs have not been exceeded.

SO2: From 2011-2014, CA AAQs have not been exceeded.

This station's primary function is to monitor the air quality impacts of an emission source. It is valuable because of its location downwind of the largest major Title V source in the District. No other monitoring equipment is located correctly to monitor emissions from this source. This station is needed to accurately evaluate source emissions.

Weaverville

The Weaverville Courthouse site is the only monitoring site in Trinity County. Weaverville is the most populous area of Trinity County. It currently monitors PM_{2.5}. It also hosts a NOAA Ozone instrument. This instrument is used to collect data for NOAA ozone transport studies. While the ozone data meets stringent Department of Commerce QAQC requirements, it does not meet the QAQC checks required by AQS, hence the data is not part of the AQS record.

FRM PM10: During 2009-2013 conditions exceeded the state standard 2 times. The highest concentration recorded in that time was 59. FRM PM10 monitoring ended in December 2013. Non-FEM PM_{2.5} monitoring began in March 2015.

This station is used to establish regulatory compliance, complete emission reduction evaluations, and to perform accountability and performance measurements. The station is needed for geographical representation and because of the possibility of wildfire smoke affecting the population of Weaverville.

Crescent City

The Crescent City site is the only monitoring site in Del Norte County. PM is the only pollutant monitored. Historically, PM10 was monitored. In July of 2014, Del Norte County was reclassified as attainment for PM10. The instrument was replaced with an FEM PM2.5 Grimm 180. Unfortunately, that instrument is not yet operational. It is expected to come online July 2015.

PM10: During 2009-2013 conditions exceeded the state standard one time. The highest concentration recorded in that time was 61.

This station represents conditions in a large part of the northwestern portion of the North Coast Air Basin. The PM monitor is needed for geographical representation. It is used to establish regulatory compliance, evaluate emission reductions, track trends, assess the effects of air pollution control programs, and monitor wildfire smoke.

Mobile Units

The District operates four E-BAMs. These units are used primarily during wildfire season. They are sometimes also used to investigate air quality complaints. Data from the units has been used for air quality model evaluation, public reporting of AQI, air quality impacts of an emission source, and Public Service Announcement determinations. Monitoring data from these units has been used to establish welfare-related impacts in rural and remote areas.

Assessment Summary

The District has accomplished the transition to continuous methods for PM₁₀. Both Del Norte and Trinity County attained PM₁₀ attainment designation in 2014, allowing manual methods for PM₁₀ sampling to end at those locations. The Humboldt County monitoring locations began using a continuous method in 2014.

Transitioning to reliable continuous methods for PM is the highest priority in the District network monitoring plan. This is both to obtain more complete monitoring data, and to

reduce costs. The Trinity County location has a continuous PM_{2.5} measuring system, however it is not FEM. The Grimm 180 instruments currently in use cannot be compared to the NAAQS, so they will be transitioned to PM_{1.0} monitors. The usefulness of this approach will be evaluated in the next network assessment.

All monitoring stations are recommended to continue at their current levels. All stations are required due to geographical need. Monitoring objectives have been met to the greatest extent allowed by the size and funding of the District. The highest pollutant concentrations populations are exposed to are expected to be discovered at the stations. The impact on ambient pollution levels of significant sources or source categories is measured by monitoring downwind of significant contributors of pollution. Background concentration levels are not obtained by the network due to limitations on monitoring funding. However, a NOAA Observatory is located within the District, which can be leveraged to obtain background levels for some pollutants.

The determination of regional pollution transport among populated areas and in support of secondary standards is beyond current funding constraints upon the District. However, the District supports NOAA efforts to study Ozone Transport Issues. This ozone transport information is not expected to have ramifications on North Coast ozone attainment, but is expected to generate useful data for the more inland counties.

Appendix A

PM2.5 Grimm 180 Waiver Request

A. Review of Network

See Annual Network Plan, above.

B. Review of data comparability of the PM_{2.5} continuous monitors

Data from the Grimm 180 to the Thermo 2000i was compared for 20 consecutive months. A total of 163 comparison dates were observed. Data was evaluated using the EPA ARM Candidate Method Test. Data below a threshold of 3 $\mu\text{g}/\text{m}^3$ was excluded from the evaluation. Results from that evaluation are below.

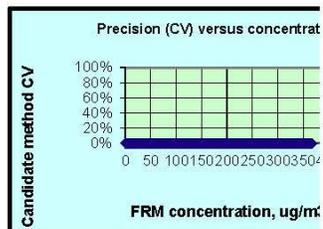
Summary - Candidate ARM Comparability

Applicant:	NCUAQMD
Candidate method:	Grimm 180 - Class
Test site:	Humboldt Hill - (Site location)

Data sets	Number
Valid data sets available:	163
Number of valid data sets required for ARM Comparison:	90
Number of valid data sets for this test is:	OK
Additional data sets needed:	--

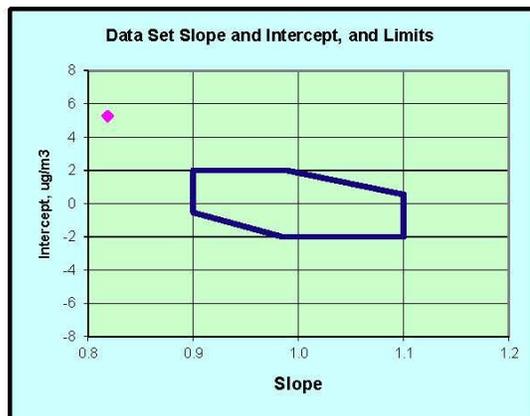
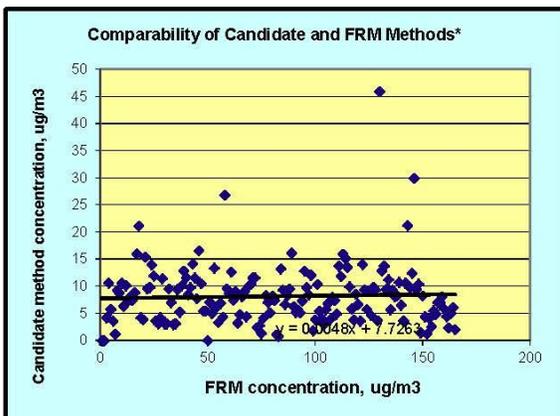
(Including 72 data sets excluded because FRM co

Precision (if data are available)	Data set mean, $\mu\text{g}/\text{m}^3$		Data set precision, $\mu\text{g}/\text{m}^3$		Relative precision (CV)	
	FRM	Candidate	FRM	Candidate	FRM	Candidate
Mean:						
Maximum:	0.0	0.0				
Minimum:	0.0	0.0				
Candidate / FRM Ratio:						
RMS Relative Precision for this site:						
Test requirements - Class III:					10.0%	15.0%
Precision Test Results for site:						



Regression statistics	Slope ¹	Intercept ²	Correlation (r)
Statistics for this test site:	0.819	5.277	0.37122
Limits for	Upper:	1.100	2.000
Class III	Lower:	0.900	0.872
Test Results (Pass/Fail):	FAIL	FAIL	FAIL

¹Multiplicative bias ²Additive bias



*If chart does not plot correctly, go to the Regression sheet and click on the ▼ in the Validity column and then on "ok." If new data are added, click "all" then "ok" to include the new data.

Data:

date	Grimm ug/m3	FRM ug/m3
20-Mar-13	4.2	2.3
23-Mar-13	10.6	5.5
26-Mar-13	5.7	3.9
29-Mar-13	3.6	1.9
4-Apr-13	1.2	0.9
10-Apr-13	9.2	3.8
16-Apr-13	8.7	5.3
22-Apr-13	10.6	4.5
28-Apr-13	6.3	3.4
4-May-13	10.1	8
10-May-13	7.3	3
16-May-13	8	3
22-May-13	7.4	4.9
28-May-13	8.8	2.9
3-Jun-13	16	7.9
9-Jun-13	21.1	12.2
15-Jun-13	4.2	1
21-Jun-13	3.8	1.7
3-Jul-13	15.4	6.4
9-Jul-13	9.5	2.5
15-Jul-13	9.8	3.1
21-Jul-13	13.9	1.1
27-Jul-13	11.9	4
2-Aug-13	3.6	0.5
8-Aug-13	3.1	3.2
14-Aug-13	4.2	1.9
20-Aug-13	11.4	4.8
26-Aug-13	3.1	1.6
1-Sep-13	3.1	1.5
7-Sep-13	9.5	1.7
18-Sep-13	7	0.3
21-Sep-13	2.9	1.8
25-Sep-13	3.1	1.3
1-Oct-13	9.4	4.9
4-Oct-13	5.2	8.4
8-Oct-13	10.1	4.7
10-Oct-13	12.8	7.6
13-Oct-13	11.6	3.5
16-Oct-13	8.4	3.3
19-Oct-13	9.7	4.7
22-Oct-13	14.1	2.6
25-Oct-13	11.5	5.6
29-Oct-13	7.7	4.8
31-Oct-13	16.5	7.7
3-Nov-13	10.5	5.6
6-Nov-13	5.4	1.9
9-Nov-13	5.4	3.5
21-Nov-13	0	9.7
24-Nov-13	7	4.4
27-Nov-13	5	4.4

30-Nov-13	13.3	7.8
3-Dec-13	6	1.9
6-Dec-13	3.3	3.4
9-Dec-13	6.9	4.7
12-Dec-13	4.3	3.5
15-Dec-13	26.8	12.4
18-Dec-13	9.5	15.4
21-Dec-13	8.7	3
24-Dec-13	12.6	4.9
27-Dec-13	7.4	9.1
30-Dec-13	9	5.5
5-Jan-14	3.2	2.5
8-Jan-14	4.7	1.5
11-Jan-14	8.1	3.8
14-Jan-14	9	4.9
17-Jan-14	4.4	3.7
20-Jan-14	10	6.1
23-Jan-14	10.4	4.8
26-Jan-14	11.5	5.3
29-Jan-14	11.5	2.6
1-Feb-14	2.3	0.9
4-Feb-14	2.7	0.5
7-Feb-14	1.3	5.5
10-Feb-14	4.1	2.6
13-Feb-14	8.3	0.8
16-Feb-14	7	2.5
19-Feb-14	5.1	2.3
22-Feb-14	8.2	2.6
25-Feb-14	7.4	4.4
28-Feb-14	1	4.7
3-Mar-14	0.8	0.7
6-Mar-14	13.2	1.3
9-Mar-14	9.3	1.0
12-Mar-14	6.6	2.5
15-Mar-14	8.3	2.4
18-Mar-14	9.5	4.5
21-Mar-14	16.1	6.7
24-Mar-14	6.2	4.1
27-Mar-14	5.2	4.2
30-Mar-14	5.6	3.1
2-Apr-14	5.1	2.5
5-Apr-14	7.3	4.3
8-Apr-14	12.8	2.4
14-Apr-14	9.8	5.3
17-Apr-14	8.4	2.8
20-Apr-14	12	4.8
23-Apr-14	1.8	1.3
26-Apr-14	3.8	1.8
29-Apr-14	10.3	5.7
2-May-14	5.4	2.9
5-May-14	4	2.4
8-May-14	2.9	1.5
11-May-14	5.7	1.9
14-May-14	6.8	5.9

17-May-14	3.9	2.5
20-May-14	8	0.4
23-May-14	7.4	1.2
26-May-14	4.9	3.0
29-May-14	13.7	6.5
1-Jun-14	11.8	5.5
4-Jun-14	15.9	7.7
7-Jun-14	15.1	8.0
10-Jun-14	13.5	7.4
13-Jun-14	9.9	3.0
16-Jun-14	5.8	3.4
19-Jun-14	3.8	2.3
22-Jun-14	8.5	4.7
25-Jun-14	6.7	0.5
28-Jun-14	3.6	1.9
1-Jul-14	14	3.2
4-Jul-14	9.3	4.2
7-Jul-14	5.7	0.9
10-Jul-14	9	1.4
13-Jul-14	4.6	2.0
16-Jul-14	9.8	3.3
19-Jul-14	9.3	1.1
22-Jul-14	3.7	1.0
28-Jul-14	45.9	1.7
31-Jul-14	12.8	2.7
3-Aug-14	13.7	3.2
6-Aug-14	9.4	0.0
9-Aug-14	11.2	4.6
12-Aug-14	5.7	2.0
15-Aug-14	9.3	1.2
18-Aug-14	8.1	1.8
21-Aug-14	8.3	4.6
24-Aug-14	10.7	0.2
27-Aug-14	6.5	0.0
30-Aug-14	3.6	1.7
2-Sep-14	10.6	4.0
5-Sep-14	21.2	9.5
8-Sep-14	9.7	0.0
11-Sep-14	12.4	0.3
14-Sep-14	29.9	3.4
17-Sep-14	9.4	3.8
20-Sep-14	10.4	3.8
23-Sep-14	1.4	1.1
11-Oct-14	8.2	2.4
14-Oct-14	4.4	4.2
17-Oct-14	1.2	1.7
20-Oct-14	4	1.9
23-Oct-14	2.5	1.6
29-Oct-14	5.5	4.5
1-Nov-14	4.8	3.0
4-Nov-14	7	5.0
7-Nov-14	7	4.0
10-Nov-14	8.1	4.0

13-Nov-14	5.8	4.8
16-Nov-14	4.4	3.2
19-Nov-14	2.3	2.0
22-Nov-14	5	3.0
25-Nov-14	6.1	5.1
28-Nov-14	2	2.5

C. Waiver Request

Due to the failure of the Grimm 180 data in the study, the District requests an exclusion of PM2.5 data obtained from the Grimm 180 instruments in the District network.