

Washoe County Health District Air Quality Management Division 2015 Ambient Air Monitoring Network Plan

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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic Count
AQI	Air Quality Index
AQMD	Washoe County Health District - Air Quality Management Division
AQS	Air Quality System
ARM	Approved Regional Method
ATR	Automatic Traffic Recorder
BAM	Beta Attenuation Monitor
CARB	California Air Resources Board
CBSA	Core-Based Statistical Area
cc/min	Cubic centimeter per minute
CFR	Code of Federal Regulations
CMSA	Consolidated Metropolitan Statistical Area
CO	Carbon Monoxide
CSA	Combined Statistical Area
DMV	Department of Motor Vehicles
EBAM	Met One Environmental Beta Attenuation Monitor
EI	Emissions Inventory
EPA	U.S. Environmental Protection Agency
ESC	Environmental Systems Corporation
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GFC	Gas Filter Correlation
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NCore	National Core multipollutant monitoring station
NDOT	Nevada Department of Transportation
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
NO _y	Reactive Oxides of Nitrogen
O ₃	Ozone
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 _{coarse}	PM ₁₀ minus PM _{2.5}
ppb	parts per billion
ppm	parts per million
PWEI	Population Weighted Emissions Index
RTI	Research Triangle Institute
SASS	Speciation Air Sampling System
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Station
SO ₂	Sulfur Dioxide
SPM	Special Purpose Monitoring
SR	State Route
STN	Speciation Trends Network
TAPI	Teledyne Advanced Pollution Instrumentation, Inc.

Introduction

Purpose

The U.S. Environmental Protection Agency (EPA) finalized amendments to the ambient air monitoring regulations on October 17, 2006.¹ The amendments revise the technical requirements for certain types of ambient air monitoring sites, add provisions for monitoring of PM_{coarse}, and reduce certain monitoring requirements for criteria pollutants. Monitoring agencies are required to submit annual monitoring network plans, conduct network assessments every five years, perform quality assurance activities, and in certain instances, have NCore sites established by January 1, 2011.

This plan was prepared and submitted as part of the fulfillment to these regulations. It represents the Washoe County Health District - Air Quality Management Division's (AQMD) ambient air monitoring program activities completed in 2014 and proposed network modifications for 2015-2016.

Public Inspection Process

This monitoring network plan was available for public inspection from June 1 to June 30, 2015 at the AQMD website (OurCleanAir.com). A hardcopy of the plan was also available at the AQMD office.

Agency Contacts

For information or questions regarding the 2015 Ambient Air Monitoring Network Plan, please contact the following individuals of the AQMD.

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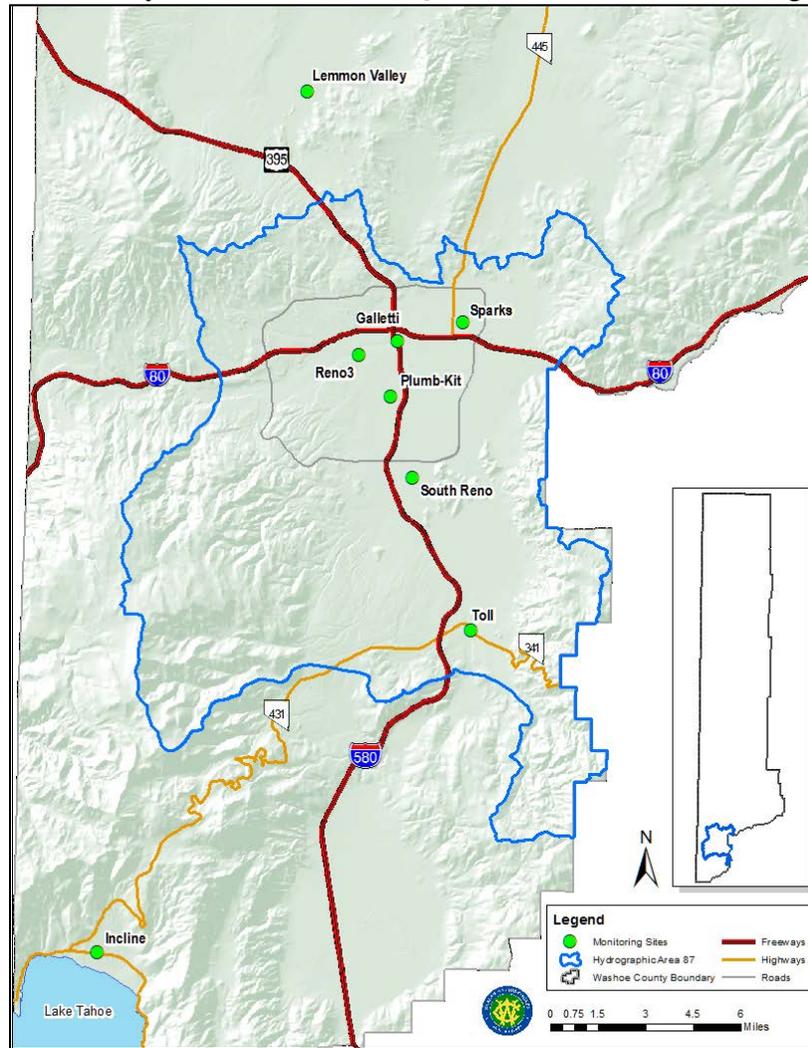
¹ 71 FR 61236-61328.

Overview of Washoe County Health District Network Operation

Network Design

The AQMD operated eight (8) ambient air monitoring sites in 2014 (Figure 1). The blue boundary delineates Hydrographic Area 87 (HA 87) as defined by the State of Nevada Division of Water Resources and is currently designated as “serious” non-attainment for the 24-hour PM₁₀ NAAQS.^{2,3} Washoe County is classified as “attainment” or “unclassifiable/attainment” for all other pollutants and averaging times. Table 1 lists the parameters monitored in 2014 sorted by network type and site.

Figure 1
Washoe County Health District - AQMD Ambient Air Monitoring Sites



² 40 CFR 81.329.

³ In July 2009, the AQMD submitted a SIP revision to EPA requesting redesignation of HA 87 to an attainment/maintenance area for the 24-hour PM₁₀ NAAQS. On April 19, 2011, EPA published a final rule (76 FR 21807) finding that 1) the Truckee Meadows failed to attain the NAAQS by the applicable date and 2) the Truckee Meadows is currently attaining the NAAQS based on recent monitoring data (2007-2009). The rule does not change the “Serious” non-attainment designation.

Table 1
Ambient Air Monitoring Sites and Parameters Monitored

Network Type Site	O ₃	CO	Trace CO	Trace NO	NO ₂	NO _x	Trace NOy	Trace SO ₂	PM ₁₀ (manual)	PM ₁₀ (continuous)	PM _{2.5} (manual)	PM _{2.5} (continuous)	PM _{coarse} (manual)	PM _{coarse} (continuous)	PM _{2.5} Speciation	Meteorology
SLAMS																
Galletti		✓								✓		✓		✓		✓
Incline	✓															
Lemmon Valley	✓	✓														
Plumb-Kit										✓						✓
South Reno	✓									✓						✓
Sparks	✓	✓								✓		✓		✓		✓
Toll	✓	✓								✓						✓
NCore ⁴																
Reno3	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Speciation Trends																
Reno3															✓	

Notes: Meteorology for the NCore network includes ambient temperature, wind speed, wind direction, and relative humidity. The PM₁₀ manual method monitor at NCore is for PM_{coarse} calculation only and is not submitted to AQS for data to be used in comparison to the NAAQS.

⁴ NCore monitoring began December 2010.

Minimum Monitoring Requirements

The AQMD's ambient air monitoring network meets the minimum monitoring requirements for all criteria pollutants pursuant to 40 CFR 58, Appendix D. Tables 2 through 10 provide pollutant specific monitoring requirements. Additional pollutant specific data may be found in the "[Washoe County, Nevada, Air Quality Trends Report, 2005-2014](#)". The 2014 population data are from the Nevada State Demographer's Office.⁵

Table 2
Minimum Monitoring Requirements for O₃

MSA	County	Population	8-hour Design Value (2012-2014)		Number of Sites		
			ppm	Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe Storey Total	436,797 3,974 440,771	0.070	Reno 3 (0016)	2	6	0

Monitors required for SIP or Maintenance Plan: 2

Title 40 CFR 58, Appendix D, Section 4.1 requires O₃ monitoring in MSAs with populations above 350,000 people. Monitors are also required in MSAs with lower populations if measured O₃ values within that MSA are within 85% of the NAAQS.

Table 3
Minimum Monitoring Requirements for FEM PM_{2.5}

MSA	County	Population	Design Value (2012-2014)				Number of Monitors		
			Annual (µg/m ³)	Annual Site (ID)	Daily (µg/m ³)	Daily Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe Storey Total	436,797 3,974 440,771	10.0	Sparks (1005)	32	Sparks (1005)	1	3	0

Monitors required for: SIP or Maintenance Plan: 0; NCore: 1

Table 4
Minimum Monitoring Requirements for FRM PM_{2.5}

MSA	County	Population	Design Value (2012-2014)				Number of Monitors		
			Annual (µg/m ³)	Annual Site (ID)	Daily (µg/m ³)	Daily Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe Storey Total	436,797 3,974 440,771	7.4	Reno3 (0016)	23	Reno3 (0016)	1	1	0

Monitors required for: SIP or Maintenance Plan: 0; NCore: 1

⁵ Nevada State Demographer, "Governor Certified Population Estimates of Nevada's Counties, Cities and Towns 2000 to 2014", 2014.

Title 40 CFR 58, Appendix D, Section 4.7 requires PM_{2.5} monitoring in MSAs with populations above 500,000 people and in MSAs with lower populations if measured PM_{2.5} values for an MSA are within 85% of the NAAQS.

Table 5
Minimum Monitoring Requirements for PM₁₀

MSA	County	Population	Maximum Concentration (2014)		Number of Sites		
			µg/m ³	Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe <u>Storey</u> Total	436,797 3,974 440,771	159	Galletti (0022)	0	6	0

Monitors required for SIP or Maintenance Plan: 4

Title 40 CFR 58, Appendix D, Section 4.6 specifies PM₁₀ monitoring requirements in MSAs based on population and design values.

Table 6
Minimum Monitoring Requirements for NO₂

CBSA	Counties	Population	Design Value (2012-2014)		Number of Monitors		
			Annual (ppb)	1-hour (ppb)	Minimum Required	Active	Needed
Reno, NV	Washoe <u>Storey</u> Total	436,797 3,974 440,771	14	54	1	1	0

Monitors required for: SIP or Maintenance Plan: 0; NCore: 1

Title 40 CFR 58, Appendix D, Section 4.3.2 requires one near-road NO₂ monitoring station in each CBSA with populations over 500,000 people. Likewise, Title 40 CFR 58, Appendix D, Section 4.3.3 requires one area-wide NO₂ monitoring station in each CBSA with populations over 1,000,000 people. Based on the 2013 population data from the Nevada State Demographer's Office, the Reno, NV CBSA does not require a near-road or area-wide NO₂ monitoring station.

Table 7
Minimum Monitoring Requirements for CO

CBSA	Counties	Population	Design Value (2013-2014)		Number of Monitors		
			1-hour (ppm)	8-hour (ppm)	Minimum Required	Active	Needed
Reno, NV	Washoe <u>Storey</u> Total	436,797 <u>3,974</u> 440,771	3.4	2.7	2	5	0

Monitors required for: SIP or Maintenance Plan: 2; NCore: 1

Title 40 CFR 58, Appendix D, Section 3.0 requires high sensitivity CO monitors at NCore sites. Title 40 CFR 58, Appendix D, Section 4.2 requires one CO monitor to operate collocated with one required near-road NO₂ monitor in CBSAs having populations over 1,000,000 people. Based on the 2014 population data from the Nevada State Demographer's Office, the Reno, NV CBSA does not require a CO monitor collocated with a near-road NO₂ monitor.

Table 8
Minimum Monitoring Requirements for SO₂

CBSA	Counties	Population	Total SO ₂ (tons/year)	PWEI (Million persons-tons/year)	Number of Monitors		
					Minimum Required	Active	Needed
Reno, NV	Washoe <u>Storey</u> Total	436,797 <u>3,974</u> 440,771	926.2	408.2	1	1	0

Monitors required for NCore: 1

Title 40 CFR 58, Appendix D, Section 4.4.2 requires an SO₂ monitoring network based on a calculated population weighted emissions index (PWEI). This index is calculated by multiplying the population of a CBSA with the National Emission Inventory (NEI) data for counties within that CBSA. The calculated value is then divided by one million in order to obtain the PWEI value. PWEI monitoring requirements are as follows: 1) one monitor in CBSAs with a PWEI value greater than 5,000, 2) two monitors in CBSAs with a PWEI value greater than 100,000, and 3) three monitors in CBSAs with a PWEI value greater than 1,000,000. As shown in Table 8, AQMD used 2014 population data from the Nevada State Demographer's Office and 2011 National Emissions Inventory data to determine that no additional SO₂ monitoring is required.

Table 9
Minimum Monitoring Requirements for Pb at NCore

NCore Site Name	AQS ID	CBSA	Counties	Population	Number of Monitors		
					Minimum Required	Active	Needed
Reno 3	32-031-0016	Reno, NV	Washoe Storey Total	436,797 3,974 440,771	0	0	0

Title 40 CFR 58, Appendix D, Section 3(b) requires Pb monitoring for NCore sites in CBSAs with a population of 500,000 people or greater.

Table 10
Source-Oriented Pb Monitoring

Source Name	Address	Pb Emissions (tons/year)	Emission Inventory Source & Data Year	Max 3-Month Design Value ($\mu\text{g}/\text{m}^3$)	Design Value Date (3 rd Month, Year)	Number of Monitors		
						Minimum Required	Active	Needed
Reno-Stead Airport	4895 Texas Ave Reno, NV	0.25	2011 NEI	N/A	N/A	0	0	0
Reno-Tahoe International Airport	2001 E Plumb Lane Reno, NV	0.15	2011 NEI	N/A	N/A	0	0	0

Title 40 CFR 58, Appendix D, Section 4.5(a) requires one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year based on the most recent National Emission Inventory. All non-airport sources of Pb within the CBSA emit less than 0.5 tons per year and all airport sources within the CBSA emit less than 1.0 tons per year, according to the 2011 NEI. Table 10 includes the two largest sources of Pb emissions in the Reno, NV CBSA.

Collocation Requirements

Title 40 CFR 58, Appendix A, Section 3 describes the number of collocated monitors required for PM_{2.5}, PM₁₀, and Pb networks at the Primary Quality Assurance Organization (PQAO) level. Tables 11 and 12 display how AQMD is assessing and meeting these collocation requirements.

Table 11
Collocation of Manual PM_{2.5}, PM₁₀, and non-NCORE Pb Monitors

Method Code	Number of Primary Monitors	Number of Collocated Monitors	
		Required	Active
125	0	0	0

Title 40 CFR 58, Appendix A, Section 3.3.1 requires 15 percent (at least 1) of the manual method samplers be collocated. Being that AQMD only runs one manual method sampler for the calculation of PM_{10-2.5} at the Reno 3 NCORE station, and all of the Primary PM₁₀ monitors are continuous methods, there is no collocation requirement.

Table 12
Collocation of Automated FEM PM_{2.5} Monitors

Method Code	Number of Primary Monitors	Number of Required Collocated Monitors	Number of Active Collocated FRM Monitors	Number of Active Collocated FEM Monitors (same method designation as primary)
170	3	1	1	0

Title 40 CFR 58, Appendix A, Section 3.2.5 requires 15 percent (at least 1) of the monitors be collocated. The first collocated monitor must be a designated FRM monitor. AQMD meets this requirement by having three Primary PM_{2.5} FEM monitors with one at the Reno 3 monitoring station collocated with a PM_{2.5} FRM sampler.

Network Modifications Completed in 2014

SLAMS:

CO (South Reno)

- CO analyzer was taken offline and monitoring for CO at South Reno site was discontinued. See Appendix A, Network Modification Request/Approval for South Reno SLAMS CO closure.

All pollutants and meteorology (Galletti)

- All monitoring at Galletti site discontinued. See Appendix B, Network Modification Request/Approval for Galletti SLAMS closure.

NCore:

- No modifications completed.

Speciation Trends:

- No modifications completed.

Additional Changes Completed in 2014

SLAMS:

O₃ (Lemmon Valley, South Reno, Sparks)

- Replaced existing TAPI 400E O₃ analyzers with new TAPI T400 analyzers as part of AQMD's ten-year replacement program.

CO, O₃ (South Reno, Sparks)

- Replaced the Environics 6103 Ozone Transfer Standard/Multi-gas Calibrator with a Teledyne-API T700 Dynamic Dilution Calibrator as part of ten-year replacement program.

PM₁₀, PM_{2.5} (Sparks)

- Existing Met One BAM 1020 FEM PM_{2.5} monitor was replaced by a new Met One BAM 1020 FEM PM₁₀ monitor. Existing Met One BAM 1020 FEM PM₁₀ monitor converted to PM_{2.5}. Both Met One BAM 1020s converted to coarse pair.
- Met One BAM 1020 FEM coarse pair configured to be direct polled by AirVision software.

NCore:

CO, O₃, NO_y, SO₂ (Reno 3)

- Replaced the Environics 6103 Ozone Transfer Standard/Multi-gas Calibrator with a Teledyne-API T700U Dynamic Dilution Calibrator as part of ten-year replacement program.

PM₁₀, PM_{2.5} (Reno 3)

- Existing duplicate BGI PQ200 FRM PM_{2.5} manual method sampler discontinued. Last run was on 12-31-14.
- Met One BAM 1020 FEM coarse pair configured to be direct polled by AirVision software.

Speciation Trends:

PM_{2.5} Speciation (Reno 3)

- Met One SASS replaced by Met One SuperSASS and URG 3000N upgraded to allow for sequential sampling beginning February 26, 2014.

Other:

- Replaced existing TAPI 400E Primary Ozone Standard with new TAPI T400 Primary Ozone Standard as part of AQMD's ten-year replacement program.

Network Modifications Proposed for 2015 - 2016

SLAMS:

- No modifications proposed.

NCORE:

- No modifications proposed.

Speciation Trends:

- No modifications proposed.

SPM:

All pollutants and meteorology (Spanish Springs)

- Start monitoring PM₁₀, PM_{2.5}, PM_{10-2.5}, O₃, and meteorology at new site in Spanish Springs. See Appendix B, Network Modification Request/Approval for Spanish Springs SPM site initiation.

Additional Changes Proposed for 2015-2016

SLAMS:

CO, O₃ (Lemmon Valley)

- Replace the Environics 6103 Ozone Transfer Standard/Multi-gas Calibrator with a Teledyne-API T700 Dynamic Dilution Calibrator as part of ten-year replacement program.

CO, O₃ (Incline, Lemmon Valley, South Reno, Sparks, Toll)

- Program nightly automatic zero and span checks allowing for weekly precision checks rather than bi-weekly zero, span, and precision checks.

Meteorology (Plumb-Kit, South Reno, Sparks, Toll)

- Replace existing stationary 10 meter towers with telescoping 10 meter towers and add roof access ladders to increase staff safety.

PM₁₀, PM_{2.5} (Plumb Kit, South Reno, Toll)

- Configure Met One BAM 1020 FEM PM₁₀ monitors to be direct polled by AirVision software.

NCORE:

Meteorology (Reno 3)

- Install a new Met One 595 solar radiation sensor.

Speciation Trends:

- No modifications proposed.

SPM:

- No modifications proposed.

PM_{2.5} Monitoring Network Modifications Proposed for 2015-2016

SLAMS:

- No modifications proposed.

NCore:

- No modifications proposed.

Speciation Trends:

- No modifications proposed.

SPM:

PM_{2.5} (Spanish Springs)

- Start monitoring PM_{2.5} at new site in Spanish Springs. See Appendix B, Network Modification Request/Approval for Spanish Springs SPM site initiation.

Data Submission Requirements

Precision and Accuracy Reports for 2014 were submitted to AQS for the:

- 1st quarter in June 2014,
- 2nd quarter in September 2014,
- 3rd quarter in November 2014, and
- 4th quarter in March 2015.

Annual Data Certification for all data for 2014 was submitted to EPA on April 30, 2015.

Overview of Tribal Network Operations

Network Design

Two tribes operate ambient air monitoring networks within the geographic boundaries of Washoe County - The Reno-Sparks Indian Colony (RSIC) and Pyramid Lake Paiute Tribe (PLPT). Table 13 summarizes the tribal sites and parameters monitored in 2014. Figure 2 shows the location of tribal lands for the Reno-Sparks Indian Colony and Figure 3 is a map showing the locations of the Pyramid Lake Paiute Tribes' monitoring sites. For additional detailed site information about the RSIC and PLPT monitoring networks including annual network plans, refer to the following contact information.

Reno Sparks Indian Colony
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 Environmental Program of the
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www.rsic.org

Pyramid Lake Paiute Tribe
 Tanda Roberts
 Air Quality Specialist
 Environmental Department
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 Nixon, NV 89424
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troberts@plpt.nsn.us
<http://plpt.nsn.us/environmental/air.htm>

Table 13
 Tribal Ambient Air Monitoring Sites and Parameters Monitored

Network Site Site ID	O ₃	CO	NO ₂	NO _x	PM ₁₀ (manual)	PM ₁₀ (continuous)	PM _{2.5} (manual)	PM _{2.5} (continuous)	PM _{coarse} (manual)	PM _{coarse} (continuous)	Meteorology
RSIC											
Hungry Valley TT 653 2010						✓					
PLPT											
WADSAQ T-561-1026						✓					✓

Figure 2
Reno-Sparks Indian Colony

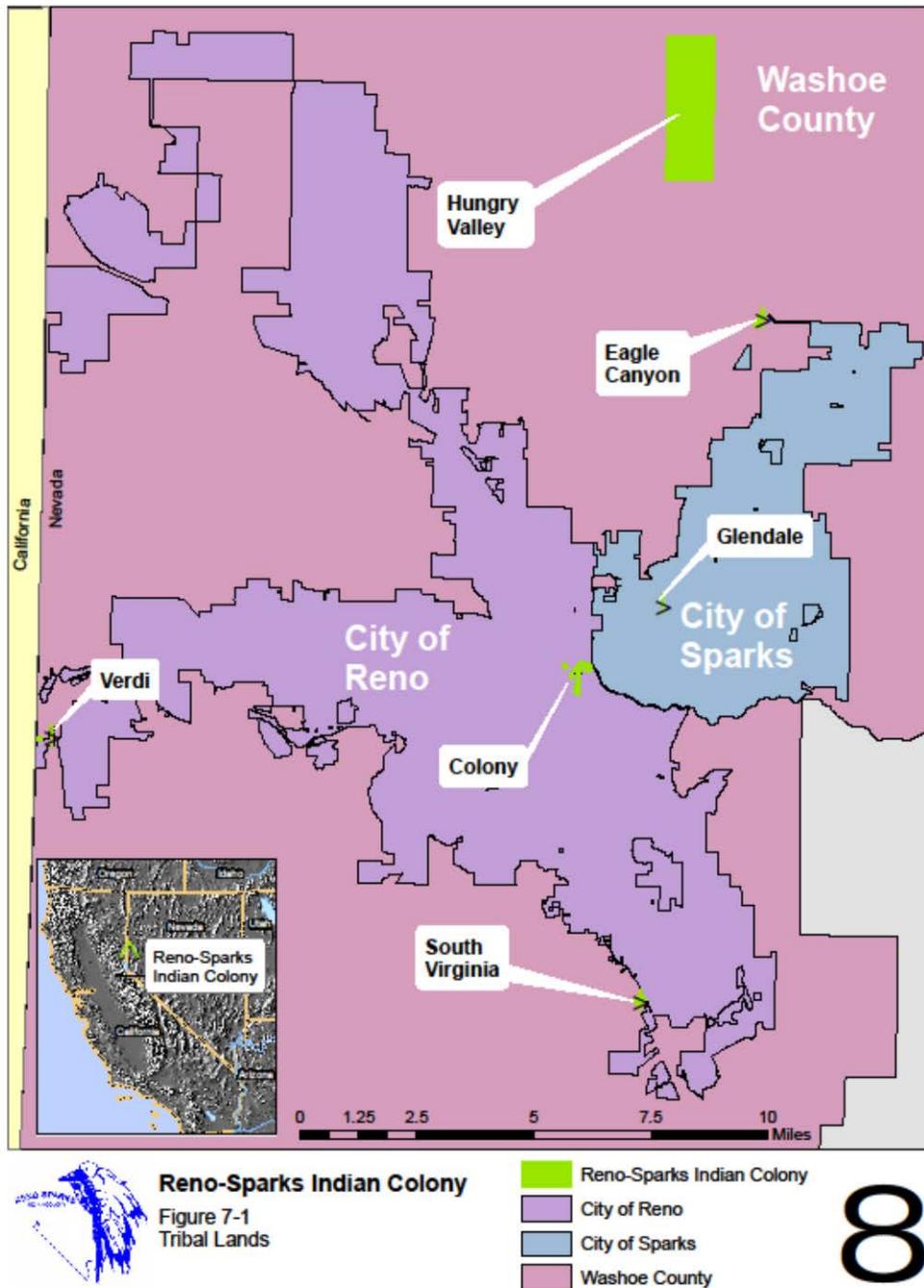


Figure 3
Pyramid Lake Paiute Tribe



Map 1 - Location of Pyramid Lake Paiute Tribe Air Quality Monitoring Site.

Washoe County Health District Detailed Site Information

Galletti

The Galletti site is located southeast of the Interstate 80 - US Highway 395/Interstate 580 interchange in a commercial/industrial area. The Galletti site was closed in November 2014 due to an emergency paving project by the Nevada Department of Transportation.

Site Name:	Galletti
AQS ID:	32-031-0022
Geographical coordinates:	39° 31.920'N, 119° 47.099'W
Location:	South end of NDOT equipment yard.
Street address:	305 Galletti Way Reno, NV 89512
County:	Washoe
Distance to road:	15.0 meters to Kietzke Lane; 117 meters to IR 580
Traffic count:	14,100 AADT (2011-2013) (NDOT ATR 0312210 - Kietzke Lane, 0.15 miles south of Galletti Way) 144,000 AADT (2011-2013) (NDOT ATR 0310461 – IR580 (US 395), 'Exit 67' 0.2 miles north of Glendale Ave.)
Groundcover:	Paved
Representative area:	Reno-Sparks MSA

Figure 4
Galletti Monitoring Station



Figure 5
Galletti Monitoring Site Vicinity Map

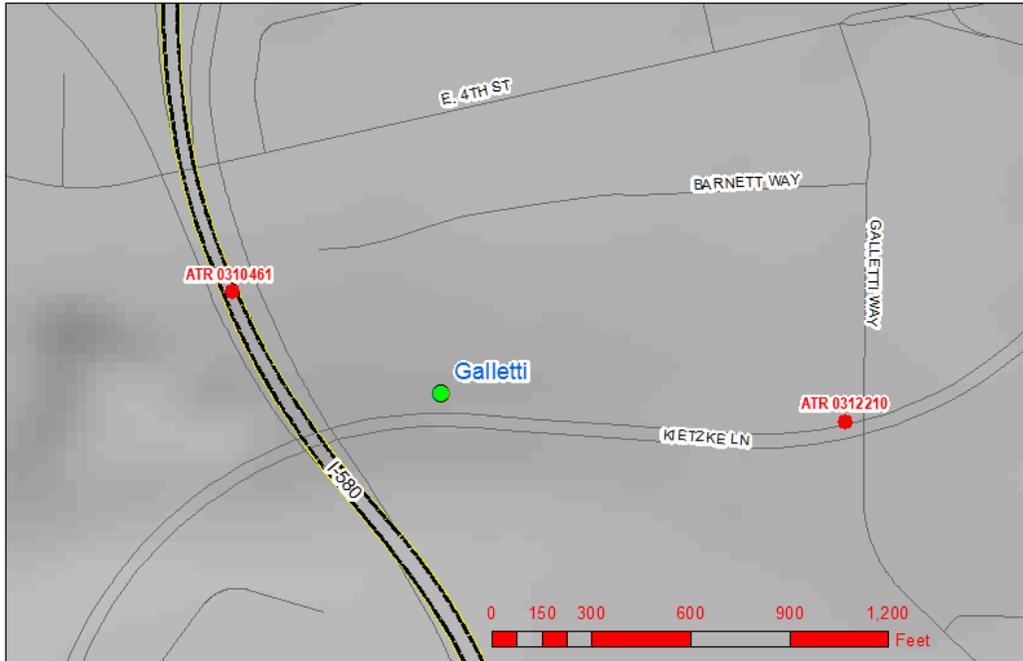


Figure 6
Galletti Monitoring Site Vicinity Aerial



Galletti (continued)

	PM₁₀	PM_{2.5}	PM_{10-2.5}	CO
Site type	Highest Concentration	Highest Concentration	Highest Concentration	Highest Concentration
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a	n/a
Spatial scale	Middle	Middle	Middle	Middle
Sampling method	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	TAPI 300E
Analysis method	Beta Attenuation	Beta Attenuation	Beta Attenuation	GFC
Method code	122	170	185	093
Parameter code	81102 & 85101	88101	86101	42101
Parameter occurrence code	6	1	1	1
Start date	August 1988; Discontinued November 2014	January 2013; Discontinued November 2014	January 2013; Discontinued November 2014	August 1988; Discontinued November 2014
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	Research Support	NAAQS comparison
Probe height	4.0 meters	4.0 meters	4.0 meters	4.0 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	1.2 meters	1.2 meters	1.2 meters	1.2 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	8.2 meters*	8.2 meters*	8.2 meters*	8.2 meters*
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
Flow rate	16.7 l/min	16.7 l/min	16.7 l/min	720-880 cc/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	Teflon
Residence time	n/a	n/a	n/a	6 seconds
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	Yes	n/a	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	Bi-weekly (3 point)
Last:				
annual performance evaluation (gaseous)	n/a	n/a	n/a	03-19-14 06-06-14 09-10-14 10-29-14
two semi-annual flow rate audits (PM)	03-24-14 06-24-14 09-24-14 11-18-14	03-24-14 06-24-14 09-24-14 11-18-14	03-24-14 06-24-14 09-24-14 11-18-14	n/a

* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow or pollutant scavenging around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

Galletti (continued)

	Wind Speed	Wind Direction	Ambient Temperature
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a
Spatial scale	Middle	Middle	Middle
Sampling method	Met One 50.5H	Met One 50.5H	YSI Series 700
Analysis method	Sonic Anemometer	Sonic Anemometer	Electronic Average
Method code	061	061	014
Parameter code	61102	61101	64101
Parameter occurrence code	1	1	1
Start date	January 2014; Discontinued November 2014	January 2014; Discontinued November 2014	January 2014; Discontinued November 2014
Operation schedule	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year
Monitoring objective(s)	Public Information	Public Information	Public Information
Probe height	10.0 meters	10.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a
Distance:			
from supporting structure	10.0 meters	10.0 meters	5.0 meters
from obstructions not on roof	None	None	None
from obstructions on roof	n/a	n/a	n/a
from trees	9.0 meters	9.0 meters	9.0 meters
to furnace or incinerator flue	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a
Flow rate	n/a	n/a	n/a
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a
Residence time	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a
Frequency of:			
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a
one-point QC check (gaseous)	n/a	n/a	n/a
Last:			
annual performance evaluation (gaseous & meteorological)	03-19-14 06-27-14 09-23-14 11-18-14	03-19-14 06-27-14 09-23-14 11-18-14	03-19-14 06-27-14 09-23-14 11-18-14
two semi-annual flow rate audits (PM)	n/a	n/a	n/a

Incline

This site is located in a Washoe County office building at 855 Alder Avenue and is outside HA 87. It is located in a residential/commercial neighborhood. The AQMD had monitored PM₁₀ (1993-2002) and CO (1993-2002) and currently monitors for O₃. This site was temporarily closed from December 2005 to May 2008 for remodeling. By multi-agency cooperative agreement, the California Air Resources Board (CARB) monitored PM_{2.5} (1999-2002) and NO₂ (1999-2002). Since May 2008, this site only monitors for O₃.

Site Name:	Incline
AQS ID:	32-031-2002
Geographical coordinates:	39° 15.025'N, 119° 57.404'W
Location:	Inside northeast corner of Washoe County office building.
Street address:	855 Alder Avenue Incline Village, NV 89451
County:	Washoe
Distance to road:	57 meters to Tahoe Boulevard
Traffic count:	12,000 AADT (2011-2013) (NDOT ATR 0310379 – SR28, North Shore Rd (Tahoe Blvd), 450ft south of Village Blvd.)
Groundcover:	Paved / Vegetated
Representative area:	Reno-Sparks MSA

Figure 7
Incline Monitoring Station



Figure 8
Incline Monitoring Site Vicinity Map

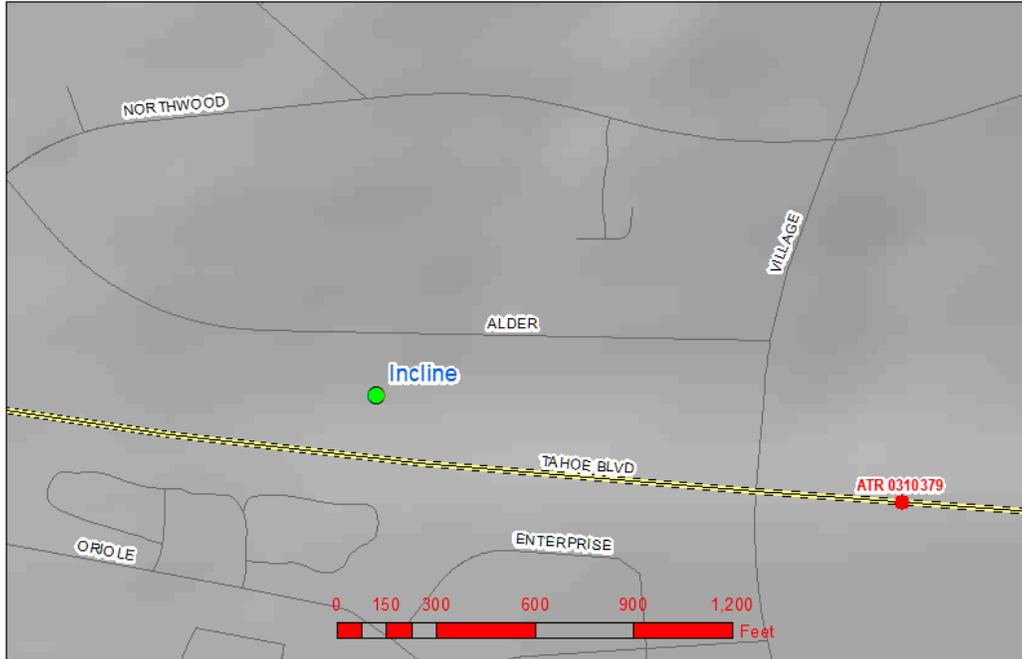


Figure 9
Incline Monitoring Site Vicinity Aerial



Incline (continued)

	O₃
Site type	Population Exposure
Monitor type	SLAMS
Network Affiliation	n/a
Spatial scale	Neighborhood
Sampling method	TAPI 400E
Analysis method	UV Photometry
Method code	087
Parameter code	44201
Parameter occurrence code	1
Start date	June 1993
Operation schedule	Continuous
Sampling season	All year
Monitoring objective(s)	NAAQS comparison
Probe height	4.6 meters
Height of obstruction not on roof	n/a
Distance:	
from supporting structure	1.1 meters
from obstructions not on roof	None
from obstructions on roof	n/a
from trees	5.2 meters*
to furnace or incinerator flue	12.2 meters
between collocated monitors	n/a
Flow rate	720-880 cc/min
Unrestricted airflow	360 degrees
Probe material	Teflon
Residence time	14 seconds
Proposed modifications within the next 18 months?	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a
Frequency of:	
flow rate verification for manual samplers audit (PM)	n/a
flow rate verification for automated analyzers audit (PM)	n/a
one-point QC check (gaseous)	Bi-weekly (3 point)
Last:	
annual performance evaluation (gaseous)	03-19-14 06-10-14 09-09-14 10-29-14
two semi-annual flow rate audits (PM)	n/a

* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow or pollutant scavenging around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

Lemmon Valley

Located at the Boys and Girls Club at 325 Patrician Drive, this site is outside HA 87. It is in a transitional area among residences, parks, and open fields.

Site name:	Lemmon Valley
AQS ID:	32-031-2009
Geographical coordinates:	39° 38.716'N, 119° 50.401'W
Location:	Inside northwest corner of Boys and Girls Club.
Street address:	325 W. Patrician Drive Reno, NV 89506
County:	Washoe
Distance to road:	59 meters to Patrician Drive.
Traffic count:	887 AADT (2011-2013) (NDOT ATR 0310926 - Patrician Drive, 150 feet west of Lemmon Drive)
Groundcover:	Paved / Vegetated
Representative area:	Reno-Sparks MSA

Figure 10
Lemmon Valley Monitoring Station



Figure 11
Lemmon Valley Monitoring Site Vicinity Map

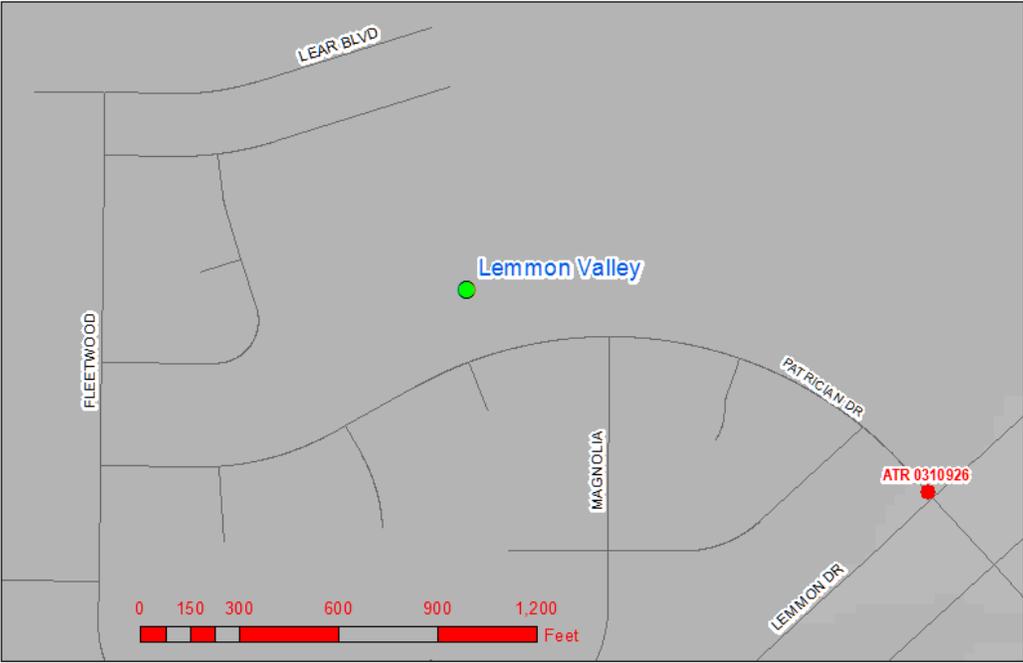


Figure 12
Lemmon Valley Monitoring Site Vicinity Aerial



Lemmon Valley (continued)

	CO	O₃
Site type	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS
Network Affiliation	n/a	n/a
Spatial scale	Urban	Urban
Sampling method	TAPI 300EU	TAPI T400
Analysis method	GFC	UV Photometry
Method code	093	087
Parameter code	42101	44201
Parameter occurrence code	1	1
Start date	January 1987	January 1987
Operation schedule	Continuous	Continuous
Sampling season	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison
Probe height	5.5 meters	5.5 meters
Height of obstruction not on roof	n/a	n/a
Distance:		
from supporting structure	2.0 meters	2.0 meters
from obstructions not on roof	None	None
from obstructions on roof	n/a	n/a
from trees	21 meters	21 meters
to furnace or incinerator flue	9.1 meters	9.1 meters
between collocated monitors	n/a	n/a
Flow rate	1440-2160 cc/min	720-880 cc/min
Unrestricted airflow	360 degrees	360 degrees
Probe material	Teflon	Teflon
Residence time	5 seconds	5 seconds
Proposed modifications within the next 18 months?	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a
Frequency of:		
flow rate verification for manual samplers audit (PM)	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a
one-point QC check (gaseous)	Bi-weekly (3 point)	Bi-weekly (3 point)
Last:		
annual performance evaluation (gaseous)	03-18-14 06-05-14 09-09-14 10-28-14	03-18-14 06-05-14 09-09-14 10-28-14
two semi-annual flow rate audits (PM)	n/a	n/a

Plumb-Kit

The Plumb-Kit site is located on the northeast corner of Plumb Lane and Kietzke Lane. The site is surrounded by both residential and commercial properties as well as a school.

Site name:	Plumb-Kit
AQS ID:	32-031-0030
Geographical coordinates:	39° 30.381'N, 119° 47.314'W
Location:	Northeast corner of Plumb and Kietzke Lanes.
Street address:	891 East Plumb Lane Reno, NV 89502
County:	Washoe
Distance to road:	36 meters to Kietzke Lane, 44 meters to Plumb Lane
Traffic count:	21,833 AADT (2011-2013) (NDOT ATR 0310191 - Kietzke Lane, 0.3 mi S of Plumb Lane. 26,667 AADT (2011-2013) (NDOT ATR 0310192 - East Plumb Lane, 590 feet east of Kietzke Lane)
Groundcover:	Gravel
Representative area:	Reno-Sparks MSA

Figure 13
Plumb-Kit Monitoring Station



Figure 14
Plumb-Kit Monitoring Site Vicinity Map

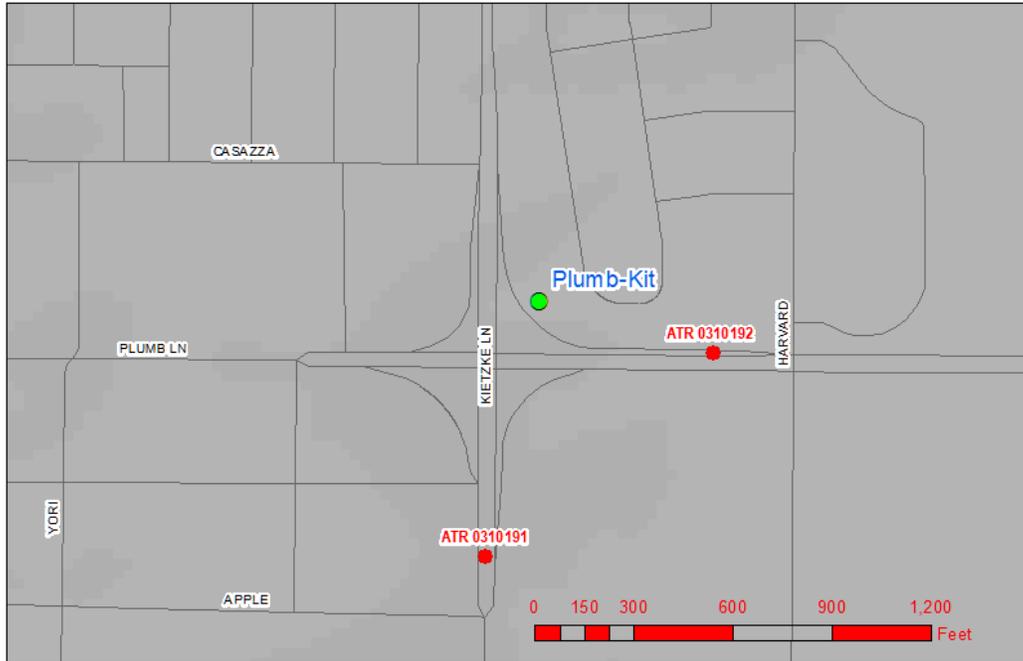


Figure 15
Plumb-Kit Monitoring Site Vicinity Aerial



Plumb-Kit (continued)

	PM₁₀	Wind Speed	Wind Direction	Ambient Temperature
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a	n/a
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One BAM 1020	Met One 50.5H	Met One 50.5H	YSI Series 700
Analysis method	Beta Attenuation	Sonic Anemometer	Sonic Anemometer	Electronic Average
Method code	122	061	061	014
Parameter code	81102	61102	61101	64101
Parameter occurrence code	2	1	1	1
Start date	January 2006	January 2014	January 2014	January 2014
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	Public Information	Public Information	Public Information
Probe height	4.3 meters	10.0 meters	10.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	1.5 meters	10.0 meters	10.0 meters	5.0 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	12.2 meters*	13.0 meters	13.0 meters	13.0 meters
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
Flow rate	16.7 l/min	n/a	n/a	n/a
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	n/a
Residence time	n/a	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	Bi-weekly verifications and quarterly audits	n/a	n/a	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	n/a
Last:				
annual performance evaluation (gaseous & meteorological)	n/a	03-27-14 06-27-14 09-24-14 11-21-14	03-27-14 06-27-14 09-24-14 11-21-14	03-27-14 06-27-14 09-24-14 11-21-14
two semi-annual flow rate audits (PM)	03-27-14 06-23-14 09-24-14 12-02-14	n/a	n/a	n/a

* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow or pollutant scavenging around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

Reno 3

This downtown site began operation in January 2002 to replace the Reno site. Both a residential neighborhood and a commercial growth area surround this site. In December 2010, this site became an NCore site.

Site name:	Reno 3
AQS ID:	32-031-0016
Geographical coordinates:	39° 31.505'N, 119° 48.463'W
Location:	Southwest corner of City of Reno parking lot.
Street address:	301A State Street Reno, NV 89501
County:	Washoe
Distance to road:	38 meters to Mill Street, 13.1 meters to State Street, and 6.7 meters to River Rock.
Traffic count:	4,733 AADT (2011-2013) (NDOT ATR 0310862 – Mill Street, 100 feet west of Holcomb Avenue) 200-300 Approximate AADT on River Rock (RTC/City of Reno Estimate)
Groundcover:	Paved
Representative area:	Reno-Sparks MSA

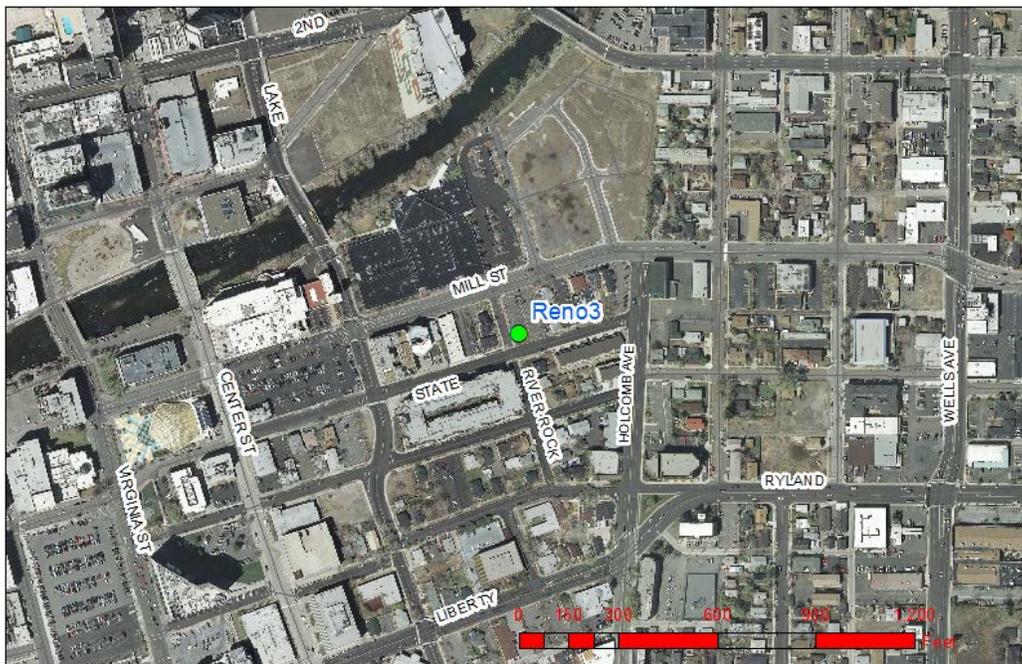
Figure 16
Reno 3 Monitoring Station



Figure 17
Reno 3 Monitoring Site Vicinity Map



Figure 18
Reno 3 Monitoring Site Vicinity Aerial



Reno 3 (continued)

	FEM PM₁₀ (Primary)	FEM PM_{2.5} (Primary)	FEM PM_{10-2.5} (Primary)	PM_{2.5} Speciation
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	NCore	NCore	NCore	CSN STN, NCore
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020 Coarse Pair	Met One SASS; URG 3000N
Analysis method	Beta Attenuation	Beta Attenuation	Subtraction	RTI lab
Method code	122	170	185	SASS: 810 URG: 870
Parameter code	81102 & 85101	88101	86101	88502
Parameter occurrence code	2	3	2	1
Start date	December 2010	December 2010	December 2010	November 2001
Operation schedule	Continuous	Continuous	Continuous	1:3
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	Research Support	Research Support
Probe height	4.4 meters	4.6 meters	4.5 meters	SASS: 4.8 meters URG: 5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	1.5 meters	1.6 meters	1.6 meters	SASS: 1.8 meters URG: 2.1 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	19.3 meters	18.3 meters	18.3 meters	SASS: 19.7 meters URG: 21 meters
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
Flow rate	16.7 l/min	16.7 l/min	16.7 l/min	SASS: 6.7 l/min URG: 22.0 l/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	n/a
Residence time	n/a	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	Yes	n/a	No
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	Monthly verifications and quarterly audits
flow rate verification for automated analyzers audit (PM)	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	n/a
Last:				
annual performance evaluation (gaseous)	n/a	n/a	n/a	n/a
two semi-annual flow rate audits (PM)	03-25-14 06-23-14 09-24-14 12-02-14	03-25-14 06-23-14 09-24-14 12-02-14	03-25-14 06-23-14 09-24-14 12-02-14	03-25-14 06-26-14 09-25-14 12-09-14

Reno 3 (continued)

	FRM PM₁₀	FRM PM_{2.5} (Collocated)	FRM PM_{2.5} (Duplicate)	FRM PM_{10-2.5} (Collocated)
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	NCore	NCore	NCore	NCore
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	BGI PQ200	BGI PQ200	BGI PQ200	BGI PQ200 coarse pair
Analysis method	AQMD lab	AQMD lab	AQMD lab	Subtraction
Method code	125	142	142	173
Parameter code	81102 & 85101	88101	88101	86101
Parameter occurrence code	1	1	2	1
Start date	April 1988	January 1999	January 1999; Discontinued December 2014	March 2009
Operation schedule	1:3	1:3	1:3	1:3
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	Research Support	NAAQS comparison	NAAQS comparison	Research Support
Probe height	5.0 meters	5.0 meters	5.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	2.0 meters	2.0 meters	2.0 meters	2.0 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	18.4 meters*	19.4 meters*	18.4 meters*	18.4 meters*
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	1.1 meters	1.1 meters	n/a
Flow rate	16.7 l/min	16.7 l/min	16.7 l/min	16.7 l/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	n/a
Residence time	n/a	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	Yes	Yes	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	Monthly verifications and quarterly audits	Monthly verifications and quarterly audits	Monthly verifications and quarterly audits	Monthly verifications and quarterly audits
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	n/a
Last:				
annual performance evaluation (gaseous)	n/a	n/a	n/a	n/a
two semi-annual flow rate audits (PM)	03-28-14 06-26-14 09-25-14 12-09-14	03-28-14 06-26-14 09-25-14 12-09-14	03-28-14 06-26-14 09-25-14 12-09-14	03-28-14 06-26-14 09-25-14 12-09-14

* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow or pollutant scavenging around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

Reno 3 (continued)

	Trace CO	O₃	NO₂	Trace NO_x	Trace SO₂
Site type	Population Exposure				
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	NCore	NCore	NCore	NCore	NCore
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TAPI 300EU	TAPI 400E	TAPI 200EU	TAPI 200EU with 501	TAPI 100EU
Analysis method	GFC	UV Photometry	Chemiluminescent	Chemiluminescent	UV Fluorescence
Method code	593	087	099	699	600
Parameter code	42101	44201	42602	42612	42401
Parameter occurrence code	1	1	1	1	1
Start date	December 2010	January 1983	November 2001	December 2010	December 2010
Operation schedule	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	All year				
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	NAAQS comparison	Research Support	NAAQS comparison
Probe height	4.9 meters	4.9 meters	4.8 meters	10.0 meters	4.9 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a	n/a
Distance:					
from supporting structure	1.9 meters	1.9 meters	1.8 meters	10.0 meters	1.9 meters
from obstructions not on roof	None	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a	n/a
from trees	17.4 meters*	17.4 meters*	18.4 meters*	17.4 meters*	17.4 meters*
to furnace or incinerator flue	n/a	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a	n/a
Flow rate	1440-2160 cc/min	720-880 cc/min	900-1100 cc/min	900-1100 cc/min	585-715 cc/min
Unrestricted airflow	360 degrees				
Probe material	Teflon	Teflon	Teflon	Teflon	Teflon
Residence time	5 seconds	5 seconds	9 seconds	9 seconds	5 seconds
Proposed modifications within the next 18 months?	None	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/s	n/a	n/a	n/a
Frequency of:					
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a	n/a	n/a
one-point QC check (gaseous)	Weekly	Weekly	Weekly (4 point w/ GPT)	Weekly (4 point w/ GPT)	Weekly
Last:					
annual performance evaluation (gaseous)	03-25-14 06-18-14 09-17-14 11-06-14	03-25-14 06-18-14 09-17-14 11-06-14	03-26-14 06-19-14 09-18-14 11-04-14	03-26-14 06-18-14 09-17-14 11-06-14	03-15-13 06-26-13 08-27-13 12-12-13
two semi-annual flow rate audits (PM)	n/a	n/a	n/a	n/a	n/a

* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow or pollutant scavenging around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

Reno 3 (continued)

	Wind Speed	Wind Direction	Ambient Temperature	Relative Humidity
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	NCore	NCore	NCore	NCore
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One 50.5H	Met One 50.5H	YSI Series 700	Met One 083E
Analysis method	Sonic Anemometer	Sonic Anemometer	Electronic Average	Met One 083D
Method code	061	061	014	61
Parameter code	61102	61101	64101	62201
Parameter occurrence code	1	1	1	1
Start date	February 2013	February 2013	February 2013	February 2013
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	Research, Public Information	Research, Public Information	Research, Public Information	Research, Public Information
Probe height	10.0 meters	10.0 meters	5.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	10.0 meters	10.0 meters	5.0 meters	5.0 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	22 meters	22 meters	22 meters	22 meters
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
Flow rate	n/a	n/a	n/a	n/a
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	n/a
Residence time	n/a	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	n/a
Last:				
annual performance evaluation (gaseous & meteorological)	03-28-14 06-18-14 09-23-14 11-06-14	03-28-14 06-18-14 09-23-14 11-06-14	03-28-14 06-18-14 09-23-14 11-06-14	03-28-14 06-18-14 09-23-14 11-06-14
two semi-annual flow rate audits (PM)	n/a	n/a	n/a	n/a

South Reno

Located on the NV Energy property at 4110 DeLucchi Lane, this site is in a transitional environment between open fields and office buildings.

Site name:	South Reno
AQS ID:	32-031-0020
Geographical coordinates:	39° 28.153'N, 119° 46.521'W
Location:	Northeast corner of NV Energy campus.
Street address:	4110 DeLucchi Lane Reno, NV 89502
County:	Washoe
Distance to road:	37 meters to DeLucchi Lane.
Traffic count:	5,367 AADT (2011-2013) (NDOT ATR 0310690 - Neil Road, 515 feet north of DeLucchi Lane)
Groundcover:	Gravel / Dirt / Vegetated
Representative area:	Reno-Sparks MSA

Figure 19
South Reno Monitoring Station



Figure 20
South Reno Monitoring Site Vicinity Map

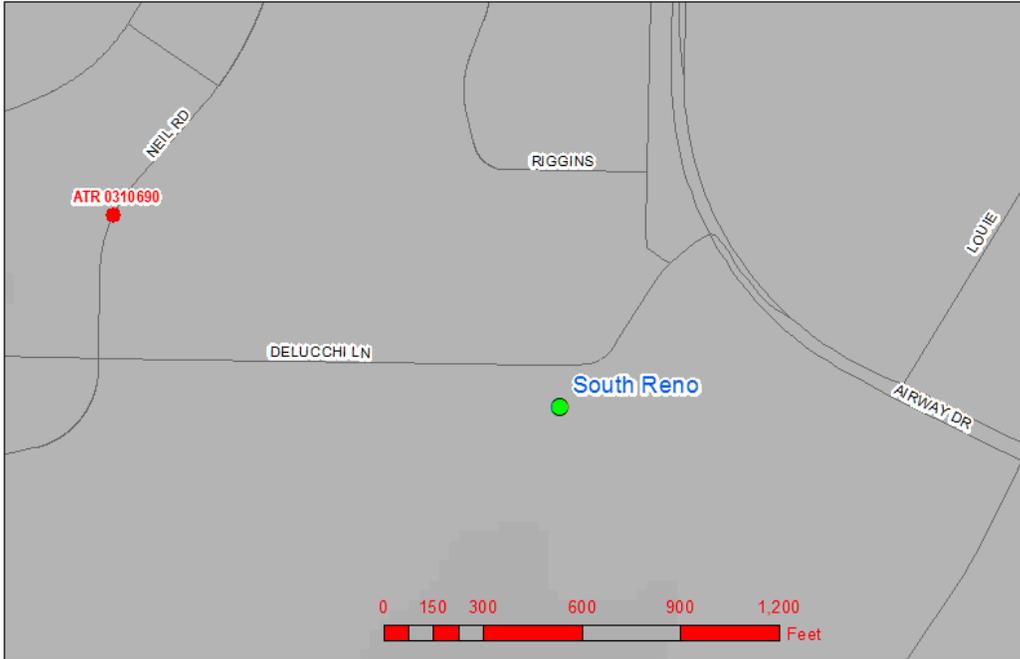


Figure 21
South Reno Monitoring Site Vicinity Aerial



South Reno (continued)

	PM₁₀	CO	O₃
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One BAM 1020	TAPI 300EU	TAPI T400
Analysis method	Beta Attenuation	GFC	UV Photometry
Method code	122	093	087
Parameter code	81102	42101	44201
Parameter occurrence code	2	1	1
Start date	January 1988	January 1988; Discontinued October 2014	January 1988
Operation schedule	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	NAAQS comparison
Probe height	4.3 meters	4.0 meters	4.0 meters
Height of obstruction not on roof	n/a	n/a	n/a
Distance:			
from supporting structure	1.5 meters	1.2 meters	1.2 meters
from obstructions not on roof	None	None	None
from obstructions on roof	n/a	n/a	n/a
from trees	28 meters	27 meters	27 meters
to furnace or incinerator flue	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a
Flow rate	16.7 l/min	1440-2160 cc/min	720-880 cc/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	n/a	Teflon	Teflon
Residence time	n/a	3 seconds	3 seconds
Proposed modifications within the next 18 months?	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a
Frequency of:			
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	Bi-weekly verifications and quarterly audits	n/a	n/a
one-point QC check (gaseous)	n/a	Bi-weekly (3 point)	Bi-weekly (3 point)
Last:			
annual performance evaluation (gaseous)	n/a	03-20-14 06-06-14 09-11-14	03-20-14 06-06-14 09-11-14 10-30-14
two semi-annual flow rate audits (PM)	03-27-14 06-23-14 09-24-14 12-02-14	n/a	n/a

South Reno (continued)

	Wind Speed	Wind Direction	Ambient Temperature
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One 50.5H	Met One 50.5H	YSI Series 700
Analysis method	Sonic Anemometer	Sonic Anemometer	Electronic Average
Method code	061	061	014
Parameter code	61102	61101	64101
Parameter occurrence code	1	1	1
Start date	January 2014	January 2014	January 2014
Operation schedule	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year
Monitoring objective(s)	Public Information	Public Information	Public Information
Probe height	10.0 meters	10.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a
Distance:			
from supporting structure	10.0 meters	10.0 meters	5.0 meters
from obstructions not on roof	None	None	None
from obstructions on roof	n/a	n/a	n/a
from trees	27 meters	27 meters	27 meters
to furnace or incinerator flue	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a
Flow rate	n/a	n/a	n/a
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a
Residence time	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a
Frequency of:			
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a
one-point QC check (gaseous)	n/a	n/a	n/a
Last:			
annual performance evaluation (gaseous & meteorological)	03-20-14 06-27-14 09-23-14 12-02-14	03-20-14 06-27-14 09-23-14 12-02-14	03-20-14 06-27-14 09-23-14 12-02-14
two semi-annual flow rate audits (PM)	n/a	n/a	n/a

Sparks

The Sparks site is located on US Postal Service property at 750 Fourth Street. The site is surrounded by commercial property, a residential neighborhood and is adjacent to Dilworth Middle School. In 2007 the Sparks site was moved approximately 55 meters north of its previous location, due to tree growth affecting siting criteria.

Site name:	Sparks
AQS ID:	32-031-1005
Geographical coordinates:	39° 32.455'N, 119° 44.806'W
Location:	East end of US Postal Service back parking lot.
Street address:	750 4 th Street Sparks, NV 89431
County:	Washoe
Distance to road:	50 meters to Prater Way and 103 meters to 4 th Street.
Traffic count:	13,500 AADT (2011-2013) (NDOT ATR 0310497 - Prater Way, 100 feet east of Pyramid Way)
Groundcover:	Paved / Vegetated / Decomposed Granite
Representative area:	Reno-Sparks MSA

Figure 22
Sparks Monitoring Station



Figure 23
Sparks Monitoring Site Vicinity Map

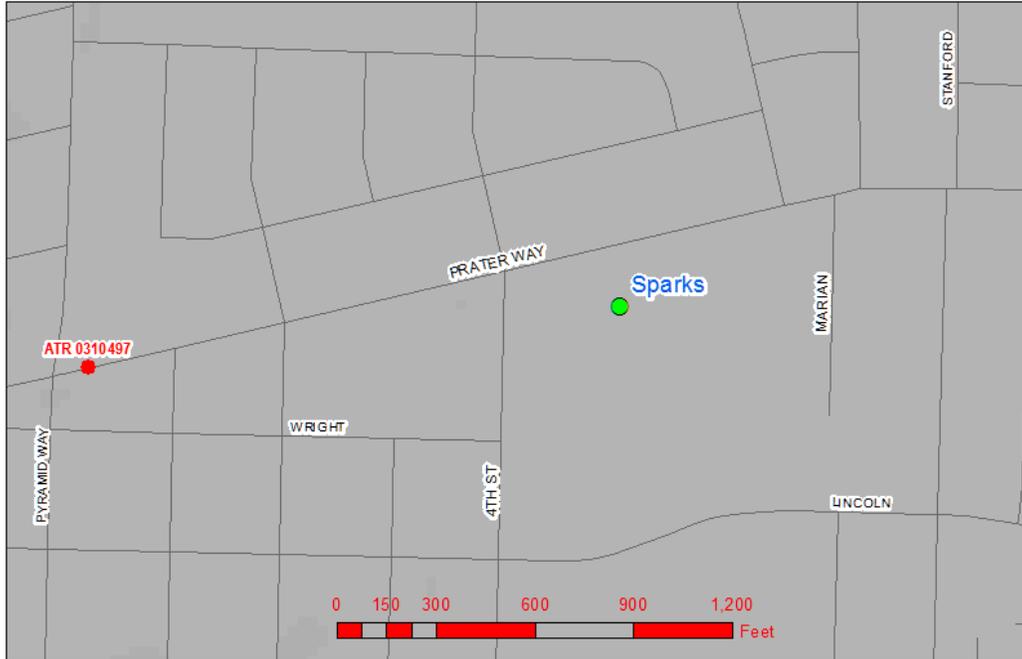


Figure 24
Sparks Monitoring Site Vicinity Aerial



Sparks (continued)

	PM₁₀	PM_{2.5}	PM_{10-2.5}	CO
Site type	Population Exposure	Highest Concentration	Highest Concentration	Highest Concentration
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a	n/a
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020 Coarse Pair	TAPI 300EU
Analysis method	Beta Attenuation	Beta Attenuation	Beta Attenuation	GFC
Method code	122	170	185	093
Parameter code	81102	88101	86101	42101
Start date	April 1988	January 2012	July 2014	January 1980
Parameter occurrence code	1	1	1	1
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	NAAQS comparison	NAAQS comparison
Probe height	4.5 meters	4.3 meters	4.3 meters	4.6 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	1.4 meters	1.5 meters	1.5 meters	1.7 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	26 meters	26 meters	26 meters	27 meters
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
Flow rate	16.7 l/min	16.7 l/min	16.7 l/min	1440-2160 cc/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	Teflon
Residence time	n/a	n/a	n/a	5 seconds
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	Yes	n/a	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	Bi-weekly and quarterly audits	Bi-weekly and quarterly audits	Bi-weekly and quarterly audits	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	Bi-weekly (3 point)
Last:				
annual performance evaluation (gaseous)	n/a	n/a	n/a	03-18-14 06-05-14 09-10-14 10-28-14
two semi-annual flow rate audits (PM)	03-24-14 06-24-14 09-24-14 11-12-14	03-24-14 06-24-14 09-24-14 11-12-14	03-24-14 06-24-14 09-24-14 11-12-14	n/a

Sparks (continued)

	O₃	Wind Speed	Wind Direction	Ambient Temperature
Site type	Highest Concentration	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a	n/a
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TAPI T400	Met One 50.5H	Met One 50.5H	YSI Series 700
Analysis method	UV Photometry	Sonic Anemometer	Sonic Anemometer	Electronic Average
Method code	087	061	061	014
Parameter code	44201	61102	61101	64101
Parameter occurrence code	1	1	1	1
Start date	January 1979	January 2014	January 2014	January 2014
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	Public Information	Public Information	Public Information
Probe height	4.6 meters	10.0 meters	10.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a	n/a
Distance:				
from supporting structure	1.7 meters	10.0 meters	10.0 meters	5.0 meters
from obstructions not on roof	None	None	None	None
from obstructions on roof	n/a	n/a	n/a	n/a
from trees	26 meters	27 meters	27 meters	27 meters
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
Flow rate	720-880 cc/min	n/a	n/a	n/a
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	Teflon	n/a	n/a	n/a
Residence time	5 seconds	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a	n/a
one-point QC check (gaseous)	Bi-weekly (3 point)	n/a	n/a	n/a
Last:				
annual performance evaluation (gaseous & meteorological)	03-18-14 06-05-14 09-10-14 10-28-14	03-18-14 06-27-14 09-23-14 12-17-14	03-18-14 06-27-14 09-23-14 12-17-14	03-18-14 06-27-14 09-23-14 12-17-14
two semi-annual flow rate audits (PM)	n/a	n/a	n/a	n/a

Toll

The Toll Road site is located at 684A State Route 341 (Geiger Grade), one-half mile east of US Highway 395. The site is near the edge of a residential neighborhood and adjacent to an area that may become commercially developed. Due to the distance from the probe to the nearest roadway, this is a middle scale site for CO.

Site name:	Toll
AQS ID:	32-031-0025
Geographical coordinates:	39° 23.990'N, 119° 44.376'W
Location:	North end of Washoe County School District parking lot.
Street address:	684A State Route 341 Reno, NV 89521
County:	Washoe
Distance to road:	21 meters to SR341 (Geiger Grade Road).
Traffic count:	11,767 AADT (2011-2013) (NDOT ATR 0310137 - SR 341, 0.4 miles east of US 395)
Groundcover:	Paved parking lot / Dirt
Representative area:	Reno-Sparks MSA

Figure 25
Toll Monitoring Station



Figure 26
Toll Monitoring Site Vicinity Map

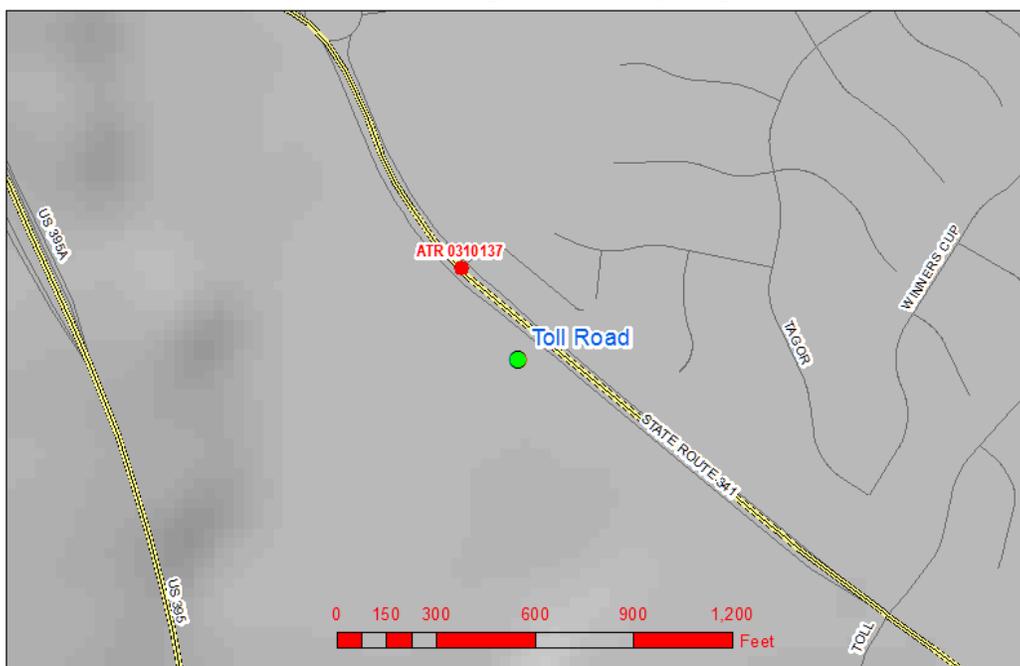
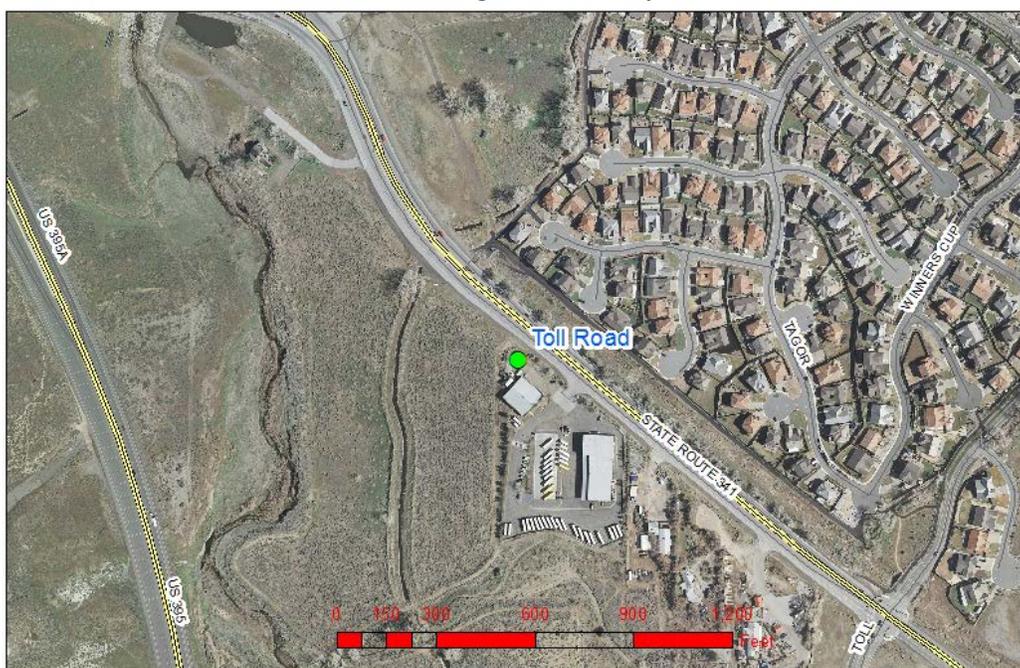


Figure 27
Toll Monitoring Site Vicinity Aerial



Toll (continued)

	PM₁₀	CO	O₃
Site type	Population Exposure	Source Oriented	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a
Spatial scale	Neighborhood	Middle	Neighborhood
Sampling method	Met One BAM 1020	API 300	TAPI 400E
Analysis method	Beta Attenuation	GFC	UV Photometry
Method code	122	093	087
Parameter code	81102	42101	44201
Parameter occurrence code	2	1	1
Start date	March 1996	March 1996	March 1996
Operation schedule	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	NAAQS comparison
Probe height	4.4 meters	4.0 meters	4.0 meters
Height of obstruction not on roof	n/a	n/a	n/a
Distance:			
from supporting structure	1.5 meters	1.2 meters	1.2 meters
from obstructions not on roof	None	None	None
from obstructions on roof	n/a	n/a	n/a
from trees	28 meters	28 meters	28 meters
to furnace or incinerator flue	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a
Flow rate	16.7 l/min	720-880 cc/min	720-880 cc/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	n/a	Teflon	Teflon
Residence time	n/a	7 seconds	7 seconds
Proposed modifications within the next 18 months?	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a
Frequency of:			
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	Bi-weekly and quarterly audits	n/a	n/a
one-point QC check (gaseous)	n/a	Bi-weekly (3 point)	Bi-weekly (3 point)
Last:			
annual performance evaluation (gaseous)	n/a	03-20-14 06-11-14 09-11-14 10-30-14	03-20-14 06-11-14 09-11-14 10-30-14
two semi-annual flow rate audits (PM)	03-27-14 06-23-14 09-24-14 12-02-14	n/a	n/a

Toll (continued)

	Wind Speed	Wind Direction	Ambient Temperature
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network Affiliation	n/a	n/a	n/a
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One 50.5H	Met One 50.5H	YSI Series 700
Analysis method	Sonic Anemometer	Sonic Anemometer	Electronic Average
Method code	061	061	014
Parameter code	61102	61101	64101
Parameter occurrence code	1	1	1
Start date	January 2014	January 2014	January 2014
Operation schedule	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year
Monitoring objective(s)	Public Information	Public Information	Public Information
Probe height	10.0 meters	10.0 meters	5.0 meters
Height of obstruction not on roof	n/a	n/a	n/a
Distance:			
from supporting structure	10.0 meters	10.0 meters	5.0 meters
from obstructions not on roof	None	None	None
from obstructions on roof	n/a	n/a	n/a
from trees	30 meters	30 meters	30 meters
to furnace or incinerator flue	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a
Flow rate	n/a	n/a	n/a
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a
Residence time	n/a	n/a	n/a
Proposed modifications within the next 18 months?	None	None	None
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	n/a	n/a
Frequency of:			
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	n/a	n/a	n/a
one-point QC check (gaseous)	n/a	n/a	n/a
Last:			
annual performance evaluation (gaseous & meteorological)	03-20-14 06-27-14 09-24-14 11-21-14	03-20-14 06-27-14 09-24-14 11-21-14	03-20-14 06-27-14 09-24-14 11-21-14
two semi-annual flow rate audits (PM)	n/a	n/a	n/a

Appendix A

Network Modification Request/Approval

South Reno SLAMS CO Closure



WASHOE COUNTY HEALTH DISTRICT

AIR QUALITY MANAGEMENT DIVISION



Public Health
Prevent. Promote. Protect.

June 11, 2014

Meredith Kurpius
Manager, Air Quality Analysis Office
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street, AIR-7
San Francisco, CA 94105

Subject: Proposed Modification to the Carbon Monoxide Monitoring Network

Dear Ms. Kurpius:

Pursuant to 40 CFR 58.14(c), the Washoe County Health District, Air Quality Management Division (AQMD) requests review and approval for a modification to the existing carbon monoxide (CO) monitoring network. The AQMD is proposing to:

- Discontinue CO monitoring at the South Reno SLAMS station (AQS ID 32-031-0020).

Discontinuation of CO monitoring at the South Reno SLAMS station is based on this monitor never exceeding or violating 1-hour nor the 8-hour CO National Ambient Air Quality Standard (Table 1).

	2004-2013	Since 1990
1 - hour	3.1	8.4
8 - hour	2.1	5.3

Table 1. Highest CO concentrations (ppm) at South Reno (32-031-0020) over the past ten years and since reporting began in 1990.

The South Reno CO monitor will be removed and data from the Reno 3 (~4 miles geodesic distance) and Toll (~5 miles geodesic distance) sites will be used for comparative CO data as needed. The AQMD is proposing to complete this system modification by October 1, 2014. After incorporating this system modification, the CO monitoring network will continue to meet the minimum monitoring requirements specified in 40 CFR 58, Appendix D.

If you require additional information, feel free to contact me or Mr. Craig Petersen of my staff at (775) 784-7200.

Sincerely,

Daniel Inouye
Branch Chief

cc: Katherine Hoag, EPA Region IX
Craig Petersen, AQMD

1001 EAST NINTH STREET / P.O. BOX 11130, RENO, NEVADA 89520 (775) 784-7200 FAX (775) 784-7225

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

SEP 19 2014

Mr. Daniel Inouye
Chief, Monitoring and Planning
Air Quality Management Division
Washoe County Health District
P.O. Box 11130
Reno, Nevada 89520-0027

Dear Mr. Inouye:

This letter is in response to your June 2014 request for approval for the discontinuation of State/Local Air Monitoring Station (SLAMS) carbon monoxide (CO) monitoring at the South Reno site (AQS ID: 32-031-0020). Washoe County Health District Air Quality Management Division proposed the discontinuation of CO monitoring at the South Reno site in its Ambient Air Monitoring Network Plan they submitted to the U.S. Environmental Protection Agency (EPA) in July 2014 (Page 8). The plan was available for public inspection prior to its submittal to EPA and received no public comments on this proposed monitoring network change.

Per 40 CFR §58.14, monitoring agencies are required to obtain EPA approval for the discontinuation of SLAMS monitors. According to certified data submitted to EPA's Air Quality System (AQS) since beginning operation in 1990, the CO monitor at South Reno has never recorded a violation of any CO National Ambient Air Quality Standards (NAAQS). Based on data from 2009-2013. Our statistical analysis (see enclosed) demonstrates that there is a less than 10 percent probability of exceeding 80 percent of any CO NAAQS at this site during the next three years (2014-2016). Concentrations captured for a portion of 2014 continue to show low values. These monitors are not specifically required by an attainment or maintenance plan and you continue to operate five other CO sites throughout Washoe County, which is more than the minimum required SLAMS CO sites as described in 40 CFR §58, Appendix D. Therefore, the site closure meets the criteria set forth in 40 CFR §58.14(c)(1) for SLAMS monitor discontinuation.

Based on this analysis, EPA approves your request to discontinue CO monitoring at South Reno. Please include this modification and EPA's approval in your next annual network plan. If you have any questions, please contact me at (415) 947-4534 or Katherine Hoag (Hoag.Katherine@epa.gov) at (415) 972-3970.

Sincerely,

A handwritten signature in black ink, appearing to read "Meredith Kurpius".

Meredith Kurpius
Manager, Air Quality Analysis Office

Enclosure: EPA analysis of CO data

Enclosure: EPA analysis of CO data

Site South Reno 32-031-0020	Year 1 Max (ppm)	Year 2 Max (ppm)	Year 3 Max (ppm)	Year 4 Max (ppm)	Year 5 Max (ppm)	Average Max (ppm)	Std. Dev. s	Student's t value (90% confidence)	Number of Data Values (n)	90% Upper CI (ppm)	80% NAAQS (ppm)	Test
	2009	2010	2011	2012	2013	2009-2013						
1-hr CO (35 ppm)	2	1.9	1.6	1.2	3.1	1.96	0.71	2.13	5	2.6	28	PASS
8-hr CO (9 ppm)	1.6	1.6	1.1	0.8	1.5	1.32	0.36	2.13	5	1.7	7.2	PASS

Appendix B

Network Modification Request/Approval

**Galletti SLAMS Closure
Spanish Springs SPM Site Initiation**

March 5, 2015

Meredith Kurpius
Manager, Air Quality Analysis Office
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street, AIR-7
San Francisco, CA 94105

Subject: Proposed Modification to the Washoe County Health District, Air Quality Management Division Ambient Air Monitoring Network

Dear Ms. Kurpius:

Pursuant to 40 CFR 58.14, the Washoe County Health District, Air Quality Management Division (AQMD) requests review and approval for a modification to the existing ambient air monitoring network. The AQMD is proposing to:

1. Closure of the Galletti SLAMS (AQS ID 32-031-0022) including discontinuation of all monitors (CO, PM₁₀, PM_{2.5}, PM_{10-2.5}, and meteorology); and
2. Initiate a Special Purpose Monitor (SPM) for 18 months and establishing a State and Local Air Monitoring Stations (SLAMS) in the Spanish Springs area of southern Washoe County to monitor Ozone, PM₁₀, PM_{2.5}, PM_{10-2.5}, and meteorology.

In November 2014, the Nevada Department of Transportation (NDOT) informed the AQMD of an emergency paving project requiring the Galletti SLAMS to be removed its current location. Final quality assurance verifications were conducted during the week of November 17, 2014. CO and PM data through the final verifications will be submitted to AQS. Data capture will not meet 75 percent for the October-December 2014 reporting period. As of March 1, 2015, the emergency paving project has not been completed. NDOT's paving project and reconfiguration will make it extremely difficult to return to Galletti's original location.

The proposed modifications are consistent with the AQMD 2010 Network Assessment and 2014 Annual Network Plan. Attached are data demonstrations (Appendices A, B, C) and an Excel spreadsheet (Network Modification Request (2015-03-05).xlsx) to support AQMD's proposal to close Galletti. Additional case-by-case justifications for the closure of Galletti include proximity to trees and NDOT's "dirt pile" operation. PM₁₀ and PM_{2.5} concentrations were impacted by the American/Rim (2013) and King (2014) Fires. These data are flagged in AQS with either Informational or Request to Exclude flags. An Exceptional Events Demonstration for the American/Rim Fires was submitted to EPA Region IX in 2014. A demonstration for the King Fire is expected to be submitted in Fall 2015.

Subject: Network Modification Request
Date: March 5, 2015
Page 2 of 14

If you require additional information, feel free to contact me or Mr. Craig Petersen at (775) 784-7200.

Sincerely,



Daniel Inouye
Monitoring and Planning Branch Chief

cc: Katherine Hoag, EPA Region IX
Craig Petersen, AQMD
Jennifer Budge, Washoe County Regional Parks and Open Space

Subject: Network Modification Request

Date: March 5, 2015

Page 3 of 14

Attachment A

40 CFR 58.14(c)(1) Criteria Test for the Galletti SLAMS with and without
2013 American/Rim Fires Exceptional Events

Subject: Network Modification Request

Date: March 5, 2015

Page 4 of 14

		5 Year Maximums with EE (2009-13)												
		Year 1	Year 2	Year 3	Year 4	Year 5	Ave Max							
Parameter	Averaging Times	2009	2010	2011	2012	2013	2009-13	Std. Dev. s	Student's t value (90% Confidence)	Number of Data Values (n)	90% Upper CI	NAAQs	80% NAAQs	Test
CO (ppm)	1-hr	3.1	2.7	2.8	2.9	2.6	2.82	0.19	2.13	5	3.0	35	28.0	PASS
CO (ppm)	8-hr	2.6	2.3	1.9	2.1	2.2	2.22	0.26	2.13	5	2.5	9	7.2	PASS
PM10 (ug/m3)	24-hr	91	87	113	77	131	99.80	21.84	2.13	5	120.6	150	120.0	FAIL
PM2.5 (ug/m3)	24-hr					100.2	100.20	#DIV/0!	2.13	5	#DIV/0!	35	28.0	#DIV/0!
PM2.5 (ug/m3)	Annual					11.5	11.50	#DIV/0!	2.13	5	#DIV/0!	12	9.6	#DIV/0!

		5 Year Maximums without EE (2009-13)												
		Year 1	Year 2	Year 3	Year 4	Year 5	Ave Max							
Parameter	Averaging Times	2009	2010	2011	2012	2013	2009-13	Std. Dev. s	Student's t value (90% Confidence)	Number of Data Values (n)	90% Upper CI	NAAQs	80% NAAQs	Test
CO (ppm)	1-hr	3.1	2.7	2.8	2.9	2.6	2.82	0.19	2.13	5	3.0	35	28.0	PASS
CO (ppm)	8-hr	2.6	2.3	1.9	2.1	2.2	2.22	0.26	2.13	5	2.5	9	7.2	PASS
PM10 (ug/m3)	24-hr	91	87	113	77	117	97.00	17.26	2.13	5	113.4	150	120.0	PASS
PM2.5 (ug/m3)	24-hr					33.8	33.80	#DIV/0!	2.13	5	#DIV/0!	35	28.0	#DIV/0!
PM2.5 (ug/m3)	Annual					9.5	9.50	#DIV/0!	2.13	5	#DIV/0!	12	9.6	#DIV/0!

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Attachment B

Closure of the Galletti SLAMS including discontinuing CO, PM₁₀, PM_{2.5}, and PM_{10-2.5} monitoring

Carbon Monoxide

Discontinuation of CO monitoring is based on criteria in 40 CFR 58.14(c)(1), including the points below.

1. The monitor has shown attainment during the previous five years (2009-2013), specifically:
 - a. The monitor has never exceeded the 1-hour NAAQS of 35 ppm, and
 - b. The monitor last exceeded the 8-hour NAAQS in 1991.
2. The monitor has a probability of less than 10 percent of exceeding 80 percent of the current 1-hour and 8-hour NAAQS.

Table 1
40 CFR 58.14(c)(1) Criteria Test
(2009-13)

Averaging Time	90% Upper CI (ppm)	80% of NAAQS (ppm)	Criteria Met?
1-hour	3.0	28.0	Yes
8-hour	2.5	7.2	Yes

3. The monitor is not required in the:
 - a. EPA approved CO maintenance plan, nor
 - b. Second-ten year maintenance plan submitted to EPA on November 7, 2014.
4. The monitor is not the only CO monitor in the Truckee Meadows CO maintenance area. CO monitoring will continue at four stations, including the Reno3 (32-031-0016) and Sparks (32-031-1005) stations which are approximately 1.5 miles west and 2.1 miles east respectively, of the Galletti SLAMS.
5. The requirements of Appendix D will continue to be met.
6. In addition, EPA identified trees that affect the monitor's spatial scale (See Technical System Audit Report (September 4-6, 2013) August 2014, Finding 5).

PM₁₀

Discontinuation of PM₁₀ monitoring is based on criteria in 40 CFR 58.14(c), specifically the case-by-case criteria and including the points below.

1. The monitor has shown attainment during the previous five years (2009-2013), specifically the monitor last exceeded the 24-hour NAAQS in 2005. (Note: One PM₁₀ exceedance occurred in 2014 from the King Fire. An Exceptional Events Demonstration is expected to be submitted to EPA Region IX in Fall 2015.)
2. The monitor does not have a probability of less than 10 percent of exceeding 80 percent of the current 24-hour NAAQS of 150 µg/m³. However, the monitor will pass this test if 154 µg/m³ is used as the NAAQS. The monitor will also pass if Informationally flagged data from the 2013 American/Rim Fires are excluded from this test.

Table 2
 40 CFR 58.14(c)(1) Criteria Test
 (2009-13)

	90% Upper CI ($\mu\text{g}/\text{m}^3$)	80% of NAAQS ($\mu\text{g}/\text{m}^3$)	Criteria Met?
24-hour	120.6	120.0	No

3. The monitor is not required in the:
 - a. “Serious” PM₁₀ Attainment Plan submitted to EPA on August 5, 2002, , nor
 - b. Redesignation Request and Maintenance Plan submitted to EPA on November 7, 2014.
4. The monitor is not the only PM₁₀ monitor in the Truckee Meadows PM₁₀ non-attainment area. PM₁₀ monitoring will continue at five stations, including the Reno3 (32-031-0016) and Sparks (32-031-1005) stations which are approximately 1.5 miles west and 2.1 miles east respectively, of the Galletti SLAMS.
5. Closure of the Galletti SLAMS is a recommendation in the 2010 Network Assessment.
6. The requirements of Appendix D will continue to be met.
7. In addition, EPA identified trees and a minor PM source that affect the monitor’s spatial scale (See Technical System Audit Report (September 4-6, 2013) August 2014, Findings 5 and 6).
8. In conjunction with the proposed Spanish Springs SPM/SLAMS, the overall balance of the PM network Area Served and Population Served distributions will be improved.

PM_{2.5}

Discontinuation of PM_{2.5} monitoring is based on criteria in 40 CFR 58.14(c), specifically the case-by-case criteria and including the points below.

1. The monitor began sampling in 2013 and does not have a valid design value to compare against the 24-hour and annual PM_{2.5} NAAQS. (Note: PM_{2.5} concentrations were impacted by the American/Rim (2013) and King (2014) Fires. These data are flagged in AQS with either Informational or Request to Exclude flags. An Exceptional Events Demonstration for the American/Rim Fires was submitted to EPA Region IX in 2014. A Demonstration for the King Fire is expected to be submitted in Fall 2015.)
2. All geographic areas of Washoe County are currently designated as “Unclassifiable/Attainment” for the 24-hour and annual PM_{2.5} NAAQS, therefore the monitor is not required in any attainment nor maintenance plan.
3. The monitor is not the only PM_{2.5} monitor in the Truckee Meadows. PM_{2.5} monitoring will continue at two stations, including the Reno3 (32-031-0016) and Sparks (32-031-1005) stations which are approximately 1.5 miles west and 2.1 miles east respectively, of the Galletti SLAMS.
4. Closure of the Galletti SLAMS is a recommendation in the 2010 Network Assessment.
5. The requirements of Appendix D will continue to be met.
6. EPA identified trees and a minor PM source that affects the monitor’s spatial scale (See Technical System Audit Report (September 4-6, 2013) August 2014, Findings 5 and 6).
7. In conjunction with the proposed Spanish Springs SPM/SLAMS, the overall balance of the PM network Area Served and Population Served distributions will be improved.

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Attachment C

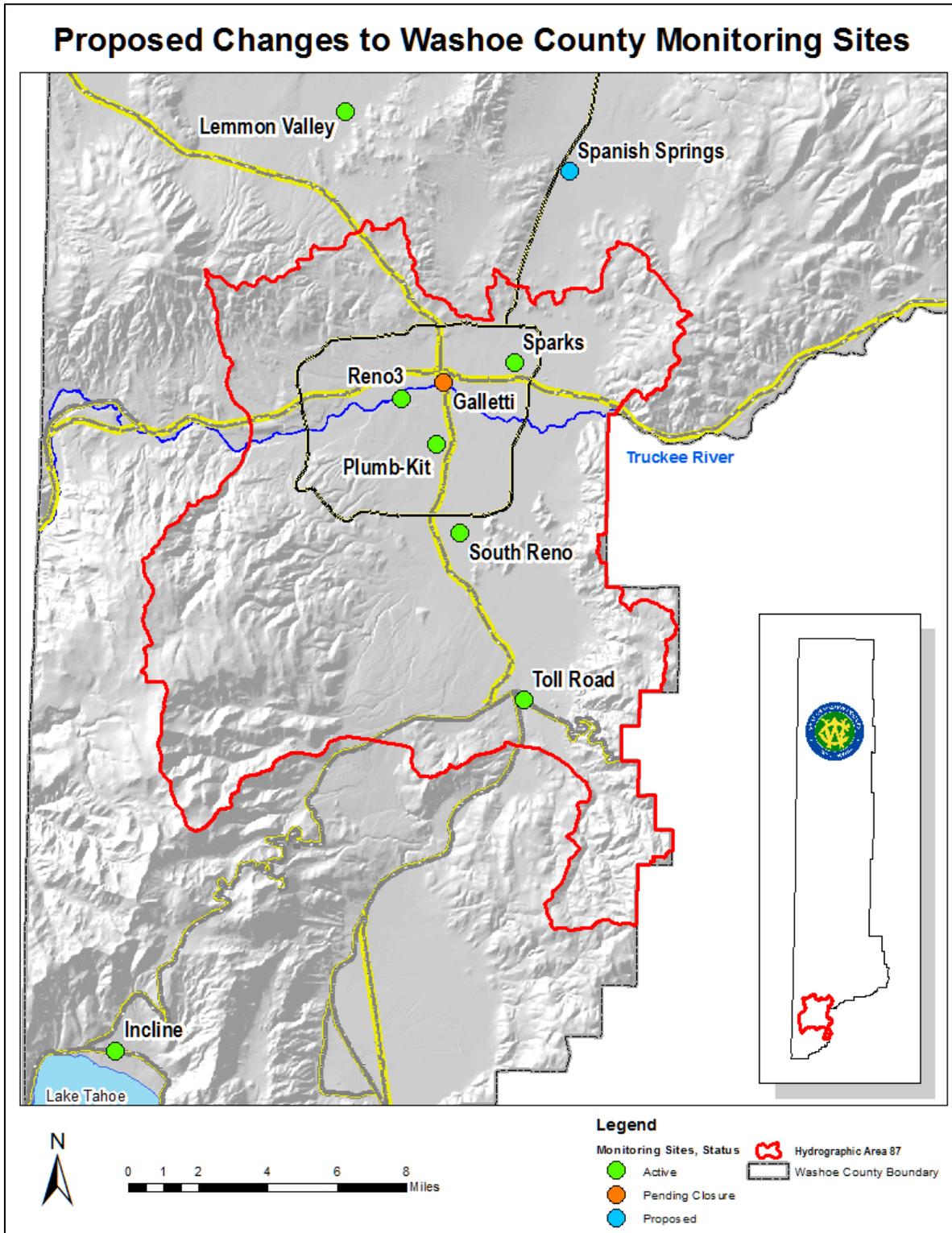
Initiation of an SPM/SLAMS in Spanish Springs to monitor Ozone, PM₁₀, PM_{2.5}, PM_{10-2.5}, and Meteorology

Initiation of an SPM/SLAMS in the Spanish Springs area (Lazy 5 Regional Park)

Initiating a SPM/SLAMS station to monitor Ozone, PM₁₀, PM_{2.5}, PM_{10-2.5}, and Meteorology is based on 40 CFR 58.14(b). The AQMD is requesting approval of the Spanish Springs SPM/SLAMS to be in conjunction with closure of the Galletti SLAMS. The points below support the AQMD request.

1. An SPM/SLAMS station in the Spanish Springs area is a recommendation in the 2010 Network Assessment.
2. In conjunction with the proposed Galletti SLAMS closure, the overall balance of the PM network Area Served and Population Served distributions will be improved.
3. In conjunction with the proposed Galletti SLAMS closure, the AQMD will maintain staffing and budgetary capacity. This is consistent with the “Zero-Sum Game” - “Monitoring Network Assessments: Best Practices and Lessons Learned” presented at the 2014 National Ambient Air Monitoring Conference.
4. AQMD has received preliminary approval from the Washoe County Regional Parks and Open Space Department to establish an SPM/SLAMS at the Lazy 5 Regional Park in Spanish Springs. AQMD is researching other requirements (i.e., Parks Commission approval, availability of power, right of entry, etc.).
5. The proposed location will not prohibit any planned future development included in the Lazy 5 Park Master Plan.

Figure 1



Proposed Spanish Springs SPM/SLAMS Detailed Site Information

Site Name:	Spanish Springs
AQS ID:	31-031-xxxx
Geographical coordinates:	39° 37.287' N, 119° 43.124' W
Location:	North side of Lazy 5 Regional Park
Street address:	7200 Pyramid Way Sparks, NV 89436
County:	Washoe
Distance to road:	460 meters to Pyramid Hwy
Traffic count:	10,033 AADT (2011-2013) (NDOT ATR 0311032 - SR445, 0.375 miles north of Sunset Spring Road)
Groundcover:	Paved / Vegetated
Representative area:	Reno-Sparks MSA

Figure 2
Proposed Spanish Springs Monitoring Station (looking north)



Proposed Spanish Springs SPM/SLAMS

	PM₁₀	PM_{2.5}	PM_{10-2.5}	Ozone
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	TAPI T400
Analysis method	Beta Attenuation	Beta Attenuation	Beta Attenuation	UV Photometry
Method code	122	170	185	087
Parameter code	81102 & 85101	88101	86101	44201
Parameter occurrence code	1	1	1	1
Start date	07/01/15 (est)	07/01/15 (est)	07/01/15 (est)	07/01/15 (est)
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Monitoring objective(s)	NAAQS comparison	NAAQS comparison	Research Support	NAAQS comparison
Probe height	4.8 meters	4.8 meters	4.8 meters	4.0 meters
Height of obstruction not on roof	14.5 meters	14.5 meters	14.5 meters	14.5 meters
Distance:				
from obstructions not on roof	30.5 meters	30.5 meters	30.5 meters	30.5 meters
from obstructions on roof	n/a	n/a	n/a	n/a
from trees				
to furnace or incinerator flue	n/a	n/a	n/a	n/a
between collocated monitors	n/a	n/a	n/a	n/a
from supporting structure	2.0 meters	2.0 meters	2.0 meters	1.2 meters
Flow rate	16.7 l/min	16.7 l/min	16.7 l/min	720-880 cc/min
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	n/a	n/a	n/a	Teflon
Residence time	n/a	n/a	n/a	13 seconds
Proposed modifications within the next 18 months?				
Is the monitor suitable for comparison against the annual PM_{2.5} NAAQS?	n/a	Yes	n/a	n/a
Frequency of:				
flow rate verification for manual samplers audit (PM)	n/a	n/a	n/a	n/a
flow rate verification for automated analyzers audit (PM)	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	n/a
one-point QC check (gaseous)	n/a	n/a	n/a	Bi-weekly (3 point)

Figure 5
Proposed Spanish Springs Monitoring Station
Air Monitoring Shelter Description



Monitoring Station

1. Sani-Hut built shelter, 8' x 12', skid mounted.
2. 10 meter, T-135 telescoping Aluma Tower with building brackets (no guy wiring).
3. 100A, single-phase 120V/240V overhead power service.
4. Black iron security fence, 16' x 24' perimeter, 8' in height, $\frac{3}{4}$ " square pressed point picket top.

Instrumentation (inside shelter)

1. Teledyne-API T400 ozone analyzer.
2. Met One BAM 1020 continuous PM₁₀ monitor.
3. Met One BAM 1020 continuous PM_{2.5} monitor.
4. ESC 8832 data logger.

Instrumentation (on tower)

1. Met One 50.5H sonic anemometer.
2. YSI 700 ambient temperature sensor.

Instrumentation (on roof)

1. Met One BAM 1020 PM₁₀ inlet.
2. Met One BAM 1020 PM_{2.5} inlet.
3. Avant Wireless broadband antenna.

Interior Heating/Cooling

1. Baseboard heater.
2. Window mounted A/C unit.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

APR 22 2015

Mr. Daniel Inouye
Chief, Monitoring and Planning
Air Quality Management Division
Washoe County Health District
P.O. Box 11130
Reno, Nevada 89520-0027

Dear Mr. Inouye:

This letter is in response to your March 5, 2015 request for approval for the discontinuation of SLAMS (State or Local Air Monitoring Station) CO, PM₁₀, PM_{2.5}, and PM_{10-2.5} monitoring at the Galletti site (AQS ID 32-031-0022) and for the initiation of a new SLAMS in the Spanish Springs area. Washoe County Health District Air Quality Management Division (Washoe County AQMD) proposed the relocation of the entire Galletti monitoring site in its Ambient Air Monitoring Network Plan submitted to the U.S. Environmental Protection Agency (EPA) in July 2014 (page 8). The plan was available for public inspection prior to its submittal to EPA and received no public comments on this proposed monitoring network change. EPA did not act on the request as part of the network plan approval, as the network plan did not contain sufficient information.

As noted in Washoe County AQMD's request, the Galletti site was forced to close in late 2014 due to an emergency paving project undertaken by the Nevada Department of Transportation. In addition, there are trees within 10 meters of monitor inlets and probes at the Galletti site, which does not conform to 40 CFR §58 Appendix E siting. This siting issue was a finding in EPA's technical systems audit of Washoe County AQMD in September 2013. EPA also recommended that Washoe County AQMD evaluate the appropriate spatial scale for PM measurements given the presence of a nearby minor particulate matter source. Washoe County AQMD has been unable to resolve these 40 CFR §58 Appendix E siting issues at the existing site.

The CO, PM₁₀, PM_{2.5}, and PM_{10-2.5} monitors at the Galletti site are not specifically required by an attainment or maintenance plan and Washoe County will continue to meet the minimum required SLAMS sites as described in 40 CFR §58, Appendix D for each of these pollutants after this site is closed. Washoe County AQMD will also continue to monitor for PM_{2.5} at two SLAMS, for PM₁₀ at five SLAMS, and for CO at four SLAMS. All three pollutants will continue to be monitored at Reno3 (32-031-0016) and Sparks (32-031-1005) which are approximately 1.5 miles west and 2.1 miles east, respectively, of the Galletti site.

Per 40 CFR §58.14, monitoring agencies are required to obtain EPA approval for the discontinuation of SLAMS monitors. Washoe County AQMD's statistical analysis, based on 2009-2013, demonstrates that there is a less than 10 percent probability of exceeding 80 percent of any CO NAAQS (National Ambient Air Quality Standards) at this site during the next three

years (2014-2016). 2014 concentrations continue to show low values, with a maximum one-hour concentration of 2.8 parts per million. EPA approves the closure for CO at Galletti in accordance with 40 CFR §58.14(c)(1).

Washoe County AQMD's statistical analysis for PM₁₀ demonstrates, using the annual maximum 24-hour concentrations from 2009-2013, that there is just over a 10 percent probability of exceeding 80 percent of the PM₁₀ NAAQS at this site during the next three years (2014-2016). The 90 percent confidence interval (CI) associated with a 10 percent probability of exceeding 80 percent of any PM₁₀ NAAQS is 120.0 µg/m³, and the 2009-2013 time period has a CI of 120.6 µg/m³. If the days in 2013 that are flagged as exceptional events due to the American and Rim Fires are removed from the dataset, the 2009-2013 data demonstrate that there is a less than 10 percent probability of exceeding 80 percent of the PM₁₀ NAAQS. Also, the statistical analysis of 2008-2012 data meets the criteria for having less than a 10 percent probability of exceeding 80 percent of the PM₁₀ NAAQS, with a CI of 103.7 µg/m³.

Since the PM_{2.5} monitor at Galletti ran from January 2013 through mid-November 2014, there is not enough historical information to evaluate the closure under 40 CFR §58.14(c)(1). Since insufficient data are available to calculate a single design value, the annual mean and 98th percentiles were compared between Galletti and the PM_{2.5} monitor at Sparks (32-031-1005). As previously noted, Sparks is 2.1 miles east of the Galletti site. Based on 2013 and preliminary 2014 data, the annual means are higher at Sparks than at Galletti, and the preliminary 2014 98th percentiles are higher at Sparks than at Galletti. The 2013 98th percentiles at Sparks and Galletti are similar (38.2 µg/m³ and 41.1 µg/m³ respectively) and are higher at Sparks than at Galletti when flagged exceptional events due to the American and Rim fires are excluded.

While EPA has not concurred on the Galletti PM₁₀ and PM_{2.5} flagged exceptional events on 2013 data, the American/Rim fires burned a total of 284,754 acres of forest from August through October 2013 in the Sierra Nevada Mountains, upwind of the Reno area. These fires resulted in elevated PM_{2.5} and PM₁₀ concentrations above what is usually observed in August and September without the contribution of fire emissions, and the effects they had on air quality in California and Nevada were widely discussed in the news. Finally, these wildfires affected air quality similarly at the Sparks, Galletti and Reno3 sites. Given these factors, that Washoe County APCD has already been forced to close the site, and that the existing site has significant siting issues that Washoe County APCD has been unable to resolve, EPA approves the closure for PM₁₀ at Galletti in accordance with 40 CFR §58.14(c)(1), and approves the closure of the PM_{2.5} monitor at Galletti on a case-by-case basis per 40 CFR §58.14(c). EPA also approves the discontinuation of meteorology measurements and of reporting PM_{10-2.5} data from this location, neither of which were required.

EPA has also reviewed the new site proposal for Spanish Springs. According to the information presented, the new site will operate as a SPM for 18 months and then is expected to be converted to a SLAMS. The proposed location meets siting requirements and improves Washoe County AQMD's overall network coverage. The addition of a site in Spanish Springs was also a recommendation in Washoe County AQMD's 2010 Network Assessment. Per 40 CFR §58.14(b), EPA approves the new Spanish Springs site for Ozone, PM₁₀, PM_{2.5}, and PM_{10-2.5}, as a SPM for 18 months and then expected conversion to a SLAMS.

Please include these network modifications and EPA's approval in your next annual network plan. If you have any questions, please contact me at (415) 947-4534 or Katherine Hoag (Hoag.Katherine@epa.gov) at (415) 972-3970.

Sincerely,

A handwritten signature in black ink, appearing to read 'Meredith Kurpius', with a stylized flourish at the end.

Meredith Kurpius
Manager, Air Quality Analysis Office

Appendix C

Public Inspection Plan

Public Inspection Plan

This monitoring network plan was available for public inspection from June 1 to June 30, 2015 at the AQMD website (OurCleanAir.com). A hardcopy of the plan was also available at the AQMD office. All comments received during this inspection period are outlined below.

1. No comments received.