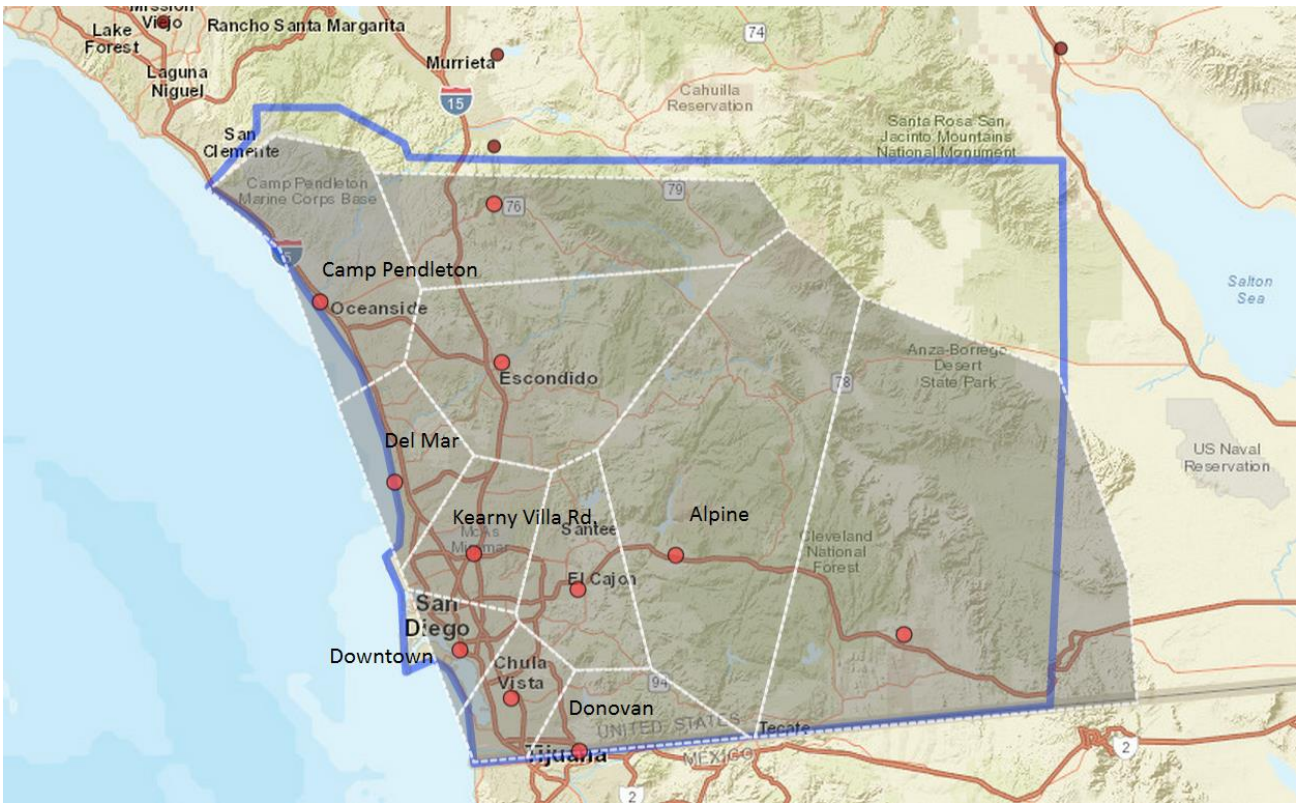
AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

MONITORING AND TECHNICAL SERVICES DIVISION

ANNUAL AIR QUALITY MONITORING NETWORK PLAN 2015

JULY, 2016



DAVID N. SHINA
BILL BRICK
ADAM CANTER

Monitoring and Technical Services Division 10124 Old Grove Road, San Diego, CA 92131

(left intentionally blank)

Table of Contents

CHAPTER	TITLE	PAGE(S)
CHAPTER 1	**ANNUAL NETWORK PLAN REQUIREMENTS**	**1-4**
Section 1.1.0	Federal Citation	1
Section 1.2.0	Purpose Scope and Organization of Report	2
Section 1.3.0	Public Comment Information	2
Section 1.3.1	District Contact Information	2
Section 1.3.2	Additional Air Pollution Information	2-3
Section 1.4.0	Description of Monitoring	3
Section 1.4.1	Network Design Theory	3
Section 1.5.0	San Diego Air Basin Description	4
Section 1.5.1	Topography	4
Section 1.5.2	Climate	4
Section 1.5.3	Population	5
CHAPTER 2	**EXECUTIVE SUMMARY OF THE AIR MONITORING NETWORK**	**1-29**
Section 2.0.0	The Air Quality Monitoring Network	1-12
Section 2.0.1	Overview of the Gaseous Pollutants Monitoring Network	7
Section 2.0.2	Overview of the Lead Monitoring Network	8
Section 2.0.3	Overview of the $PM_{2.5}$ Monitoring Network	9
Section 2.0.3	Overview of the PM_{10} Monitoring Network	10
Section 2.0.4	Overview of the PAMS Monitoring Network	11
Section 2.0.5	Overview of the Toxics Monitoring Network	12
Section 2.1.0	Summary of the Minimum Monitoring Requirements for the SDAB	13-14
Section 2.1.1	Summary of the Minimum Monitoring Requirements for Collocation	13
Section 2.1.2	Summary of the Minimum Monitoring Requirements for non-Collocated Instruments	14
Section 2.2.0	Recent and Unplanned Changes to the Network	15-17
Section 2.2.1	Station Relocations, Additions, and Changes	15
Section 2.2.1.1	Relocations	15
Section 2.2.1.2	Temporary Shutdowns	15-16
Section 2.2.1.3	Start-ups	16
Section 2.2.2	Monitor/Sampler Relocations, Additions, Closures, and Changes	16-17
Section 2.3.0	List of Public Comments and the District Response(s)	17
Section 2.3.1	Public Comments	17
Appendix A	Formal Request for Relocation of the Floyd Smith Drive Station	19-23
Appendix B	Formal Request for Relocation of the Downtown Station	24-28
Appendix C	Formal Request for Decommissioning Pb-TSP Sampling at NCore	29
CHAPTER 3	**OZONE**	**1-9**
Section 3.0.0	Ozone Introduction	1-2
Section 3.1.0	Ozone Minimum Monitoring Requirements	3-6
Section 3.1.1	Ozone Minimum Monitoring Requirements-Design Value Criteria (8-Hr)	3
Section 3.1.2	Ozone Minimum Monitoring Requirements-Ambient	3-4
Section 3.1.3	Ozone Minimum Monitoring Requirements-Maximum Concentration Site Design Value	4
Section 3.1.4	Ozone Minimum Monitoring Requirements-PAMS	5
Section 3.1.5	Ozone Minimum Monitoring Requirements-NCore	6
Section 3.2.0	Ozone Suitability for Comparison to the NAAQS	7
Section 3.3.0	Ozone Concentrations for San Diego	7-9
Section 3.3.1	Ozone Concentrations for San Diego-for the Last 20 Years	7
Section 3.3.2	Ozone Concentrations for San Diego-by Site for the Year	8
Section 3.3.3	Ozone Concentrations for San Diego-by Site for the Design Value	9

CHAPTER 4 NITROGEN DIOXIDE AND REACTIVE OXIDES OF NITORGEN 1-13
Section 4.0.0 Nitrogen Dioxide and Reactive Oxides of Nitrogen Introduction..... 1-2
Section 4.1.0 Nitrogen Dioxide Minimum Monitoring Requirements..... 3-8
Section 4.1.1 Nitrogen Dioxide Minimum Monitoring Requirements Near-road 3-5
Section 4.1.1.1 Nitrogen Dioxide Minimum Monitoring Requirements-Near-road (1st Site).....3
Section 4.1.1.2 Nitrogen Dioxide Minimum Monitoring Requirements-Near-road (2nd Site)..... 3-5
Section 4.1.2 Nitrogen Dioxide Minimum Monitoring Requirements-Area-wide 6
Section 4.1.3 Nitrogen Dioxide Minimum Monitoring Requirements-Regional Administrator 6-7
Section 4.1.4 Nitrogen Dioxide Minimum Monitoring Requirements-PAMS 7
Section 4.1.5 Nitrogen Dioxide Minimum Monitoring Requirements-Summary 8
Section 4.2.0 Reactive Oxides of Nitrogen Minimum Monitoring Requirements..... 9-10
Section 4.2.1 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-PAMS.....9
Section 4.2.2 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-NCore.....10
Section 4.2.3 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-Summary 10
Section 4.3.0 Nitrogen Dioxide Suitability for Comparison to the NAAQS 11
Section 4.4.0 Nitrogen Dioxide Concentrations for San Diego 12-13
Section 4.4.1 Nitrogen Dioxide Concentrations for San Diego-for the Last 20 Years 11
Section 4.4.2 Nitrogen Dioxide Concentrations for San Diego-by Site for the Year.....12
Section 4.4.3 Nitrogen Dioxide Concentrations for San Diego-by Site for the Design Value.....13

CHAPTER 5 CARBON MONOXIDE..... 1-7
Section 5.0.0 Carbon Monoxide Introduction..... 1-2
Section 5.1.0 Carbon Monoxide Minimum Monitoring Requirements 3-5
Section 5.1.1 Carbon Monoxide Minimum Monitoring Requirements-Near-road.....3
Section 5.1.2 Carbon Monoxide Minimum Monitoring Requirements-NCore.....3
Section 5.1.3 Carbon Monoxide Minimum Monitoring Requirements-PAMS 4
Section 5.1.4 Carbon Monoxide Minimum Monitoring Requirements-State 4
Section 5.1.5 Carbon Monoxide Minimum Monitoring Requirements-Summary.....5
Section 5.2.0 Carbon Monoxide Suitability for Comparison to the NAAQS 6
Section 5.3.0 Carbon Monoxide Concentrations for San Diego 6-7
Section 5.3.1 Carbon Monoxide Concentrations for San Diego-for the Last 20 Years 6
Section 5.3.2 Carbon Monoxide Concentrations for San Diego-by Site for the Year 7

CHAPTER 6 SULFUR DIOXIDE 1-6
Section 6.0.0 Sulfur Dioxide Introduction 1-2
Section 6.1.0 Sulfur Dioxide Minimum Monitoring Requirements..... 3-4
Section 6.1.1 Sulfur Dioxide Minimum Monitoring Requirements-Ambient.....3
Section 6.1.1 Sulfur Dioxide Minimum Monitoring Requirements-NCore.....4
Section 6.2.0 Sulfur Dioxide Suitability for Comparison to the NAAQS.....5
Section 6.3.0 Sulfur Dioxide Concentrations for San Diego.....5
Section 6.3.1 Sulfur Dioxide Concentrations for San Diego-for the Last 20 Years.....5
Section 6.3.2 Sulfur Dioxide Concentrations for San Diego-by Site for the Design Value.....6

CHAPTER 7 LEAD..... 1-7
Section 7.0.0 Lead Introduction 1-2
Section 7.1.0 Lead Minimum Monitoring Requirements..... 3-6
Section 7.1.1 Lead Minimum Monitoring Requirements-Source (non-Airport).....3
Section 7.1.2 Lead Minimum Monitoring Requirements-Airport (non-Source)..... 3-4
Section 7.2.1.1 Lead Minimum Monitoring Requirements-Airport (non-Source) Results..... 4-5
Section 7.1.3 Lead Minimum Monitoring Requirements-NCore.....5
Section 7.1.4 Lead Minimum Monitoring Requirements-Summary..... 5
Section 7.2.0 Lead Suitability for Comparison to the NAAQS 6

Section 7.3.0 Lead Concentrations for San Diego 6-7
Section 7.3.1 Lead Concentrations for San Diego-for the Last 20 Years 6
Section 7.3.2 Lead Concentrations for San Diego-by Site for the Year 7

CHAPTER 8 PARTICULATE MATTER 2.5 µm 1-22
Section 8.0.0 $PM_{2.5}$ Introduction 1-3
Section 8.1.0 $PM_{2.5}$ Manual Minimum Monitoring Requirements 4-9
Section 8.1.1.1 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Design Criteria (24-Hr & Annual Average) 4-5
Section 8.1.1.2 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Ambient 5
Section 8.1.1.3 $PM_{2.5}$ Manual Minimum Monitoring Requirements-State 5-6
Section 8.1.1.4 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Collocation 6
Section 8.1.2 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Expected Maximum Concentration (24-Hr & Annual Average) 7
Section 8.1.3 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Near-road 8
Section 8.1.4 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Poor Air Quality 8
Section 8.1.5 $PM_{2.5}$ Manual Minimum Monitoring Requirements-NCore 9
Section 8.1.6 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Summary 9
Section 8.2.0 $PM_{2.5}$ Continuous Minimum Monitoring Requirements 10-11
Section 8.2.1 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Ambient 10
Section 8.2.2 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Collocation 10
Section 8.2.3 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-NCore 11
Section 8.2.4 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Summary 11
Section 8.3.0 $PM_{2.5}$ Speciation Minimum Monitoring Requirements 12
Section 8.3.1 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Ambient 12
Section 8.3.2 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-NCore 12
Section 8.3.3 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Summary 12
Section 8.4.0 $PM_{2.5}$ Suitability for Comparison to the NAAQS 13-14
Section 8.4.1 $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Manual 13
Section 8.4.2 $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Continuous Unsuitability 13
Section 8.4.3 $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Speciation Unsuitability 14
Section 8.5.0 $PM_{2.5}$ Manual Operating Schedule 14-16
Section 8.5.1 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers not Collocated with Continuous Samplers 14
Section 8.5.2 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers not Collocated with Continuous Samplers 14
Section 8.5.3 $PM_{2.5}$ Manual Operating Schedule-for 24-Hr Design Value Samplers 15
Section 8.5.4 $PM_{2.5}$ Manual Operating Schedule-at NCore 15
Section 8.5.5 $PM_{2.5}$ Speciation Operating Schedule-at NCore 15
Section 8.6.0 $PM_{2.5}$ Manual Concentrations for San Diego 17-20
Section 8.6.1 $PM_{2.5}$ Manual Concentrations for San Diego-for the Last 20 Years 17
Section 8.6.2 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Year 18
Section 8.6.3 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (24-Hr) 19
Section 8.6.4 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (Annual Avg) 19
Section 8.7.0 $PM_{2.5}$ Continuous Concentrations for San Diego 21-22
Section 8.7.1 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Year (24-Hr & Annual Average) 21
Section 8.7.2 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Design Value (24-Hr & Annual Concentrations 17

CHAPTER 9 PARTICULATE MATTER 10 µm 1-8
Section 9.0.0 PM_{10} Introduction 1-2
Section 9.1.0 PM_{10} Minimum Monitoring Requirements 3-4
Section 9.1.1 PM_{10} Minimum Monitoring Requirements-Ambient 3
Section 9.1.2 PM_{10} Minimum Monitoring Requirements-NCore 4
Section 9.1.3 PM_{10} Minimum Monitoring Requirements -Summary 4
Section 9.2.0 PM_{10} Suitability for Comparison to the NAAQS 5
Section 9.2.1 PM_{10} Suitability for Comparison to the NAAQS, Equipment & Siting 5
Section 9.2.2 PM_{10} Suitability for Comparison to the NAAQS, Sampling Frequency 5
Section 9.3.0 PM_{10} Concentrations for San Diego 5-8
Section 9.3.1 PM_{10} Concentrations for San Diego-for the Last 20 Years 6
Section 9.3.2 PM_{10} Concentrations for San Diego-by Site for the Year at Standard Conditions (STD) 7
Section 9.3.3 PM_{10} Concentrations for San Diego-by Site for the Year at Local Conditions (LC) 8

CHAPTER 10 NCORE 1-4
Section 10.0.0 NCore Introduction 1
Section 10.1.0 NCore Minimum Monitoring Requirements 2
Section 10.2.0 NCore Suitability for Comparison to the NAAQS 3
Section 10.3.0 NCore Concentrations for San Diego 4

CHAPTER 11 PHOTOCHEMICAL ASSESSMENT MONITORING STATION (PAMS) 1-10
Section 11.0.0 PAMS Introduction 1-2
Section 11.1.0 PAMS Minimum Monitoring Requirements 3-9
Section 11.1.1.0 PAMS Minimum Monitoring Requirements-Sampling Season (24-Hr & 3-Hr) 3
Section 11.1.2.0 PAMS Minimum Monitoring Requirements-VOC 3-5
Section 11.1.2.1 PAMS Minimum Monitoring Requirements-VOC at Type 2 Stations 3-4
Section 11.1.2.2 PAMS Minimum Monitoring Requirements-VOC at non-Type 2 Stations 4-5
Section 11.1.2.3 PAMS Minimum Monitoring Requirements-VOC Sampling Frequency 5
Section 11.1.3.0 PAMS Minimum Monitoring Requirements-Carbonyls 5-6
Section 11.1.3.1 PAMS Minimum Monitoring Requirements-Carbonyls at Type 2 Stations 5
Section 11.1.3.2 PAMS Minimum Monitoring Requirements-Carbonyls Sampling Frequency 5
Section 11.1.4.0 PAMS Minimum Monitoring Requirements-Gaseous Instruments 6-8
Section 11.1.4.1 PAMS Minimum Monitoring Requirements-Gaseous Instruments, NOx (NO_2) 6
Section 11.1.4.2 PAMS Minimum Monitoring Requirements-Gaseous Instruments, NOy 7
Section 11.1.3.3 PAMS Minimum Monitoring Requirements-Gaseous Instruments, CO 7
Section 11.1.3.4 PAMS Minimum Monitoring Requirements-Gaseous Instruments, O_3 5
Section 11.1.5.0 PAMS Minimum Monitoring Requirements-Meteorology Instrumentation 8-9
Section 11.1.5.1 PAMS Minimum Monitoring Requirements-Meteorology Instrumentation, Surface Sensors 8
Section 11.1.5.2 PAMS Minimum Monitoring Requirements-Meteorology Instrumentation, Upper Atmosphere Sensors 9
Section 11.1.6.0 PAMS Minimum Monitoring Requirements-Summary 9
Section 11.2.0 PAMS Sampling Frequency and Equipment 10

CHAPTER 12 TOXICS 1-3
Section 12.0.0 Toxics Introduction 1-2
Section 12.10 Toxics Minimum Monitoring Requirements 3
Section 12.1.0 Toxics Sampling Frequency and Equipment 4

LIST OF TABLES

TABLE	TITLE	SECTION/PAGE(S)
Table 2.0	List of Network Sites	2/2
Table 2.1	Air Monitoring Sites with Associated Monitors/Samplers	2/4
Table 2.2	Gaseous Pollutant Monitoring Network	2/7
Table 2.3	Lead Pollutant Monitoring Network	2/8
Table 2.4	$PM_{2.5}$ Pollutant Monitoring Network	2/9
Table 2.5	PM_{10} Pollutant Monitoring Network	2/10
Table 2.6	PAMS Monitoring Network	2/11
Table 2.7	Toxics Pollutant Monitoring Network	2/12
Table 2.8	Summary of Minimum Monitoring Requirements for Collocation	2/13
Table 2.9	Summary of Minimum Monitoring Requirements for non-Collocated Samplers	2/14
Table A1	Floyd Smith Drive-Gaseous Pollutants	2/20
Table A2	Floyd Smith Drive-Particulate Pollutants	2/20
Table A3	Floyd Smith Drive-Other Pollutants	2/21
Table A4	Lexington Elementary School-Additional Equipment	2/22
Table A5	Lexington Elementary School-Meteorological Equipment	2/22
Table A6	Floyd Smith Drive-Monitor Relocation Applicability	2/23
Table B1	Downtown-Gaseous Pollutants	2/25
Table B2	Downtown-Particulate Pollutants	2/25
Table B3	Downtown-Other Pollutants	2/26
Table B4	Downtown-Meteorological Equipment	2/26
Table B5	Downtown-Design Values and Averages for Pollutants	2/28
Table B6	Downtown-Eligibility for Relocation	2/28
Table 3.0	Ozone State and Federal Standards for the Year	3/1
Table 3.1	Ozone Sampling Network	3/2
Table 3.2a	Ozone 8-Hr Design Value	3/3
Table D-2	SLAMS Minimum O_3 Monitoring Requirements (from the CFR)	3/3
Table 3.2b	Ozone Minimum Monitoring Requirements for Ambient	3/4
Table 3.3	Ozone Site of Maximum Concentrations for the Design Value	3/4
Table D-2	SLAMS Minimum O_3 Monitoring Requirements (from the CFR)	3/5
Table 3.4	Ozone PAMS Requirements	3/5
Table 3.5	Ozone NCore Requirements	3/6
Table 3.6	Ozone Summary of Minimum Monitoring Requirements	3/6
Table 3.7	Ozone Sampling Equipment	3/7
Table 3.8	Ozone Concentrations for the Last 20 Years	3/7
Table 3.9a	Ozone Concentrations by Site for the Year	3/8
Table 3.9b	Ozone Concentrations by Site for the Design Value	3/9
Table 4.0	Nitrogen Dioxide State and Federal Standards for the Year	4/1
Table 4.1	Nitrogen Dioxide and Reactive Oxides of Nitrogen Sampling Network	4/2
Table 4.2	Nitrogen Dioxide Near-road Requirements	4/3
Table 4.3	Nitrogen Dioxide Near-road Requirements (2^{nd} Site at Boston Ave.)	4/4-5
Table 4.4	Nitrogen Dioxide Area-wide Requirements	4/6
Table 4.5	Nitrogen Dioxide Regional Administrator Requirements	4/7
Table D-6	SLAMS Minimum NO_2 Monitoring Requirements (from the CFR)	4/7
Table 4.6	Nitrogen Dioxide PAMS Type II Requirements	4/8
Table 4.7	Nitrogen Dioxide Summary of Minimum Monitoring Requirements	4/8
Table D-6	PAMS Minimum NOy Monitoring Requirements (from the CFR)	4/9
Table 4.8	Reactive Oxides of Nitrogen PAMS Requirements	4/9

Table 4.9 Reactive Oxides of Nitrogen NCore Requirements 4/10
Table 4.10 Reactive Oxides of Nitrogen Summary of Minimum Monitoring Requirements 4/10
Table 4.11 Nitrogen Dioxide & Reactive Oxides of Nitrogen Sampling Equipment 4/11
Table 4.12 Nitrogen Dioxide Concentrations for the Last 20 Years 4/11
Table 4.13a Nitrogen Dioxide Concentrations by Site for the Year 4/12
Table 4.13b Nitrogen Dioxide Concentrations by Site for the Design Value 4/13

Table 5.0 Carbon Monoxide State and Federal Standards for the Year 5/1
Table 5.1 Carbon Monoxide Sampling Network 5/2
Table 5.2 Carbon Monoxide Near-road Requirements 5/3
Table 5.3 Carbon Monoxide NCore Requirements 5/3
Table D-6 PAMS Minimum CO Monitoring Requirements (from the CFR) 5/4
Table 5.4 Carbon Monoxide PAMS Requirements 5/4
Table 5.5 Carbon Monoxide Minimum Monitoring Requirements, State 5/4
Table 5.6 Carbon Monoxide Summary of Minimum Monitoring Requirements 5/5
Table 5.7 Carbon Monoxide Sampling Equipment 5/6
Table 5.8 Carbon Monoxide Concentrations for the Last 20 Years 5/6
Table 5.9 Carbon Monoxide Concentrations by Site for the Year 5/7

Table 6.0 Sulfur Dioxide State and Federal Standards for the Year 6/1
Table 6.1 Sulfur Dioxide Sampling Network 6/2
Table 6.2a Sulfur Dioxide Emissions Inventory for the Year 6/3
Table 6.2b Sulfur Dioxide Ambient (non-NCore) Requirements 6/3
Table 6.3 Sulfur Dioxide NCore Requirements 6/4
Table 6.4 Sulfur Dioxide Summary of Minimum Monitoring Requirements 6/4
Table 6.5 Sulfur Dioxide Sampling Equipment 6/7
Table 6.6 Sulfur Dioxide Summary of Concentrations for the Last 20 Years 6/7
Table 6.7 Sulfur Dioxide Concentrations by Site for the Year 6/6

Table 7.0 Lead State and Federal Standards for the Year 7/1
Table 7.1 Lead Sampling Network 7/2
Table 7.2 Lead Airport (non-Source) Minimum Monitoring Requirements 7/3
Table 7.3 Lead Source (non-Airport) Minimum Monitoring Requirements 7/4
Table D-3A Airports to be Monitored for Lead (from the CFR) 7/4
Table 7.4 Lead Airport Study Requirements 7/5
Table 7.5 Lead NCore Minimum Monitoring Requirements 7/5
Table 7.6 Lead Summary of Minimum Monitoring Requirements 7/5
Table 7.7 Lead Sampling Equipment 7/6
Table 7.8 Lead Concentrations for the Last 20 Years 7/6
Table 7.9 Lead Concentrations by Site for the Year 7/7

Table 8.0 $PM_{2.5}$ State and Federal Standards for the Year 8/1
Table 8.1 $PM_{2.5}$ Sampling Network 8/2
Table D-5 $PM_{2.5}$ Manual Minimum Number of Monitoring Requirements (from the CFR) 8/4
Table 8.2a $PM_{2.5}$ Manual Minimum Monitoring Requirements-Design Criteria (Annual Average) 8/4
Table 8.2b $PM_{2.5}$ Manual Minimum Monitoring Requirements-Design Criteria (24-hrs) 8/5
Table 8.2c $PM_{2.5}$ Manual Minimum Monitoring Requirements-Ambient 8/5
Table 8.3 $PM_{2.5}$ Manual Minimum Monitoring Requirements-State 8/5
Table 8.4 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Collocation 8/6
Table 8.5a $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Expected Maximum Concentration (Annual Average) 8/7

Table 8.5b $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Expected Maximum Concentration (24-Hrs) 8/7
Table 8.6 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Near road 8/8
Table 8.7 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Poor Air Quality 8/8
Table 8.8 $PM_{2.5}$ Manual Minimum Monitoring Requirements-NCore 8/9
Table 8.9 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Summary 8/9
Table 8.10a $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Ambient 8/10
Table 8.10b $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Collocation with $PM_{2.5}$ Manual Method Sampler 8/10
Table 8.11 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-NCore 8/11
Table 8.12 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Summary 8/11
Table 8.13 $PM_{2.5}$ Speciation Minimum Monitoring Requirements 8/12
Table 8.14 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-NCore 8/12
Table 8.15 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Summary 8/12
Table 8.16a $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Manual (Equipment) 8/13
Table 8.16b $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Continuous Unsuitability (Equipment) 8/13
Table 8.16c $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Speciation Unsuitability (Equipment) 8/13
Table 8.17 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers not Collocated with Continuous 8/14
Table 8.18 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers Collocated with Continuous 8/15
Table 8.19a $PM_{2.5}$ Manual Operating Schedule-for 24-Hr Design Value 8/15
Table 8.19b $PM_{2.5}$ Manual Operating Schedule-ACTUAL for 24-Hr Design Value 8/16
Table 8.20 $PM_{2.5}$ Manual Operating Schedule-NCore 8/16
Table 8.21 $PM_{2.5}$ Speciation Operating Schedule-NCore 8/16
Table 8.22 $PM_{2.5}$ Manual Concentrations for San Diego-for the Last 20 Years (24-Hr) 8/17
Table 8.23 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Year (24-Hr & Annual Avg) 8/18
Table 8.24 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (24-Hr) 8/19
Table 8.25 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Year (24-Hr & Annual Avg) 8/21
Table 8.26 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Design Value (24-Hr) 8/22

Table 9.0 PM_{10} State and Federal Standards for the Year 9/1
Table 9.1 PM_{10} Sampling Network 9/2
Table D-4 PM_{10} Minimum Monitoring Requirements (from the CFR) 9/3
Table 9.2a PM_{10} Design Value (24-Hrs) for the Year 9/3
Table 9.2b PM_{10} Ambient Minimum Monitoring Requirements 9/4
Table 9.3 PM_{10} NCore Minimum Monitoring Requirements 9/4
Table 9.4 PM_{10} Summary of Minimum Monitoring Requirements 9/4
Table 9.5a PM_{10} Suitability for Comparison to the NAAQS, Equipment and Siting 9/5
Table 9.5b PM_{10} Suitability for Comparison to the NAAQS, Sampling Frequency 9/5
Table 9.6 PM_{10} Concentrations for the Last 20 Year2 ....9/6
Table 9.7 PM_{10} Concentrations by Site at Standard (STD) Conditions for the Year 9/7
Table 9.8 PM_{10} Concentrations by Site at Local (LC) Conditions for the Year 9/8

Table 10.1a NCore Minimum Monitoring Requirements 10/2
Table 10.1b NCore Equipment Minimum Monitoring Requirements 10/2
Table 10.2 NCore Suitability for Comparison to the NAAQS, Equipment and Frequency 10/3
Table 10.3a NCore PMcoarse Concentrations 10/4
Table 10.3b NCore CO TLE Concentrations 10 4
Table 10.3c NCore SO_2 Concentrations 10/4
Table 10.3d1 NCore NOy-NO Concentrations 10/4
Table 10.3d2 NCore SO_2 TLE Concentrations 10/4
Table 10.3e NCore Pb Concentrations 10/4

Table 11.0 PAMS Sampling Network....11/2
Table 11.1 PAMS Sampling Season Minimum Monitoring Requirements....11/3
Table 11.2 PAMS VOC Type 2 Stations Minimum Monitoring Requirements....11 4
Table D-6 PAMS Minimum Monitoring Requirements (from the CFR)....11/4
Table 11.3 PAMS VOC non-Type 2 Minimum Monitoring Station Requirements....11/5
Table 11.4 PAMS VOC Sampling Frequency Minimum Monitoring Requirements....11/5
Table 11.5 PAMS Carbonyls Type 2 Stations Minimum Monitoring Requirements....11/5
Table 11.6 PAMS Carbonyls Sampling Frequency Minimum Monitoring Requirement....11/6
Table 11.7 PAMS NOx (NO_2) Minimum Monitoring Requirements....11/6
Table 11.8 PAMS NOy Minimum Monitoring Requirements....11/7
Table 11.9 PAMS CO Minimum Monitoring Requirements....11/7
Table 11.10 PAMS O_3 Minimum Monitoring Requirements....11/8
Table 11.11 PAMS Meteorology Minimum Monitoring Requirements, Surface....11/8
Table 11.12 PAMS Meteorology Minimum Monitoring Requirements, Upper Air Sensors....11/9
Table 11.13 PAMS Summary of Minimum Monitoring Requirements....11/9
Table 11.14 PAMS Sampling Equipment....11/10
Table 11.15 PAMS VOC Parameter Codes....11/10
Table 11.16 PAMS Carbonyls Parameter Codes....11/10

Table 12.1 Toxics Sampling Network....12/2
Table 12.2a Toxics Sampling Equipment....12/3
Table 12.2b Toxics VOCs Parameter Codes....12/3

LIST OF FIGURES

FIGURE	TITLE	SECTION/PAGE(S)
Figure 2.0	San Diego APCD Air Quality Monitoring Network	2/3
Figure A1	Map of Distance between Floyd Smith Drive and Lexington Elementary School	2/21
Figure B1	Map of Distance between Downtown and Lexington Elementary School	2/27
Figure 3.0	Ozone Network Map	3/1
Figure 3.1	Ozone Concentrations for the Last 20 Years Graph	3/7
Figure 3.2a	Ozone Concentrations by Site for the Year Graph	3/8
Figure 3.2b	Ozone Concentrations by Site for the Design Value Graph	3/9
Figure 4.0	Nitrogen Dioxide Network Map	4/1
Figure 4.1	Nitrogen Dioxide Concentrations for the Last 20 Years Graph	4/11
Figure 4.2a	Nitrogen Dioxide Concentrations by Site for the Year Graph	4/12
Figure 4.2b	Nitrogen Dioxide Concentrations by Site for the Design Value Graph	4/13
Figure 5.1	Carbon Monoxide Network Map	5/1
Figure 5.2	Carbon Monoxide Concentrations for the Last 20 Years Graph	5/6
Figure 5.3	Carbon Monoxide Concentrations by Site for the Year Graph	5/7
Figure 6.0	Sulfur Dioxide Network Map	6/1
Figure 6.1	Sulfur Dioxide Concentrations for the Last 20 Years Graph	6/5
Figure 6.2	Sulfur Dioxide Concentrations by Site for the Design Value Graph	6/6
Figure 7.0	Lead Network Map	7/1
Figure 7.1	Lead Concentrations for the Last 20 Years Graph	7/6
Figure 7.2	Lead Concentrations by Site for the Year Graph	7/7
Figure 8.0	$PM_{2.5}$ (Overall) Network Map	8/1
Figure 8.1	$PM_{2.5}$ Manual Concentrations for San Diego-for the Last 20 Years Graph	8/12
Figure 8.2	$PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Year (24-Hr & Annual Avg)	8/18
Figure 8.3	$PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (24-Hr)	8/20
Figure 8.4	$PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Year (24-Hr & Annual Avg)	8/21
Figure 8.3	$PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Design Value (24-Hr)	8/22
Figure 9.0	PM_{10} (Overall) Network Map	9/1
Figure 9.1	PM_{10} Concentrations for the Last 20 Years Graph	9/6
Figure 9.2	PM_{10} Concentrations by Site at Standard Conditions (STD) for the Year Graph	9/7
Figure 9.3	PM_{10} Concentrations by Site at Local Conditions (LC) for the Year Graph	9/8
Figure 10.0	NCore Network Map	10/1
Figure 11.0	PAMS Network Map	11/1
Figure 13.0	Toxics Network Map	12/1

APPENDICIES

SECTION	TITLE	PAGE(S)
Appendix A		**1 - 4**
Introduction		1
Table A1	Relationship Between the Site Types and Scales or Representativeness	1
Table A2	Summary of Definitions in the Site Description Template	2
Table A3	Summary of Probe Monitoring Path Requirements	3
Figure E1	Particulate Probe Distance from Roadway	4
Appendix 1	**Alpine (ALP) Monitoring Station**	**1 - 6**
Table 1.1	General Site Information	1
Figure 1.1	Picture of the Location of the Station	1
Table 1.2a	Gaseous Pollutant Monitor Designations + Other	2
Table 1.2b	Particulate Pollutant Monitor Designations	3
Table 1.2c	Other Pollutant Monitor Designations	4
Table 1.2d	Meteorological Equipment Designations + Other	5
Figure 1.2	Pictures (Directional) from the Rooftop	6
Appendix 1(t)	**Alpine (ALP) Monitoring Station (temporary)**	**1 - 6**
Table 1.1	General Site Information	1
Figure 1.1	Picture of the Location of the Station	1
Table 1.2a	Gaseous Pollutant Monitor Designations + Other	2
Table 1.2b	Particulate Pollutant Monitor Designations	3
Table 1.2c	Other Pollutant Monitor Designations	4
Table 1.2d	Meteorological Equipment Designations + Other	5
Figure 1.2	Pictures (Directional) from the Rooftop	6
Appendix 2	**Camp Pendleton (CMP) Monitoring Station**	**1 - 6**
Table 2.1	General Site Information	1
Figure 2.1	Picture of the Location of the Station	1
Table 2.2a	Gaseous Pollutant Monitor Designations + Other	2
Table 2.2b	Particulate Pollutant Monitor Designations	3
Table 2.2c	Other Pollutant Monitor Designations	4
Table 2.2d	Meteorological Equipment Designations + Other	5
Figure 2.2	Pictures (Directional) from the Rooftop	6
Appendix 3	**Chula Vista (CVA) Monitoring Station**	**1 - 6**
Table 3.1	General Site Information	1
Figure 3.1	Picture of the Location of the Station	1
Table 3.2a	Gaseous Pollutant Monitor Designations + Other	2
Table 3.2b	Particulate Pollutant Monitor Designations	3
Table 3.2c	Other Pollutant Monitor Designations	4
Table 3.2d	Meteorological Equipment Designations + Other	5
Figure 3.2	Pictures (Directional) from the Rooftop	6
Appendix 4	**Del Mar (DMR) Monitoring Station**	**1 - 4**
Table 4.1	General Site Information	1
Figure 4.1	Picture of the Location of the Station	1
Table 4.2a	Gaseous Pollutant Monitor Designations + Other	2
Table 4.2b	Meteorological Equipment Designations + Other	3
Figure 4.2	Pictures (Directional) from the Rooftop	4

Appendix 5 Donovan (DVN) Monitoring Station ..... 1 - 6
Table 5.1 General Site Information 1
Figure 5.1 Picture of the Location of the Station 1
Table 5.2a Gaseous Pollutant Monitor Designations + Other 2
Table 5.2b Particulate Pollutant Monitor Designations 3
Table 5.2c Other Pollutant Monitor Designations 4
Table 5.2d Meteorological Equipment Designations + Other 5
Figure 5.2 Pictures (Directional) from the Rooftop 6

Appendix 6 San Diego/Beardsley St. - Downtown (DTN) Monitoring Station ..... 1 - 6
Table 6.1 General Site Information 1
Figure 6.1 Picture of the Location of the Station 1
Table 6.2a Gaseous Pollutant Monitor Designations + Other 2
Table 6.2b Particulate Pollutant Monitor Designations 3
Table 6.2c Other Pollutant Monitor Designations 4
Table 6.2d Meteorological Equipment Designations + Other 5
Figure 6.2 Pictures (Directional) from the Rooftop 6

Appendix 7 McClellan-Palomar Airport (CRQ) Monitoring Station ..... 1 - 3
Table 7.1 General Site Information 1
Figure 7.1 Picture of the Location of the Station 1
Table 7.2a Particulate Pollutant Monitor Designations 2
Figure 7.2 Pictures (Directional) from the Rooftop 3

Appendix 8 Escondido (ESC) Monitoring Station ..... 1 - 6
Table 8.1 General Site Information 1
Figure 8.1 Picture of the Location of the Station 1
Table 8.2a Gaseous Pollutant Monitor Designations + Other 2
Table 8.2b Particulate Pollutant Monitor Designations 3
Table 8.2c Other Pollutant Monitor Designations 4
Table 8.2d Meteorological Equipment Designations + Other 5
Figure 8.2 Pictures (Directional) from the Rooftop 6

Appendix 9 Kearny Villa Rd. (KVR) Monitoring Station ..... 1 - 7
Table 9.1 General Site Information 1
Figure 9.1 Picture of the Location of the Station 1
Table 9.2a Gaseous Pollutant Monitor Designations + Other 2
Table 9.2b Particulate Pollutant Monitor Designations 3
Table 9.2c Other Pollutant Monitor Designations 4
Table 9.2d1 Meteorological Equipment Designations + Other 5
Table 9.2d2 Meteorological Equipment (Additional) Designations 5
Figure 9.2 Pictures (Directional) from the Rooftop 7

Appendix 10 San Ysidro (SAY) Monitoring Station ..... 1 - 3
Table 10.1 General Site Information 1
Figure 10.1 Picture of the Location of the Station 1
Table 10.2a Particulate Pollutant Monitor Designations 2
Figure 10.2 Pictures (Directional) from the Rooftop 3

Appendix 11 Floyd Smith Drive (FSD) Monitoring Station..... 1 - 5
Table 11.1 General Site Information.....1
Figure 11.1 Picture of the Location of the Station.....1
Table 11.2a Gaseous Pollutant Monitor Designations + Other.....2
Table 11.2b Particulate Pollutant Monitor Designations.....3
Table 11.2c Other Pollutant Monitor Designations.....4
Table 11.2d Meteorological Equipment Designations + Other.....5

Appendix 12 Rancho Carmel Drive (RCD) Monitoring Station..... 1 - 3
Table 12.1 General Site Information.....1
Figure 12.1 Picture of the Location of the Station.....1
Table 12.2a Gaseous Pollutant Monitor Designations + Other.....2
Figure 12.2 Pictures (Directional) from the Rooftop..... 3

ACRONYMS

Symbols & Numbers

>- Greater than
<- Less than
≥- Greater than or equal to
≤- Less than or equal to
%- percent
µg/m^3- micrograms per cubic meter
7/24- Monitor that operates 24 hours a day, 7 days a week

A

AAQS- Ambient Air Quality Standards
AADT- Average Actual Daily Traffic
Acid Rain- Rain which is especially acidic, which typically is composed of sulfuric and/or nitric acid. Formed by the combination of nitrogen and sulfur oxides with water vapor in the atmosphere.
Aerosol- Particles of solid or liquid matter that can remain suspended in air for long periods of time because of extremely small size and/or weight.
Area wide- Stationary sources of pollution
Attainment Area; a geographic area which is in compliance with the NAAQS
Air Explorer- AQS data analysis tool
AirNow- AQI real time data
ALP- Alpine monitoring location
AMP reports- Series of AQS retrieval reports
Ambient Air- The air occurring at a particular time and place outside of structures.
AMTIC- Ambient Monitoring Technical Information Center
APCD- Air Pollution Control District; a county agency with authority to regulate sources of air pollution within the county and governed by the county supervisors.
AQI- Air Quality Index
AQMD- Air Quality Management District; a group of counties or an individual county with authority to regulate sources of air pollution within the region and governed by a regional air pollution control board.
AQS- Air Quality System
ARM- Approved Regional Method
Automated (aka continuous)- A sampler that operates on a 7/24 schedule

B

BAM- Beta Attenuation Monitor
BURN- Agricultural Burning refers to the intentional use of fire for the burning of vegetation produced wholly from the growing and harvesting of crops in agricultural operations. This includes the burning of grass and weeds in fence rows, ditch banks, and berms in non-tillage orchard operations, fields being prepared for cultivation, agricultural wastes, and the operation or maintenance of a system for the delivery of water for agricultural operations.

C

CAA- Clean Air Act
CARB- California Air Resources Board
CASAC- Clean Air Science Advisory Committee
CASTNET- Clean Air Status and Trends Network
CA TAC- California Air Toxics monitoring
CBSA- Core Bases Statistical Area
CFR- Code of Federal Regulations
CL- Chemiluminescence method is based upon the emission of photons in the reaction between ozone and nitric oxide (NO) to form nitrogen dioxide and oxygen.
CMP- Camp Pendleton monitoring location
CO- Carbon monoxide
CO_2- Carbon dioxide
Collocated- a monitor/sampler that is located within 1-4 meters, depending on the sampling rate of another one of the same sampling method.
Continuous (aka automated)- A sampler that operates on a 7/24 schedule
Criteria pollutants- An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set.
CRQ- McClellan-Palomar Airport monitoring location
CSA- Core based Statistical Area
Cr(VI) (aka Cr^{+6})- Chromium 6
CSN- Monitors that are part of the Chemical Speciation Network (carbon analyses)
CT- Low volume, continuous sampler, size selective inlet method is based upon a regulated low flow (16.7 LPM) instrument that operates 7 / 24.
CVA- Chula Vista monitoring location

D

DVN- Donovan monitoring station
DMR- Del Mar monitoring station
DNPH- 2,4 –dinitrophenyl hydrazine; a derivatizing agent on cartridges used to collect carbonyl samples
DTN- San Diego/Beardsley St. monitoring location

E

EIR- Environmental Impact Report
EC- Elemental Carbon
ECA- El Cajon monitoring station
EPA- Environmental Protection Agency
ESC- Escondido monitoring station
EXDN- Extreme downwind site type

F

FDMS- Filter Dynamic Measurement System
FE- Fleet equivalency
FEM- Federal Equivalent Method
FIP- Federal Implementation Plan

FL- Fluorescence method is based upon the principle that SO_2 molecules absorb ultraviolet (UV) light and become excited at one wavelength, then decay to a lower energy state emitting UV light at a different wavelength. The intensity of fluorescence is proportional to the SO2 concentration.
FOIA- Freedom of Information Act
FR- Federal Register
FRM- Federal Reference Method
FSL- Fused silica lined
FY- Fiscal Year

G
G/B- General/Background site type
GC/FID- Gas Chromatography with a flam ionization detector
GC/MS- Gas Chromatography followed by mass spectroscopy

H
HAP- Hazardous Air Pollutant; An air pollutant considered by the EPA to be particular hazardous to health.
HC- Highest concentration site type
HD- High density
HPLC- High Performance Liquid Chromatography
Hr- Hour
Hydrocarbon- Any of a large number of compounds containing various combinations of hydrogen and carbon atoms.

I
ICP/MS- Inductively Coupled Plasma Mass Spectrometry
IMPROVE- Interagency Monitoring of Protected Visual Environments
Inversion- A layer of warm air in the atmosphere that lies over a layer of cooler air, trapping pollutants.
IO- Inorganic
IR- Nondispersive infrared method is based upon the absorption of infrared radiation by CO in a non-dispersive photometer. Infrared energy from a source is passed through a cell containing the gas sample to be analyzed, and the quantitative absorption of energy by CO in the sample cell is measured by a suitable detector.

K
KMA- San Diego/Overland (aka Kearny Mesa) monitoring location
KVR- Kearny Villa Road monitoring location

L
Lat- Latitude
Level I calibrator- A calibrator that is certified according to EPA specifications
Level II- calibrator- A calibrator that is not certified
Lon- Longitude

M
Manual (aka sequential)- A sampler that requires a media change and operates on a schedule set by the EPA.
MDL- Method Detection Limit

Met- Meteorological
MI- Microscale is an expanse of uniform pollutant concentrations, ranging from several meters up to 100m.
MOA- Memorandum of Agreement
Mobile Sources- Sources of air pollution that are not stationary, e.g. automobiles.
Monitoring- The periodic or continuous sampling and analysis of air pollutants in ambient air or from individual pollutant sources.
MOU- Memorandum of Understanding
MS- Middle Scale is an expanse of uniform pollutant concentrations, ranging from about 100 meters to 0.5 kilometers
MSA- Metropolitan Statistical Area
MXO- Maximum ozone concentration site type
MXP- Maximum ozone precursor site type

N

NAAQS- National Ambient Qir Quality Standard
NACAA- National Association of Clean Air Agencies
NAFTA- North American Trade Agreement
NAMS- National Air Monitoring Station
NATA- National Air Toxics Assessment
NATTS- National Air Toxics Trends Sites
NCore- National Core multipollutant monitoring stations
NEI- National Emissions Inventory
NEPA- non-EPA Federal monitor type
NIST- National Institute of Standards and Technology
NOAA- National Oceanic and Atmospheric Administration
Non-Methane Hydrocarbons- (aka ROGs); a chemical gas composed of hydrocarbons that may contribute to the formation of smog.
NOx- Oxides of Nitrogen
NO- Nitric oxide
NO_2- Nitrogen dioxide
NOy- Reactive oxides of nitrogen
NPAP- National Performance Audit Program
NPEP- National Performance Evaluation Program
NPS- National Parks Service
NS- Neighborhood Scale is an expanse with dimensions, ranging in the 0.5 kilometer to 4.0 kilometer range.
NSR- New Source Review; a program used in development of permits for modifying industrial facilities which are in a non-attainment area.
Non-Attainment Area- A geographic area identified by the EPA as not meeting the NAAQS for a given pollutant.
NTIS- National Technical Information Service

O

OAQPS- Office of Air Quality Planning and Standards
OC- Organic Carbon
OTAQ- Office of Transportation and Air Quality
OTM- Otay Mesa monitoring location

O_3- Ozone
Ozone layer- A layer of ozone 12-15 miles above the earth's surface which helps to filter out harmful UV rays from the sun.
Ozone ground level- Exists at the earth's surface and is a harmful component of smog.
Ozone precursors- Chemicals, such as hydrocarbons, occurring naturally or anthropogenic, which contribute to the formation of ozone.

P

P&A- Precision and Accuracy
PAH- Polynuclear Aromatic Hydrocarbon
PAMS- Photochemical Assessment Monitoring Stations
PAMS Type I- Designation for areas which are subjected to overwhelming incoming transport of ozone. Located in the predominant morning upwind direction from the area of maximum precursor emissions (upwind and background). Typically located near the upwind edge of the photochemical grid model domain .
PAMS Type II- Designation for areas immediately downwind of the area of maximum precursor Emissions (maximum precursor emissions impact) and are placed near the downwind boundary of the central business district or primary area of precursor emissions mix.
PAMS Type III- Maximum ozone concentrations occurring downwind for the area of maximum precursor emissions. Typically these sites are located 10-30 miles from the fringe of the urban area.
Pb- Lead
PE- Population exposure site type
PEP- Performance Evaluation Program
Photochemical reaction- A term referring to chemical reactions brought about by the light energy of the sun.
PM- Particulate Matter
PMcoarse- (aka PMc or $PM_{10-2.5}$) the resultant particles of the subtraction of $PM_{2.5}$ from PM_{10}. Coarse particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers
$PM_{2.5}$- An air pollutant of particle size of 2.5 micrometers or less, which is inhalable.
PM_{10}- An air pollutant of particle size of 10 micrometers or less, which is inhalable.
POC- Parameter Occurrence Code
ppb- Parts per billion
ppm- Parts per million
ppt- Parts per trillion
PQAO- Primary Quality Assurance Organization
PWEI- Populated Weighted Emissions Index
%RH- Relative humidity

Q

QA- Quality Assurance and Quality Assurance site type
QAC- Quality Assurance Collocated monitor type
QAPP- Quality Assurance Project Plan
QC- Quality Control
QIP- Quality Improvement Plan
QMP- Quality Management Plan
Qtr- Quarter

R

RASS- Radar Acoustic Sounding System
ROG- Reactive Organic Gas (aka non-Methane hydrocarbons); a chemical gas composed of hydrocarbons that may contribute to the formation of smog.
RT- Regional transport site type
RTI- Research Triangle Institute
RTP- Research Triangle Park

S

SDAB- San Diego Air Basin
SEE- Gillespie Field monitoring location
SI- High volume, manual, size selective method is based upon a regulated high flow (>200 LPM) instrument that operates on a set schedule.
SIP(M)- State Implementation Plan
SLAMS- State/Local Air Monitoring Station
S/L/T- State, Local, and Tribal agencies
Smog- A combination of smoke, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds, which can result in a murky brown haze, which has adverse health effects.
SMP- System Management Plan
Speciation- Collection of a $PM_{2.5}$ sample that has its composition analyzed
SO- Source oriented site type
SOP- Standard Operating Procedures
SO_2- Sulfur dioxide
SOW- Statement of Work
SP- Low volume, speciated method is based upon a regulated low flow (< 200 LPM) instrument that operates on a set schedule.
SPM- Special Purpose monitor type
SQ- Low volume, sequential, size selective inlet method is based upon a regulated low flow (< 200 LPM) instrument that operates on a set schedule.
STN- Monitors that are part of the Speciation Trends Network (ions and wood smoke)
STAG- State Air Grand (federal)
SU- Supplemental Speciation

T

TA- Trend Analysis monitoring is useful for comparing and analyzing air pollution concentrations over time. Trend analyses show the progress (or lack of progress) in improving air quality for an area over a period of years.
TAC- Toxic Air Contaminant
TAD- Technical Assistance Document
TLE- Trace Level
Toxics (aka Air Toxics)- A generic term referring to a harmful chemical or group of chemicals in the air that are especially harmful to health.
Toxic Hot Spot- An area where the concentration of air toxics is at a level where individuals may be exposed to an elevated risk of adverse health effects.
TTN- Technology Transfer Network
TR- Pollutant Transport is the movement of a pollutant between air basins. Transport

monitoring is used to help determine whether observed pollutant concentrations are locally generated or generated outside of the air basin and blown ("transported") in, thereby raising local ambient air pollutant concentrations.

Trends- STN or CSN monitor type
TSP- Total Suspended Particulate

U

UNPAMS- Unofficial PAMS monitor type
UPBD- Upwind background
US- Urban Scale is Citywide pollutant conditions with dimensions ranging from 4 to 50 kilometers.
UV- Ultraviolet Absorption method is based upon the absorption of UV light by the ozone molecule and subsequent use of photometry to measure reduction of light at 254 nm, as expressed by the Beer-Lambert Law.

V

VOC- Volatile Organic Compounds

W

WD- Wind Direction
WF- Welfare Effects monitoring is used to measure air pollution impacts on visibility, vegetation damage, architectural damage, or other welfare-based impacts.
WS- Wind Speed

Y

Yr- Year

Z

ZAG- Zero Air Generator

(left intentionally blank)

Chapter 1 Annual Network Plan Requirements

Section 1.0.0 Federal Citation

In 2007, the U.S. Environmental Protection Agency (EPA) finalized amendments to the ambient air monitoring regulations. These amendments revised the technical requirements for certain types of sites, added provisions for the monitoring of PM_{10} and $PM_{2.5}$, and reduced 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, establish new monitoring programs.

The regulations from Title 40, Part 58, Section 10(a) of the Code of Federal Regulations (40 CFR 58.10, (a)(1)) state that:

> *Beginning July 1, 2007, the State, or where applicable local, agency shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations. The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA.*

This document is prepared and submitted as partial fulfillment of these requirements. It describes the network of ambient air quality monitors, samplers, and analyzers operated by San Diego Air Pollution Control District (District) staff in fulfillment of EPA regulations governing network compliance that are updated every July 1. This annual comprehensive review serves to evaluate whether the current monitor strategies are meeting the needs of the District, to determine compliance with all current Federal, State, and Local regulations and to aid in the development of future monitoring strategies and decisions. It also serves to identify and report needs for additions, relocations, or terminations of monitoring sites or instrumentation.

Section 1.2.0 Purpose, Scope, and Organization of Annual Network Plan

In San Diego County there are several locations where the ambient air quality is routinely measured for air pollutants. These sites are operated by the District. The measured data provide the public with information on the status of the air quality and the progress being made to improve air quality. The data can be used by health researchers, business interests, environmental groups, and others.

This report describes the network of ambient air quality monitors within the SDAB and meets the requirements for an annual network plan as listed in Title 40 of the Code of Federal Regulations (CFR), Part 58.10. The 40 CFR 58.10 require that the report be submitted to the EPA by July 1, of each year *(Please Note: The Network Plan was available for public review on June 16; submittal to EPA was on July 18).*

As required by the CFR, this report includes monitors which are federal reference methods (FRM) or federal equivalent methods (FEM). While the CFR also requires reporting of approved regional methods (ARM), no ARMs are in operation in San Diego County at this time. The terms FRM, FEM, and ARM denote monitoring instruments that produce measurements of the ambient pollution levels (or concentrations) that the regulations allow to be compared to the ambient air quality standards for regulatory purposes. This report also includes information regarding $PM_{2.5}$ speciation monitoring.

Section 1.3.0 Public Comments Information

Pursuant to Federal regulations, the draft report was available for a minimum of 30 days for public inspection period, ending June 30 with any comments to be submitted to the EPA (P*lease Note: Since the public review period did not begin until June 15, there will be a longer public review period; it will end on July 18).* Notice of availability of the report was posted on the District's website (www.sdpacd.org), published, and posted in local media, at least 30 days prior to EPA submission. Comments regarding this report before submittal to EPA will be addressed in the Executive Summary chapter (there were no comments. Comments submitted regarding this report after the public inspection period, will be forwarded to EPA Region IX headquarters.

Please submit any comments in writing to David Shina, Senior Chemist, Ambient Air Quality Section, david.shina@sdcounty.ca.gov, or mail/deliver to District headquarters at David Shina c/o San Diego Air Pollution Control District, 10124 Old Grove Road, San Diego, CA, 92131.

Section 1.3.1 District Contact Information

For information regarding this report, air monitoring stations, laboratory operations, or quality oversight of the monitoring program contact: David Shina, Senior Chemist, Ambient Air Quality Section, david.shina@sdcounty.ca.gov, (858) 586-2768.

For information about daily field operations, contact: David Craig, Supervisor of Technicians, Technicians section, david.craig@sdcounty.ca.gov, (858) 586-2785.

For information about the collection of meteorological data, episode modeling, air quality forecasting and smoke management plans, ambient air quality data contact: Bill Brick, Chief of Monitoring & Technical Services, Bill.Brick@sdcounty.ca.gov , (858) 586-2770.

Section 1.3.2 Additional Air Pollution Information

Additional information regarding San Diego's ambient air quality monitoring network, including pollutant data summaries for the various monitors in the ambient air quality network, are available from a variety of sources. Much of this information is available on the web. This section lists a number of additional sources for related information.

Similar information is available on EPA websites, including comprehensive historical information. Sample topics addressed include the following: National Ambient Air Quality Standards, Fine Particle ($PM_{2.5}$) Designations, The Plain English Guide to the Clean Air Act, About Air Toxics, Health and Ecological Effects, Air Trends, PAMS Information, Global Warming, Acid Rain, and Stratospheric Ozone.

A broad, general overview of ambient air quality data in a question and answer format can be found at the following California Air Resources Board (CARB) web page: http://www.arb.ca.gov/aqd/aqfaq/. This web page includes links to various sites, both technical and non-technical.

The ARB's Monitoring and Laboratory Division (MLD) maintains web pages with information about all the existing monitoring sites that routinely monitor and submit air quality data in California. These web pages also include detailed local maps showing the location of the sites. This information can be found at http://www.arb.ca.gov/aaqm/mldaqsb/amn.htm. A more general MLD web page that provides links to other aspects of ambient monitoring is located at http://www.arb.ca.gov/aaqm/aaqm.htm.

Volume II of the CARB annual network report contains listings of all the monitoring sites in the State, along with the years for which the data are available for each monitor and regional maps showing the locations of the monitoring sites. To review the data from this report, as well as other data in general, go to http://www.arb.ca.gov/aqd/netrpt/netrpt.htm.

Summaries of the official air quality data from sites around the State can be found at: http://www.arb.ca.gov/adam/welcome.html. For summaries of data monitored recently, up to the last few months, go to: http://www.arb.ca.gov/aqd/aqinfo.htm. These last two sources of information are maintained by the PTSD, as is the following, more general web page that lists links to other aspects of the ambient air quality data program: http://www.arb.ca.gov/aqd/aqdpage.htm. Pollution data is available on the District's website (http://www.sdapcd.org/). Other helpful websites to visit are: http://airnow.gov/, and at https://aqs.epa.gov/aqsweb/documents/data_mart_welcome.html.

Section 1.4.0 Description of Monitoring

This document details the current monitoring network in the San Diego Air Basin (SDAB) for the criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead and particulate matter. Also, there are additional monitoring programs the District must detail: National Core (NCore), Speciation Trends Network (STN), Chemical Speciation Network (CSN), Photochemical Assessment Monitoring Stations (PAMS), Toxics, Near-road, and Special Purpose Monitoring (SPM). Specific site information includes location information, site type, objectives, spatial scale, sampling schedule, equipment used, sampling method used, and monitor objective.

Section 1.4.1 Network Design Theory

Ambient air monitoring networks (Network) are designed to fulfill several criteria. A general summary of the criteria are below.

Network Design Objectives

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

Logistical

1. Minimal interference and perturbation of wind flow by obstacles.
2. Proximity to headquarters/drive time.
3. Availability of power and communications.
4. Cost of site lease, relocation, or new deployment, site improvements, e.g. fence, road, etc.
5. Safety, security, and accessibility.
6. Flat, level footprint for shelter, platforms, and concrete pad.
7. Gravel or paved road access.

Other

1. Funding.
2. Staffing.
3. Drive time from location to location.
4. Longevity of the site location.
5. Buildup of the area surrounding the location.
6. Proximity to other monitors.
7. Homogeneity in space and with respect to speciation.
8. Devoid of source influences (point sources, mobile sources, etc.).

Section 1.5.0 San Diego Air Basin Description

The San Diego Air Basin (SDAB) covers roughly 4,200 square miles, lies in the southwest corner of California, and encompasses all of San Diego County and a portion of the Salton Sea Air Basin. The population and emissions are concentrated mainly in the western portion of the County.

Section 1.5.1 Topography

The topography of San Diego County is highly varied, being comprised of coastal plains and lagoons, flatlands and mesas, broad valleys, canyons, foothills, mountains, and deserts. Generally, building structures are on the flatlands, mesas, and valleys, while the canyons and foothills tend to be sparsely developed. This segmentation is what has carved the region into a conglomeration of separate cities that led to low density housing and an automobile-centric environment.

The topography of San Diego County is unique and varied. To the west of San Diego are its beaches and the Pacific Ocean, to the south is Tijuana, Mexico and the Baja California Peninsula, to the near east are the mountains, to the far east is the desert (the Salton Sea Air Basin), and to the north is the South Coast Air Basin (the greater Los Angeles-Riverside-San Bernardino area).

The topography also drives the pollutant levels. The SDAB is not classified as a contributor, but it is classified as a transport recipient. The transport pollutants are O_3, NOx and Volatile Organic Compounds (VOCs), that are transported from the South Coast Air Basin to the north and, when the wind shifts direction, Tijuana, Mexico, to the south.

Section 1.5.2 Climate

The climate of San Diego is classified as Mediterranean, but is incredibly diverse because of the topography. The climate is dominated by the Pacific High pressure system that results in mild, dry summers and mild, wet winters. San Diego experiences an average of 201 days above 70 °F and 9-13" of rainfall annually (mostly, November - March). El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego.

An El Niño is a warming of the surface waters of the eastern Pacific Ocean. It is a climate pattern that occurs across the tropical Pacific Ocean that is associated with drastic weather occurrences, including enhanced rainfall in Southern California. La Niña is a term for cooler than normal sea surface temperatures across the Eastern Pacific Ocean. San Diego receives less than normal rainfall during La Niña years.

The Pacific High drives the prevailing winds in the SDAB. The winds tend to blow onshore in the daytime and offshore at night. In the summer, an inversion layer is created over the coastal areas and increases the O_3 levels. In the winter, San Diego often experiences a shallow inversion layer which tends to increase carbon monoxide and $PM_{2.5}$ concentration levels due to the increased use of residential wood burning.

In the fall months, the SDAB is often impacted by Santa Ana winds. These winds are the result of a high pressure system over the Nevada-Utah region that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. These winds are powerful and incessant. They blow the air basin's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase the San Diego O_3 concentrations. A strong Santa Ana also primes the vegetation for firestorm conditions.

Section 1.5.3 Population

The population of San Diego County has been increasing by about 1.5% per year, in general. The 2010 census population was 3.2 million. It is estimated to be 3.3 million for 2015.

Chapter 2 Overview of the Air Quality Monitoring Network

Section 2.0.0 Executive Summary of the Air Quality Monitoring Network

The District operated 12 monitoring sites that collected criteria pollutant data (Figure 1.0); one of the sites also has a radar wind profiler. This special meteorological site is used to assist with pollutant forecasting, data analysis and characterization of pollutant transport throughout the air basin. The District's monitoring network has been designed to provide criteria pollutant monitoring coverage to the majority of the inhabited regions of the County (Tables 2.0 & 2.1).

Since the San Diego County Air Pollution Control District was established by the County Board of Supervisors in 1955, occasional air monitoring has been performed in remote portions of the County, including the mountain and desert areas. Historical measurements have shown relatively low levels of air pollution in these areas. Population and growth in these areas have remained low enough that routine air sampling has not been deemed necessary. As harmful air contaminants are most likely to be found in those areas where population is dense, traffic patterns are heavy, and industrial sources are concentrated, one would expect such contaminants to be most prevalent in the western portion of San Diego County. Measurements show this to be true. As pollutants are carried inland by prevailing winds, they are frequently trapped against the mountain slopes by a temperature inversion layer, generally occurring between 1500 and 2500 feet above sea level. Therefore, our air monitoring stations are found between the coast and the mountain foothills up to approximately 2000 feet. The monitoring network needs to be large enough to cover the diverse range of topography, meteorology, emissions, and air quality in San Diego, while adequately representing the large population centers. This monitoring network plays a critical role in assessing San Diego County's clean air progress and in determining pollutant exposures throughout the County.

Ambient concentration data are collected for a wide variety of pollutants. The most important of these, in the San Diego Air Basin, are: ozone, fine particulate matter 2.5 micrometers and less in diameter, particulate matter 10 micrometers and less in diameter, and a number of toxic compounds. Other pollutants measured include oxides of nitrogen, carbon monoxide, sulfur dioxide, and lead. Monitoring for meteorological parameters are also conducted at most monitoring locations. Data for all of the pollutants are needed to better understand the nature of the ambient air quality in San Diego County, as well as to inform the public regarding the quality of the air they breathe. Not all pollutants are monitored at all sites, but most sites monitor for multiple pollutants. A particular site's location and monitoring purpose determine the actual pollutants measured at that site.

A fundamental purpose of air monitoring is to distinguish between areas where pollutant levels exceed the ambient air quality standards and areas where those standards are not exceeded. Health-based ambient air quality standards are set at levels that preclude adverse impacts to human health (allowing for a margin of safety). The District develops strategies and regulations to achieve the emission reductions necessary to meet all health-based standards. Data from the ambient monitoring network are then used to indicate the success of the regulations and control strategies in terms of the rate of progress towards attaining the standards or to demonstrate that standards have been attained and maintained. Thus, there is an established feedback loop between the emission reduction programs and the ambient monitoring programs. Over the years, Federal, State, and District regulatory/strategic measures have proven to be extremely successful at reducing levels of harmful air contaminants. Monitors once placed throughout the County to document the frequent and regular exceedance of ozone, nitrogen dioxide, carbon monoxide, and particulate matter standards now document the continued downward concentration trends of these pollutants.

Table 2.0 below is a list of the District's stations and the pertinent information regarding location.

Table 2.0 List of Network Sites

Station Name	Station Abbreviation	Address	Latitude/ Longitude	AQS ID
Alpine	ALP	2462 W. Victoria Dr.	32.842312° -116.768277°	06-073-1006
Camp Pendleton	CMP	21441 W. B St.	33.217063° -117.396169°	06-073-1008
Chula Vista	CVA	80 E. J St.	32.631175° -117.059115°	06-073-0001
Del Mar	DMR	225 9th St.	32.952106° -117.264086°	06-073-1001
Donovan	DVN	480 Alta Rd.	32.578267° -116.921359°	06-073-1014
Escondido	ESC	600 E. Valley Pkwy.	33.127730° -117.075379°	06-073-1002
San Diego-Beardsley St.	DTN	1110A Beardsley St.	32.701492° -117.149663°	06-073-1010
Kearny Villa Rd.	KVR	Kearny Villa Rd.	32.845722° -117.123983°	06-073-1016
*McClellan-Palomar Airport	CRQ	2192 Palomar Airport Rd.	33.130846° -117.272668°	06-073-1022
**El Cajon-Floyd Smith Drive	FSD	10537 Floyd Smith Dr.	32.817907° -116.968302°	06-073-1018
Rancho Carmel Dr.	RCD	11403 Rancho Carmel Drive.	32.985442° -117.082180°	06-073-1017
San Ysidro	SAY	720 E San Ysidro Blvd	32.543525° -117.029089°	06-073-1019

*The AQS ID number changed from 06-073-020 to 06-073-1022 to reflect the change in sampling location.

**El Cajon station was temporarily relocated to Floyd Smith Drive.

Figure 2.0 San Diego APCD Air Quality Monitoring Network

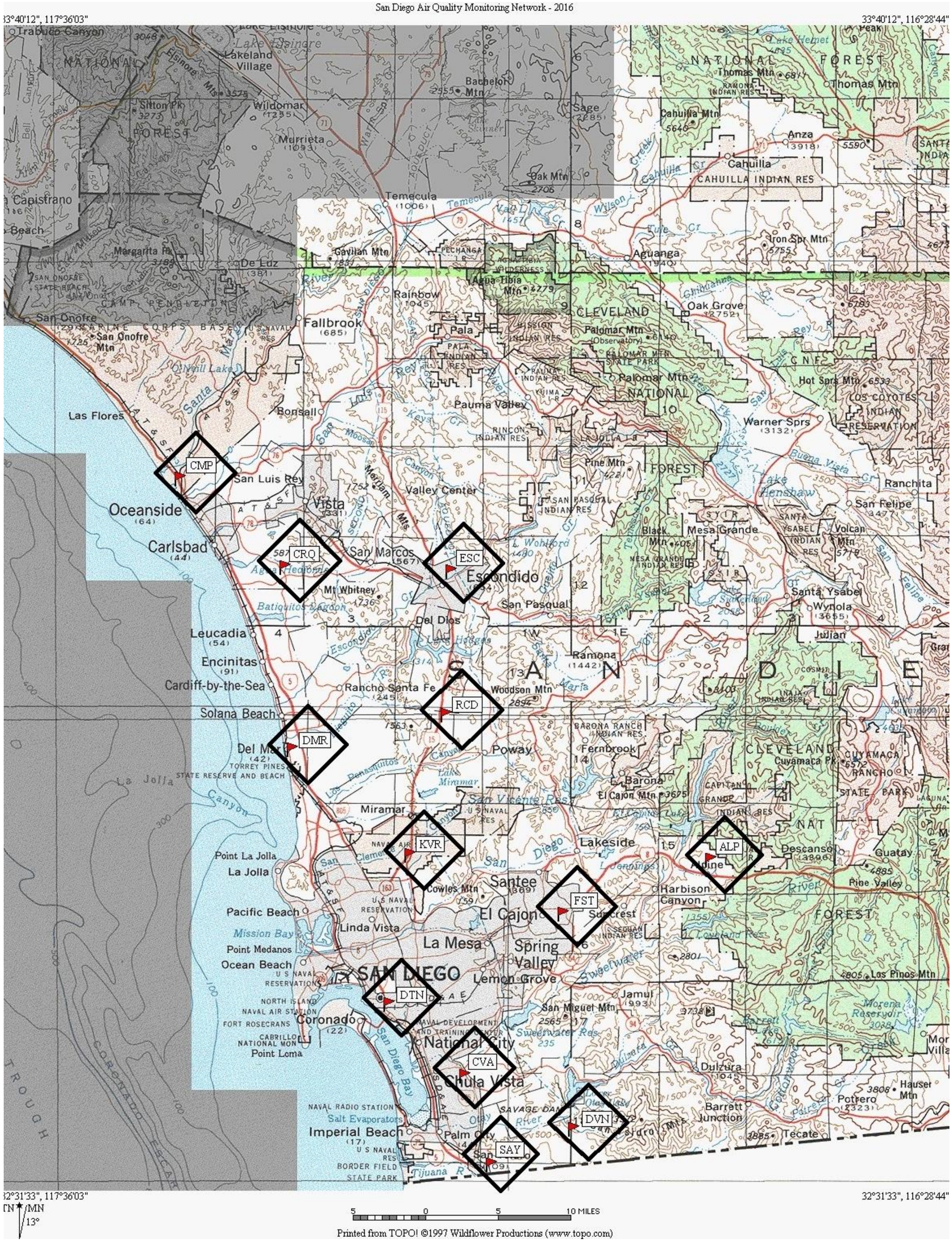


Table 2.1 Air Monitoring Sites with Associated Monitors/Samplers[1]

		ALP	CMP	CVA	DMR	DVN	FSD	ESC	KVR	CRQ	DTN	RCD	SAY
		Alpine	Camp Pendleton	Chula Vista	Del Mar	Donovan	Floyd Smith	Escondido	Kearny Villa Rd.	Palomar	Beardsley St.	Rancho Carmel Dr	San Ysidro
AMBIENT	O_3	✓	✓	✓	✓	✓	✓	✓	✓		✓		
	NO_2	✓	✓	✓		✓	✓	✓	✓		✓	✓	
	CO							✓			✓	✓	
NCORE	NOy-TLE						✓						
	CO-TLE						✓						
	SO_2-TLE						✓						
LEAD	(NCore) (Hi-Vol)						✓						
	(Airports) (Hi-Vol)									✓			
PM_{10}	(NCore) (Lo-Vol)						✓						
	(Ambient) (Hi-Vol)			✓		✓		✓	✓		✓		
$PM_{2.5}$	(Continuous)	✓	✓			✓					✓		✓
	(Manual)			✓			✓	✓	✓		✓		
STN	Channel 1 (Metals)						✓	✓					
	Channel 2 (Inorganic Ions)						✓	✓					
	Channel 3 (Wood Smoke)							✓					
CSN SU	(Carbon)						✓	✓					
	Channel 4 (Carbon)						✓	✓			✓		
PAMS	(VOCs)[5]	✓	✓				✓						
	(Carbonyls)						✓						
UN	Channels 2 & 3 (Carbonyls)										✓		
TOXICS CA-TAC (CARB)	(VOCs)			✓			✓						
	(Total Metals)			✓			✓						
	(Cr^{+6})			✓			✓						
	(Aldehydes)			✓			✓						
SU (APCD)	(VOCs)					✓		✓			✓		
	Channel 1 (Total Metals)					✓					✓		
METEOROLOGICAL PARAMETERS + Others	Wind Speed./ Wind Dir.	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
	External Temperature	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓
	% Relative Humidity	✓					✓		✓			✓	
	Internal Temperature	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Barometric Pressure								✓				
	Solar Radiation								✓				
*Radar Wind Profiler/ Radio Acoustic Sounding									✓	✓			

- Yellowed areas indicate a collocation of samplers to satisfy Federal QA requirements. Collocated $PM_{2.5}$ FRM monitors and PM_{10} monitors have a sampling frequency of 1:12 and 1:6, respectively. The collocated $PM_{2.5}$ FEM and PAMS-VOCs monitors have the same sampling frequency as their respective main monitors.
- All sample times are set to Pacific Standard Time.
- The District operates, calibrates, and audits all instruments listed in Table 1.1, except for the CARB's Xontech 924's at the Chula Vista and El Cajon stations (operation only).
- Not all collected samples are analyzed by District personnel. Some samples are sent to the EPA or CARB laboratories for subsequent analysis. They are noted in Table 1.1 as EPA or CARB.
- SU stands for Supplemental Speciation.
- CA TAC stands for the California Toxics Air Contaminant Monitoring network.

[1] Sampling frequencies are designated as follows:

7/24= a sampler that operates continually with no media changes needed (Please note that a filter tape roll is used on the BAM and changed as needed).

1:1= a sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs daily for a duration of 24 hours. The media are manually loaded, collected, and programmed to run on a weekly basis.

1:3= a sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs every three (3) days for a duration of 24 hours. The media are manually loaded, collected, and programmed in between sample days.

1:6= a sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs every six (6) days for a duration of 24 hours. The media are manually loaded, collected, and programmed on a weekly basis

1:12= a sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs every twelve (12) days for a duration of 24 hours. The media are manually loaded, collected, and programmed on a biweekly basis.

[2] These samplers collect year round on a 1:6 sampling schedule. During the non-PAMS season (November to the end of June), the samples have a 24-hour sampling duration. During the PAMS season (July to the end of October), the samplers collect four samples that have a 3-hour sampling duration. The 3-hour samples are collected on a set time , start time (st) and end time (et) schedule and it is as follows:

st 0200 – 0500 et; st 0500 – 0800 et; st 1200 – 1500 et; st 1600 – 1900 et

*The Radar Wind Profiler is now no longer operational.

Tables 2.2 – 2.7 use the same Glossary (see below)

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Network Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Monitors at sites meeting near road designs as per Part 58
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information
N/A= Not Applicable

Section 2.0.1 Overview of the Gaseous Pollutant Monitoring Network

Table 2.2 is a summary of the criteria gaseous pollutants and NOy monitoring network.

Table 2.2 Gaseous Pollutants Monitoring Network

	Abbreviation	ALP	CMP	CVA	DMR	FSD	ESC	KVR	DVN	DTN	RCD
	Name	Alpine	Camp Pendleton	Chula Vista	Del Mar	Floyd Smith Dr.	Escondido	Kearny Villa Rd	Donovan	San Diego – Beardsley	Rancho Carmel Dr.
	AQS ID	06-073-1006	06-073-1008	06-073-0001	06-073-1001	06-073-1018	06-073-1002	06-073-1016	06-073-1014	06-073-1010	06-073-1017
O_3	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	
	Method	UV	UV	UV	UV	UV	UV	UV	UV	UV	
	Affiliation	PAMS	PAMS	Not Applicable	Not Applicable	PAMS, NCore	Not Applicable	PAMS	Not Applicable	Not Applicable	
	Spatial Scale	US	NS	NS	NS	NS	NS	NS	NS	NS	
	Site Type	MXO	UPDB	PE	G/B	PE	PE	PE	PE	G/B	
	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	
	Equipment	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i	
NO_2 & NOy	Monitor Type	SLAMS	SLAMS	SLAMS		SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Designation	PRI	PRI	PRI		PRI	PRI	PRI	PRI	PRI	PRI
	Method	CL	CL	CL		CL	CL	CL	CL	CL	CL
	Affiliation	PAMS	PAMS	Not Applicable		PAMS	Not Applicable	PAMS	SLAMS	Not Applicable	Not Applicable
	Spatial Scale	US	NS	NS		NS	NS	NS	NS	NS	NS
	Site Type	PE	UPBD	PE		PE	PE	PE	PE	PE	PE
	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS		PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
	Equipment	Thermo 42i	Thermo 42i	Thermo 42i		Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i
CO	Monitor Type					SLAMS	SLAMS			SLAMS	SLAMS
	Method					IR	IR			IR	IR
	Affiliation					NCORE, PAMS	Not Applicable			SIPM	Not Applicable
	Spatial Scale					NS	NS			NS	NS
	Site Type					PE	PE			PE	PE
	Objective (Federal)					PI, NAAQS	PI, NAAQS			PI, NAAQS	PI, NAAQS
	Equipment					Thermo 48i-TLE	Thermo 48i			Thermo 48i	Thermo 48i
SO_2	Monitor Type					SLAMS					
	Method					FL					
	Affiliation					NCore					
	Spatial Scale					NS					
	Site Type					PE					
	Objective (Federal)					PI, NAAQS					
	Equipment					Thermo 43i-TLE					

Section 2.0.2 Overview of the Pb-TSP Monitoring Network

Table 2.3 below is a summary of the lead particulates monitoring network.

Table 2.3 Lead Sampling Network

	Abbreviation	ECA/FSD	CRQ	
	Name	Floyd Smith Dr.	Palomar Airport	
	Address	10537 Floyd Smith Dr	2192 Palomar Airport Rd	
	Latitude Longitude	32.817907° -116.968302°	33.130822 ° -117.272686 °	
	AQS ID	06-073-1018	06-073-1023	
Lead	Monitor Type	SLAMS	SLAMS	SLAMS
	Designation	O	O	QAC
	Method	HV	HV	HV
	Affiliation	NCORE	Not Applicable	Not Applicable
	Spatial Scale	NS	MI	MI
	Site Type	PE	SO	QA
	Objective (Federal)	NAAQS	NAAQS	NAAQS
	Analysis	APCD	APCD	APCD
	Frequency	1:6	1:6	1:6
	Equipment	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+

Yellow denotes collocation of equipment of the same make and model as the primary.
area

Section 2.0.3 Overview of the $PM_{2.5}$ Monitoring Network

Table 2.4 below is a summary of the $PM_{2.5}$ monitoring network.

Table 2.4 $PM_{2.5}$ Sampling Network

	Abbreviation	ALP	CMP	CVA	FSD		ESC		KVR		DTN		DVN	SAY
	Name	Alpine	Camp Pendleton	Chula Vista	Floyd Smith Dr.		Escondido		Kearny Villa Rd		San Diego – Beardsley		Donovan	San Ysidro
	Address	2462 W. Victoria Dr.	21441 W. B St	80 E. J St	10537 Floyd Smith Dr		600 E. Valley Pkwy		Kearny Villa Rd		1110A Beardsley St.		480 Alta Rd.	720 E San Ysidro Blvd
	Latitude Longitude	32.842312° -116.768277°	33.217063° -117.396169°	32.631175° -117.059115°	32.817907° -116.968302°		33.127730° -117.075379°		32.845722° -117.123983°		32.701492° -117.149663°		32.578267° -116.921359°	32.543525° -117.029089°
	AQS ID	06-073-1006	06-073-1008	06-073-0001	06-073-1018		06-073-1002		06-073-1016		06-073-1010		06-073-1014	06-073-1019
$PM_{2.5}$ (non-speciated)	Monitor Type	SPM	SPM	SLAMS		SLAMS	SLAMS	SLAMS	SPM	SLAMS	SLAMS	SLAMS	SLAMS	SPM
	Designation	O	O	PRI		PRI	O	PRI	O	QAC	O	PRI	O	O
	Method	CT (non-FEM)	CT (non-FEM)	SQ (FRM)		SQ (FRM)	CT (non-FEM)	SQ (FRM)	CT (non-FEM)	SQ (FRM)	CT (non-FEM)	SQ (FRM)	CT (non-FEM)	CT (non-FEM)
	Affiliation	N/A	N/A	N/A		NCORE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Spatial Scale	US	NS	NS		NS	NS	NS	NS	NS	NS	NS	NS	MI
	Site Type	PE	UPBD	PE		PE	PE	PE	PE	QA	PE	PE	PE	SO
	Objective (Federal)	PI, Research	PI, Research	NAAQS		NAAQS	PI, Research	NAAQS	PI, Research	NAAQS	PI, Research	NAAQS	PI, Research	PI, Research
	Analysis	APCD	APCD	APCD		APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD
	Frequency	7/24	7/24	1:3		1:3	7/24	1:3	7/24	1:12	7/24	1:1	7/24	7/24
	Equipment	Met One BAM	Met One BAM	Thermo 2025		Thermo 2025	Met One BAM	Thermo 2025	Met One BAM	Thermo 2025	Met One BAM	Thermo 2025	Met One BAM	Met One BAM
$PM_{2.5}$ (speciated)	Monitor Type				SLAMS	SLAMS	N/A	SLAMS	SLAMS	N/A	N/A			
	Method				SP & SQ	SP & SQ	SP & SQ	SP & SQ	SP & SQ	SP & SQ	SP & SQ			
	Affiliation				NCORE, CSN STN	NCORE, CSN STN	CSN SU SDAPCD Network	CSN STN	CSN STN	CSN SU SDAPCD Network	CSN SU SDAPCD Network			
	Spatial Scale				NS	NS	NS	NS	NS	NS	NS			
	Site Type				PE	PE	PE	PE	PE	PE	PE			
	Objective (Federal)				Research	Research	Research	Research	Research	Research	Research			
	Analysis				EPA	EPA	APCD	EPA	CARB	APCD	APCD			
	Frequency				1:3	1:3	1:6	1:3	1:6	1:6	1:6			
	Equipment				URG-3000N	Met One SASS	Met One SASS	URG-3000N	Met One SASS	Met One SASS	Met One SASS			

Yellow denotes collocation of equipment of the same make and model as the primary
*Not Operational at FSD
N/A= Not Applicable

Section 2.0.4 Overview of the PM_{10} Monitoring Network

Table 2.5 below is a summary of the PM_{10} monitoring network.

Table 2.5 PM_{10} Sampling Network

	Abbreviation	CVA		DVN	FSD	ESC	KVR	DTN
	Name	Chula Vista		Donovan	Floyd Smith Dr.	Escondido	Kearny Villa Rd	San Diego – Beardsley
	Address	80 E. J St		480 Alta Rd	10537 Floyd Smith Dr	600 E. Valley Pkwy	Kearny Villa Rd	1110A Beardsley St.
	Latitude Longitude	32.631175° -117.059115°		32.578267° -116.921359°	32.817907° -116.968302°	33.127730° -117.075379°	32.845722° -117.123983°	32.701492° -117.149663°
	AQS ID	06-07- 0001		06-073-1014	06-073-1018	06-073-1002	06-073-1016	06-073-1010
PM_{10}	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Designation	O	QAC	O	O	O	O	O
	Method	SI	SI	SI	SI	SI	SI	SI
	Affiliation	Not Applicable	Not Applicable	Not Applicable	NCORE	Not Applicable	Not Applicable	Not Applicable
	Spatial Scale	NS	NS	NS	NS	NS	NS	NS
	Site Type	PE	PE	HC	PE	PE	PE	PE
	Objective (Federal)	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS
	Frequency	1:6	1:6	1:6	1:3	1:6	1:6	1:6
	Equipment	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Thermo 2025 w/o Very Sharp Cut Cyclone	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head

Yellow denotes collocation of equipment of the same make and model as the primary

Section 2.0.5 Overview of the PAMS Monitoring Network

Table 2.6 is a summary of the PAMS monitoring network.

Table 2.6 PAMS Sampling Network

	Abbreviation	ALP	CMP		FSD		DTN	KVR[1]
	Name	Alpine	Camp Pendleton		Floyd Smith Dr.		San Diego – Beardsley	Kearny Villa Rd
	Address	2495A W. Victoria Dr.	21441 W. B St		10537 Floyd Smith Dr		1110A Beardsley St.	Kearny Villa Rd
	Latitude Longitude	32.842324° -116.767885°	33.217063° -117.396169°		32.817907° -116.968302°		32.701492° -117.149663°	32.845722° -117.123983°
	AQS ID	06-073-1006	06-073-1008		06-073-1018		06-073-1010	06-073-1016
PAMS	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	UNPAMS	SLAMS
	Method	Canister	Canister	Canister	Canister	Cartridges	Cartridges	Cartridges
	Affiliation	PAMS (Type III)	PAMS (Type I)	PAMS (Type I)	PAMS (Type II)	PAMS (Type II)	UNPAMS	PAMS (Type II)
	Spatial Scale	US	NS	NS	NS	NS	NS	NS
	Site Type	MXO	UPBD	QA	MXP	MXP	MXP	MXP
	Objective (Federal)	Research	Research	Research	Research	Research	Research	Research
	Analysis By	APCD	APCD	APCD	APCD	APCD	APCD	APCD
	Frequency	1:6	1:6	1:6	1:6	1:6	1:6	1:6
	Equipment	Xontech 910/912	Xontech 910/912	Xontech 910/912	Xontech 910/912	Xontech 925	Xontech 924	Xontech 925

[1] The station is still classified as a PAMS-Carbonyl location, but due to irreparable failure of the carbonyl collection sampler, the APCD was directed by the EPA to put the sampling on hiatus until the EPA can redesign the PAMS network.

Section 2.0.6 Overview of the TOXICS Monitoring Network

Table 2.7 is a summary of the toxics monitoring network.

Table 2.7 Toxics Program Monitoring Network

	Abbreviation	CVA				FSD				ESC	DTN		DVN	
	Name	Chula Vista				Floyd Smith Dr.				Escondido	San Diego – Beardsley		Donovan	
	Address	80 E. J St.				10537 Floyd Smith Dr				600 E. Valley Pkwy	1110A Beardsley St.		480 Alta Rd.	
	Latitude Longitude	32.952106° -117.264086°				32.817907° -116.968302°				33.127730° -117.075379°	32.701492° -117.149663°		32.578267° -116.921359°	
	AQS ID	06-073-0001				06-073-1018				06-073-1002	06-073-1010		06-073-1014	
Toxics	Pollutant	Toxics-VOCs	Toxics-Metals	Toxics-Cr^{+6}	Toxics-Aldehydes	Toxics-VOCs	Toxics-Metals	Toxics-Cr^{+6}	Toxics-Aldehydes	Toxics-VOCs	Toxics-VOCs	Toxics-Metals	Toxics-VOCs	Toxics-Metals
	Monitor Type	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Method	Canister	Filter	Filter	Cartridges	Canister	Filter	Filter	Cartridges	Canister	Canister	Filter	Canister	Filter
	Affiliation	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Spatial Scale	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	MI	MI
	Site Type	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	SO	SO
	Objective (Federal)	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research
	Analysis By	ARB	ARB	ARB	ARB	ARB	ARB	ARB	ARB	APCD	APCD	APCD	APCD	APCD
	Frequency	1:12	1:12	1:12	1:12	1:12	1:12	1:12	1:12	1:6	1:6	1:6	1:6	1:6
	Equipment	Xontech 910/912	Xontech 924	Xontech 924	Xontech 924	Xontech 910/912	Xontech 924	Xontech 924	Xontech 924	Xontech 910A FSL	Xontech 910A FSL	Xontech 924	Xontech 910A FSL	Xontech 924

Section 2.1.0 Summary of the Minimum Monitoring Requirements for the SDAB

The EPA regulations specify the minimum number of sites at which State and Local air agencies must deploy monitors. The State and Local agencies generally find they need to deploy more monitors than are minimally required to fulfill State and Local purposes for monitoring. For example, often California air quality standards are more stringent than National standards, so many areas need more monitors than required to show compliance with State and National standards.

For pollutants monitoring, the minimum requirements for the number of monitors are in the 40 CFR 58, Appendix D "Network Design Criteria for Ambient Air Quality Monitoring". Each pollutant has different requirements for determining the minimum number of monitors needed for a Metropolitan Statistical Area (MSA) and the requirements can change yearly. The MSA is based upon the total population within the District. Some Districts are comprised of multiple air basins. The County of San Diego encompasses the San Diego County air basin and part of the Salton Sea air basin, as outlined by the California Air Resources Board. Also, some pollutants have additional monitoring requirements associated with them, e.g. $PM_{2.5}$ monitoring has requirements for continuous and sequential monitors.

Each section in this report that discusses the criteria pollutants lists the current Network Design Criteria for ambient air quality monitoring. For all pollutants the District is required to ensure that sufficient monitoring exists in the County, according to 40 CFR 58, Appendix D "Network Design Criteria for Ambient Air Quality Monitoring". This section summarizes the minimum monitoring requirements from the criteria pollutant chapters in this report. For greater detail, refer to the specific pollutant's chapter.

Note: when the number of monitors required is based on the MSA population, it is taken from the latest U.S. Census. In the non-Census years, the MSA population is extrapolated by the San Diego Association of Governments (SANDAG) and that number is used by the District.

Section 2.1.1 Summary of Minimum Monitoring Requirements for Collocation

The U.S. EPA regulations specify the minimum number of collocated monitors for a pollutant or program. Table 2.8 summarizes these totals.

Table 2.8 Summary of Minimum Monitoring Requirements for Collocation

Pollutant or Program		Minimum Number of Required Monitors	Number of Active Monitors	Number of Needed Monitors
Collocation	$PM_{2.5}$ FRM w/ $PM_{2.5}$ FRM	1	1	None
	$PM_{2.5}$ FRM w/ $PM_{2.5}$ Continuous	1	2	None
	$PM_{2.5}$ STN w/ $PM_{2.5}$ CSN	2	2	None
	PM_{10} (Hi-Vol) w/ PM_{10} (Hi-Vol)	1	1	None
	Pb-TSP (Hi-Vol) w/ Pb-TSP (Hi-Vol)	1	1	None

Section 2.1.2 Summary of Minimum Monitoring Requirements (non-Collocated)

The U.S. EPA regulations specify the minimum number of monitors that State and Local agencies must deploy. Table 2.9 summarizes these totals.

Table 2.9 Summary of Minimum Monitoring Requirements

Pollutant or Program			Minimum Number of Required Monitors	Number of Active Monitors	Number of Needed Monitors
Ambient Level Monitors & Samplers	O_3	O_3-ambient	2	9	None
	NO_2	NO_2-ambient	None specified	8	None
		Near road	2	1	1
	CO	CO-ambient	None specified	2	None
		Near-road	1	1	None
	SO_2	SO_2-ambient	0	0	None
	Pb	Pb-ambient	0	0	None
	$PM_{2.5}$	$PM_{2.5}$ Manual (FRM)	5	5	None
		$PM_{2.5}$ FRM for NO_2 near-road	1	0	1
		$PM_{2.5}$ Continuous	2	6	None
		$PM_{2.5}$ CSN & STN	2	2	None
	PM_{10}	PM_{10}-ambient	2 - 4	6	None
	Met	Wind Speed/Wind Direction External Temperature/Internal Temperature	9 sets	9 sets	None
NCore	Gaseous	O_3	1	1	None
		NOy-TLE	1	0	1*
		CO-TLE	1	1	None
		SO_2-TLE	1	1	None
	$PM_{2.5}$	$PM_{2.5}$ FRM	1	1	None
		$PM_{2.5}$ Continuous	1	0	1*
		PMcoarse ($PM_{10} - PM_{2.5}$)	1	1	None
		$PM_{2.5}$ STN	2	2	None
		$PM_{2.5}$ CSN	2	2	None
	Pb	Pb-NCore	1	1	None
	Met	Wind Speed/Wind Direction External Temperature/Internal Temperature	1 set	1 set	None
Airports	Pb	Pb-TSP	1	1	None
PAMS	Types	Type II-VOCs	1	1	None
		Non-Type II-VOCs	1	2	None
		Type II-Carbonyls	1	1	None
	Gaseous	O_3	3	3	None
		NOx	3	3	None
		CO	1	1	None
		NOy	1	1	None
	Met	Upper Air Meteorology	1	0 (irreparable)	1
		SORAD & Pbar	1	1	None
		Wind Speed/Wind Direction External Temperature/Internal Temperature Relative Humidity	3 sets	3sets	None

*EPA approved deficiencies due to temporary relocation of station. Once the station is relocated to a permanent site, these parameters will be reinstated.

Section 2.2.0 Recent Planned and Unplanned Changes to the Network

The EPA Region IX governing authority approves the District's distribution of monitors and the location of the collocated sites for compliance with Federal regulations. Any changes will be undertaken in partnership and direct advisement with the EPA (and CARB, when applicable). Before decommissioning any SLAMS monitor, the District will follow the procedure listed in 40 CFR Part 58.14, "System Modifications". Any proposed changes to the air monitoring network will be documented in the Annual Network Plan. If any monitor is violating the NAAQS and the District is forced to relocate the station or the sampler, the District will provide a minimum 30-day period for public review, prior to the relocation, if possible. If a station or analyzer is to relocate, parallel sampling will be undertaken, when possible.

Changes to the monitoring network may occur outside the annual monitoring network plan (ANP) and planning process: due to unforeseen circumstances resulting from eviction or other situations that occur after the ANP has been posted for public inspection and approved by the EPA Regional and National Administrators. Any changes to the network due to circumstances beyond the District's control will be communicated in writing to the EPA Regional Authority, the EPA National (and CARB authorities, when applicable), and identified in the subsequent Annual Network Plan.

Section 2.2.1 Station Relocations, Additions, Closures, and Changes

The section discusses all the station changes in the network.

Section 2.2.1.1 Relocations

RELOCATION - Floyd Smith Drive (FSD) Relocation back to original Location
(*See Appendix A for the Formal Request*)
The school grounds on which the station was located was remodeled. On 2/28/2014, the District was forced to temporarily relocate the station to a vacant area on Gillespie Field property at Floyd Smith Drive (named FSD). Additionally, the District was granted a waiver from sampling for NOy. It was determined that $PM_{2.5}$ continuous sampling could not be undertaken safely, so this was suspended until relocation back to the original location. FSD sampling start-up was: 7/1/2014 for O_3, NOx, and CO-TLE; 7/17/2014 for SO_2; 9/17/2014 for Pb-TSP; and, 9/5/2014 for $PM_{2.5}$ manual and speciation.

Even though the relocation is within EPA distance limits to keep the same AQS ID #, a new station name and AQS ID number will be given to the new NCore site, Lexington Elementary School (LES) and 06-073-1022, respectively. Full transfer of all operations is expected in July.

RELOCATION - Downtown (DTN) Station
(*See Appendix B for the Formal Request*)
The District is being evicted from the Perkins Elementary School location, due to a remodeling and expansion of the grounds; scheduled for 12/31. The District will permanently relocate to Sherman Elementary School (SES) in Sherman Heights (about 0.7 miles northeast from DTN).

RELOCATION - Alpine (ALP) Temporary Station Relocate back to Original Alpine Location
In 2011, the Alpine station moved across the street temporarily, while the area in which the station was located underwent renovations by the landowner. The station was relocated back to the original location in April 2015; sampling resumed on 4/29/2015.

Section 2.2.1.2 Temporary Shutdowns:

SHUTDOWN - Escondido (ESC) Statin Temporary Shutdown
The Escondido station was evicted by the City of Escondido to install a bike path. Operations were halted on 8/25/2015-8/28/2015, depending on the pollutant. The grounds immediately adjacent to

the station were being demolished to erect a new County facility. The new Escondido station will be part of this new County facility complex (about 20 meters southeast of the original location). The District was given permission by the EPA Regional Authorities to shut down operations temporarily until the new station could be completed. The new station should be completed in mid-2017.

SHUTDOWN - Chula Vista Station
The wood deck will be replaced. The EPA Regional Authorities have given the District permission to temporarily shut down the rooftop sampling, while reconstruction is conducted. The samplers on the deck are as follows: PM_{10} (primary and collocated), $PM_{2.5}$ Manual and CARB-Toxics. It is anticipated that the temporary shutdown will be in late-2016 to early-2017.

Section 2.2.1.3 Start-ups:

START-UP - Palomar Airport (CRQ) Pb-TSP
In 2012 the concentrations measured at Palomar Airport triggered requirements to change the status of the sampler from temporary to continuous. Per EPA approval, the sampling location was changed (11/1/2014) to the most representative location for airborne lead monitoring and protection of the public health (along the perimeter fence in the northeast corner). A new AQS ID number, 06-073-1023, was assigned to the new location.

After 18 months of continuous operations, the measured concentrations at CRQ are well below the NAAQS for lead (see Lead chapter for details). If after three (3) years of contiguous operations no threshold is triggered requiring continued monitoring, the District will appeal to the EPA Regional Authority to decommission lead sampling at CRQ.

START-UP - San Ysidro (SAY) $PM_{2.5}$ Station
The District was asked by the EPA to locate a $PM_{2.5}$ continuous sampler as close to the San Ysidro border crossing as possible (Note: this is a non-Regulatory sampler, so the data can only be used for comparison purposes). In the 1st quarter of 2015, the District deployed a $PM_{2.5}$ monitor on the rooftop of a 3-story building (this building was scheduled for demolition in 12-18 months) overlooking the San Ysidro border crossing into the United States (about 19 meters from the closest lane to the Point-of-Entry (POE) into the United States). The sampler is also about 16 meters above the POE. This sampler was operational on 1/27/2016.

The demolition of the building the sampler was located was moved up, so the District had to remove the sampler on 3/20/2016. A new location was found about 180 meters southwest in the Customs parking lot. This new location is at street level by the POE into Mexico. Sampling resumed on 6/8/2016.

Section 2.2.3 Monitor/Sampler Relocations, Additions, Closures, and Changes
The section discusses the monitor/sampler changes in the network with respect to the pollutant or program.

$PM_{2.5}$

RELOCATION - Kearny Villa Rd. (KVR) $PM_{2.5}$ Manual Collocated Sampler
Per EPA's recommendation, the District will relocate the $PM_{2.5}$ manual collocated sampler from the Kearny Villa Rd. to a location of higher concentrations (possible sites: the new Escondido location, the new Sherman site, or Chula Vista) possibly mid-2017.

REASSIGNMENT - Perkins Elementary School (DTN) $PM_{2.5}$ Manual Daily Site Relocation to new El Cajon (LES) Station

Once the DTN station closes, a new $PM_{2.5}$ Manual daily site will be needed. The locations that alternate for maximum $PM_{2.5}$ concentrations are El Cajon, Escondido, and Downtown. Only the El Cajon station will be operational for this switch, so the new daily site will be LES. Once the new Escondido and Sherman stations become operational, an investigation will be undertaken to see which of the three locations should be the new $PM_{2.5}$ Manual daily site.

ADDITION - Donovan Station $PM_{2.5}$

The addition of a non-FEM continuous $PM_{2.5}$ continuous sampler will help trend cross-border pollution, measure influences from Imperial Valley, aid in burn/no burn decisions, track diurnal patterns, and quantify combustion particulates from East County fires. This sampler is now classified as a SLAMS monitor. Sampling commenced on 1/21/2015.

PM_{10}

RELOCATION - Chula Vista (CVA) PM_{10} Collocated Sampler Relocation to Donovan (DVN)

When the CVA station is temporarily closed for repairs/remodeling, the PM_{10} collocated sampler will be permanently relocated to the DVN site (the Design Value location for PM_{10}) in mid-2017.

PAMS-CARBONYLS

Kearny Villa Rd (KVR), Lexington Elementary School (LES), and Sherman Elementary School (SES)

New carbonyl samplers have been procured, so replacement sampler(s) will be installed in late 2016 for KVR and LES and 2017 at SES when construction is completed. The EPA Region IX Authority granted the District permission to discontinue 3-Hr samples during ozone season. The District will continue to operate 24-Hr samples year-round.

Pb-TSP

El Cajon-Lexington Elementary School (LES) Decommissioning, 2016

(*See Appendix C for the Formal Request*)

EPA is allowing the decommissioning of lead monitoring at NCore locations if certain thresholds are met. These criteria are: a minimum of 3-years of sampling and no exceedance of the NAAQS or within 50% of the NAAQS. The measured concentrations at both NCore locations are well below the NAAQS and have been sampled for duration longer than 3 years. The formal request for decommissioning of NCore Pb sampling was also posted separately from this report on the District website for simultaneous public review.

Section 2.3.0 List of Public Comments to this Report and the District Response(s)

The section addresses the comments from the public regarding inquiries to this report.

Section 2.3.1 Public Comments

There were no public comments to address.

Appendices

APPENDIX A

San Diego APCD Formal Request for Relocation of the Floyd Smith Dr. (FSD) Monitoring Station to El Cajon at Lexington Elementary School (LES)

Request:
The San Diego Air Pollution Control District (District) is requesting the relocation of the samplers, analyzers, and support infrastructure from the El Cajon-Floyd Smith Drive (FSD) site to El Cajon-Lexington Elementary School (LES) site.

Reason(s):
The District had an air monitoring station at the El Cajon-Lexington Elementary School (abbreviated as ECA); this was an NCore, PAMS Type II, and part of the CARB California-Toxics program (CA-Toxics) site. The school was to undergo a complete demolition and rebuild. The School Authorities gave permission to the District to return to the school grounds (at a different location), once construction was completed.

In late 2013, the District was requested by the Lexington Elementary School Authorities to temporarily vacate the grounds. On 2/28/2014, the District shut down operations and temporarily relocated the station (per EPA approval) and all the equipment (except for NOy, $PM_{2.5}$ continuous, and meteorological sensors, as well as the CARB samplers for the CA-Toxics program) to the new/temporary site at Floyd Smith Drive.

On May 2016 the construction of the new LES monitoring station was completed and the District will return to the school (about 270 meters southwest of the original location on Lexington Elementary School) in July-August 2016.

Monitor/Station Relocation Requirements

- Since the station has been operational for less than two years, none of the monitors and samplers qualify for eligibility based 40 CFR 58.14 (c)(1)-(c)(6).
- Logistical problems beyond the District's control.
- The District is seeking a case-by-case approval under 40 CFR 58.14(c).

The Floyd Smith Drive location was designed as temporary site until the reconstruction of the school was completed and at such time, the District could relocate back to the Lexington Elementary School property, as agreed to by the District with EPA.

Tables 1-5 list all the samplers and monitors at FSD with associated pertinent metadata.

Monitor Descriptions:

Appendix A Table A1 Floyd Smith Dr. - Gaseous Pollutants

Pollutant	**O_3**	**NO_2**	**CO-TLE**	**SO_2-TLE**
POC	1	1	3	3
Monitor designation	Other	Primary	Not Applicable	Not Applicable
Parameter code	44201	42602 (NO_2)	42101	42401
Basic monitoring objective	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS, NCore	PAMS	NCore	NCore
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Thermo 48i-TLE	Thermo 43i-TLE
Method code	047	074	554	560
FRM/FEM/ARM/Other	FEM	FRM	FRM	FEM
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale

Appendix A Table A2 Floyd Smith Dr. - Particulate Pollutants

Pollutant	**$PM_{2.5}$ Manual**	**$PM_{2.5}$ STN**	**$PM_{2.5}$ CSN**	**$PM_{2.5}$ CSN, SU**	**PM_{10} Manual (Lo-Vol)**
POC	1	1	1	1	2 (LC) 3 (STD)
Monitor designation	Primary	Other	Other	Other	Other
Parameter code	88101 (LC)	See RTI	See RTI	88320-88331	85101 (LC) 81102 (STD)
Basic monitoring objective	NAAQS	Research	Research	Research	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	N/A	SLAMS
Network affiliation	NCore	NCore, CSN STN	NCore, CSN STN	CSN SU	NCore
Instrument manufacturer & model	Thermo 2025	Met One SASS	URG-3000N	Met One SASS	Thermo 2025
Method code	145	See RTI	See RTI	815-814	127
FRM/FEM/ARM/Other	FRM	Other	Other	Other	Other
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale

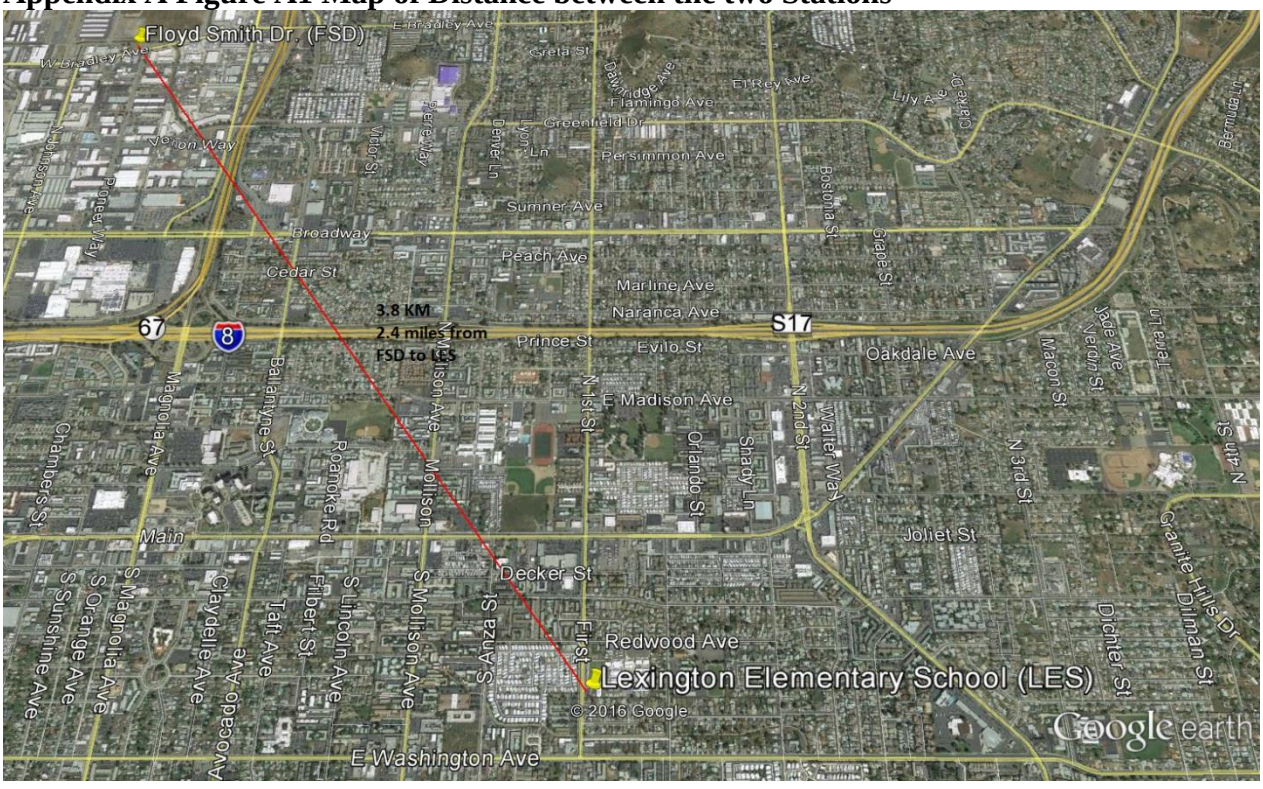
Appendix A Table A3 Floyd Smith Dr. - Other Pollutants

Pollutant	PAMS-VOC	PAMS-Carbonyls
POC	1 for 3-Hr samples 2 for 24-Hr samples	1 for 3-Hr samples 2 for 24-Hr samples
Monitor designation	Other	Other
Parameter code	See PAMS Table 12.2b	See PAMS Table 12.2c
Basic monitoring objective	Research	Research
Site type	Maximum Precursor Impact	Maximum Precursor Impact
Monitor type	SLAMS	SLAMS
Network affiliation	PAMS Type II	PAMS Type II
Instrument manufacturer & model	Xontech 910 & 912	Xontech 925
Method code	126	202
FRM/FEM/ARM/Other	Other	Other
Spatial scale	Neighborhood Scale	Neighborhood Scale

New Site Location (Lexington Elementary School)

Lexington Elementary School (LES), AQS ID# 06-073-1022, Google Earth Coordinates of 32.789562° and -116.944318°. The approximate distance between FSD to LES is about 3.8 kilometers or 2.4 miles (Figure A1). No parallel sampling will be undertaken. The exact same equipment and monitoring information from Tables A1-A3 will apply to the new location. Furthermore, additional equipment (Tables A4 & A5) will be added that were not be sampled at the temporary location.

Appendix A Figure A1 Map of Distance between the two Stations



Appendix A Table A4 Lexington Elementary School Additional Equipment

Pollutant	**Toxics-VOC**	**Toxics-Metals Cr(VI)**	**Toxics-Cr(VI)**	**Toxics-Aldehyde**	**$PM_{2.5}$ Continuous (non-FEM)**	**NOy**
POC	See ARB	See ARB	See ARB	See ARB	1	1
Monitor designation	N/A	N/A	N/A	N/A	Other	Other
Parameter code	See ARB	See ARB	See ARB	See ARB	88102 (LC)	42600
Basic monitoring objective	Research	Research	Research	Research	Provide Info, Research	Provide Info, Research
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	CA Toxics	CA Toxics	CA Toxics	CA Toxics	SLAMS	SLAMS
Network affiliation	CA Toxics	CA Toxics	CA Toxics	CA Toxics	NCore	NCore, PAMS
Instrument manufacturer & model	Xontech 910	Xontech 924	Xontech 924	Xontech 924	Met One BAM	Thermo 42i-NOy
Method code	See ARB	See ARB	See ARB	See ARB	733	574
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other	Other
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale

Appendix A Table A5 Lexington Elementary School Meteorological Equipment

Pollutant	**$PM_{2.5}$ Continuous (non-FEM)**	**NOy**	**Meteorological Wind Speed**	**Meteorological Wind Direction**	**Meteorological External Temp**	**Meteorological Relative Humidity**
POC	1	1	1	1	1	1
Monitor designation	Other	Other	Other	Other	Other	Other
Parameter code	88102 (LC)	42600	61101	61104	62101	62201
Basic monitoring objective	Provide Info, Research	Provide Info, Research	Provide Info, Research	Provide Info, Research	Provide Info, Research	Provide Info, Research
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	NCore	NCore, PAMS	NCore, PAMS	NCore, PAMS	NCore, PAMS	NCore, PAMS
Instrument manufacturer & model	Met One BAM	Thermo 42i-NOy	Qualimterics	Qualimterics	Rotronics	Rotronics
Method code	733	574	050	020	040	012
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other	Other
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale

Floyd Smith Drive-Monitor Relocation Applicability

The samplers and monitors at FSD have only been operational since July 2014 (less than two years); therefore, provisions (c)(1) – (c)(3) of 40 CFR 58.14 do not apply for all pollutant samplers and monitors, because a five year history is required. The Design Value calculations for (c)(4) – (c)(5) require three (3) years of data, therefore these are not applicable as well. Table A6 illustrates these conditions.

Appendix A Table A6 Monitor Relocation Applicability

Pollutant	(c)(1)	(c)(2)	(c)(3)	(c)(4)	(c)(5)	(c)(6)	Case-by-Case
O_3	n/a	n/a	n/a	n/a	n/a	n/a	Yes
NO_2	n/a	n/a	n/a	n/a	n/a	n/a	Yes
CO-TLE	n/a	n/a	n/a	n/a	n/a	n/a	Yes
SO_2-TLE	n/a	n/a	n/a	n/a	n/a	n/a	Yes
$PM_{2.5}$ Manual	n/a	n/a	n/a	n/a	n/a	n/a	Yes
PM_{10} Manual (Lo-Vol)	n/a	n/a	n/a	n/a	n/a	n/a	Yes
$PM_{2.5}$ STN	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
$PM_{2.5}$ CSN	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
$PM_{2.5}$ CSN, SU	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
PAMS-VOC	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
PAMS-Carbonyls	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)

n/a= not applicable

APPENDIX B

San Diego APCD Formal Request for Relocation of the Perkins Elementary School (DTN) Monitoring Station to Sherman Heights at Sherman Elementary School (SES)

Request:
The San Diego Air Pollution Control District (District) is requesting the relocation of the samplers, analyzers, and support infrastructure from the Perkins Elementary School (DTN) site to Sherman Elementary School (SES) in Sherman Heights.

Reason(s):
Perkins Elementary School is to expand and completely reorganize and remodel the school grounds. The DTN station is in the middle of the new/planned expansion area. This reconstruction and expansion is expected to take 5-yrs. In late 2015, the School Authorities enacted the eviction clause in the MOU and requested that DTN station be removed by the July 31, 2016. The DTN station is in an Environmental Justice (EJ) location, it is the site of the expected maximum concentration for the $PM_{2.5}$. Note: this location can alternate between our Escondido, El Cajon, and Downtown monitoring locations. Rather than change the site yearly and since the Downtown station is in an EJ location, the District, in conjunction with the EPA, designated this location as the site of maximum annual concentration for $PM_{2.5}$ emissions.

The Perkins Elementary School monitoring location is 380 meters upwind of Interstaste-5 (in the daytime). The new location will be 440 meters downwind (in the daytime) of Interstate-5 and 290 meters south of State Route 94 (possible nighttime downwind influence). This new Sherman Elementary School location has the potential to register higher concentrations of particulate matter than the Perkins Elementary School site.

All avenues to find an alternative air monitoring location in Barrio Logan area were unproductive. The District determined that Sherman Elementary School in Sherman Heights is an adequate relocation site.

Monitor/Station Relocation Requirements

- Monitors are eligible based 40 CFR 58.14 (c)(1)-(5).
- Logistical problems beyond the District's control.
- The District is seeking a case-by-case approval under 40 CFR 58.14(c).

Tables 1-4 list all the samplers and monitors at FSD with associated pertinent metadata.

Appendix B Table B1 Downtown-Gaseous Pollutants

Pollutant	O_3	NO_2	CO
POC	1	1	1
Monitor designation	Other	Primary	Other
Parameter code	44201	42602 (NO_2)	42101
Basic monitoring objective	PI, NAAQS	PI, NAAQS	PI, NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Thermo 48i
Method code	047	074	054
FRM/FEM/ARM/Other	FEM	FRM	FRM
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2005	7/2005	7/2005
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round

Appendix B Table B2 Downtown-Particulate Pollutants

Pollutant	$PM_{2.5}$ Continuous	$PM_{2.5}$ Manual	$PM_{2.5}$ CSN, SU	PM_{10} Manual
POC	1	1	1	1
Monitor designation	Other	Primary	N/A	Other
Parameter code	88502 (LC)	88101 (LC)	88320-88331	85101 (LC) 81102 (STD)
Basic monitoring objective	PI, Research	NAAQS	Research	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	Supplemental Speciation	SLAMS
Network affiliation	N/A	N/A	CSN SU SDAPCD Network	N/A
Instrument manufacturer & model	Met One BAM 1020	Thermo 2025	Met One SASS	GMW 2000H w/ SA 1200 Head
Method code	733	145	815-814	063
FRM/FEM/ARM/Other	Other (non-FFEM)	FRM	Other	FRM
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2005	7/2005	8/10/2008	7/2005
Current sampling frequency	Continuous	1:3	1:6	1:6
Required sampling frequency	Continuous	1:3	1:6	1:6
Sampling season	Year-round	Year-round	Year-round	Year-round

Appendix B Table B3 Downtown-Other Pollutants

Pollutant	TOXIC-VOC	TOXIC-Metals	PAMS-Carbonyls (unofficial)
POC	1	1	1
Monitor designation	N/A	N/A	Other
Parameter code	See Toxics	Collected; not analyzed	See PAMS
Basic monitoring objective	Research	Research	Research
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	Other (SDAPCD Network)	Other (SDAPCD Network)	Unofficial PAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Xontech 910A (Fused Silica Lined)	Xontech 924	Xontech 924
Method code	210	Collected; not analyzed	202
FRM/FEM/ARM/Other	Other	Other	Other
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1/2007	1/2005	7/2012
Current sampling frequency	1:6	1:12	1:6
Required sampling frequency	1:6	1:6	1:6
Sampling season	Year-round	Year-round	Year-round

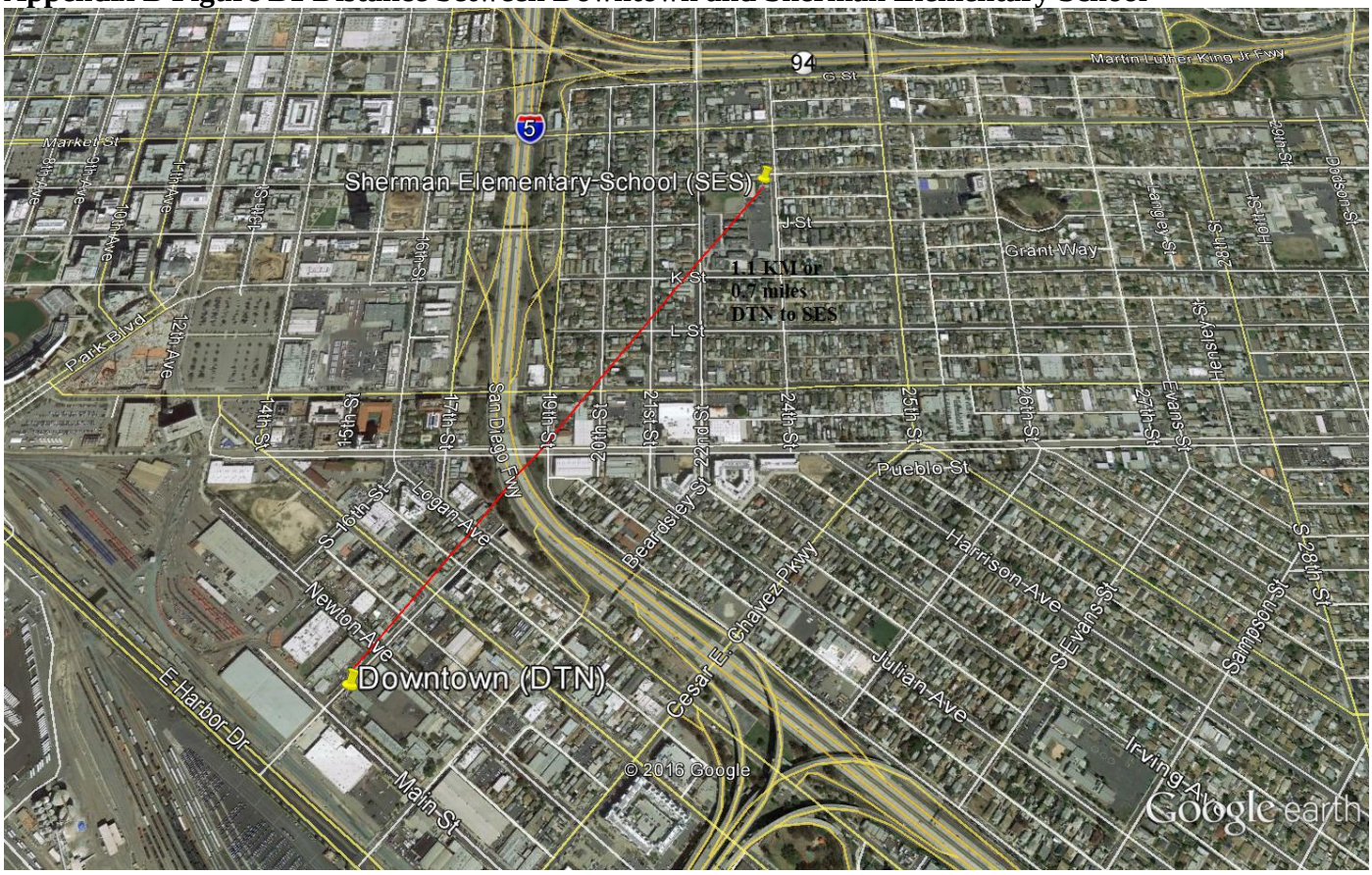
Appendix B Table B4 Downtown-Meteorological Equipment Designations

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS	PAMS
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics
Method code	012	050	020	040
FRM/FEM/ARM/Other	O	O	O	O
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	7/2005	7/2005	7/2005	7/2005
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round

New Site Location (Sherman Elementary School)

Sherman Elementary School (SES), AQS ID# 06-073-1024, Google Earth coordinates of 32.710202° and -117.142777°. The approximate distance is about 1.1 kilometers or 0.7 miles northeast of the Downtown station location (Figure 1). It will be logistically impossible to undertake parallel sampling, because the construction of the new SES station has not yet begun (still in the permitting phase). The exact same monitoring equipment from Tables B1-B4 will apply to the new location.

Appendix B Figure B1 Distance between Downtown and Sherman Elementary School



Monitor Relocation Applicability

An accounting of the last 5 years of data for the monitors and samplers that are regulatory and can be compared to the NAAQS is in Table 7 ($PM_{2.5}$ Continuous is in Table B5, solely for comparison purposes, because this analyzer is operated in non-FEM mode; therefore, the data from it cannot be used for regulatory uses). Note: The Design Value (DV) Calculations are three years. The posted year in the columns are the last year of the data set, e.g. 2009-2011 for the DV, and just the posted year for the concentrations that do not require Design Value calculations.

Appendix B Table B5 Downtown Design Values and Averages for Pollutants

Pollutant	NAAQS	2011	2012	2013	2014	2015	Units
O_3	8-Hr DV	0.059	0.057	0.055	0.057	0.060	ppm
NO_2	Annual Average	0.014	0.013	0.014	0.013	0.013	ppm
	1-Hr DV	0.060	0.057	0.056	0.057	0.057	ppm
CO	1-Hr	2.8	2.6	3.0	2.7	2.6	ppm
	8-Hr	2.4	1.9	2.1	1.9	1.9	ppm
$PM_{2.5}$ Manual	24-Hr DV	23.6	23.2	22.1	22.8	21.3	$\mu g/m^3$
	Annual Average DV	11.0	10.8	10.7	10.5	10.0	$\mu g/m^3$
*$PM_{2.5}$ Continuous	*24-Hr DV	n/a	n/a	n/a	n/a	n/a	$\mu g/m^3$
	*Annual Average DV	n/a	n/a	n/a	n/a	n/a	$\mu g/m^3$
PM_{10} Manual	24-Hr	56	53	65	59	53	$\mu g/m^3$

Table 6 list the calculations for the individual monitors and samplers eligible per 40 CFR 58.14.

Appendix B Table B6 Eligibility for Relocation

Pollutant	NAAQS	(c)(1)		(c)(2)	(c)(3)	(c)(4)	(c)(5)	(c)(6)	Case-by-Case
O_3	8-Hr DV	0.061 ppm	No	Yes	Yes	Yes	Yes	Yes	Yes
NO_2	Annual Average	0.014 ppm	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	1-Hr DV	0.06 ppm	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CO	1-Hr	3 ppm	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	8-Hr	2 ppm	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$PM_{2.5}$ Manual	24-Hr DV	24 $\mu g/m^3$	Yes	No	No	No	No	Yes	Yes
	Annual Average DV	11.3 $\mu g/m^3$	No	No	No	No	No	Yes	Yes
*$PM_{2.5}$ Continuous	*24-Hr DV	--	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
	*Annual Average DV	--	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
PM_{10} Manual	24-Hr	66 $\mu g/m^3$	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Toxics-VOC	n/a	--	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
Toxics-Metals	n/a	--	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
$PM_{2.5}$ CSN, SU	n/a	--	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)
PAMS-Carbonyls (Unofficial)	n/a	--	n/a	n/a	n/a	n/a	n/a	n/a	Yes (non-NAAQS)

Yes= Eligible No= Not eligible *Not operated in regulatory mode, therefore cannot be compared to the NAAQS.

APPENDIX C

San Diego APCD Formal Request to Decommission the San Diego Pb-TSP Sampler

June 27, 2016

Meredith Kurpius, PhD.
Manager, Air Quality Analysis Office
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

REQUEST TO DECOMMISSION THE SAN DIEGO PB-TSP NCORE SAMPLER

Dear Dr. Kurpius: (Meredith)

The San Diego Air Pollution Control District (District) is requesting the Environmental Protection Agency's approval to discontinue non-source oriented lead (Pb) monitoring via a Total Suspended Particulate sampler at the District's NCore sites (original NCore location was at El Cajon-Redwood, AQS ID# 06-073-0003). The site has relocated to El Cajon-Floyd Smith Drive, AQS ID# 06-073-1018). This request is made under the provision of 40 CFR Part 58.14 and recent revisions to the 40 CFR Part 58, Appendix D, Section 3 (b) and Section 4.5 (b).

After 4-years (46 months) of data from 2012 – 2016, the calculated design value for Pb at both NCore locations is 0.01 $\mu g/m^3$. This is well below the NAAQS for airborne lead (0.15 $\mu g/m^3$). A yearly breakdown of the measured concentrations is provided below.

El Cajon-Redwood

- Start-up date, 1/19/2012
  - 2012 Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$
  - 2013 Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$
  - 2014 (1st Qtr) Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$
  - *Total months of operation= 25*
- Close-out date, 2/22/2014

El Cajon-Floyd Smith Drive

- Start-up date, 9/8/2014
  - 2014 Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$
  - 2015 Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$
  - 2016 (1st Qtr) Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$
  - *Total months of operation= 21*
- Close-out date (projected), 6/30/2016 (2nd Qtr)

Overall (both El Cajon-Redwood and El Cajon-Floyd Smith Drive)

- Maximum rolling 3-month concentration= 0.01 $\mu g/m^3$

Total Months of Operation= 46

If you have any questions or require additional information regarding this request to discontinue lead sampling at our NCore site, please contact David Shina, Senior Chemist in our Ambient Network, at (858) 586-2768.

Respectfully,

William C. Brick

WILLIAM C. BRICK, CCM
Chief, Monitoring & Technical Services

WCB:DS

Chapter 3 Ozone (O_3)

Section 3.0.0 Ozone Introduction

Ambient level Ozone was sampled on a continuous (7/24) basis at locations throughout the SDAB (Figure 3.0) and referenced to the ozone standard of the year (Table 3.0). The sampling equipment are listed in Table 3.1. Please note:

- In 2015, the Escondido station was temporarily shut-down (see the Overview chapter for more information).
- In 2013, the El Cajon Station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD).

Figure 3.0 Ozone Network Map

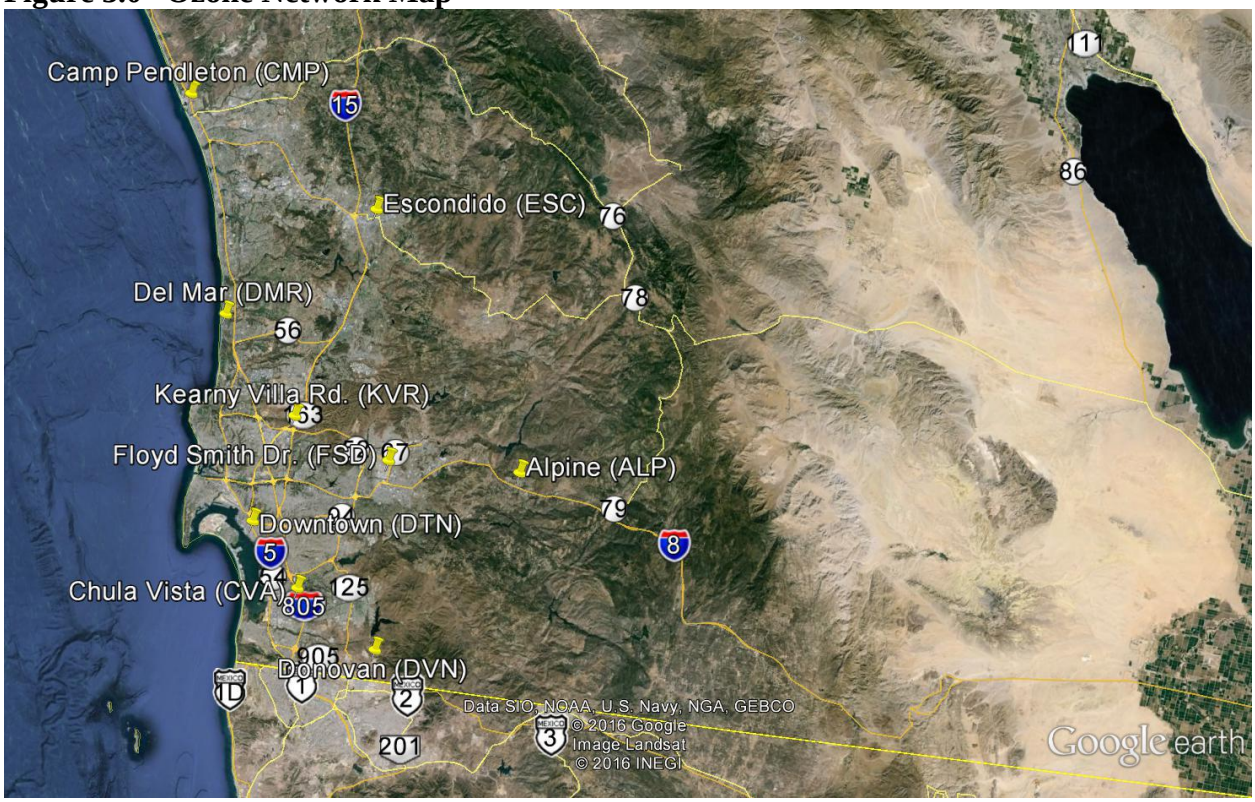


Table 3.0 Ozone State and Federal Standards for the Year, 2015

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
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)		

Table 3.1 Ozone Monitoring Network

	Abbreviation	ALP	CMP	CVA	DMR	FSD	ESC[1]	KVR	DVN	DTN
	Name	Alpine	Camp Pendleton	Chula Vista	Del Mar	Floyd Smith Dr.	Escondido	Kearny Villa Rd	Donovan	San Diego – Beardsley
	AQS ID	06-073-1006	06-073-1008	06-073-0001	06-073-1001	06-073-1018	06-073-1002	06-073-1016	06-073-1014	06-073-1010
O_3	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Method	UV	UV	UV	UV	UV	UV	UV	UV	UV
	Affiliation	PAMS	PAMS	Not Applicable	Not Applicable	PAMS, NCore	Not Applicable	PAMS	Not Applicable	Not Applicable
	Spatial Scale	US	NS	NS	NS	NS	NS	NS	NS	NS
	Site Type	MXO	UPDB	PE	G/B	PE	PE	PE	PE	G/B
	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
	Equipment	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i

[1] ESC was temporarily shut-down

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Monitors at sites meeting near road designs as per Part 58
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 3.1.0 Ozone Minimum Monitoring Requirements

The District is federally mandated to monitor O_3 levels in accordance with the CFR. This section will state the different monitoring requirements for each program, e.g. ambient, PAMS, NCore, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other O_3 network requirements, e.g. ambient O_3 monitor can fulfill a PAMS O_3 monitor requirement. The District meets or exceeds all minimum requirements for O_3 monitoring for all programs.

Section 3.1.1 Ozone Minimum Monitoring Requirements-Design Value Criteria (8-Hr)

The District is required to operate a minimum number of O_3 monitors irrespective of O_3 network affiliations. To ascertain the minimum number of monitors required, the Design Value (DV) must be calculated. The DV is derived by averaging the last three years. Table 3.2a lists these DV requirements.

> *4.1 Ozone (O3) Design Criteria*[A]
> *(a) State, and where appropriate, local agencies must operate O3sites for various locations depending upon area size (in terms of population and geographic characteristics) and typical peak concentrations (expressed in percentages below, or near the O3NAAQS. Specific SLAMS O3site minimum requirements are included in Table D–2 of this appendix. The NCore sites are expected to complement the O3data collection that takes place at single- pollutant SLAMS sites, and both types of sites can be used to meet the network minimum requirements. The total number of O3sites needed to support the basic monitoring objectives of public data reporting, air quality mapping, compliance, and understanding O3-related atmospheric processes will include more sites than these minimum numbers required in Table D–2 of this appendix. The EPA Regional Administrator and the responsible State or local air monitoring agency must work together to design and/or maintain the most appropriate O3network to service the variety of data needs in an area*

Table 3.2a Ozone Minimum Monitoring Requirements-Design Value Criteria (8-Hr), 2013-2015

What is the Maximum 8-Hr Design Value? (ppm)	Is the Maximum 8-Hr Design Value ≥ 85% of the NAAQS? (yes/no)	Is the Maximum 8-Hr Design Value < 85% of the NAAQS? (yes/no)	Does the Maximum 8-Hr Design Value Meet the NAAQS? (yes/no)
0.079	Yes	No	No

Section 3.1.2 Ozone Minimum Monitoring Requirements-Ambient

By correlating the data from Table 3.2a with the EPA Table D-2, the minimum number of O_3 monitors, irrespective of program/network affiliation, is derived. Table 3.2b lists these.

Table D–2 of Appendix D to Part 58— SLAMS Minimum O_3 Monitoring Requirements

MSA population	*Most recent 3-year design value concentrations ≥85% of any O_3 NAAQS*	*Most recent 3-year design value concentrations <85% of any O_3 NAAQS*
350,000 - < 4 million	*2*	*1*

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.1 "Ozone (O_3) Design Criteria"
-Summarized in Table D-2 of Appendix D to Part 58— SLAMS Minimum O_3 Monitoring Requirements

Table 3.2b Ozone Minimum Monitoring Requirements-Ambient

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of Monitors (Sites) Required (#)	Number of Active Monitors (Sites) (#)	Number of Monitors (Sites) Needed (#)
San Diego	San Diego	3.3* million	2	9	None

Section 3.1.3 Ozone Minimum Monitoring Requirements-Maximum Concentration Site Design Value

All Districts are required to categorize at least one monitor/sampling site in the air basin as an area of maximum concentration. A design value (DV) concentration is calculated for this site. The DV is derived by averaging the last three years. Table 3.3 lists these maximum concentrations site requirements.

> *4.1 Ozone (O3) Design Criteria*[B]
> *(b) Within an O_3 network, at least one O_3 site for each MSA, or CSA if multiple MSAs are involved, must be designed to record the maximum concentration for that particular metropolitan area. More than one maximum concentration site may be necessary in some areas. Table D–2 of this appendix does not account for the full breadth of additional factors that would be considered in designing a complete O_3 monitoring program for an area. Some of these additional factors include geographic size, population density, complexity of terrain and meteorology, adjacent O3 monitoring programs, air pollution transport from neighboring areas, and measured air quality in comparison to all forms of the O3 NAAQS (i.e., 8-hour and 1-hour forms). Networks must be designed to account for all of these area characteristics. Network designs must be re-examined in periodic network assessments. Deviations from the above O3 requirements are allowed if approved by the EPA Regional Administrator.*

Table 3.3 Ozone Minimum Monitoring Requirements-Maximum Concentration Site Design Value, 2013-2015

Maximum 8-Hr Design Value Site (name)	Maximum 8-Hr Design Value Site AQS ID (#)	Maximum 8-Hr Design Value (ppm)
Alpine (ALP)	06-073-1006	0.079

[B] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.1 "Ozone (O_3) Design Criteria", subsection 4.1(a), list the requirements needed to fulfill the Ozone (O_3) Design Criteria.

Section 3.1.4 Ozone Minimum Monitoring Requirements-PAMS

The District is required to operate Photochemical Assessment Monitoring Stations (PAMS). There are several associated requirements to operate a PAMS site (see the PAMS chapter for more detail). One of the requirements is to operate O_3 monitors. Table 3.4 lists PAMS Ozone (O_3) Monitoring requirements for the SDAB.

5.1 PAMS Monitoring Objectives[C]

PAMS design criteria are site specific. Concurrent measurements of O3, oxides of nitrogen, speciated VOC, CO, and meteorology are obtained at PAMS sites… The minimum required number and type of monitoring sites and sampling requirements are listed in Table D-6 of this appendix.

Table D–6 of Appendix D to Part 58—Minimum Required PAMS Monitoring Locations and Frequencies

No	*Measurement*	*Where required*	*Sampling frequency*[1] *(all daily except for upper air meteorology)*
6	*Ozone*	*All sites*	*Hourly during the ozone monitoring season.*

Table 3.4 Ozone Minimum Monitoring Requirements-PAMS

Minimum Number of O_3 Monitors Required for PAMS Sites (#)	Total Number of O_3 Monitors Active at PAMS Sites (#)	Total Number of O_3 Monitors Needed at PAMS Sites (#)	PAMS Sites/Locations (name)	PAMS Sites/Locations AQS ID (#)
5	5	None	Floyd Smith Dr. (FSD) Alpine (ALP) Camp Pendleton (CMP) Kearny Villa Rd. (KVR) Downtown (unofficial) (DTN)	06-073-1018 06-073-1006 06-073-1008 06-073-1016 06-073-1010

C 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 5 "Network Design for Photochemical Assessment Monitoring Stations (PAMS)",
-subpart 5.1 "PAMS Monitoring Objectives",
-subpart 5.3 "Minimum Monitoring Requirements", and
-summarized in Table D-6 Minimum Required PAMS Monitoring Locations and Frequencies"

Section 3.1.5 Ozone Minimum Monitoring Requirements-NCore

The District is required to operate an O_3 monitor as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, low ppb-ppt range. Unlike the other gaseous pollutant requirements for NCore, O_3 is not required to be quantified at the lower levels. Table 3.5 lists the NCore O_3 requirements.

> *3. Design Criteria for NCore Sites*[D]
> *(b) The NCore sites must measure, at a minimum, $PM_{2.5}$ particle mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciated $PM_{10-2.5}$, O_3, SO_2, CO, NO/NOy, wind speed, wind direction, relative humidity, and ambient temperature.*

Table 3.5 Ozone Minimum Monitoring Requirements-NCore

Minimum Number of O_3 Monitors Required for NCore Sites (#)	Total Number of O_3 Monitors Active at NCore Sites (#)	Total Number of O_3 Monitors Needed at NCore Sites (#)	NCore Sites/Locations (name)	NCore Sites/Locations AQS ID (#)
1	1	None	Floyd Smith Dr. (FSD)	06-073-1018

Section 3.1.6 Ozone Minimum Monitoring Requirements-Summary

Table 3.6 summarizes all the O_3 minimum monitoring requirements from Sections 3.1.1-3.1.5.

Table 3.6 Ozone Minimum Monitoring Requirements-Summary

CFR Programs Requirements for O_3 Monitors (name)	Minimum Number of O_3 Monitors Required (#)	Number of Active O_3 Monitors (#)	Number of Needed O_3 Monitors (#)
CFR EPA Table D-2 only=	2	9	None
PAMS only=	5	5	None
NCore only=	1	1	None

D 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.3.6 "NOy Monitoring" and
- 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 3.2.0 Ozone Suitability for Comparison to the NAAQS

The CFR requires that for O_3 data to be used in regulatory determinations of compliance with the O_3 NAAQS, the O_3 monitors must be sited according to Federal Regulations[E1] and the sampling frequency must be in accordance with Federal regulations[E2]. All District O_3 monitors meets or exceeds all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. Table 3.7 summarizes these requirements.

Table 3.7 Ozone Suitability for Comparison to the NAAQS-Ozone Sampling Equipment

Parameter	Code	Unit	Code	Duration	Code	Equipment	Method	Code	Sampling Frequency	Method ID
Ozone O_3	44201	ppm	007	1-Hr	1	Thermo 49 series	Ultraviolet absorption	047	7/24	EQOA-0880-047

Section 3.3.0 Ozone Concentrations for San Diego

Over the years, ozone concentration levels have been decreasing. This section will illustrate the different metrics for comparison.

Section 3.3.1 Ozone Concentrations for San Diego-for the Last 20 Years

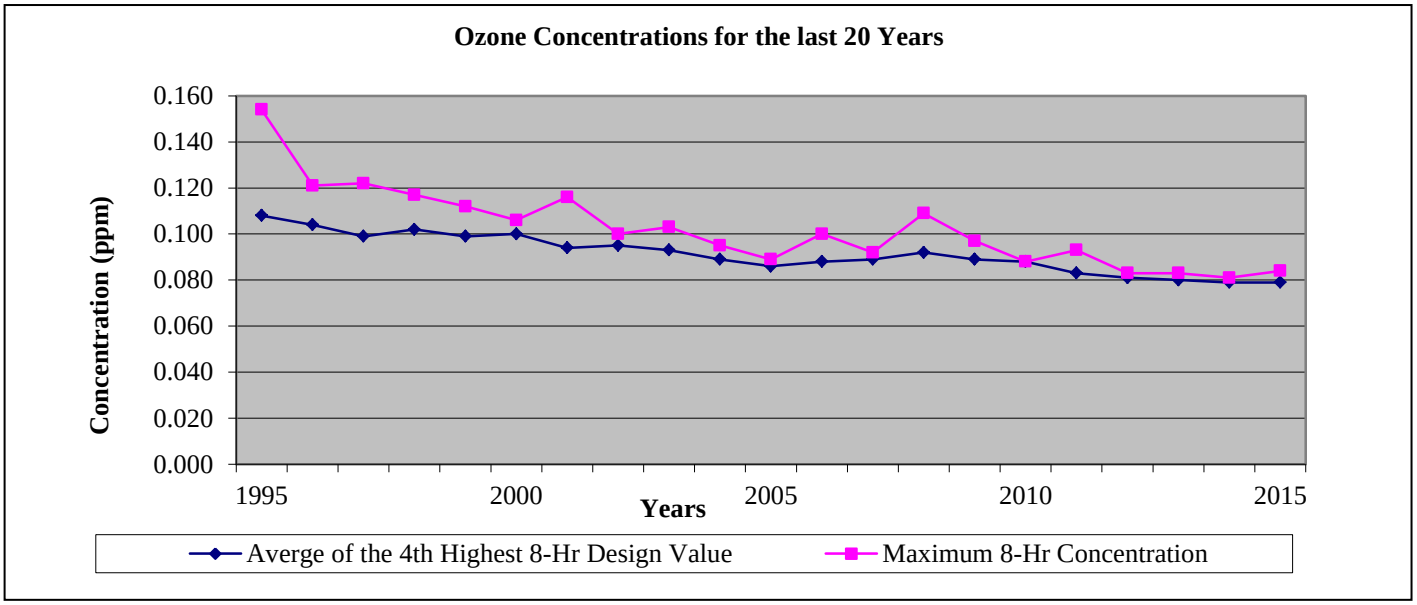
San Diego has realized a significant decrease in the 3-yr average of the exceedance days for ozone and has seen a sharp decrease in its 8-hour Design Value since 1990 (Table 3.8 and Figure 3.2). Note: the "Days Above the National 8-Hr Standard." row in Table 3.8 reflect the ozone standard for that year.

Table 3.8 Ozone Concentrations for San Diego-for the Last 20 Years, 1995-2015

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Average of the 4th Highest 8-Hr Design Value (ppm)	0.108	0.104	0.099	0.102	0.099	0.100	0.094	0.095	0.093	0.089	0.086	0.088	0.089	0.092	0.089	0.088	0.083	0.081	0.080	0.079	0.079
Maximum 8-Hr Concentration (ppm)	0.154	0.121	0.122	0.117	0.112	0.106	0.116	0.100	0.103	0.095	0.089	0.100	0.092	0.109	0.097	0.088	0.093	0.083	0.083	0.081	0.084
Days above the National 8-Hr Standard	94	64	43	58	44	46	43	31	38	23	24	38	27	35	24	14	10	10	7	12*	13

*Includes data impacted by local fires. These days have been coded as Exceptional Events in the AQS.

Figure 3.1 Ozone Concentrations for San Diego-for the Last 20 Years Graph, 1995-2015



[E1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.

[E2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

Section 3.3.2 Ozone Concentrations for San Diego-by Site for the Year

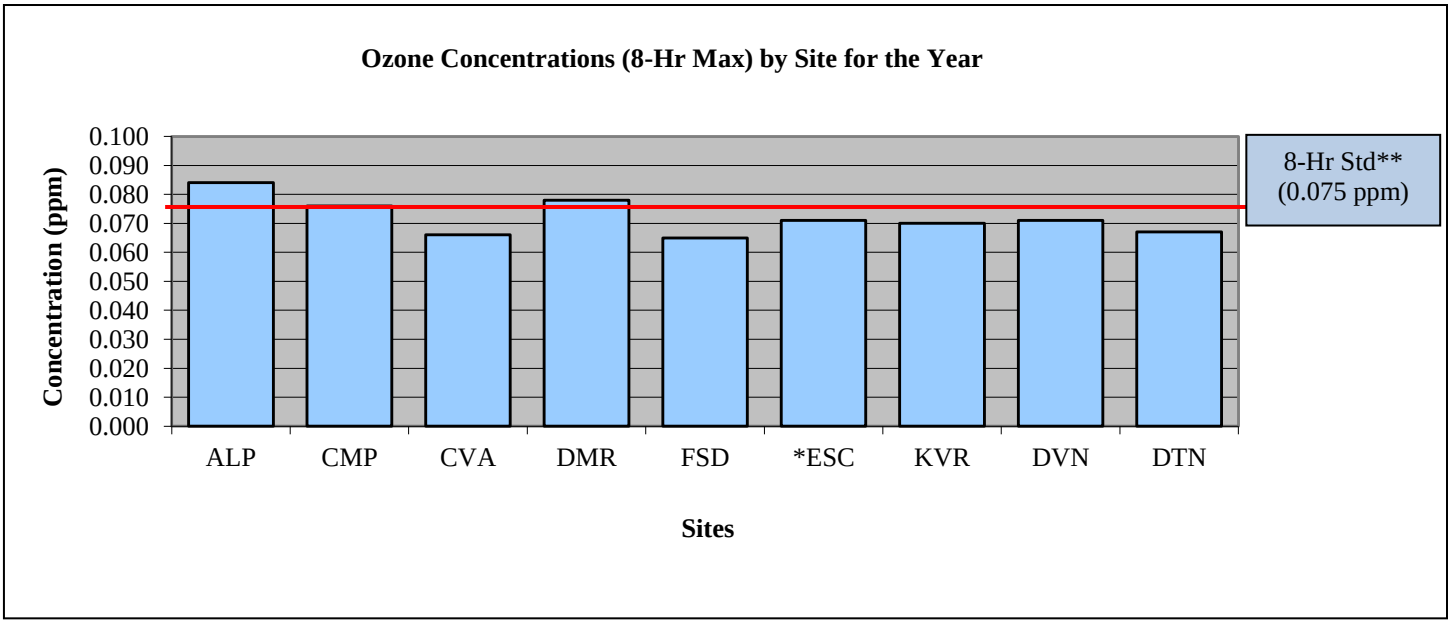
Table 3.9a lists the maximum ozone measurements for every ozone monitoring location and Figure 3.2a show the values graphically with respect to the National Standard for the year (Note: these are not Design Value concentrations, so the comparison to the standard is for informational use only).

Table 3.9a Ozone Concentrations for San Diego-by Site for the Year, 2015

No. (#)	Site (name)	Site Abbreviation (name)	Maximum Concentration for 8-Hrs (ppm)	Number of Days Above the National Standard (#)	Annual Average (ppm)
1	Alpine	ALP	0.084	11	0.043
2	Camp Pendleton	CMP	0.076	1	0.034
3	Chula Vista	CVA	0.066	0	0.029
4	Del Mar	DMR	0.078	1	0.034
5	Floyd Smith Dr.	FSD	0.065	0	0.028
6	Escondido	ESC	0.071	0	*0.032
7	Kearny Villa Road	KVR	0.070	0	0.032
8	Donovan	DVN	0.071	0	0.034
9	San Diego-Beardsley	DTN	0.067	0	0.028

*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

Figure 3.2a Ozone Concentrations for San Diego-by Site for the Year Graph, 2015



*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

**Note: the NAAQS is written for Design Value calculations; therefore the concentrations calculated for the year are not comparable to the NAAQS. The listed NAAQS is for informational purposes only.

Section 3.3.3 Ozone Concentrations for San Diego-by Site for Design Value

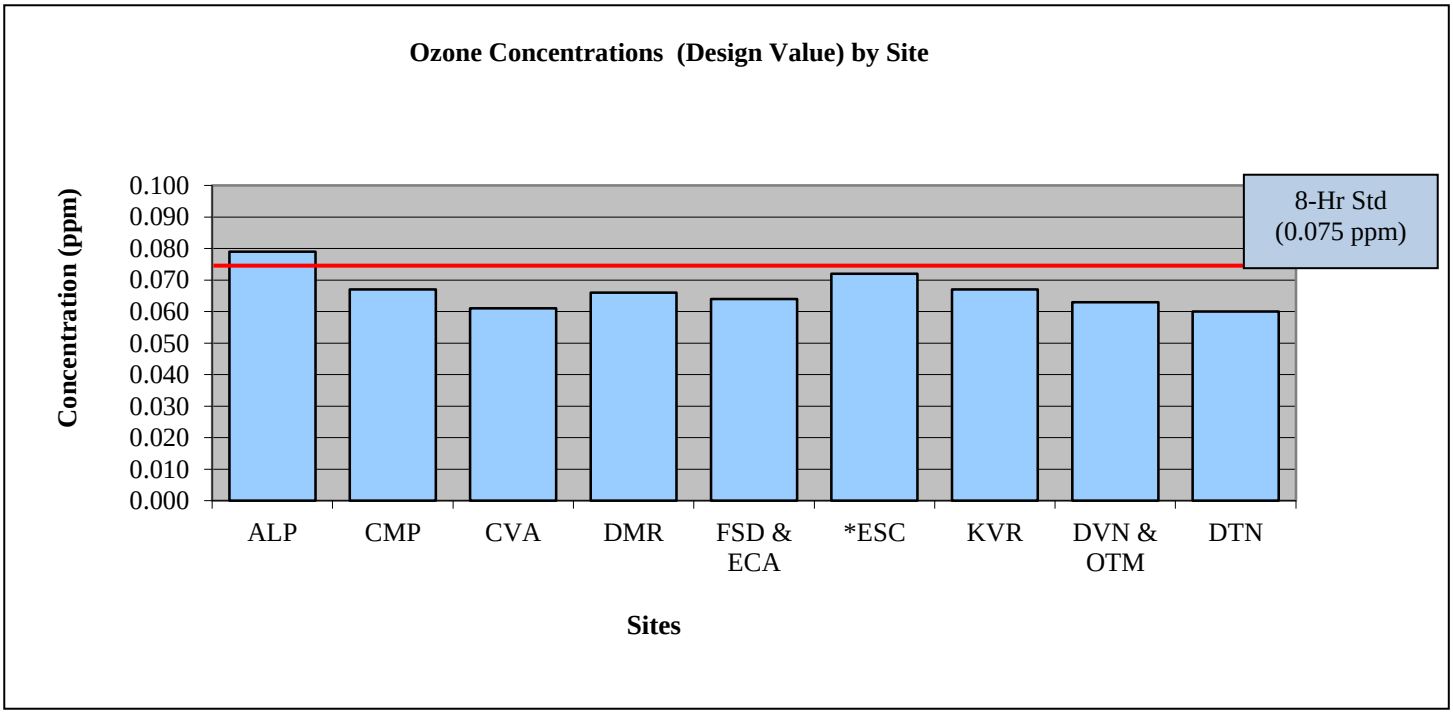
Table 3.9b lists the maximum ozone measurements for every ozone monitoring location and Figure 3.2b show the values graphically for the Design Value.

Table 3.9b Ozone Concentrations for San Diego-by Site for Design Value, 2013-2015

No. (#)	Site (name)	Site Abbreviation (name)	Design Value Maximum Concentration for 8-Hrs (ppm)	Is the Maximum 8-Hr Design Value ≥ 85% of the NAAQS? (yes/no)	Does the Maximum 8-Hr Design Value Meet the NAAQS? (yes/no)
1	Alpine	ALP	0.079	Yes	No
2	Camp Pendleton	CMP	0.067	Yes	Yes
3	Chula Vista	CVA	0.061	No	Yes
4	Del Mar	DMR	0.066	Yes	Yes
5	Floyd Smith Dr. & El Cajon	FSD & ECA	0.064	Yes	Yes
6	*Escondido	ESC	0.072	Yes	Yes
7	Kearny Villa Road	KVR	0.067	Yes	Yes
8	Donovan & Otay Mesa	DVN	0.063	No	Yes
9	San Diego-Beardsley	DTN	0.060	No	Yes

*Not operational a full year.

Figure 3.2b Ozone Concentrations for San Diego-by Site for Design Value Graph, 2013-2015



*Not operational a full year.

Chapter 4 Nitrogen Dioxide (NO_2) and Reactive Oxides of Nitrogen (NOy)

Section 4.0.0 Nitrogen Dioxide and Reactive Oxides of Nitrogen Introduction

Ambient level nitrogen dioxide was sampled on a continuous basis at locations throughout the SDAB (Figure 4.0) and referenced to the nitrogen dioxide standards of the year (Table 4.0). The sampling equipment are listed in Table 4.1. Please note:

- In 2015, the Escondido station was temporarily shut-down (see the Overview chapter for more information)
- In 2013, the El Cajon Station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD); NOy sampling was temporarily suspended with EPA approval

Figure 4.0 Nitrogen Dioxide & NOy Network Map

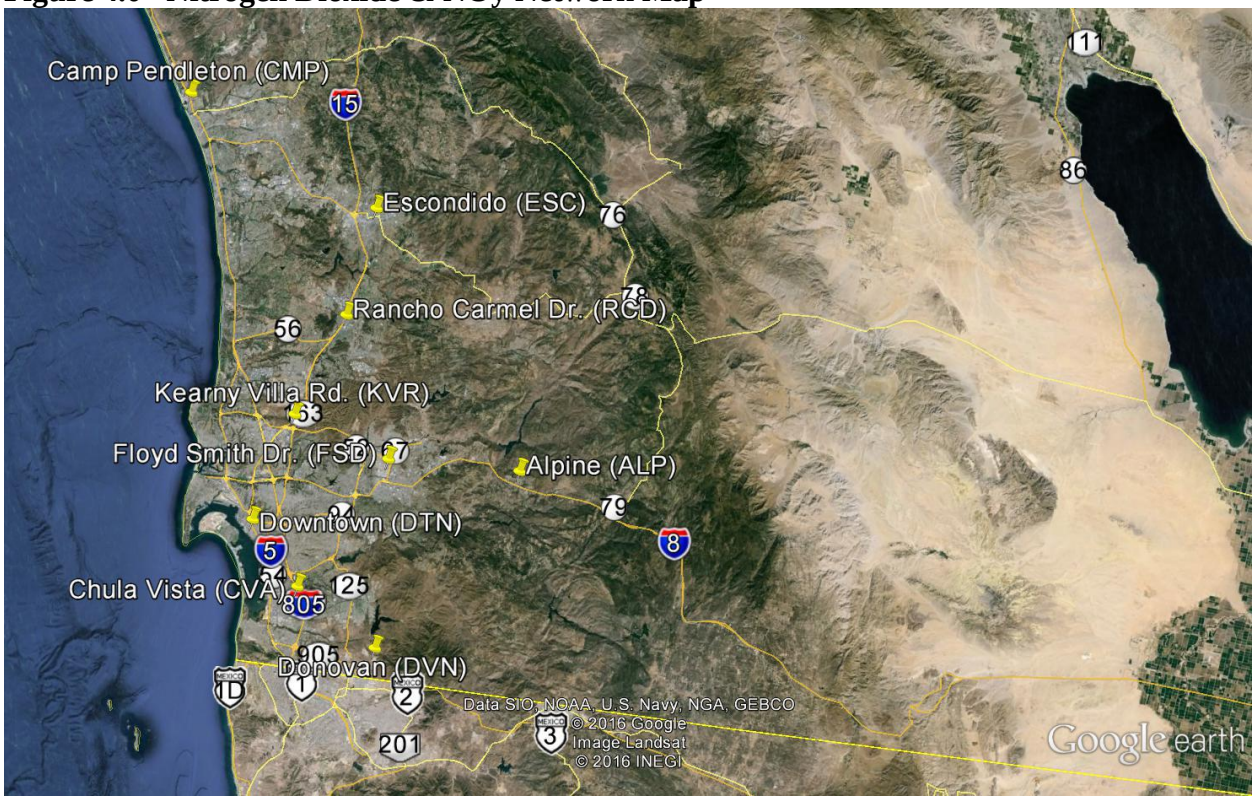


Table 4.0 Nitrogen Dioxide State and National Standards for the Year

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards**		**National Standards**		
		Concentration	**Method**	**Primary**	**Secondary**	**Method**
Nitrogen Dioxide (NO_2)	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	

The NOy analyzer is non-regulatory; therefore there are no NAAQS to compare, although the NOx and NOy measurements are comparable in the SDAB.

Table 4.1 Nitrogen Dioxide & Reactive Oxides of Nitrogen Sampling Network

	Abbreviation	ALP	CMP	CVA	FSD	ESC	KVR	DVN	DTN	RCD
	Name	Alpine	Camp Pendleton	Chula Vista	Floyd Smith Dr.	Escondido	Kearny Villa Rd	Donovan	San Diego – Beardsley	Rancho Carmel Dr.
	AQS ID	06-073-1006	06-073-1008	06-073-0001	06-073-1018	06-073-1002	06-073-1016	06-073-1014	06-073-1010	06-073-1017
NO_2 & NOy	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Designation	PRI	PRI	PRI	PRI	PRI	PRI	PRI	PRI	PRI
	Method	CL	CL	CL	CL	CL	CL	CL	CL	CL
	Affiliation	PAMS	PAMS	Not Applicable	PAMS	Not Applicable	PAMS	SLAMS	Not Applicable	Not Applicable
	Spatial Scale	US	NS	NS	NS	NS	NS	NS	NS	MI
	Site Type	PE	UPBD	PE	PE	PE	PE	PE	PE	SO
	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
	Equipment	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i	Thermo 42i

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Monitors at sites meeting near road designs as per Part 58
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

With EPA approval, NOy sampling is temporarily suspended until the District relocates back to the original NCore location.

Section 4.1.0 Nitrogen Dioxide Minimum Monitoring Requirements

The District is federally mandated to monitor NO_2 levels in accordance with the CFR. This section will state the different minimum monitoring requirements for each program, e.g. ambient, Near-road, PAMS, etc. that the District operates and the references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other NO_2 network requirements, e.g. ambient NO_2 monitor can fulfill a PAMS NO_2 monitor requirement. The District meets or exceeds all minimum requirements for NO_2 monitoring for all programs except for the following:

- Establishment of the 2nd Near-road location (highlighted in red).

Section 4.1.1 Nitrogen Dioxide Minimum Monitoring Requirements -Near-road

In an effort to measure concentrations for some pollutants in communities located by roadways, the EPA instituted the Near-road monitoring program. Table 4.2 lists the Near-road monitors required for the SDAB.

> *4.3.2 Requirement for Near-road NO2 Monitors* [A]
> *(a) Within the NO2 network, there must be one microscale near-road NO2monitoring station in each CBSA with a population of 500,000 or more persons to monitor a location of expected maximum hourly concentrations sited near a major road with high AADT counts as specified in paragraph 4.3.2(a)(1) of this appendix. An additional near-road NO2 monitoring station is required for any CBSA with a population of 2,500,000 persons or more, or in any CBSA with a population of 500,000 or more persons that has one or more roadway segments with 250,000 or greater AADT counts to monitor a second location of expected maximum hourly concentrations. CBSA populations shall be based on the latest available census figures.*

Table 4.2 Nitrogen Dioxide Minimum Monitoring Requirements -Near-road

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of NO_2 Near-road Monitors Required (#)	Are Additional NO_2 Near-road Monitors Required (yes/no)	Number of Additional NO_2 Near-road Monitors Required (#)	Total Number of NO_2 Near-road Monitors Required (#)	Active Number of NO_2 Near-road Monitors (#)	Number of Needed NO_2 Near-road Monitors (#)
San Diego	San Diego	3.3 million	1	Yes	1	2	1	1

Section 4.1.1.1 Nitrogen Dioxide Minimum Monitoring Requirements -Near-road (first site)

The first Near-road site must be sited in the area of the highest traffic count, adjusted for High Density (FE=Fleet Equivalency) vehicles. The first NO_2 near-road location is off of Rancho Carmel Drive (RCD) about 3.7 miles north of Poway Rd. (NOx and CO pollutant concentrations are measured there). It has a FE ranking of 4th in the County (the first three ranked sites were unworkable for various reasons).

Section 4.1.1.2 Nitrogen Dioxide Minimum Monitoring Requirements -Near-road (second site)

The criteria for the second Near-road location are more flexible than the criteria for the first site. The second site is not necessarily the next location according to FE ranking. The EPA prescribes that the second site be selected so that it is differentiated from the first by one or more factors affecting traffic emissions and/or pollution transport, i.e. fleet mix, terrain, geographic area, different roadway, etc.

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.3 "Nitrogen Dioxide (NO_2) Design Criteria", subpart 4.3.2 "Requirement for Near-road monitors"

Based on these criteria from the previous paragraph, the District located and tried to site the 2nd Near-road station, but all attempts were unsuccessful for the following reasons:

1. I-5 at Manchester Ave.
   - denied/unadvisable due to future highway expansion.
2. I-5 at Sweetwater Rd.
   - Not enough space and unavailability ready power.
3. I-8 at Camino del Rio South
   - denied by the City for the site of a possible water treatment facility in 2020..
4. I-5 at Sicard St.
   - denied by the School Authorities due to school closure.
5. I-5 at Newton Ave.
   - denied by the City for a need for right-of-way on a dead-end street overlooking I-5.

The District is pursuing a location in the Barrio Logan/Logan Heights area. This site is in an Environmental Justice (EJ) area. This site the corner of Boston Ave. & S. 29th St. will be:

- Downwind of the Bay industrial activities.
- Close to 28th St., a feeder route for the Navy base.
- Close to Harbor Ave. (a downwind North-South feeder road that has a high traffic count).
- Mix of bedroom community near heavy industry.

The District is required to fill out a matrix listing the answers to EPA questions regarding Near-road siting requirements. Table 4.3 is the Near-road matrix for it.

Table 4.3 Nitrogen Dioxide Minimum Monitoring Requirements -Near-road (second site)

No.	Condition	Answer
1	Submitted for public comment	In this Annual Network Plan
2	Anticipated start-up	December 1, 2016
3	AQS #	06-073-1019
4	Address and coordinates	Boston Ave. & S. 29th Street (abbreviated as BTA) 32°41'39.14"N, 117° 7'56.89"W
5	Sampling & analysis method	NOx, Chemiluminescence
6	Sampling & analysis method	24/7, Year-long
7	Any plans to remove or move the monitor within the 18 months?	No
8	Monitoring objective & spatial scale	Data, NAAQS, MicroScale
9	CBSA	San Diego County
10	CBSA population & year	3.3 million people estimated from 2010 U.S. Census
11	Maximum AADT counts & year	Estimation from 2012 Caltrans report: 158,000 cars (actual) & 7,600 trucks (estimate); FE= 226,400 (estimated) (ranked about 45-50th in the County)
12	Correct number of required NOx (NO_2) monitors?	Two based on population
13	Are all road segments ranked?	Yes By Fleet Equivalency

14	How is Fleet Equivalency (FE) calculated?	FE AADT= (AADT-HDC) + (HDm x HDc) HDc= High Density county (trucks) HDm= High Density multiplier (10)
15	How is roadway design considered?	The location is downwind of the I-15/I-5 interchange; 28th St is a feeder to the Port of San Diego. No downwind bridges or tunnels, or surrounding mass transit points to bias the data.
16	How is congestion considered?	At the time of the writing of this report, there are no LOS congestion ratings for I-5 in San Diego. It is estimated to be E/D
17	How is terrain considered?	Station will be about 6-9 m higher than the freeway
18	How is meteorology considered?	The winds at this location are predominantly from the west and WNW, which would generally occur during the day. Winds are rarely greater than 6 m/s. The second most common wind direction is from the SSW, which would occur most often when a coastal eddy forms or ahead of an approaching storm system. At night, there are commonly weak drainage winds from the NE that develop that range from near calm to less than 2 m/s. So, the flow at this location is primarily onshore except later at night where it can turn weakly offshore. It is typical of a coastal location in Southern California.
19	How is population exposure considered?	This location is a mixture of business and residential. It is located in an Environmental Justice (EJ) area. This location is a mixed used area (heavy industrial and bedroom community). This EJ area has one of the higher asthma rates in the County and local representatives are requesting a NO2 Near-road site in this community. Our new Downtown-San Diego (Sherman Elementary School- SES) air pollution monitoring station is located about 1.3 miles northwest/downwind of the proposed NO2 Near-road site at Boston Ave.
20	1st NO2 Near-road site	The first Near-road site is along I-15, along the most trafficked area in the County.
21	Distance from the target road?	20-30 meters, depending on probe placement.
22	Will vertical inlet be between 2 - 7 meters?	Yes
23	Will the probe distance from supporting structures be at least 1 meter away vertically or horizontally?	Yes
24	Will the air flow between the probe and the outside nearest edge of the target road segment be unobstructed?	Yes

Section 4.1.2 Nitrogen Dioxide Minimum Monitoring Requirements-Area-wide

The District is required to label a monitor that routinely measures high concentrations of nitrogen dioxide. Camp Pendleton, Kearny Villa Road, Escondido, and Otay Mesa/Donovan all have high concentrations. The monitor at the Escondido station consistently measures the higher concentrations in the air basin. The measured concentrations at Donovan are higher, but may be influenced by heavy construction immediately adjacent to the station. Once the construction activities have abated, this site will be revisited for possible Area-wide classification instead of Escondido. Table 4.4 lists the Area-wide NO_2 Monitoring requirements for the SDAB.

> *4.3.3 Requirement for Area-wide NO2 Monitoring*[B]
> *(a) Within the NO2network, there must be one monitoring station in each CBSA with a population of 1,000,000 or more persons to monitor a location of expected highest NO2concentrations representing the neighborhood or larger spatial scales. PAMS sites collecting NO2 data that are situated in an area of expected high NO2concentrations at the neighborhood or larger spatial scale may be used to satisfy this minimum monitoring requirement when the NO2 monitor is operated year round. Emission inventories and meteorological analysis should be used to identify the appropriate locations within a CBSA for locating required area-wide NO2 monitoring stations. CBSA populations shall be based on the latest available census figures.*

Table 4.4 Nitrogen Dioxide Minimum Monitoring Requirements-Area-wide

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Area-wide Site (name)	Area-wide Site AQS ID (#)	Meet NAAQS? (yes/no)
San Diego	San Diego	3.3 million	Escondido (ESC)	06-073-1002	Yes

Section 4.1.3 Nitrogen Dioxide Minimum Monitoring Requirements-Regional Administrator

The Downtown station is in an Environmental Justice (EJ) area. EJ areas are communities that tend to have:

- High percentage of pollution sources
- High rates of health issues
- Lower median income
- High minority population
- High percentage of English as a 2nd language
- Lower median income

Nitrogen dioxide is a component of diesel emissions, which are deleterious to human health. By designating monitors as Regional Administrator, the EPA has made the retention of nitrogen dioxide monitors in EJ areas mandatory in an effort to track the effectiveness of nitrogen dioxide reduction policies. Table 4.5 lists the Regional Administrator Designated NO_2 Monitoring requirements for the SDAB.

B 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.3 "Nitrogen Dioxide (NO_2) Design Criteria", subpart 4.3.3 "Requirement for Area-wide Monitoring"

4.3.4 Regional Administrator Required Monitoring[C]

(a) The Regional Administrators, in collaboration with States, must require a minimum of forty additional NO2 monitoring stations nationwide in any area, inside or outside of CBSAs, above the minimum monitoring requirements, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The Regional Administrators, working with States, may also consider additional factors described in paragraph (b) below to require monitors beyond the minimum network requirement.

Table 4.5 Nitrogen Dioxide Minimum Monitoring Requirements-Regional Administrator

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Regional Administrator Site (name)	Regional Administrator Site AQS ID (#)	Meet NAAQS? (yes/no)
San Diego	San Diego	3.3 million	San Diego-Beardsley (DTN)	06-073-1010	Yes

Section 4.1.4 Nitrogen Dioxide Minimum Monitoring Requirements-PAMS

The District is required to operate Photochemical Assessment Monitoring Stations (PAMS). There are several associated requirements to operate a PAMS site (see the PAMS chapter for more detail). One of the requirements is to operate NOx monitors. Table 4.6 lists the PAMS NOx (NO_2) Monitoring requirements for the SDAB.

5.1 PAMS Monitoring Objectives[D]

PAMS design criteria are site specific. Concurrent measurements of O3, oxides of nitrogen, speciated VOC, CO, and meteorology are obtained at PAMS sites… The minimum required number and type of monitoring sites and sampling requirements are listed in Table D-6 of this appendix.

Table D–6 of Appendix D to Part 58—Minimum Required PAMS Monitoring Locations and Frequencies

No	*Measurement*	*Where required*	*Sampling frequency (all daily except for upper air meteorology)*
3	*NO_X*	*All Type II sites*	*Hourly during the ozone monitoring season.*

C 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.3 "Nitrogen Dioxide (NO_2) Design Criteria", subpart 4.3.4 "Requirement for Regional Administrator Designated Monitoring"

D 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 5 "Network Design for Photochemical Assessment Monitoring Stations (PAMS)",
-subpart 5.1 "PAMS Monitoring Objectives",
-subpart 5.3 "Minimum Monitoring Requirements", and
-summarized in Table D-6 Minimum Required PAMS Monitoring Locations and Frequencies"

Table 4.6 Nitrogen Dioxide Minimum Monitoring Requirements-PAMS

Minimum Number of NO_2 Monitors Required for PAMS Type II Sites (#)	Total Number of NO_2 Monitors Active at PAMS Type II Sites (#)	Total Number of NO_2 Monitors Needed at PAMS Type II Sites (#)	PAMS Type II Sites/Locations (name)	PAMS Type II Sites/Locations AQS ID (#)
4	4	None	Floyd Smith Dr. (FSD) Camp Pendleton (CMP) Kearny Villa Rd. (KVR) Downtown (unofficial) (DTN)	06-073-1018 06-073-1008 06-073-1016 06-073-1010

Section 4.1.5 Nitrogen Dioxide Minimum Monitoring Requirements-Summary

Table 4.7 summarizes all the NO_2 minimum monitoring requirements from Sections 4.1.1-4.1.3.

Table 4.7 Nitrogen Dioxide Minimum Monitoring Requirements-Summary

CFR Programs Requirements for NO_2 Monitors (name)	Minimum Number of NO_2 Monitors Required (#)	Number of Active NO_2 Monitors (#)	Number of Needed NO_2 Monitors (#)
Near-road=	2	1	1
Area-Wide	1	1	None
Regional Administrator=	1	1	None
PAMS only=	4 +1*	4+1*	None

*1 NOx monitor is substituted for the NOy requirement at a Type III site, Alpine (see Section 4.2.1 for more detail).

Section 4.2.0 Reactive Oxides of Nitrogen Minimum Monitoring Requirements

The District is federally mandated to monitor NOy levels in accordance with the CFR. This section will state the different minimum monitoring requirements for each program, e.g. NCore, PAMS, etc. that the District operates and the references therein (Note: only the passages applicable/informative to the District are referenced). The District meets or exceeds all minimum requirements for NO_y monitoring except for the following:

- In 2014, the District received a waiver from the EPA granting temporary suspension of NOy monitoring at our temporary NCore location at Floyd Smith Drive (highlighted in red).

Note: The District has substituted NOx monitoring for NOy at the PAMS Type III location in Alpine.

Section 4.2.1 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-PAMS

The District is required to operate a NOy monitor as part of the PAMS monitoring program. Table 4.8 lists the PAMS NOy monitoring requirements.

5.1 PAMS Monitoring Objectives[E]

PAMS design criteria are site specific. Concurrent measurements of O3, oxides of nitrogen, speciated VOC, CO, and meteorology are obtained at PAMS sites… The minimum required number and type of monitoring sites and sampling requirements are listed in Table D-6 of this appendix.

Table D–6 of Appendix D to Part 58—Minimum Required PAMS Monitoring Locations and Frequencies

No	*Measurement*	*Where required*	*Sampling frequency (all daily except for upper air meteorology)*
4	*NO_y*	*One site per area at the Type III or Type I site*	*Hourly during the ozone monitoring season.*

Table 4.8 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-PAMS

Minimum Number of NOy Monitors Required Either at a Type I or Type III Site (#)	Number of Active NOy Monitors at a Type I or Type III Site (#)	Number of Needed NOy Monitors (#)	NOy Monitor Location (name)	NOy Monitor Location AQS ID (#)
1	1 (Type II)*	None**	Floyd Smith Dr* (FSD)	06-073-1018

* In 2011, the District was granted a waiver by the EPA Region IX Authority, to designate the El Cajon location, instead of the Alpine location, as to satisfying the PAMS NOy requirement.

**The El Cajon site has been temporarily relocated at Floyd Smith Dr. (FSD) on Gillespie Field property. The EPA granted the District a temporary waiver for the NOy requirement at FSD. Once the District relocates the station back to the original location, NOy monitoring will resume.

E 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.3.6 "NOy Monitoring" and
-summarized in Table D-6 Minimum Required PAMS Monitoring Locations and Frequencies"

Section 4.2.2 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-NCore

The District is required to operate a NOy monitor as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, low ppb-ppt range, also called trace level. Table 4.9 lists the NCore NOy requirements.

3. Design Criteria for NCore Sites[F]

(b) The NCore sites must measure, at a minimum, PM2.5 particle mass using continuous and integrated/filter-based samplers, speciated PM2.5, PM10-2.5 particle mass, speciated PM10-2.5, O3, SO2, CO, NO/NOy, wind speed, wind direction, relative humidity, and ambient temperature. NCore sites in CBSA with a population of 500,000 people (as determined in the latest Census) or greater shall also measure Pb either as Pb-TSP or Pb-PM10.

Table 4.9 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-NCore

MSA	County	Minimum Number of NCore NOy Monitors Required (#)	Number of Active NCore NOy Monitors (#)	Needed Number of NCore NOy Monitors (#)
San Diego	San Diego	1	0*	None*

*EPA granted a waiver to suspend NOy monitoring until the District relocates back to our original location

Section 4.2.3 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-Summary

Table 4.10 summarizes all the NOy minimum monitoring requirements from Sections 4.2.1-4.2.2.

Table 4.10 Reactive Oxides of Nitrogen Minimum Monitoring Requirements-Summary

CFR Programs Requirements for NOy Monitors (name)	Minimum Number of NOy Monitors Required (#)	Number of Active NOy Monitors (#)	Number of Needed NOy Monitors (#)
NCore=	1	0*	None
PAMS=	1	0*	None

*Temporarily suspended until relocation back to the original site (The El Cajon NOy monitor will satisfy both the NCore and PAMS requirement).

F 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.3.6 "NOy Monitoring" and
- 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 4.3.0 Nitrogen Dioxide Suitability for Comparison to the NAAQS

The CFR requires that for NO_2 data to be used in regulatory determinations of compliance with the NO_2 NAAQS, the NO_2 monitors must be sited according to Federal Regulations[G1] and the sampling frequency must be in accordance with Federal regulations[G2]. All District NO_2 monitors meets or exceeds all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. Table 4.11 summarizes these requirements. There is no NAAQS for NOy.

Table 4.11 Nitrogen Dioxide & Reactive Oxides of Nitrogen Sampling Equipment

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Amb	Oxides of Nitrogen Nitrogen dioxide Nitric oxide	NOx NO_2 NO	42603 42602 42601	ppm	007	1-Hr	1	Thermo 42 series	Chemiluminescence	074	7/24	RFNA-1289-074
NCore	Reactive Oxides of Nitrogen Not Applicable Nitric oxide	NOy NOy-NO NO	42600 42612 42601	ppb	008	1-Hr	1	Thermo 42i-NOy	Chemiluminescence	574	7/24	Not Applicable

Section 4.4.0 Nitrogen Dioxide Concentrations for San Diego

Over the years, nitrogen dioxide concentration levels have been decreasing. This section will illustrate the different metrics for comparison.

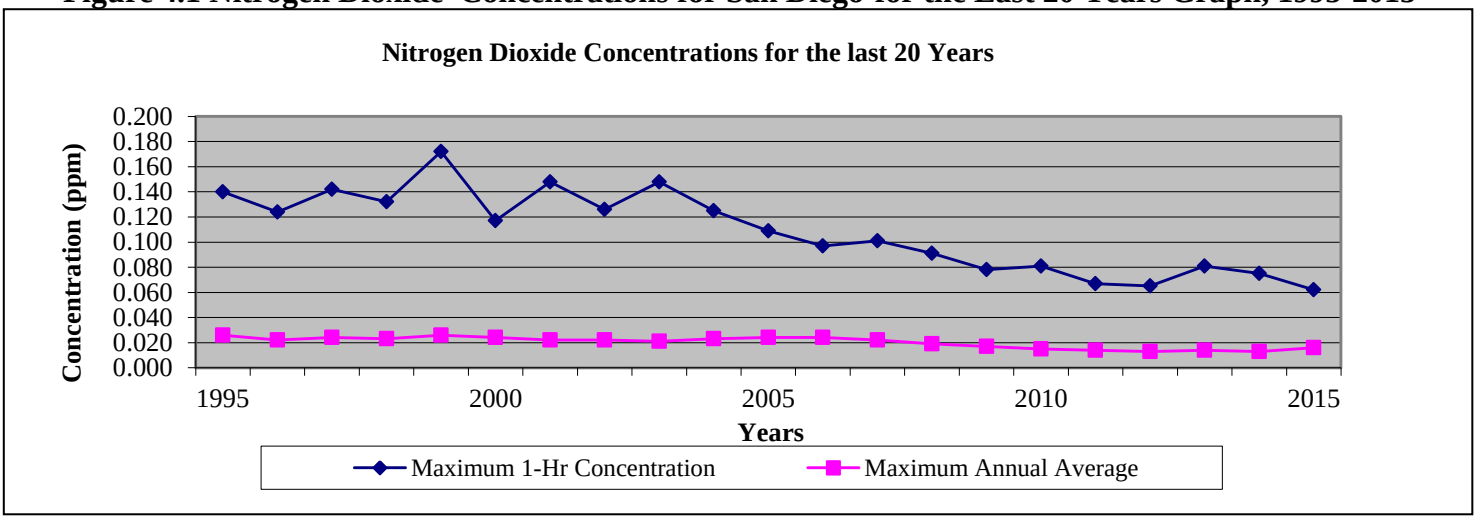
Section 4.4.1 Nitrogen Dioxide Concentrations for San Diego-for the Last 20 Years

San Diego has realized a steady decrease in the measured concentrations (Table 4.12). The trend is a result of improved emission control technology on mobile sources and emissions should continue to decrease. Note: the "Days Above the National 1-Hr Standard." row reflect the NO_2 standard for that year.

Table 4.12 Nitrogen Dioxide Concentrations for San Diego-for the Last 20 Years, 1995-2015

Maximum 1-Hr Concentration (ppm)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	0.140	0.124	0.142	0.132	0.172	0.117	0.148	0.126	0.148	0.125	0.109	0.097	0.101	0.091	0.078	0.081	0.067	0.065	0.081	0.075	0.062
Maximum Annual Average (ppm)	0.026	0.022	0.024	0.023	0.026	0.024	0.022	0.022	0.021	0.023	0.024	0.024	0.022	0.019	0.017	0.015	0.014	0.013	0.014	0.013	0.016
Days above the National 1-Hr Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 4.1 Nitrogen Dioxide Concentrations for San Diego-for the Last 20 Years Graph, 1995-2015



[G1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.
[G2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

Section 4.4.2 Nitrogen Dioxide Concentrations for San Diego-by Site for the Year

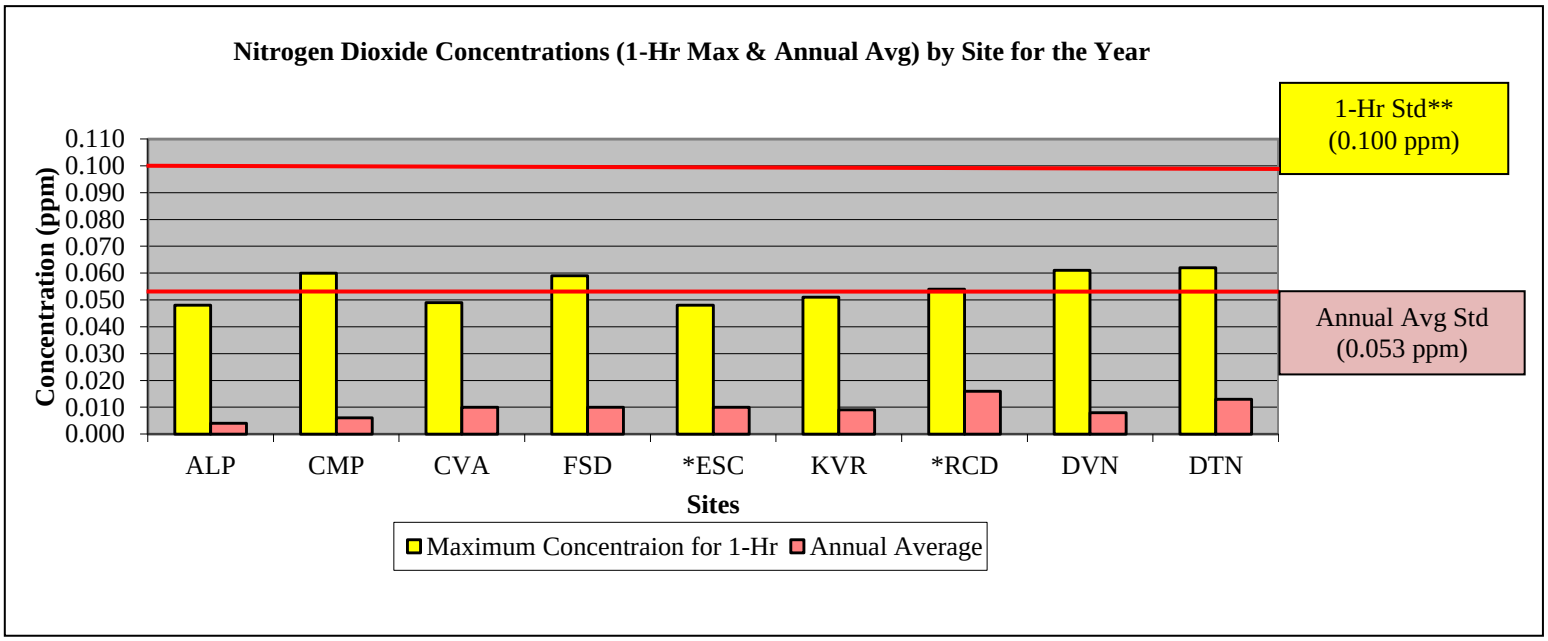
Table 4.4a lists the maximum nitrogen dioxide measurements and NOy-NO for each nitrogen dioxide monitoring location and NCore, respectively; figure 4.13a shows the values graphically with respect to the National Standard for the year (Note: these are not Design Value calculations, so the comparison to the standard is for informational use only).

Table 4.13a Nitrogen Dioxide Concentrations for San Diego- by Site for the Year, 2015

No. (#)	Site (name)	Site Abbreviation	Maximum Concentration for 1-Hr (ppm)	Number of Days Above the National Standard (#)	Annual Average (ppm)
1	Alpine	ALP	0.048	0	0.004
2	Camp Pendleton	CMP	0.060	0	0.006
3	Chula Vista	CVA	0.049	0	0.010
4	Floyd Smith Dr.	FSD	0.059	0	0.010
5	Escondido	ESC	0.048	0	*0.010
6	Kearny Villa Rd	KVR	0.051	0	0.009
7	Rancho Carmel Dr.	RCD	0.054	0	*0.016
8	Donovan	DVN	0.061	0	0.008
9	San Diego-Beardsley	DTN	0.062	0	0.013

*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

Figure 4.2a Nitrogen Dioxide Concentrations for San Diego-by Site for the Year Graph, 2015



*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

**Note: the 1-Hr NAAQS is calculated using a Design Value, therefore the 1-Hr NAAQS can be used informational purposes only. Only the Annual Average can be directly compared to the NAAQS

Section 4.4.3 Nitrogen Dioxide Concentrations for San Diego-by Site for the Design Value

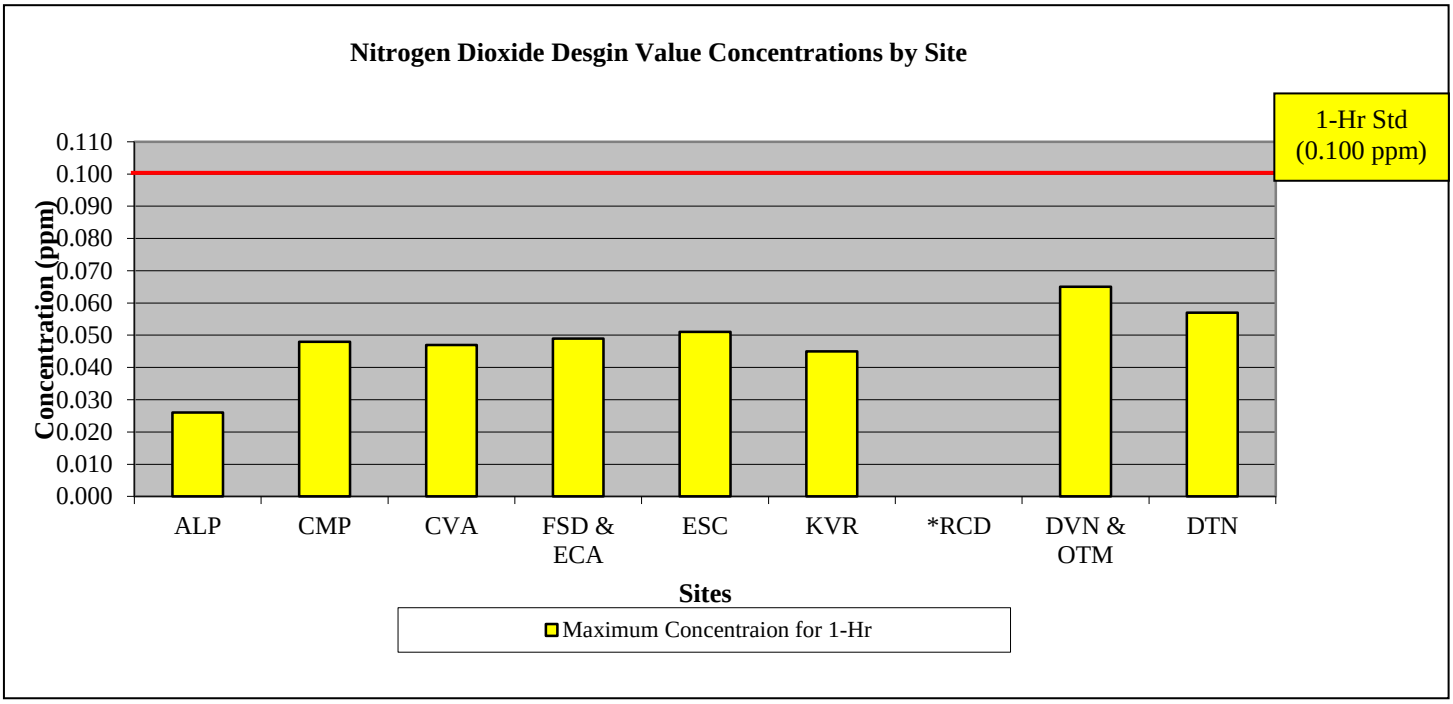
Table 4.13b lists the maximum nitrogen dioxide measurements for each monitor.

Table 4.13b Nitrogen Dioxide Concentrations for San Diego-by for the Site Design Value, 2013-2015

No. (#)	Site (name)	Site Abbreviation	Design Value Maximum Concentration for 1-Hr (ppm)	Number of Days Above the National Standard (#)
1	Alpine	ALP	0.026	0
2	Camp Pendleton	CMP	0.048	0
3	Chula Vista	CVA	0.047	0
4	Floyd Smith Dr. & El Cajon	FSD & FSD	0.049	0
5	Escondido	ESC	*0.051	0
6	Kearny Villa Rd	KVR	0.045	0
8	Rancho Carmel Dr.*	RCD	*	0
8	Donovan & Otay Mesa	DVN & OTM	0.065	0
9	San Diego-Beardsley	DTN	0.057	0

*Not sampled for 3-yrs, so no Design Value could be calculated.

Figure 4.2b Nitrogen Dioxide Concentrations for San Diego-by Site for the Design Value Graph, 2013-2015



*Not sampled for 3-yrs, so no Design Value could be calculated.

Chapter 5 Carbon Monoxide (CO)

Section 5.0.0 Carbon Monoxide Introduction

Carbon monoxide (CO) was sampled on continuous basis locations in the SDAB (Figure 5.0 and Table 5.1) and referenced to the carbon monoxide standards of the year (Table 5.0). The sampling equipment are listed in Table 5.1. Trace level CO was sampled at the El Cajon-NCore site. For NCore details, see section 10 – NCore for a complete list of all the requirements. Please note:

- In 2015,the Escondido station was temporarily shut-down (see the Overview chapter for more information)
- In 2013, the El Cajon Station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD).

Figure 5.0 Carbon Monoxide Network Map

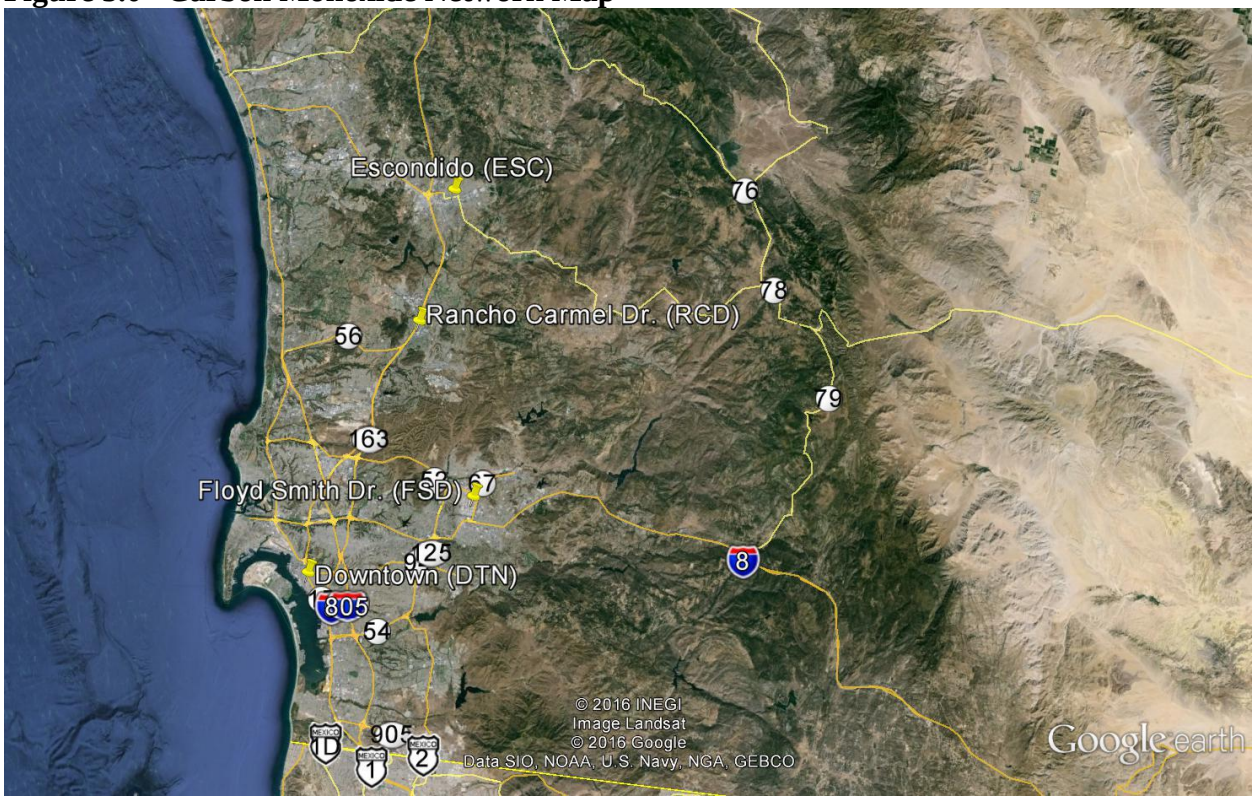


Table 5.0 Carbon Monoxide State and National Standards for the Year

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards**		**National Standards**		
		Concentration	**Method**	**Primary**	**Secondary**	**Method**
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)		—	—	

Table 5.1 Carbon Monoxide Sampling Network

	Abbreviation	FSD	ESC	DTN	RCD
	Name	Floyd Smith Dr.	Escondido	San Diego – Beardsley	Rancho Carmel Dr.
	AQS ID	06-073-1018	06-073-1002	06-073-1010	06-073-1017
CO	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS
CO	Method	IR	IR	IR	IR
CO	Affiliation	NCORE, PAMS	Not Applicable	SIP	Not Applicable
CO	Spatial Scale	NS	NS	NS	MI
CO	Site Type	PE	PE	PE	SO
CO	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
CO	Equipment	Thermo 48i-TLE	Thermo 48i	Thermo 48i-TLE	Thermo 48i-TLE

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Near-road
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 5.1.0 Carbon Monoxide Minimum Monitoring Requirements

The District is federally mandated to monitor CO levels in accordance with the CFR. This section will state the different monitoring requirements for each program, e.g. ambient, PAMS, NCore, Near-road, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other CO network requirements, e.g. ambient CO monitor can fulfill a PAMS CO monitor requirement. The District meets or exceeds all minimum requirements for CO monitoring for all programs.

Section 5.1.1 Carbon Monoxide Minimum Monitoring Requirements-Near-road

In an effort to measure concentrations for some pollutants in communities located by highly trafficked roadways, the EPA instituted the Near-road monitoring program. Table 5.2 lists the Near-road requirements.

4.2.1General Requirements[A]
(a) Except as provided in subsection (b), one CO monitor is required to operate collocated with one required near-road NO2 monitor, as required in Section 4.3.2 of this part, in CBSAs having a population of 1,000,000 or more persons. If a CBSA has more than one required near-road NO2 monitor, only one CO monitor is required to be collocated with a near-road NO2 monitor within that CBSA.

Table 5.2 Carbon Monoxide Minimum Monitoring Requirements-Near-road

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of NO_2 Monitors Required (#)	Are Collocated CO Monitors Required (yes/no)	Number of Collocated CO Monitors Required (#)	Number of Active CO Monitors Collocated (#)	Number of Needed CO Monitors (#)
San Diego	San Diego	3.3 million	2	Yes	1	1	None

Section 5.1.2 Carbon Monoxide Minimum Monitoring Requirements-NCore

The District is required to operate a CO monitor as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, low ppb-ppt range. Table 5.3 lists the NCore CO requirements.

3. Design Criteria for NCore Sites[B]
(b) The NCore sites must measure, at a minimum, $PM_{2.5}$ particle mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciated $PM_{10-2.5}$, O_3, SO_2, CO, NO/NOy, wind speed, wind direction, relative humidity, and ambient temperature.

Table 5.3 Carbon Monoxide Minimum Monitoring Requirements-NCore

Minimum Number of CO Monitors Required for NCore Sites (#)	Total Number of CO Monitors Active at NCore Sites (#)	Total Number of CO Monitors Needed at NCore Sites (#)	NCore Sites/Locations (name)	NCore Sites/Locations AQS ID (#)
1	1	None	Floyd Smith Dr. (FSD)	06-073-1018

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.2.1 "Carbon Monoxide (CO) Design Criteria", subpart (a), "General Requirements".
[B] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 5.1.3 Carbon Monoxide Minimum Monitoring Requirements-PAMS

The District is required to operate Photochemical Assessment Monitoring Stations (PAMS). There are several associated requirements to operate a PAMS site (see the PAMS chapter for more detail). One of the requirements is to operate a CO monitor. Table 5.4 lists PAMS Carbon Monoxide (CO) Monitoring requirements for the SDAB.

5.1 PAMS Monitoring Objectives[C]

PAMS design criteria are site specific. Concurrent measurements of O3, oxides of nitrogen, speciated VOC, CO, and meteorology are obtained at PAMS sites… The minimum required number and type of monitoring sites and sampling requirements are listed in Table D-6 of this appendix.

Table D–6 of Appendix D to Part 58—Minimum Required PAMS Monitoring Locations and Frequencies

No	*Measurement*	*Where required*	*Sampling frequency*[1] *(all daily except for upper air meteorology)*
5	*CO (ppb level)*	*One site per area at a Type 2 site*	*Hourly during the ozone monitoring season.*

Table 5.4 Carbon Monoxide Minimum Monitoring Requirements-PAMS

Minimum Number of CO Monitors Required for PAMS Sites (#)	Total Number of CO Monitors Active at PAMS Sites (#)	Total Number of CO Monitors Needed at PAMS Sites (#)	PAMS Sites/Locations (name)	PAMS Sites/Locations AQS ID (#)
1	1	None	Floyd Smith Dr. (FSD)	06-073-1018

Section 5.1.4 Carbon Monoxide Minimum Monitoring Requirements-State

The District must operate one ambient level or non-source monitor as part of the 2004 Revision to the California State Implementation Plan (SIP) for Carbon Monoxide[D]. Table 5.5 Summaries these requirements.

Table 5.5 Carbon Monoxide Minimum Monitoring Requirements-State

Minimum Number of CO Monitors Required for the SIP (#)	Total Number of CO Monitors Active for the SIP (#)	Total Number of CO Monitors Needed for the SIP (#)	SIP Sites/Locations (name)	SIP Sites/Locations AQS ID (#)
1	1	None	Downtown (DTN)	06-073-1010

C 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 5 "Network Design for Photochemical Assessment Monitoring Stations (PAMS)",
-subpart 5.1 "PAMS Monitoring Objectives",
-subpart 5.3 "Minimum Monitoring Requirements", and
-summarized in Table D-6 Minimum Required PAMS Monitoring Locations and Frequencies"

D http://www.arb.ca.gov/planning/sip/co/final_2004_co_plan_update.pdf

Section 5.1.5 Carbon Monoxide Minimum Monitoring Requirements-Summary

Table 5.6 summarizes all the CO minimum monitoring requirements from Sections 5.2.1-5.2.4.

Table 5.6 Carbon Monoxide Minimum Monitoring Requirements-Summary

CFR Programs Requirements for CO Monitors (name)	Minimum Number of CO Monitors Required (#)	Number of Active CO Monitors (#)	Number of Needed CO Monitors (#)
Near-road	1	1	None
PAMS=	1	1	None
NCore=	1	1	None
SIP=	1	1	None

Section 5.2.0 Carbon Monoxide Suitability for Comparison to the NAAQS

The CFR requires that for CO data to be used in regulatory determinations of compliance with the CO NAAQS, the CO monitors must be sited according to Federal Regulations[E1] and the sampling frequency must be in accordance with Federal regulations[E2]. All District CO monitors meets or exceeds all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. Table 5.7 summarizes these requirements.

Table 5.7 Carbon Monoxide Suitability for Comparison to the NAAQS-Sampling Equipment

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Ambient	Carbon monoxide	CO	42101	ppm	007	1-Hr	1	Thermo 48 series	Nondispersive infrared	054	7/24	RFCA-0981-054
NCore	Carbon monoxide Trace Level	CO	42101	ppb	008	1-Hr	1	Thermo 48i-TLE	Nondispersive infrared	554	7/24	RFCA-0981-054

Section 5.3.0 Carbon Monoxide Concentrations for San Diego

Over the years, carbon monoxide concentration levels have been decreasing. This section will illustrate the different metrics for comparison.

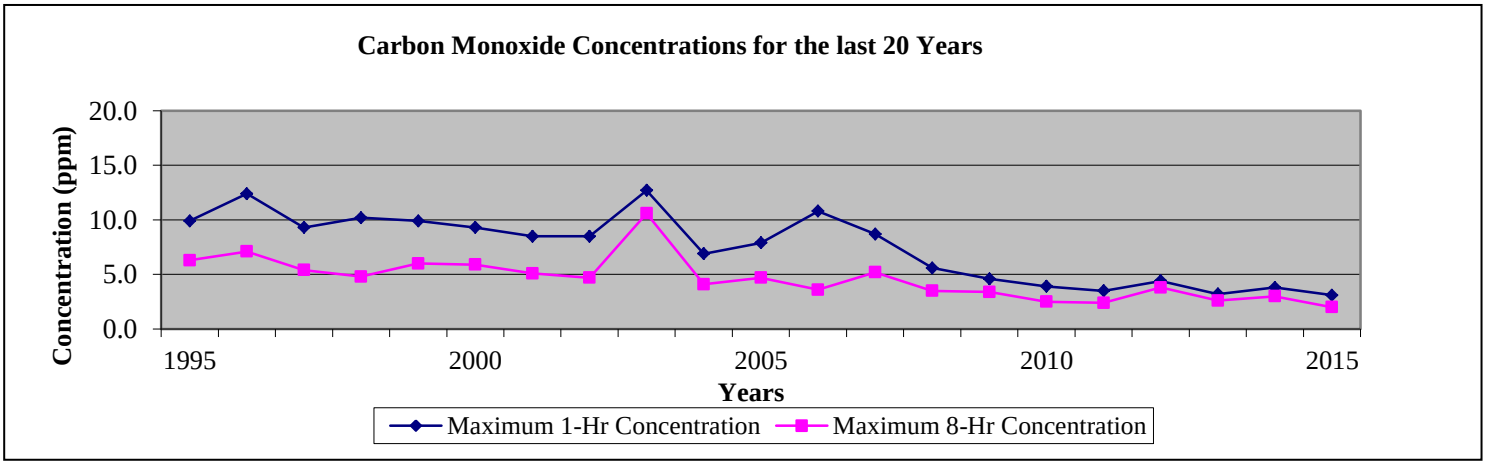
Section 5.3.1 Carbon Monoxide Concentrations for San Diego-for the Last 20 years

San Diego has realized a significant decrease over the years (Table 5.3) and is shown graphically in Figure 5.2 for CO concentrations. The 2003 Wildfires caused the SDAB to exceed the standards for CO, but the exceedances are considered an exceptional event and do not have a lasting impact in the air basin. Even with the last two wildfires in 2003 and 2007, the County still qualifies for attainment status. Note: the "Days Above the National Standard" row in Table 5.8 reflect the carbon monoxide standards for that year.

Table 5.8 Carbon Monoxide Concentrations for San Diego-for the Last 20 Years, 1995-2015

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Maximum 1-Hr Concentration (ppm)	9.9	12.4	9.3	10.2	9.9	9.3	8.5	8.5	12.7	6.9	7.9	10.8	8.7	5.6	4.6	3.9	3.5	4.4	3.2	3.8	3.1
Maximum 8-Hr Concentration (ppm)	6.3	7.1	5.4	4.8	6.0	5.9	5.1	4.7	10.6	4.1	4.7	3.6	5.2	3.5	3.4	2.5	2.4	3.8	2.6	3.0	2.0
Days above the National Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5.2 Carbon Monoxide Concentrations for San Diego-for the Last 20 Years Graph, 1995-2015



[E1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.

[E2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

Section 5.3.2 Carbon Monoxide Concentrations for San Diego-by Site for the Year

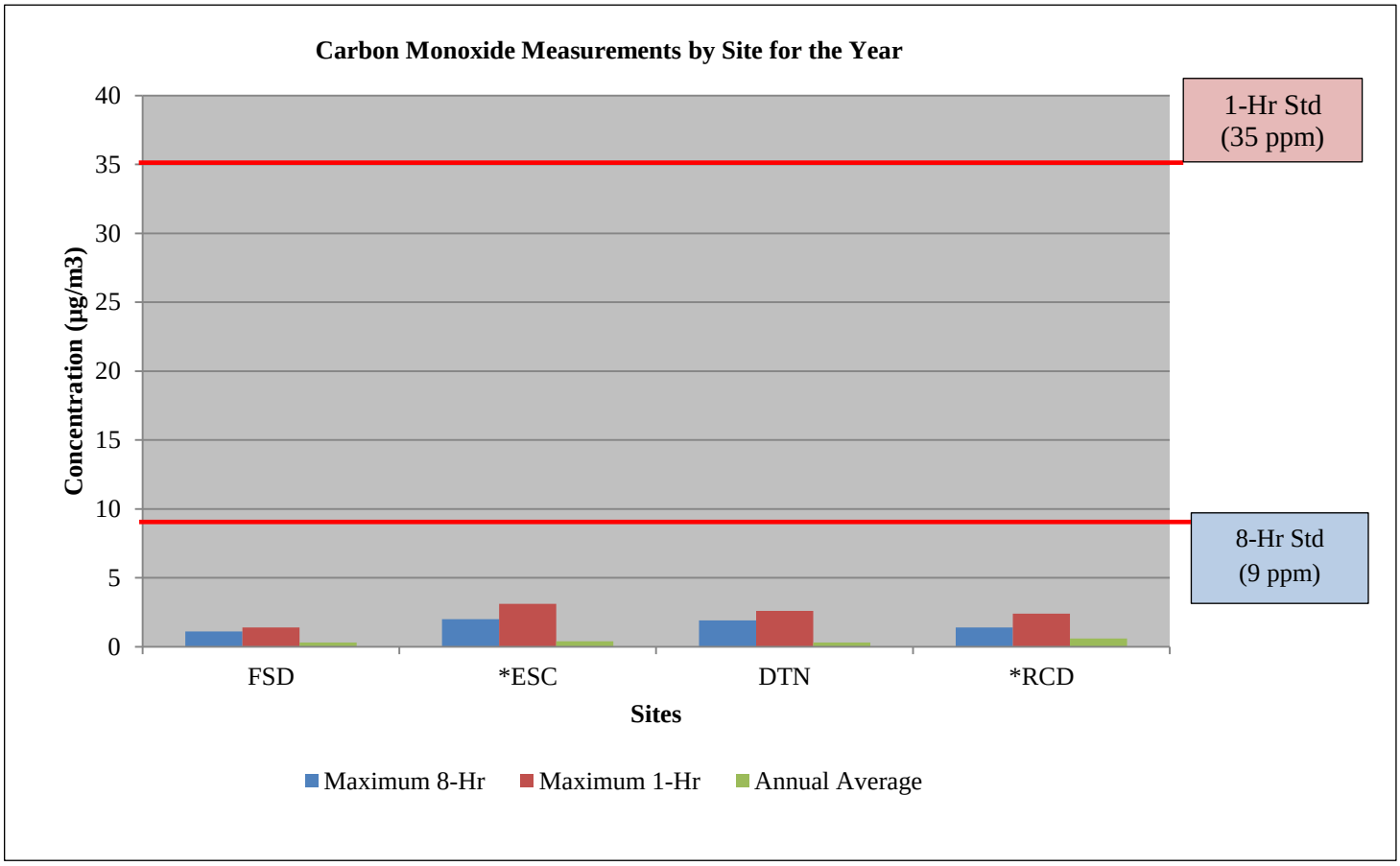
Table 5.4 lists the maximum carbon monoxide measurements for each carbon monoxide monitoring location and NCore; Figure 5.9 shows the values graphically with respect to the National Standard.

Table 5.9 Carbon Monoxide Concentrations for San Diego-by Site for the Year, 2015

No. (#)	Site (name)	Site Abbreviation	Maximum Concentration for 8-Hr (ppm)	Maximum Concentration for 1-Hr (ppm)	Number of Days Above the National Standard (#)	Annual Average (ppm)
1b	FSD (NCore)	FSD	1.1	1.4	0	0.3
2	Escondido	ESC	2.0	3.1	0	*0.4
3	San Diego-Beardsley	DTN	1.9	2.6	0	0.3
4	Rancho Carmel Dr.	RCD	1.4	2.4	0	*0.6

*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

Figure 5.2 Carbon Monoxide Concentrations for San Diego-by Site for the Year Graph, 2015



*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

Chapter 6 Sulfur Dioxide (SO_2)

Section 6.0.0 Sulfur Dioxide Introduction

Only trace level sulfur dioxide is sampled for at one location (Figure 6.0) in the SDAB and is referenced to the sulfur dioxide standards of the year (Table 6.0). Trace-level SO_2 was sampled at the Floyd Smith Drive-NCore site. Tables 6.1 & 6.2 lists the equipment. See section 11 – NCore for detailed requirements. Please note:

- In 2013, the El Cajon station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD).

Figure 6.0 Sulfur Dioxide Network Map

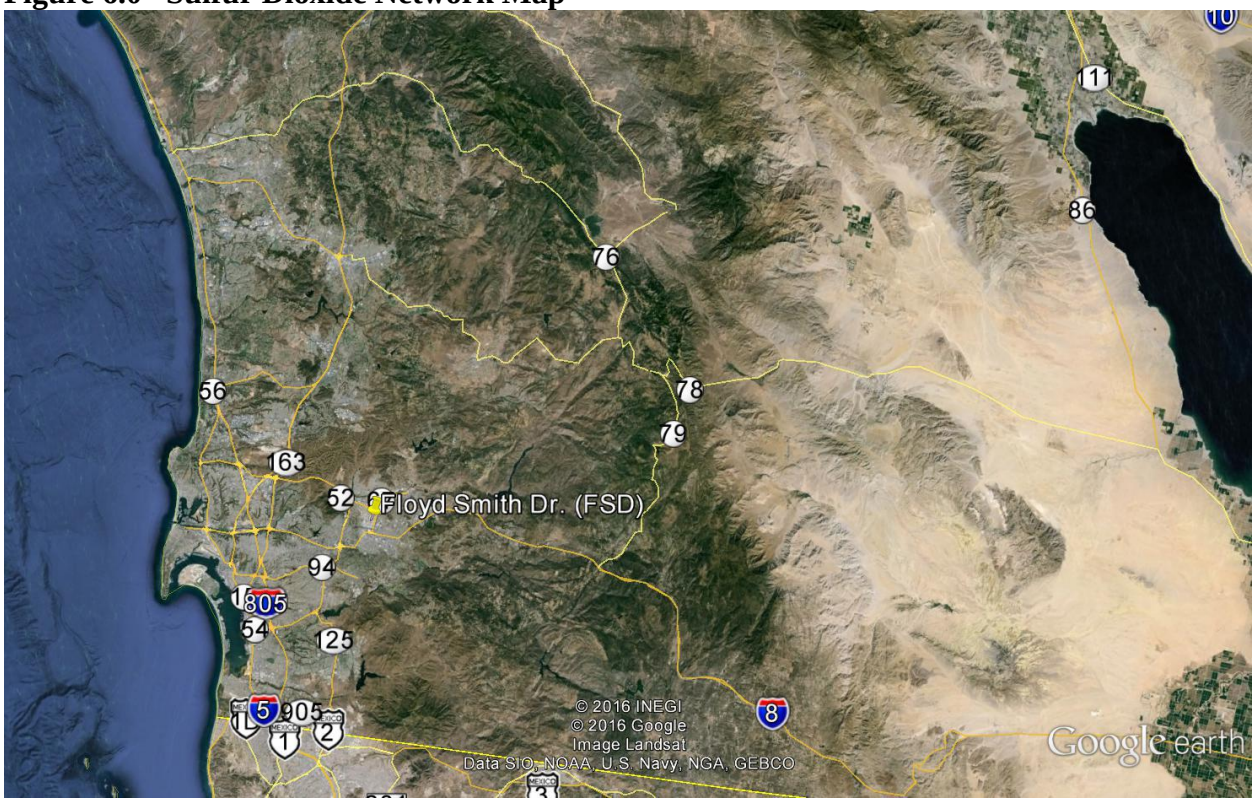


Table 6.0 Sulfur Dioxide State and National Standards for the Year

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; 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)	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)	—	

(Please Note: Only the 1-Hr standard applies for San Diego)

Table 6.1 Sulfur Dioxide Sampling Network

	Abbreviation	FSD[1]
	Name	Floyd Smith Dr.
	AQS ID	06-073-1018
SO_2	Monitor Type	SLAMS
	Method	FL
	Affiliation	NCore
	Spatial Scale	NS
	Site Type	PE
	Objective (Federal)	PI, NAAQS
	Equipment	Thermo 43i-TLE

[1] ECA station temporarily relocated to the FSD area

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Near-road
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 6.1.0 Sulfur Dioxide Minimum Monitoring Requirements

The District is federally mandated to monitor SO_2 levels in accordance with the CFR. This section will state the different monitoring requirements for each program, ambient, NCore, etc. that the District operates and the references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other SO_2 network requirements, e.g. ambient SO_2 monitor can fulfill a PAMS SO_2 monitor requirement. The Districts meets or exceeds all minimum requirements for SO_2 monitoring for all programs.

Section 6.1.1 Sulfur Dioxide Minimum Monitoring Requirements-Ambient

The procedure to determine the minimum number of ambient (or non-source) level monitors required is different than the other gaseous criteria pollutants. It is based on the total SO_2 emissions in the air basin with respect to the population of the air basin. Tables 6.2a & b lists these requirements.

> *4.4.2 Requirement for Monitoring by the Population Weighted Emissions Index*[A]
> *(a) The population weighted emissions index (PWEI) shall be calculated by States for each core based statistical area (CBSA) they contain or share with another State or States for use in the implementation of or adjustment to the SO2 monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates, and the total amount of SO2 in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory for each county in each CBSA. The resulting product shall be divided by one million, providing a PWEI value, the units of which are million persons-tons per year... For any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO2 monitor is required within that CBSA.*

According to the latest National Emissions Inventory (NEI) EPA Sector Database for 2011 (at the time of the writing of this report, the 2014 NEI database was not published), the SDAB is listed as having SO_2 emissions of 1,099.9504 Tons/yr (TPY).

Using the Population Weighted Emissions Index (PWEI) equation, from EPA section 4.4.2 in section 6.5.0: { (3,300,000 million persons) x (1,100 tons/year of SO_2) } / (1,000,000) = 3,630MP-TPY

Table 6.2a Sulfur Dioxide EPA NEI Emissions Inventory for the Year, 2015

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Total SO_2 Emissions from 2011 NEI (TPY)	Calculated PWEI (MP-TPY)
San Diego	San Diego	3.3 million	1,100	3,630

Table 6.2b Sulfur Dioxide Minimum Monitoring Requirements-Ambient

Calculated PWEI (MP-TPY)	Are the Emissions <5,000 MP-TPY? (yes/no)	Number of Required Ambient Monitors (#)	Number of Active Ambient Monitors (#)	Number of Ambient Monitors Needed (#)
3,630	Yes	0	0	None

[A] CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.4 "Sulfur Dioxide (SO_2) Design Criteria, subpart 4.4.2(a) "Requirement for Monitoring by the Population Weighted Emissions Index"

Section 6.1.2 Sulfur Dioxide Minimum Monitoring Requirements-NCore

If the PWEI is below a certain threshold, the EPA allows Districts the minimum required SO_2 monitor to be the NCore SO_2 required monitor. Table 6.3 lists these requirements

4.4.2 Requirement for Monitoring by the Population Weighted Emissions Index[B]

(1) The SO2 monitoring site(s) required as a result of the calculated PWEI in each CBSA shall satisfy minimum monitoring requirements if the monitor is sited within the boundaries of the parent CBSA and is one of the following site types (as defined in section 1.1.1 of this appendix): population exposure, highest concentration, source impacts, general background, or regional transport. SO2 monitors at NCore stations may satisfy minimum monitoring requirements if that monitor is located within a CBSA with minimally required monitors under this part.

4.4.5 NCore Monitoring[C]

(a) SO2 measurements are included within the NCore multipollutant site requirements as described in paragraph (3)(b) of this appendix. NCore-based SO2 measurements are primarily used to characterize SO2 trends and assist in understanding SO2 transport across representative areas in urban or rural locations and are also used for comparison with the SO2 NAAQS. SO2 monitors at NCore sites that exist in CBSAs with minimum monitoring requirements per section 4.4.2 above shall be allowed to count towards those minimum monitoring requirement.

3. Design Criteria for NCore Sites[D]

(b) The NCore sites must measure, at a minimum, $PM_{2.5}$ particle mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciated $PM_{10-2.5}$, O_3, SO_2, CO, NO/NO_y, wind speed, wind direction, relative humidity, and ambient temperature.

Table 6.3 Sulfur Dioxide Minimum Monitoring Requirements-NCore

MSA	County	Number of NCore SO_2 Monitors Required (#)	Number of NCore SO_2 Monitors Active (#)	Number of NCore SO_2 Monitors Needed (#)	Met NAAQS? (yes/no)
San Diego	San Diego	1	1	None	Yes

Section 6.1.3 Sulfur Dioxide Minimum Monitoring Requirements-Summary

Table 6.4 summarizes all the SO_2 minimum monitoring requirements from Sections 6.2.1-6.2.2.

Table 6.4 Sulfur Dioxide Minimum Monitoring Requirements-Summary

CFR Programs Requirements for SO_2 Monitors (name)	Minimum Number of SO_2 Monitors Required (#)	Number of Active SO_2 Monitors (#)	Number of Needed SO_2 Monitors (#)
PWEI=	0	0	None
NCore only=	1	1	None

[B] CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.4 "Sulfur Dioxide (SO_2) Design Criteria, subpart 4.4.2(1) "Requirement for Monitoring by the Population Weighted Emissions Index"

[C] CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.4 "Sulfur Dioxide (SO_2) Design Criteria, subpart 4.4.5 "NCore Monitoring"

[D] 40 CFR Part 58-"Ambient Air Quality Surveillance", Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 6.2.0 Sulfur Dioxide Suitability for Comparison to the NAAQS

The CFR requires that for SO_2 data to be used in regulatory determinations of compliance with the SO_2 NAAQS, the SO_2 monitors must be sited according to Federal Regulations[E1] and the sampling frequency must be in accordance with Federal regulations[E2]. All District SO_2 monitors meets or exceeds all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. Table 6.5 summarizes these requirements.

Table 6.5 Sulfur Dioxide Suitability for Comparison to the NAAQS-Sampling Equipment

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
NCore	Sulfur dioxide Trace Level	SO_2	42101	ppb	008	1-Hr	1 5-min	Thermo 43i-TLE	Fluorescence	560	7/24	EQSA-0276-009

Section 6.3.0 Sulfur Dioxide Concentrations for San Diego

Over the years, sulfur dioxide concentration levels have been decreasing. This section will illustrate the different metrics for comparison.

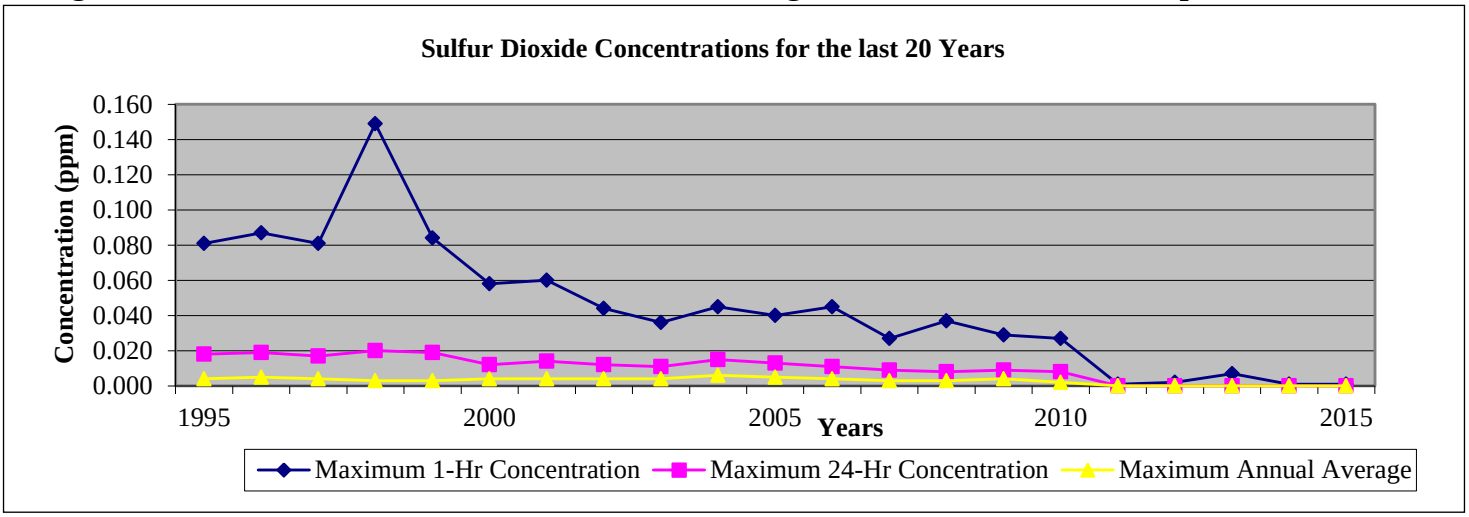
Section 6.3.1 Sulfur Dioxide Concentrations for San Diego-for the Last 20 Years

Emissions of sulfur dioxide (SO_2) have declined tremendously in California over the last 20 years, due to improved source controls and switching from fuel oil to natural gas for electric generation and industrial boilers. Note: the "Days Above National Standard" row in Table 6.6 reflects the SO_2 standards for that year and are shown graphically in Figure 6.1.

Table 6.6 Sulfur Dioxide Concentrations for San Diego-for the Last 20 Years 1995-2015

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Maximum 1-Hr Concentration (ppm)	0.081	0.087	.081	0.149	0.084	0.058	0.060	0.044	0.036	0.045	0.040	0.045	0.027	0.037	0.029	0.027	0.001	0.002	0.007	0.001	0.001
Maximum 24-Hrs Concentration (ppm)	0.018	0.019	0.017	0.020	0.019	0.012	0.014	0.012	0.011	0.015	0.013	0.011	0.009	0.008	0.009	0.008	0.000	0.000	0.000	0.000	0.000
Maximum Annual Average (ppm)	0.004	0.005	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.006	0.005	0.004	0.003	0.003	0.004	0.002	0.000	0.000	0.000	0.000	0.000
Days above the National Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 6.1 Sulfur Dioxide Concentrations for San Diego-for the Last 20 Years Graph, 1995-2015



[E1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.
[E2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

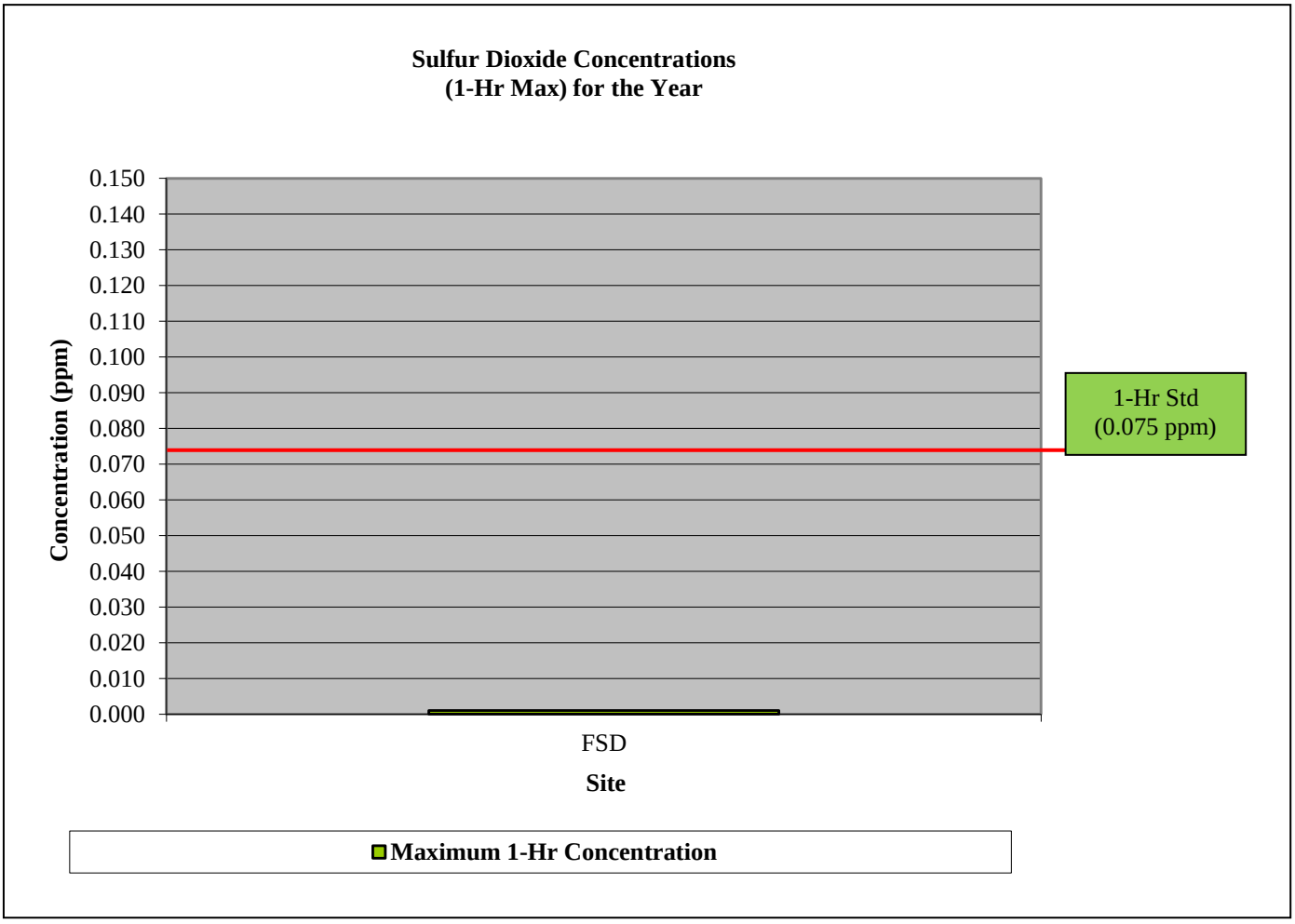
Section 6.3.2 Sulfur Dioxide Concentrations for San Diego-by Site for the Design Value

Table 6.4a lists the maximum sulfur dioxide measurements for the NCore monitoring location and Figure 6.7 shows the values graphically with respect to the National Standard.

Table 6.7 Sulfur Dioxide Concentrations for San Diego-by Site for the Design Value, 2013-2015

Site (site)	Site Abbreviation	Design Value Maximum Concentration 1-Hr (ppm)	Number of Days Above the National Standard (#)
Floyd Smith Dr. & El Cajon	FSD & ECA	0.001	0

Figure 6.2 Sulfur Dioxide Concentrations for San Diego-by Site for the Design Value Graph, 2013-2015



Chapter 7 Lead (Pb)

Section 7.1.0 Lead Introduction

Lead (Pb) was sampled for at two locations in the SDAB (Figure 7.0 and Tables 7.1 & 7.2) and referenced to the lead standards of the year (Table 7.0). Ambient level lead was sampled at the El Cajon location as part of the NCore program. Source level lead was sampled at McClellan-Palomar airport. Please note:

- In 2013,the El Cajon station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD).

Figure 7.0 Lead Map Network Map

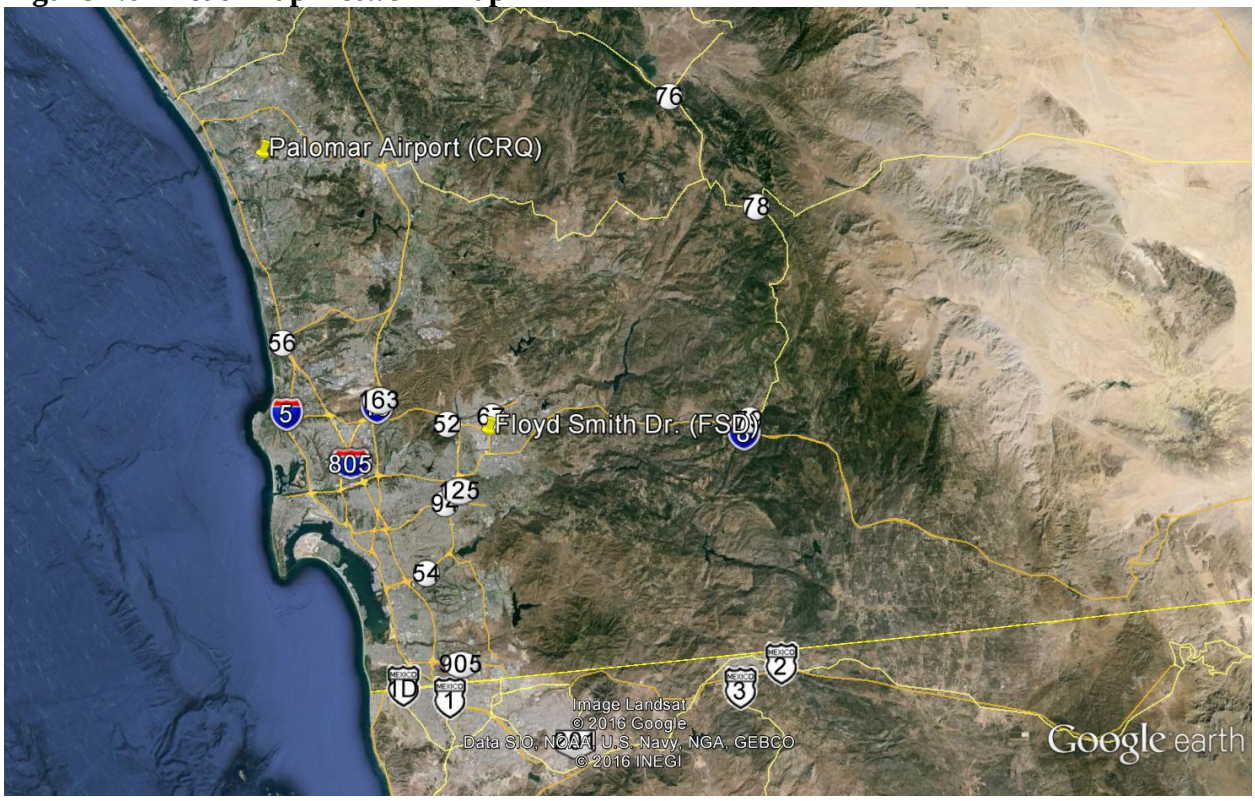


Table 7.0 Lead State and National Standards for the Year

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
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		

Table 7.1 Lead Sampling Network

	Abbreviation	ECA/FSD[1]	CRQ	
	Name	Floyd Smith Dr.	Palomar Airport	
	Address	10537 Floyd Smith Dr	2192 Palomar Airport Rd	
	Latitude Longitude	32.817907° -116.968302°	33.130822 O -117.272686 O	
	AQS ID	06-073-1018	06-073-1023	
Lead	Monitor Type	SLAMS	SLAMS	SLAMS
Lead	Designation	O	O	QAC
Lead	Method	HV	HV	HV
Lead	Affiliation	NCORE	Not Applicable	Not Applicable
Lead	Spatial Scale	NS	MI	MI
Lead	Site Type	PE	SO	QA
Lead	Objective (Federal)	NAAQS	NAAQS	NAAQS
Lead	Analysis	APCD	APCD	APCD
Lead	Frequency	1:6	1:6	1:6
Lead	Equipment	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+

[1] ECA station temporarily relocated to the FSD area

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Near-road
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 7.1.0 Lead Minimum Monitoring Requirements

The District is federally mandated to monitor Pb levels in accordance with the CFR. This section will state the different minimum monitoring requirements for each program, e.g. ambient, NCore, Airports, etc. that the District operates and the references therein (Note: only the passages applicable/informative to the District are referenced). The District meets or exceeds all minimum requirements for Pb monitoring for all programs.

Section 7.1.1 Lead Minimum Monitoring Requirements-Source (non-Airport)

The procedure to determine the minimum number of source (non-Airport) level monitors required is based on any non-Airport source emitting more than 0.5 tons/year of Pb emissions. The sources and their Pb emissions are from 2011 EPA NEI database (at the time of the writing of this report, the 2014 was not published). Table 7.2 lists these requirements.

4.5 Lead (Pb) Design Criteria[A]

*(a) State and, where appropriate, local agencies are required to conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure. At a minimum, there must be 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 either the most recent National Emission Inventory (http://www.epa.gov/ttn/chief/eiinformation.html)...*

Table 7.2 Lead Minimum Monitoring Requirements-Source (non-Airport)

MSA (name)	County (name)	Any Non-Airport Pb Sources >0.5 TPY? (yes/no)	Number of Non-Airport Sources Pb Monitors Required (#)	Number of Active Ambient Pb Monitors (#)	Number of Needed Ambient Pb Monitors (#)	Meet NAAQS? (yes/no)
San Diego	San Diego	No	None	None	None	Not Applicable

Section 7.1.2 Lead Minimum Monitoring Requirements-Airport (non-Source)

The procedure to determine the minimum number of Airport monitors required is based on any Airport source emitting more than 1.0 tons/year of Pb emissions. The airport(s) and their Pb emissions are from the 2011 EPA NEI database (the 2014 is not published). Table 7.3 lists these requirements. If an airport emits less than 1.0 TPY of Pb emissions, sampling is not required, as part of this regulation (Note: An airport can emit less than 1.0 TPY and be required to be monitored; see Section 7.2.3).

4.5 Lead (Pb) Design Criteria[A]

*(a) State and, where appropriate, local agencies are required to conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure. At a minimum, there must be 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 either the most recent National Emission Inventory (http://www.epa.gov/ttn/chief/eiinformation.html)...*

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.5 "Lead (Pb) Design Criteria", subsection (a).

Table 7.3 Lead Minimum Monitoring Requirements-Airport (non-Source)

MSA (name)	County (name)	Any Airport Pb Sources >1.0 TPY? (yes/no)	Number of Airport Pb Monitors Required (#)	Number of Airport Pb Monitors Active (#)	Number of Needed Ambient Pb Monitors (#)	Meet NAAQS? (yes/no)
San Diego	San Diego	No	None	1*	None	Not Applicable

* The District is required to monitor one airport source, as part of a different Federal regulation (see Section 7.2.3).

Section 7.1.2.1 Lead Minimum Monitoring Requirements-Airport (non-Source) Results

One EPA regulation states that if an airport emits less than 1.0 TPY of Pb emissions, no source sampling is required. In 2011, the EPA added a regulation that listed several airports mandated to undergo temporary Pb sampling as part of a Pb-Airport study, regardless if the NEI listed Pb emissions were less than 1.0 TPY. If the analyzed emissions exceeded the NAAQS by 50%, the sampler was to become permanent, or until the emissions were proven to be less than 80% of the NAAQS (over a minimum 3-yr period). Table 7.4 lists these requirements.

4.5 Lead (Pb) Design Criteria[B]

(iii) State and, where appropriate, local agencies are required to conduct ambient air Pb monitoring near each of the airports listed in Table D-3A for a period of 12 consecutive months commencing no later than December 27, 2011. Monitors shall be sited to measure the maximum Pb concentration in ambient air, taking into account logistics and the potential for population exposure, and shall use an approved Pb-TSP Federal Reference Method or Federal Equivalent Method. Any monitor that exceeds 50 percent of the Pb NAAQS on a rolling 3-month average (as determined according to 40 CFR part 50, Appendix R) shall become a required monitor under paragraph 4.5(c) of this Appendix, and shall continue to monitor for Pb unless a waiver is granted allowing it to stop operating as allowed by the provisions in paragraph 4.5(a)(ii) of this appendix. Data collected shall be submitted to the Air Quality System database according to the requirements of 40 CFR part 58.16.

Table D–3A Airports to Be Monitored for Lead

Airport	***County***	***State***
McClellan-Palomar	*San Diego*	*CA*
Gillespie Field	*San Diego*	*CA*

The sampling at Gillespie Field & Palomar Airport has officially concluded. McClellan-Palomar Airport did not pass the minimum tolerances established by the EPA. This required the District to sample for lead at Palomar Airport until such time as the measured concentrations are below the Federal standard for a minimum of three years (see 2012 Annual Network Plan for greater discussion).

At the conclusion of the sampling period for Gillespie Field, it was determined by the EPA to discontinue all lead sampling at the airport.

B 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.5 "Lead (Pb) Design Criteria", subsection (iii)

Table 7.4 Lead Airport Study Requirements

Names of Airport Monitors Required (name)	Was Airport Testing Done? (yes/no)	Is Airport Testing Concluded? (yes/no)	Does Airport Require Permanent Sampling? (yes/no)	Is Permanent Sampling Active? (name)
McClellan-Palomar	Yes	Yes	Yes	Yes
Gillespie Field	Yes	Yes	No	Not Required

Section 7.1.3 Lead Minimum Monitoring Requirements-NCore

The District is required to operate a Pb sampler as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels. Table 7.5 lists the NCore Pb requirements.

4.5 Lead (Pb) Design Criteria[C]

(b) …local agencies are required to conduct non-source-oriented Pb monitoring at each NCore site required under paragraph 3 of this appendix in a CBSA with a population of 500,000 or more.

3. Design Criteria for NCore Sites[D]

(b) .... NCore sites in CBSA with a population of 500,000 people (as determined in the latest Census) or greater shall also measure Pb either as Pb-TSP or Pb-PM_{10}.

Table 7.5 Lead Minimum Monitoring Requirements-NCore

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of NCore Pb Monitors Required (#)	Number of Active NCore Pb Monitors (#)	Number of NCore Pb Monitors Needed (#)	NCore Site (name)	NCore Site AQS ID Number (#)
San Diego	San Diego	3.3 million	1	1	None	Floyd Smith Dr. (FSD)	06-073-0003

Section 7.1.4 Lead Minimum Monitoring Requirements-Summary

Table 7.6 summarizes the Pb minimum monitoring requirements.

Table 7.6 Lead Minimum Monitoring Requirements-Summary

CFR Programs Requirements for Pb Samplers (name)	Minimum Number of Pb Samplers Required (#)	Number of Active Pb Samplers (#)	Number of Needed Pb Samplers (#)
Source (non-Airport)=	0	0	None
Source Airport=	0	0	None
Airport Study=	0	0*	None
Airport Study Exceedance=	1*	1	None
NCore=	1	1	None

*McClellan-Palomar Airport did not pass the minimum tolerance established by the EPA, which requires the District to sample for lead until such time as the measured concentrations are below the NAAQS (a minimum of 3-yrs).

Gillespie Field passed, so no further testing is required.

C 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.5 "Lead (Pb) Design Criteria", subsection (b)

D 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 7.2.0 Lead Suitability for Comparison to the NAAQS

The CFR requires that for Pb data to be used in regulatory determinations of compliance with the Pb NAAQS, the Pb monitors must be sited according to Federal Regulations[E1] and the sampling frequency must be in accordance with Federal regulations[E2]. All District Pb monitors meets or exceeds all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. Table 7.7 summarizes these requirements.

Table 7.7 Lead Suitability for Comparison to the NAAQS-Sampling Equipment

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Lead	Pb	14129	µg/m^3 LC	105	24-Hr	7	Tisch TE-5170 BLVFC+	ICP/MS Acid filter extract with hot nitric acid	192	1:6	EQL-0710-192

Section 7.3.0 Lead Concentrations for San Diego

Over the years, lead concentrations decreased so much that ambient sampling was no longer required. In 2012, the EPA lowered the NAAQS and sampling resumed. This section will illustrate the different metrics for comparison.

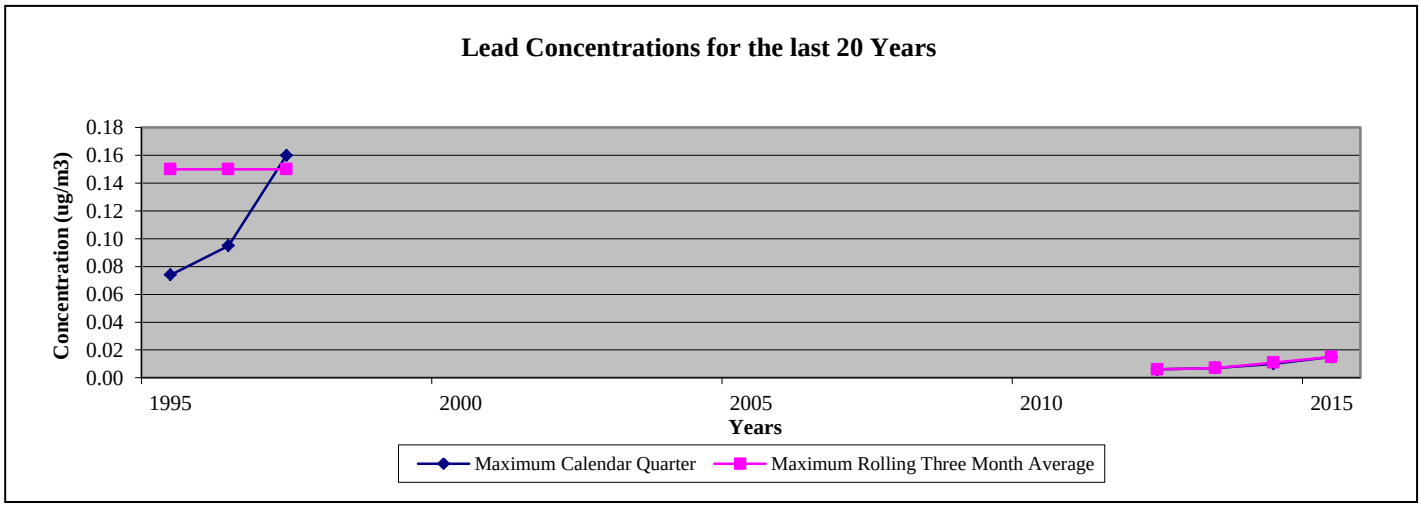
Section 7.3.1 Lead Concentrations for San Diego-for the Last 20 Years

The rapid decrease in lead emissions (Table 7.8) over the last 20 plus years can be attributed primarily to phasing out the lead in gasoline. Note: the "Days Above National Standard" row in Table 7.8 and Figure 7.1 reflect the lead standard for that year. No Testing (NT) was done in the SDAB from 1997 until 2012. The measured concentrations for 2012 are from the NCore location, which is categorized as neighborhood scale and representative concentrations. The airport sampler is categorized as source impact and microscale, and are not considered representative concentrations.

Table 7.8 Lead Concentrations for San Diego-for the Last 20 Years, 1995-2015

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Maximum Calendar Quarter (µg/m^3)	0.074	0.095	0.160	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.006	0.007	0.010	0.015
Maximum Rolling 3-Month Average (µg/m^3)	0.150	0.150	0.150	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.006	0.007	0.011	0.015
Days above the National Standard	0	0	0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0	0	0	0

Figure 7.1 Lead Concentrations for San Diego-for the Last 20 Years, 1995-2015



[E1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.

[E2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

Section 7.3.2 Lead Concentrations for San Diego-by Site for the Year

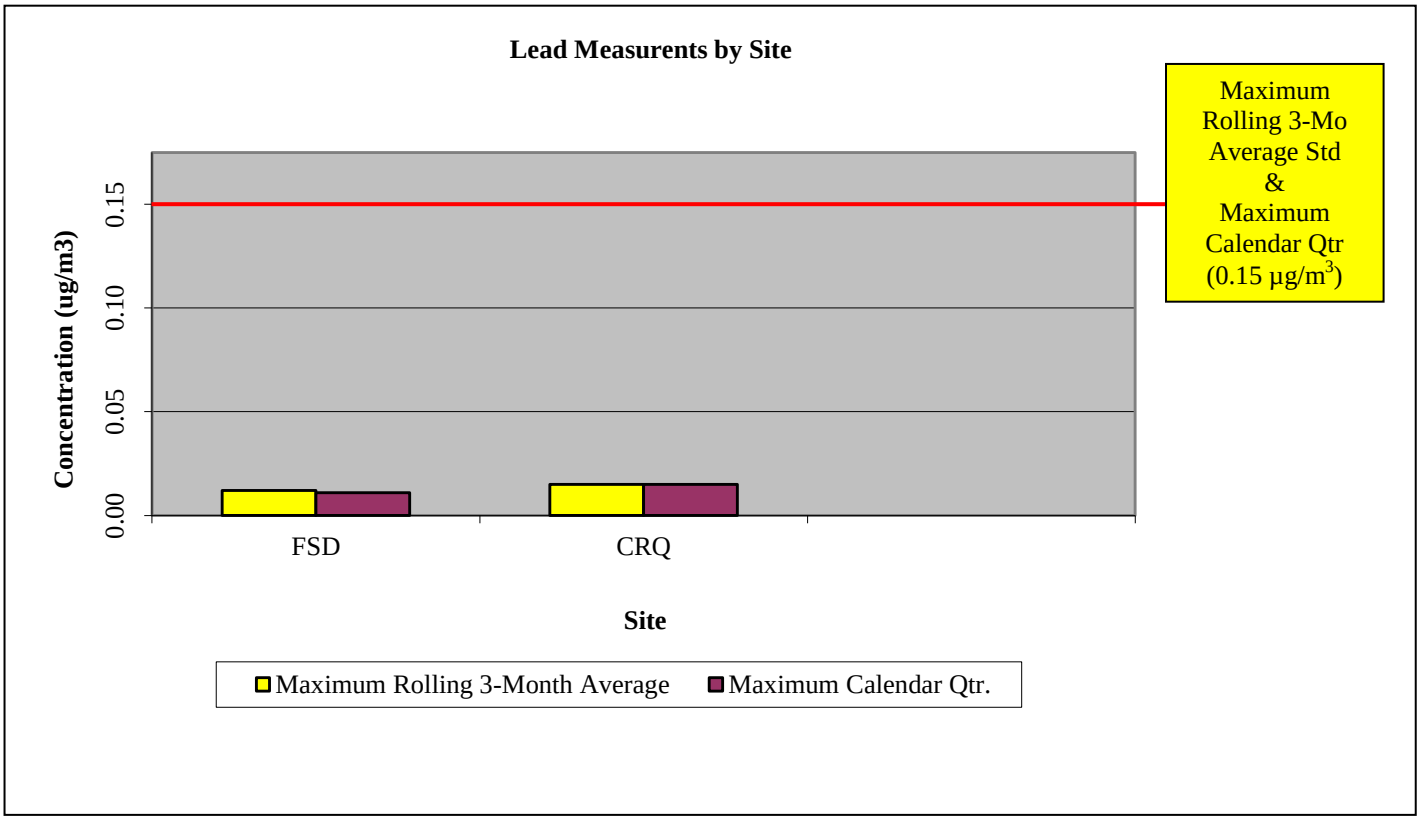
Table 7.9 lists the maximum lead measurements for each lead monitoring location; Figure 7.2 shows the values graphically with respect to the National Standard.

Table 7.9 Lead Concentrations for San Diego-by Site for the Year, 2015

No. (#)	Site (name)	Site Abbreviation	Maximum Rolling 3-Month Average ($\mu g/m^3$)	Design Value Maximum Calendar Quarter ($\mu g/m^3$)	Number of Days Above the NAAQS (#)
1	Floyd Smith Dr. (NCore)	FSD (NCore)	0.012	0.011	0
2	*Palomar Airport	CRQ	0.015	0.015	0

*Source impact and microscale monitors.

Figure 7.2 Lead Concentrations for San Diego-by Site for the Year Graph, 2015



The measured concentrations at the NCore location have been consistently well below the NAAQS; therefore, the District will petition the EPA Regional Authorities to decommission Pb-TSP sampling at this location (see the Executive Summary for the request).

The measured concentrations at the Palomar Airport location have been consistently well below the NAAQS. If this pattern continues for three (3) contiguous years of operations, the District will petition the EPA to decommission Pb-TSP sampling at this location.

Chapter 8 Particulate Matter 2.5 µm ($PM_{2.5}$)

Section 8.0.0 $PM_{2.5}$ Introduction

$PM_{2.5}$ was sampled on both a continuous basis and sequentially (on a schedule set by the EPA) at several locations in the SDAB (Figure 8.0 and Table 8.1) and were referenced to the $PM_{2.5}$ standards of the year (Table 8.0), when applicable. The equipment is listed in Tables 8.1 and 8.2. Please note:

- In 2015, the Escondido station was temporarily shut-down (see the Overview chapter for more information).
- In 2013, the El Cajon Station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD).
    - $PM_{2.5}$ FRM/sequential samplers are at ESC, KVR, FSD, DTN, and CVA.
    - $PM_{2.5}$ non-FEM/continuous samplers are at SAY, CMP, ESC, FSD, ALP, DVN and DTN.
    - $PM_{2.5}$-CSN samplers are at ESC and FSD.
    - $PM_{2.5}$-STN samplers are at ESC and FSD/ECA.
    - $PM_{2.5}$-Supplemental Speciation is at ESC, FSD, and DTN.

Figure 8.0 $PM_{2.5}$ Network Map

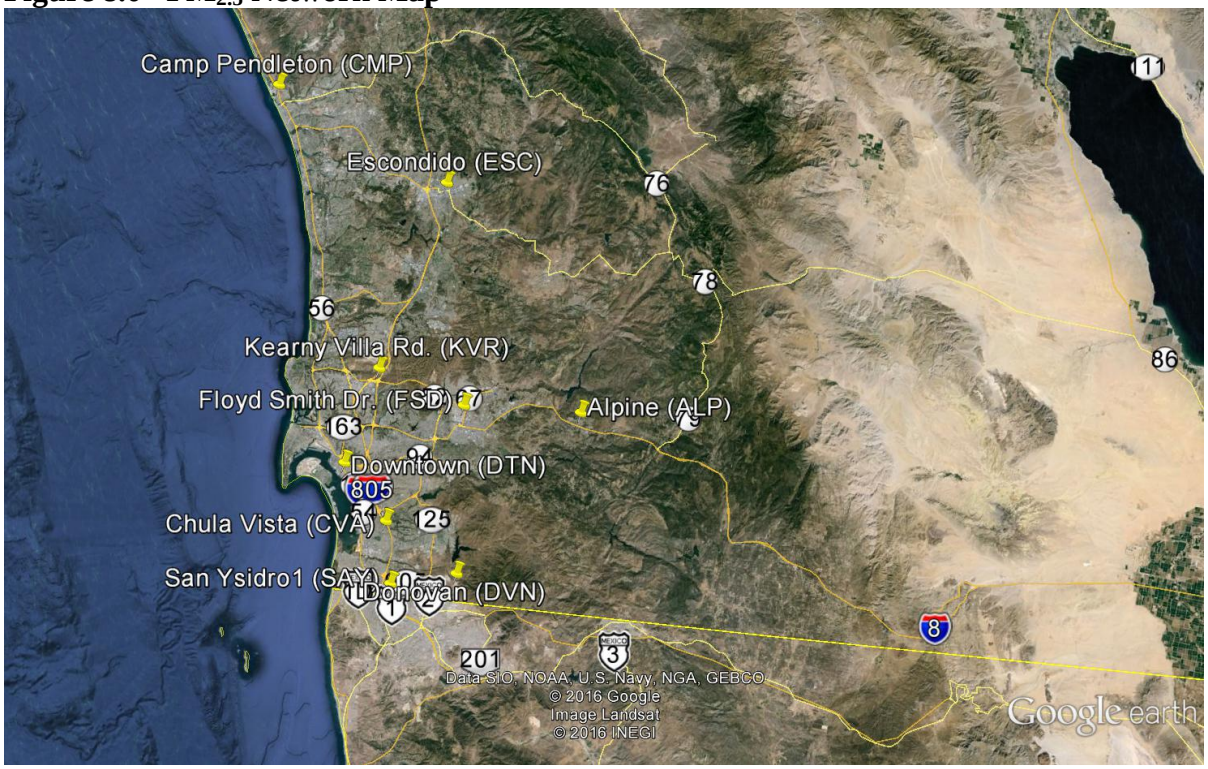


Table 8.0 $PM_{2.5}$ State and National Standards for the Year

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards**		**National Standards**		
		Concentration	**Method**	**Primary**	**Secondary**	**Method**
Fine Particulate Matter (PM2.5)[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	15 µg/m^3	

Table 8.1 $PM_{2.5}$ Sampling Network

	Abbreviation	ALP	CMP	CVA	FSD[1]		ESC		KVR		DTN		DVN	SAY
	Name	Alpine	Camp Pendleton	Chula Vista	Floyd Smith Dr.		Escondido		Kearny Villa Rd		San Diego – Beardsley		Donovan	San Ysidro (1st location)
	Address	2495A W. Victoria Dr.	21441 W. B St	80 E. J St	10537 Floyd Smith Dr		600 E. Valley Pkwy		Kearny Villa Rd		1110A Beardsley St.		480 Alta Rd.	720 E San Ysidro Blvd
	Latitude Longitude	32.842324° -116.767885°	33.217063° -117.396169°	32.631175° -117.059115°	32.817907° -116.968302°		33.127730° -117.075379°		32.845722° -117.123983°		32.701492° -117.149663°		32.578267° -116.921359°	32.543525° -117.029089°
	AQS ID	06-073-1006	06-073-1008	06-073-0001	06-073-1018		06-073-1002		06-073-1016		06-073-1010		06-073-1014	06-073-1019
$PM_{2.5}$ (non-speciated)	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS		SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SPM
	Designation	O	O	PRI	PRI		O	PRI	PRI	QAC	O	PRI	O	O
	Method	CT (non-FEM)	CT (non-FEM)	SQ (FRM)	SQ (FRM)		CT (non-FEM)	SQ (FRM)	SQ (FRM)	SQ (FRM)	CT (non-FEM)	SQ (FRM)	CT (non-FEM)	CT (non-FEM)
	Affiliation	N/A	N/A	N/A	NCORE		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Spatial Scale	US	NS	NS	NS		NS	NS	NS	NS	NS	NS	NS	MI
	Site Type	PE	UPBD	PE	PE		PE	PE	PE	QA	PE	PE	PE	SO
	Objective (Federal)	PI, Research	PI, Research	NAAQS	NAAQS		PI, Research	NAAQS	NAAQS	NAAQS	PI, Research	NAAQS	PI, Research	PI, Research
	Analysis	APCD	APCD	APCD	APCD		APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD
	Frequency	7/24	7/24	1:3	1:3		7/24	1:3	1:3	1:12	7/24	1:1	7/24	7/24
	Equipment	Met One BAM	Met One BAM	Thermo 2025	Thermo 2025		Met One BAM	Thermo 2025	Thermo 2025	Thermo 2025	Met One BAM	Thermo 2025	Met One BAM	Met One BAM
$PM_{2.5}$ (speciated)	Monitor Type				SLAMS	SLAMS	N/A	SLAMS	SLAMS	N/A	N/A			
	Method				SP & SQ	SP & SQ	SP & SQ	SP & SQ	SP & SQ	SP & SQ	SP & SQ			
	Affiliation				NCORE, CSN STN[2]	NCORE, CSN STN[2]	CSN SU SDAPCD Network	CSN STN	CSN STN	CSN SU SDAPCD Network	CSN SU SDAPCD Network			
	Spatial Scale				NS	NS	NS	NS	NS	NS	NS			
	Site Type				PE	PE	PE	PE	PE	PE	PE			
	Objective (Federal)				Research	Research	Research	Research	Research	Research	Research			
	Analysis				EPA	EPA	APCD	EPA	CARB	APCD	APCD			
	Frequency				1:3	1:3	1:6	1:3	1:6	1:6	1:6			
	Equipment				URG-3000N	Met One SASS	Met One SASS	URG-3000N	Met One SASS	Met One SASS	Met One SASS			

[1] This is a temporary station. The District could not operate a $PM_{2.5}$ continuous sampler, due to safety concerns.

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Monitors at sites meeting near road designs as per Part 58
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 8.1.0 $PM_{2.5}$ Manual Minimum Monitoring Requirements

The District is federally mandated to monitor $PM_{2.5}$ levels in accordance with the CFR. This section will state the needs for $PM_{2.5}$ manual method samplers only. The District uses the $PM_{2.5}$ manual sampler to satisfy all minimum monitoring requirements, other than those requirements that specifically state $PM_{2.5}$ continuous sampler. This section will also state the different monitoring requirements for each program, e.g. ambient, manual, NCore, speciated, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other $PM_{2.5}$ network requirements, e.g. ambient $PM_{2.5}$ sampling can fulfill an NCore $PM_{2.5}$ sampling requirement. The District meets or exceeds all minimum requirements for $PM_{2.5}$ Manual monitoring for all programs except for the following:

- Establishment of the 2nd Near-road location (highlighted in red).

The District is part of the Statewide $PM_{2.5}$ monitoring program and has additional minimum monitoring requirements for ambient level concentrations only. This section will discuss those requirements as well.

Section 8.1.1.1 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Design Criteria (24-Hr. & Annual Average)

The District is required to operate a minimum number of $PM_{2.5}$ samplers irrespective of the $PM_{2.5}$ network affiliation. To ascertain the minimum number of samplers required for ambient air sampling, the Highest Concentration value must be calculated. Tables 8.2a - 8.2c summarize these requirements.

4.7 Fine Particulate Matter (PM2.5) Design Criteria.
4.7.1 General Requirements[A]
(a) State, and where applicable local, agencies must operate the minimum number of required PM2.5 SLAMS sites listed in Table D-5 of this appendix. The NCore sites are expected to complement the PM2.5 data collection that takes place at non-NCore SLAMS sites, and both types of sites can be used to meet the minimum PM2.5 network requirements. Deviations from these PM2.5 monitoring requirements must be approved by the EPA Regional Administrator.

Table D–5 of Appendix D to Part 58—$PM_{2.5}$ Minimum Monitoring Requirements

MSA population	*Most recent 3-year design value ≥85% of any $PM_{2.5}$ NAAQS*	*Most recent 3-year design value <85% of any $PM_{2.5}$ NAAQS*
>1,000,000	*3*	*2*

Table 8.2a $PM_{2.5}$ Manual Minimum Monitoring Requirements-Design Criteria (Annual Average), 2013-2015

Annual Design Value (µg/m^3)	Annual Design Value Location (name)	Annual Design Value Site AQS ID (#)	Is the Annual Design Value ≥ 85% of the NAAQS? (yes/no)	Is the Annual Design Value < 85% of the NAAQS? (yes/no)	Does the Annual Design Value Meet the NAAQS? (yes/no)
9.3	San Diego-Beardsley	06-073-1010	No	Yes	Yes

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.7 "Fine Particulate Matter ($PM_{2.5}$) Design Criteria", subsection 4.7.1 General Requirements (a)

Table 8.2b $PM_{2.5}$ Manual Minimum Monitoring Requirements-Design Criteria (24-Hr), 2013-2015

24-Hr Design Value ($\mu g/m^3$)	24-Hr Design Value Location (name)	24-Hr Design Value Site AQS ID (#)	Is the 24-Hr Design Value ≥ 85% of the NAAQS? (yes/no)	Is the 24-Hr Design Value < 85% of the NAAQS? (yes/no)	Does the 24-Hr Design Value Meet the NAAQS? (yes/no)
19.6	San Diego-Beardsley	06-073-1010	No	Yes	Yes

Section 8.1.1.2 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Ambient

To calculate the number of samplers needed, Use *Table D-5*

Table 8.2c $PM_{2.5}$ Manual Minimum Monitoring Requirements-Ambient

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of $PM_{2.5}$ Manual Samplers Required (#)	Number of Active $PM_{2.5}$ Manual Samplers (#)	Number of $PM_{2.5}$ Manual Samplers Needed (#)
San Diego	San Diego	3.3 million	3	5	None

Section 8.1.1.3 $PM_{2.5}$ Manual Minimum Monitoring Requirements-State

In 1998, the San Diego Air Pollution Control District, in partnership with the California Air Resources Board (ARB), developed a PM-fine monitoring network to implement the new $PM_{2.5}$ NAAQS. Several factors were accounted for, such as temperature, humidity, precipitation, wind speed, wind direction, and elevation. The PM-fine network is designed to collect ambient PM-fine data as required by the 40 CFR Part 50 for use in designating areas as attainment/non-attainment, developing control programs, and tracking progress of these control programs. The 1998 (and 2002 update) "California Particulate Matter Monitoring Network Description" [B1] describes the particulate matter monitoring strategy involved in the implementation of the program. The network design was submitted to the U.S. EPA Region IX governing authority and approved accordingly. Table 8.3 summarizes these requirements.

Table 8.3 $PM_{2.5}$ Manual Minimum Monitoring Requirements-State

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of $PM_{2.5}$ Manual Samplers Required (#)	Number of Active $PM_{2.5}$ Manual Samplers (#)	Number of Monitors $PM_{2.5}$ Manual Needed (#)
San Diego	San Diego	3.3 million	5	5	None

[B1] http://www.arb.ca.gov/aqd/pm25/pmfdsign.htm

The EPA Region IX governing authority approved the ARB's statewide distribution plan for the placement of the $PM_{2.5}$ monitors within each district and the location of the collocated monitors for each district to satisfy the sampling and quality assurance requirements, respectively, of 40 CFR Part 58. Any changes to the $PM_{2.5}$ network in the San Diego Air Basin will be undertaken in partnership and advisement with the ARB. Additionally, if a $PM_{2.5}$ monitor is violating the NAAQS and the District is forced to relocate the station or the sampler, the District will provide a minimum 30-day period for public review, prior to the relocation of the monitor or the station.

Any official decommissioning of any monitor or monitoring location will be proposed in a letter with accompanying documentation to the EPA and the ARB, when applicable. If a station is to relocate, parallel sampling between the current location and the new location will be undertaken, when possible.

Section 8.1.1.4 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Collocation

In 1998, the District and the ARB gave criteria for choosing a site for collocation. Collocation guidance is from the CFR.

> *3.2.3.1 For each distinct monitoring method designation (FRM or FEM) that a PQAO is using for a primary monitor, the PQAO must have 15 percent of the primary monitors of each method designation collocated (values of 0.5 and greater round up); and have at least one collocated quality control monitor (if the total number of monitors is less than three). The first collocated monitor must be a designated FRM monitor.*[B2]

The District and the ARB sited the $PM_{2.5}$ collocation site in partnership. The collocated $PM_{2.5}$ site must follow the following criteria, in order of importance (Table 8.4 summarizes these requirements):

1. Sites with high or estimated high $PM_{2.5}$ concentrations, based on PM_{10} data should be considered a viable collocation site.

2. The collocation monitoring site must have enough platform space to maintain 1-4 meter spacing between the primary and the collocated sampler.

Table 8.4 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Collocation

Minimum Number of Samplers Required (#)	Number of Active Samplers (#)	Number of Samplers Needed for Collocation = 15% x Number of Required FRM Sequential Samplers Rounded Up (#)	Number of Active Samplers Used for Collocation (#)	Number of Samplers Needed for Collocation (#)	Location of Collocated Site(s) (name)	Collocated Site AQS ID (#)
3	5	5 x (15%) = 1	1	None	Kearny Villa Rd (KVR)	06-073-1016

[B2] 40 CFR Part 58, Appendix A, Section 3.2.3.1, Quality System Requirements, PM2.5, 3.2.3.1

Section 8.1.2 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Expected Maximum Concentration (24-Hr & Annual Average)

The District is required to designate $PM_{2.5}$ sampling locations for specific purposes or needs. One of these designations is called the site of expected maximum concentrations with respect to the 24-Hr and annual average NAAQS. For the District these locations can change yearly. For both the 24-Hr and annual average NAAQS, these locations routinely alternate between Escondido, Floyd Smith Dr. (El Cajon), and Downtown monitoring locations. Downtown is in an Environmental Justice location, so both the District and the EPA Regional IX Authorities have designated the Downtown site as the $PM_{2.5}$ location of expected maximum 24-Hr concentration and the Escondido site as the $PM_{2.5}$ location of expected maximum annual average concentration. Tables 8.5a – 8.5b summarize these requirements.

(b) Specific Design Criteria for PM 2.5[C]

(1) At least one monitoring station is to be sited at neighborhood or larger scale in an area of expected maximum concentration.

Table 8.5a $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Expected Maximum Concentration (Annual Average)

Site of Expected Maximum Concentration for Design Value Annual NAAQS (name)	Site of Expected Maximum Concentration for Design Value Annual NAAQS AQS ID (#)
Escondido	06-073-1002

Table 8.5b $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Expected Maximum Concentration (24-Hr)

Site of Expected Maximum Concentration for 24-Hr NAAQS (name)	Site of Expected Maximum Concentration for 24-Hr NAAQS AQS ID (#)
San Diego-Beardsley	06-073-1010

C 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.7 "Fine Particulate Matter ($PM_{2.5}$) Design Criteria", subsection 4.7.1 General Requirements, (b) "Specific Design Criteria for PM2.5, (1)

Section 8.1.3 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Near-road

The District is required to have a $PM_{2.5}$ sampler at a near-road location. The District is required to operate two near-road sites. The first near-road station is at Rancho Carmel Drive and the second one is not yet sited. There is no space at the Rancho Carmel Drive station to situate a $PM_{2.5}$ sampler for regulatory purposes, so the $PM_{2.5}$ Near-road sampler will be placed at the 2nd Near-road location. Table 8.6 lists these requirements.

(b) Specific Design Criteria for PM 2.5[D]

(2) For CBSAs with a population of 1,000,000 or more persons, at least one PM 2.5 monitor is to be collocated at a near-road NO2 station required in section 4.3.2(a) of this appendix.

Table 8.6 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Near-road

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of NO_2 Near-road Monitors Required (#)	Are Collocated $PM_{2.5}$ Samplers Required (yes/no)	Minimum Number of $PM_{2.5}$ Collocated Samplers Required (#)	Total Number of $PM_{2.5}$ Samplers Required (#)	Total Number of $PM_{2.5}$ Samplers Active (#)	Total Number of $PM_{2.5}$ Samplers Needed (#)
San Diego	San Diego	3.3 million	2	Yes	1	1	0	1

Section 8.1.4 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Poor Air Quality

The District is required to designate $PM_{2.5}$ sampling locations for specific purposes or needs. One of these designations is called the site of Poor Air Quality with respect to the 24-Hr and annual average NAAQS. For the District these locations can change yearly. For both the 24-Hr and annual average NAAQS, these locations routinely alternate between Escondido, Floyd Smith Dr. (El Cajon), and Downtown. Since Downtown is designated as an Environmental Justice location and Floyd Smith Dr. (El Cajon) is designated as a NCore site, the District has designated the Escondido sampler as the site of Poor Air Quality. Table 8.7 summarize these requirements.

(b) Specific Design Criteria for PM 2.5[E]

For areas with additional required SLAMS, a monitoring station is to be sited in an area of poor air quality.

Table 8.7 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Site of Poor Air Quality

Site of Poor Air Quality (name)	Site of Poor Air Quality AQS ID (#)
Escondido	06-073-1002

D 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.7 "Fine Particulate Matter ($PM_{2.5}$) Design Criteria", subsection (b)(2)

E 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.7 "Fine Particulate Matter ($PM_{2.5}$) Design Criteria", subsection (b)(3)

Section 8.1.5 $PM_{2.5}$ Manual Minimum Monitoring Requirements-NCore

The District is required to operate a $PM_{2.5}$ sampler as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, as well as other pollutants. For the NCore program, the District is required to collect PM_{coarse} ($PM_{7-2.5}$) data. PM_{coarse} data is the obtained by operating collocated PM_{10} and $PM_{2.5}$ samplers of the same make and model and on the same sampling frequency. The $PM_{2.5}$ concentrations are then subtracted from the PM_{10} concentrations to get the PM_{coarse} fraction. Table 8.8 lists the NCore PM_{10} requirements.

4.8 Coarse Particulate Matter (PM10−2.5) Design Criteria.[F]
4.8.1General Monitoring Requirements.
(a) The only required monitors for PM10−2.5 are those required at NCore Stations.

Table 8.8 $PM_{2.5}$ Manual Minimum Monitoring Requirements-NCore

Minimum Number of $PM_{2.5}$ Samplers Required for NCore Sites (#)	Total Number of $PM_{2.5}$ Samplers Active at NCore Sites (#)	Total Number of $PM_{2.5}$ Samplers Needed at NCore Sites (#)	NCore Sites/Locations (name)	NCore Sites/Locations AQS ID (#)
1	1	None	Floyd Smith Dr. (FSD)	06-073-1018

Section 8.1.6 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Summary

Table 8.9 summarizes all the $PM_{2.5}$ manual minimum monitoring requirements from Sections 8.1.1-8.1.5.

Table 8.9 $PM_{2.5}$ Manual Minimum Monitoring Requirements-Summary

CFR Programs Requirements for $PM_{2.5}$ Manual Samplers (name)	Minimum Number of $PM_{2.5}$ Manual Samplers Required (#)	Number of Active $PM_{2.5}$ Manual Samplers (#)	Number of Needed $PM_{2.5}$ Manual Samplers (#)
CFR EPA Table D-2 only=	3	5	None
California Particulate Matter Network=	5	5	None
Expected Maximum Concentration, 24-Hr =	1	1	None
Expected Maximum Concentration, Annual Average=	1	1	None
Near-road=	1	0	1
Poor Air Quality=	1	1	None
NCore=	1	1	None

[F] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.8 "Coarse Particulate Matter ($PM_{2.5}$) Design Criteria", 4.8.1 "General Monitoring Requirements", (a) NCore

Section 8.2.0 $PM_{2.5}$ Continuous Minimum Monitoring Requirements

The District is federally mandated to monitor $PM_{2.5}$ levels in accordance with the CFR. This section will state the needs for $PM_{2.5}$ continuous method samplers only and will state the different monitoring requirements for each program, e.g. ambient, NCore, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). The District meets or exceeds all minimum requirements for $PM_{2.5}$ continuous monitoring for all programs except for the following:

- At the NCore location

Section 8.2.1 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Ambient

The District is required to operate a minimum number of $PM_{2.5}$ continuous samplers irrespective of the $PM_{2.5}$ network affiliation. Table 8.10a summarizes these requirements.

> *4.7.2 Requirement for Continuous PM2.5 Monitoring. The State, or where appropriate, local agencies must operate continuous PM2.5 analyzers equal to at least one-half (round up) the minimum required sites listed in Table D-5 of this appendix.*[G]

Table 8.10a $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Ambient

Minimum Number of $PM_{2.5}$ Manual Samplers Required (#)	Minimum Number of $PM_{2.5}$ Continuous Samplers= (½ Minimum Number of) Required $PM_{2.5}$ Manual Samplers Rounded Up (#)	Number of Active $PM_{2.5}$ Continuous Samplers (#)	Number of Needed $PM_{2.5}$ Continuous Samplers (#)
3	3 x (½) = 2	6	None

Section 8.2.2 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Collocation with $PM_{2.5}$ Manual Method Samplers

The District is required to operate a minimum number of $PM_{2.5}$ continuous samplers collocated with $PM_{2.5}$ manual samplers. Table 8.10b summarizes these requirements.

> *4.7.2 Requirement for Continuous PM2.5 Monitoring. .. At least one required continuous analyzer in each MSA must be collocated with one of the required FRM/FEM/ARM monitors.*[G]

Table 8.10b $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Collocation with $PM_{2.5}$ Manual Method Samplers

Minimum Number of $PM_{2.5}$ Continuous Samplers (Sites) Required to be Collocated with $PM_{2.5}$ Manual Samplers (Sites) (#)	Number of Active Sites $PM_{2.5}$ Continuous Samplers (Sites) Collocated with Active $PM_{2.5}$ Manual Samplers (Sites) (#)	Number of Needed $PM_{2.5}$ Continuous Sampler (Sites) Collocated with Active $PM_{2.5}$ Manual Samplers (Sites) (#)	Location(s) of $PM_{2.5}$ Continuous Samplers (Sites) Collocated with Active $PM_{2.5}$ Manual Samplers (Sites) (name)	AQS ID of $PM_{2.5}$ Continuous Samplers (Sites) Collocated with Active $PM_{2.5}$ Manual Samplers (Sites) (#)
1	2	None	Escondido SD-Beardsley	06-073-1002 06-073-1010

G 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.7 "Fine Particulate Matter ($PM_{2.5}$) Design Criteria", subsection 4.7.2

Section 8.2.3 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-NCore

The District is required to operate a $PM_{2.5}$ continuous sampler as part of the NCore multipollutant monitoring program. Table 8.11 lists the NCore $PM_{2.5}$ continuous requirements.

> *3. Design Criteria for NCore Sites*[H]
> *(b) The NCore sites must measure, at a minimum, $PM_{2.5}$ particle mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciated $PM_{10-2.5}$, O_3, SO_2, CO, NO/NOy, wind speed, wind direction, relative humidity, and ambient temperature.*

Table 8.11 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-NCore

Minimum Number of $PM_{2.5}$ Continuous Samplers Required for NCore Sites (#)	Total Number of $PM_{2.5}$ Continuous Samplers Active at NCore Sites (#)	Total Number of $PM_{2.5}$ Continuous Samplers Needed at NCore Sites (#)	NCore Sites/Locations (name)	NCore Sites/Locations AQS ID (#)
1	0	*None	Floyd Smith Dr. (FSD)	06-073-1018

*The FSD NCore location is temporary. The District could not install and operate a $PM_{2.5}$ continuous sampler safely, so this requirement is not met. Once the NCore station relocates back to the original location, $PM_{2.5}$ continuous sampling will resume

Section 8.2.4 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Summary

Table 8.12 summarizes all the $PM_{2.5}$ continuous minimum monitoring requirements from Sections 8.2.1 - 8.2.3.

Table 8.12 $PM_{2.5}$ Continuous Minimum Monitoring Requirements-Summary

CFR Programs Requirements for $PM_{2.5}$ Continuous Samplers (name)	Minimum Number of $PM_{2.5}$ Continuous Samplers Required (#)	Number of Active $PM_{2.5}$ Continuous Samplers (#)	Number of Needed $PM_{2.5}$ Continuous Samplers (#)
Ambient=	2	6	None
$PM_{2.5}$ continuous collocated with $PM_{2.5}$ manual=	1	2	None
NCore=	1	0	1*

*The FSD NCore location is temporary. The District could not install and operate a $PM_{2.5}$ continuous sampler safely, so this requirement is not met. Once the NCore station relocates back to the original location, $PM_{2.5}$ continuous sampling will resume

[H] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 8.3.0 $PM_{2.5}$ Speciation Minimum Monitoring Requirements

The District is federally mandated to monitor $PM_{2.5}$ speciation levels in accordance with the CFR. This section will state the needs for $PM_{2.5}$ speciation method samplers only. This section will also state the different monitoring requirements for each program that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). The District meets or exceeds all minimum requirements for $PM_{2.5}$ speciation monitoring for all programs.

Section 8.3.1 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Ambient

One of the requirements is for the STN & CSN network to maintain the current speciation network as designed by the governing authorities. Table 8.13 lists these requirements.

> *4.7.4 PM2.5 Chemical Speciation Site Requirements. Each State shall continue to conduct chemical speciation monitoring and analyses at sites designated to be part of the PM2.5 Speciation Trends Network (STN).*[I]

Table 8.13 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Ambient

Number of STN Samplers (Sites) (#)	Number of CSN Samplers (Sites) (#)	Location of CSN & STN Monitors (Sites) (name)	AQS ID of CSN & STN Monitors (Sites) (#)
2	2	Floyd Smith Dr. Escondido	06-073-1018 06-073-1002

Section 8.3.2 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-NCore

The District is required to operate a $PM_{2.5}$ speciation samplers as part of the NCore multipollutant monitoring program. Table 8.14 lists these requirements.

> *3. Design Criteria for NCore Sites*[J]
> *(b) The NCore sites must measure, at a minimum,… speciated $PM_{2.5}$, …*

Table 8.14 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-NCore

Number of NCore Site(s) (#)	Location of NCore Site(s) (name)	AQS ID of Monitors (Sites) (#)
1	El Cajon	06-073-1018

Section 8.3.3 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Summary

Table 8.15 summarizes all the $PM_{2.5}$ speciation minimum monitoring requirements.

Table 8.15 $PM_{2.5}$ Speciation Minimum Monitoring Requirements-Summary

CFR Programs Requirements for $PM_{2.5}$ Manual Samplers (name)	Required Number of $PM_{2.5}$ Manual Samplers (#)	Number of Active $PM_{2.5}$ Manual Samplers (#)	Number of Needed $PM_{2.5}$ Manual Samplers (#)
Existing Network=	2	2	None
NCore=	1	1	None

[I] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.7 "Fine Particulate Matter ($PM_{2.5}$) Design Criteria", subsection 4.7.4.

[J] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 8.4.0 $PM_{2.5}$ Suitability for Comparison to the NAAQS

The CFR requires that certain operating and siting parameters be met for an instrument to be suitable to be compared to the NAAQS. Not all $PM_{2.5}$ instrumentation have a NAAQS to compare, PM2.5 speciation samplers and not all $PM_{2.5}$ analyzers are operated in regulatory mode, $PM_{2.5}$ continuous samplers; therefore, they cannot be compared to the NAAQS. All District $PM_{2.5}$ samplers are sited to specified CFR parameters to collect valid data. This section will list those requirements.

Section 8.4.1 $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Manual

The CFR requires that for $PM_{2.5}$ Manual data to be used in regulatory determinations of compliance with the $PM_{2.5}$ NAAQS, the $PM_{2.5}$ samplers must be sited according to Federal Regulations[K1] and the sampling frequency must be in accordance with Federal regulations[K2]. All District $PM_{2.5}$ Manual samplers meet or exceed all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. Table 8.16a summarizes these requirements.

Table 8.16a Suitability for Comparison to the NAAQS-$PM_{2.5}$ Manual (Equipment)

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Particulate Matter ≤ 2.5 µm (manual)	$PM_{2.5}$	88101	µg/m^3 LC STD	105 001	24-Hr	7	R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC	Gravimetric	145	1:1 or 1:3	EQPM-0202-145 or RFPS-0498-118

Section 8.4.2 $PM_{2.5}$ Sampling for Comparison to the NAAQS-$PM_{2.5}$ Continuous Unsuitability

The CFR requires that for $PM_{2.5}$ FEM data to be used in regulatory determinations of compliance with the $PM_{2.5}$ NAAQS, the $PM_{2.5}$ FEM samplers must operate according to FEM designation requirements. In 2014, the District received approval from the EPA Region IX authorities to operate the $PM_{2.5}$ Continuous samplers in non-FEM mode. Therefore the $PM_{2.5}$ continuous samplers cannot be compared to the NAAQS. Other than operating the $PM_{2.5}$ continuous samplers in a non-regulatory manner, all District $PM_{2.5}$ FRM samplers meet or exceed all other minimum monitoring requirements and sampling frequencies.. Table 8.16b summarizes the equipment requirements.

The $PM_{2.5}$ continuous samplers are an important tool to define and develop abatement strategies to curtail $PM_{2.5}$ pollution. The $PM_{2.5}$ continuous samplers are used for trends analysis and real-time reporting for public information.

There are several ways to operate the $PM_{2.5}$ continuous sampler in non-FEM mode. One of the conditions for FEM operational status of the $PM_{2.5}$ continuous sampler is to run it at 35% relative humidity. The District operates all $PM_{2.5}$ continuous samplers at 36% relative humidity per the manufacturer's recommendation.

Table 8.16b $PM_{2.5}$ Sampling for Comparison to the NAAQS-$PM_{2.5}$ Continuous Unsuitability (Equipment)

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Particulate Matter ≤ 2.5 µm (continuous)	$PM_{2.5}$	88502	µg/m^3 LC	105	1-Hr	1	Met One BAM 1020 w/VSCC	Beta Attenuation	733	7/24	Not Applicable

[K1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.
[K2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

Section 8.4.2 $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Speciation Unsuitability

There are no NAAQS for the $PM_{2.5}$ Speciation program. All samplers are sited as to be able to be compared to collect valid data though. Tables 8.16c summarizes the equipment requirements.

Table 8.16c $PM_{2.5}$ Suitability for Comparison to the NAAQS-$PM_{2.5}$ Speciation Unsuitability (Equipment)

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ CSN	See ARB or EPA	See ARB or EPA	See ARB or EPA	24-Hr	7	URG-3000N	See ARB or EPA	See ARB or EPA	1:3 or 1:6	Not Applicable
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ STN	See ARB or EPA	See ARB or EPA	See ARB or EPA	24-Hr	7	Met One SASS	See ARB or EPA	See ARB or EPA	1:3 or 1:6	Not Applicable
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ CSN -SU	88320-88331	$\mu g/m^3$	Table 8.16b	24-Hr	7	Met One SASS	Mass Balance	815-814	1:6	Not Applicable

Section 8.5.0 $PM_{2.5}$ Manual Operating Schedule

$PM_{2.5}$ Manual samplers must operate on a specified frequency based upon several factors, e.g. maximum concentration, percentage to the NAAQS, etc. This section will list those requirements

Section 8.5.1 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers not Collocated with Continuous Samplers

There is a minimum sampling frequency for the $PM_{2.5}$ manual samplers that are not collocated with a $PM_{2.5}$ continuous sampler, because the continuous samplers collect more data, a higher sampling frequency is needed for the manual methods. Table 8.17 illustrates these requirements.

(d) For manual PM2.5 samplers[L1]
(1)(i) Manual PM2.5 samplers at required SLAMS stations without a collocated continuously operating PM2.5 monitor must operate on at least a 1- in-3 day schedule.

Table 8.17 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers not Collocated with Continuous Samplers

$PM_{2.5}$ Manual samplers that are NOT Collocated with $PM_{2.5}$ Continuous Sites/samplers (name)	Sites/samplers AQS ID (#)	What is the Minimum EPA Permitted Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)
Kearny Villa Rd.	06-073-1016	1:3	1:3
Chula Vista	06-073-0001	1:3	1:3
Floyd Smith Dr.	06-073-1018	1:3	1:3

[L1] 40 CFR Part 58.12, Subpart B, "Operating Schedules", (d) For manual PM2.5 samplers (1)(i)

Section 8.5.2 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers Collocated with Continuous Samplers

There is a minimum sampling frequency for the $PM_{2.5}$ manual samplers that are collocated with a $PM_{2.5}$ continuous sampler. Table 8.18 illustrates these requirements.

(ii) For SLAMS PM2.5 sites with both manual and continuous PM2.5 monitors operating, …Required SLAMS stations whose measurements determine the design value for their area and are within plus or minus 10% of the NAAQS; and all required sites where one or more 24-hour values have exceeded the NAAQS each year for a consecutive period of at least 3 years are required to maintain at least a 1-in-3 day sampling frequency.[L2]

Table 8.18 $PM_{2.5}$ Manual Operating Schedule-for Manual Samplers Collocated with Continuous Samplers

$PM_{2.5}$ Manual Sites/samplers that are Collocated with $PM_{2.5}$ Continuous Sites/samplers (name)	Sites/samplers AQS ID (#)	Within 10% of the Annual NAAQS? (yes/no)	Within 10% of the 24-Hr NAAQS? (yes/no)	Any Exceedance of the 24-Hr NAAQS each year for the last 3 years (yes/no)	Minimum EPA Permitted Sampling Frequency without a Waiver? (#)	What is the Actual Sampling Frequency? (#)
Downtown	06-073-1010	No	No	Yes	1:3	1:1
Escondido	06-073-1002	No	No	Yes	1:3	1:3

Section 8.5.3 $PM_{2.5}$ Manual Operating Schedule-for 24-Hr Design Value Samplers

There is a minimum sampling frequency for the $PM_{2.5}$ manual samplers that are collocated with a $PM_{2.5}$ continuous sampler. Because the continuous samplers collect more data, a lower sampling frequency can be requested if the $PM_{2.5}$ manual samplers are not within 10% of the NAAQS. Tables 8.19 a & b illustrates these requirements.

(iii) Required SLAMS stations whose measurements determine the 24-hour design value for their area and whose data are within plus or minus 5 percent of the level of the 24-hour PM2.5 NAAQS must have an FRM or FEM operate on a daily schedule if that area's design value for the annual NAAQS is less than the level of the annual PM2.5 standard. A continuously operating FEM or ARM PM2.5 monitor satisfies this requirement unless it is identified in the monitoring agency's annual monitoring network plan as not appropriate for comparison to the NAAQS. [L3]

Table 8.19a $PM_{2.5}$ Manual Operating Schedule-for 24-Hr Design Value Samplers, 2013-2015

24-Hr Design Value ($\mu g/m^3$)	24-Hr Design Value Location (name)	Is the 24-Hr Design Value within ±5% of the NAAQS? (yes/no)	Is a Daily (1:1) Sampling Frequency Required at the Site of Highest Concentration? (yes/no)	Is the Site of Highest Concentration operating on a Daily (1:1) Sampling Frequency? (yes/no)
19.6	San Diego-Beardsley	No	No	Yes

[L2] 40 CFR Part 58.12, Subpart B, "Operating Schedules", (d) For manual PM2.5 samplers (ii)

[L3] 40 CFR Part 58.12, Subpart B, "Operating Schedules", (d) For manual PM2.5 samplers (iii)

The peak 24-Hr Design Value location routinely alternates between three $PM_{2.5}$ Manual sites, Escondido, Floyd Smith Dr. (El Cajon), and Downtown. Downtown is in an Environmental Justice location, so both the District and the EPA Regional IX Authorities have designated the Downtown site as the $PM_{2.5}$ Manual daily (1:1) location, rather than change the location almost yearly.

Table 8.18b compares the Downtown 24-Hr Design Value data to the actual site of the Design Value location, if there is a change that year.

Table 8.19b $PM_{2.5}$ Manual Operating Schedule-ACTUAL for 24-Hr Design Value Samplers, 2013-2015

Downtown Site 24-Hr Design Value ($\mu g/m^3$)	Is the Downtown Site the Actual 24-Hr Design Value (yes/no)	ACTUAL 24-Hr Design Value Location (name)	ACTUAL 24-Hr Design Value Concentration ($\mu g/m^3$)
19.6	Yes	Downtown	19.6

Section 8.5.4 $PM_{2.5}$ Manual Operating Schedule-NCore

There is a minimum sampling frequency for the $PM_{2.5}$ manual samplers that are part of the NCore network. Table 8.20 lists these requirements.

> *(2) Manual PM2.5 samplers at NCore stations and required regional background and regional transport sites must operate on at least a 1-in-3 day sampling frequency.* [L4]

Table 8.20 $PM_{2.5}$ Manual Operating Schedule-NCore

$PM_{2.5}$ Manual Sampler NCore (name)	Site/sampler AQS ID (#)	What is the Minimum EPA Permitted Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)
Floyd Smith Dr.	06-073-1018	1:3	1:3

Section 8.5.5 $PM_{2.5}$ Speciation Operating Schedule

There is a minimum sampling frequency for the $PM_{2.5}$ samplers that are part of the speciation Trends Network (STN). Table 8.21 list these requirements. [L5]

> *(3) Manual PM2.5 speciation samplers at STN stations must operate on at least a 1-in-3 day sampling frequency.* [B5]

Table 8.21 $PM_{2.5}$ Speciation Operating Schedule-NCore

$PM_{2.5}$ STN Sampler Location (name)	Site/sampler AQS ID (#)	What is the Minimum EPA Permitted Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)
Floyd Smith Dr.	06-073-1018	1:3	1:3

[L4] 40 CFR Part 58.12, Subpart B, "Operating Schedules", (d) For manual PM2.5 samplers (2)
[L5] 40 CFR Part 58.12, Subpart B, "Operating Schedules", (d) For manual PM2.5 samplers (3)

Section 8.6.0 $PM_{2.5}$ Manual Concentrations for San Diego

As with the State, $PM_{2.5}$ concentrations in the San Diego Air Basin have declined over the years. This section will illustrate the different metrics for comparison.

Section 8.6.1 $PM_{2.5}$ Manual Concentrations for San Diego-for the Last 20 Years

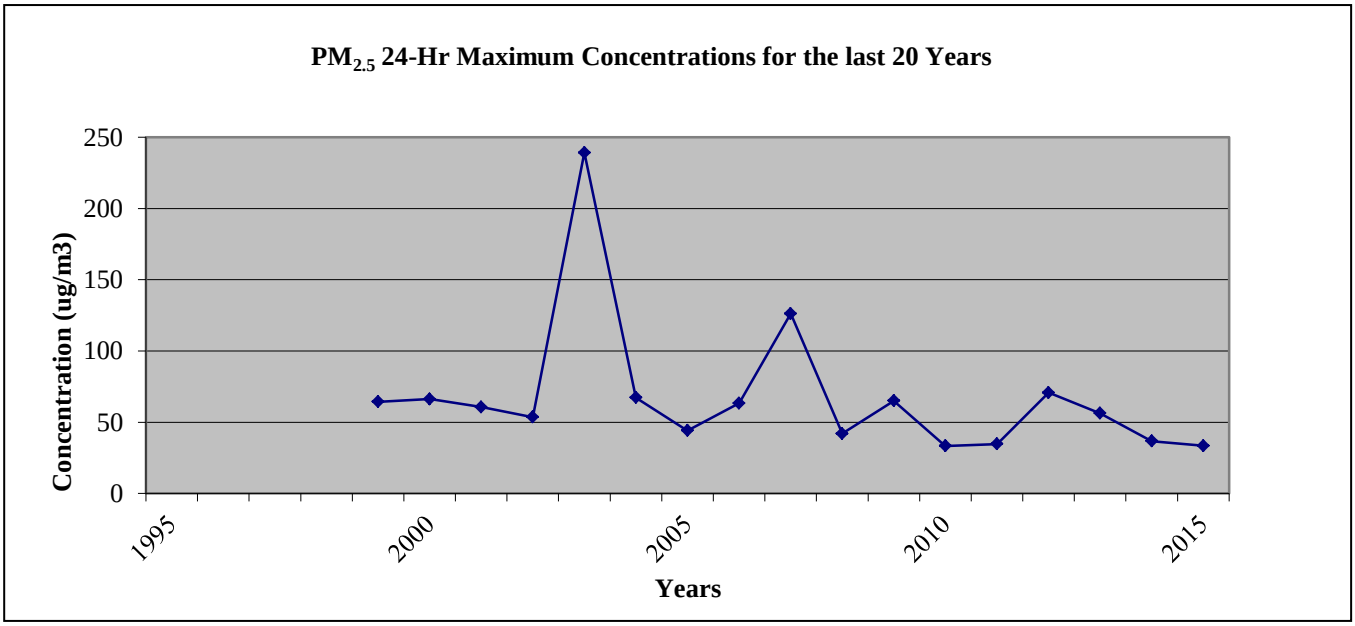
Annual average $PM_{2.5}$ FRM concentrations in the County have declined over the years, see Table 8.22. The high maximum 24-Hr concentrations measured in 2003 and 2007 were due to severe wildfires that occurred in Southern California. The 98th percentile of 24-Hr $PM_{2.5}$ concentrations showed substantial variability within this period, a reflection of changes in meteorology and the influence of the 2003 and 2007 wildfires. Furthermore, the standard was lowered in 2007, which corresponded to an increased incidents of "Days above the Standard". Note: the "Days Above the Standard" row in Table 8.22 reflects the $PM_{2.5}$ standard for that year. Figure 8.1 graphs the SDAB $PM_{2.5}$ trends over the years.

Table 8.22 $PM_{2.5}$ Manual Concentrations for San Diego-for the Last 20 Years (24-Hr), 1995-2015

Maximum 24-Hr Concentration ($\mu g/m^3$)	1995	1996	1997	1998	1999	2000	2001	2002	2003 *	2004	2005	2006	2007 *	2008	2009	2010	2011	2012	2013	2014	2015
	n/a	n/a	n/a	n/a	64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	126.2	42.0	65.0	33.3	34.7	70.7	56.3	36.7	33.5
Days above the National Std	n/a	n/a	n/a	n/a	0	2	0	0	2	1	0	1	17	3	3	0	0	2	2	1	0

n/a= not applicable
*Wildfires in San Diego County

Figure 8.1$PM_{2.5}$ Manual Concentrations for San Diego-for the Last 20 Years (24-Hr) Graph, 1995-2015



Section 8.6.2 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Year

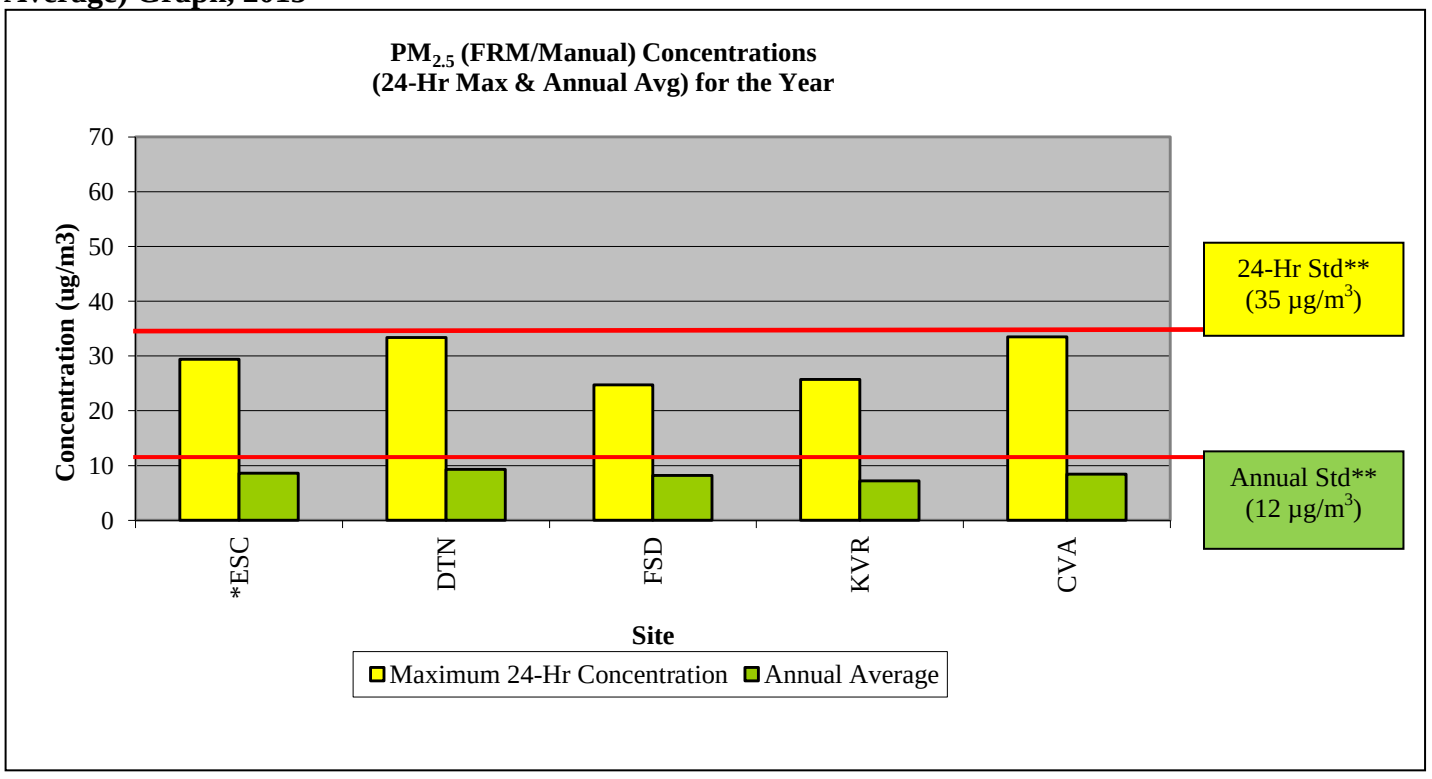
Table 8.23 lists the maximum $PM_{2.5}$ Manual measurements for each $PM_{2.5}$ Manual method monitoring locations in Table 8.23 and Figure 8.2 shows the values graphically with respect to the National Standard. Note the NAAQS is calculated as a Design Value and these measurements are for the calendar year; therefore, the comparison to the NAAQS is for informational purpose only.

Table 8.23 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Year (24-Hr & Annual Average), 2015

	No (#)	Site (name)	Site Abbreviation	Maximum Concentration For 24-Hr (µg/m^3)	Annual Average (µg/m^3)	Number of Days Above the National Standard (#)
Manual Method	1	Escondido*	ESC	29.4	8.6	0
	2	San Diego-Beardsley	DTN	33.4	9.3	0
	3	Floyd Smith Dr	FSD	24.7	8.2	0
	4	Kearny Villa Rd	KVR	25.7	7.2	0
	5	Chula Vista	CVA	33.5	8.4	0

*Not sampled for an entire year

Figure 8.2 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Year (24-Hr & Annual Average) Graph, 2015



*Not sampled for an entire year

****** The NAAQS is calculated as a Design Value and these measurements are for the calendar year; therefore, the comparison to the NAAQS is for informational purpose only.

Section 8.6.3 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (24-Hr)

Table 8.24a lists the maximum $PM_{2.5}$ Manual 24-Hr measurements for each $PM_{2.5}$ Manual method monitoring location in Table 8.24a and Figure 8.3 shows the values graphically with respect to the National Standard.

Table 8.24a $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (24-Hr), 2013-2015

Manual Method	No (#)	Site (name)	Site Abbrev	Design Value Maximum Concentration for 24-Hr ($\mu g/m^3$)	Number of Days Above the NAAQS (#)	Is the 24-Hr Design Value ≥ 85% of the NAAQS? (yes/no)	Is the 24-Hr Design Value < 85% of the NAAQS? (yes/no)	Does the 24-Hr Design Value Meet the NAAQS? (yes/no)
	1	*Escondido	ESC	19.3	0	No	Yes	Yes
	2	San Diego-Beardsley	DTN	21.3	0	No	Yes	Yes
	3	El Cajon & Floyd Smith Dr	ECA & FSD	22.6	0	No	Yes	Yes
	4	Kearny Villa Rd	KVR	21.0	0	No	Yes	Yes
	5	Chula Vista	CVA	18.7	0	No	Yes	Yes

*Not sampled for an entire year, so the Design Values are incomplete

Section 8.6.4 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (Annual Average)

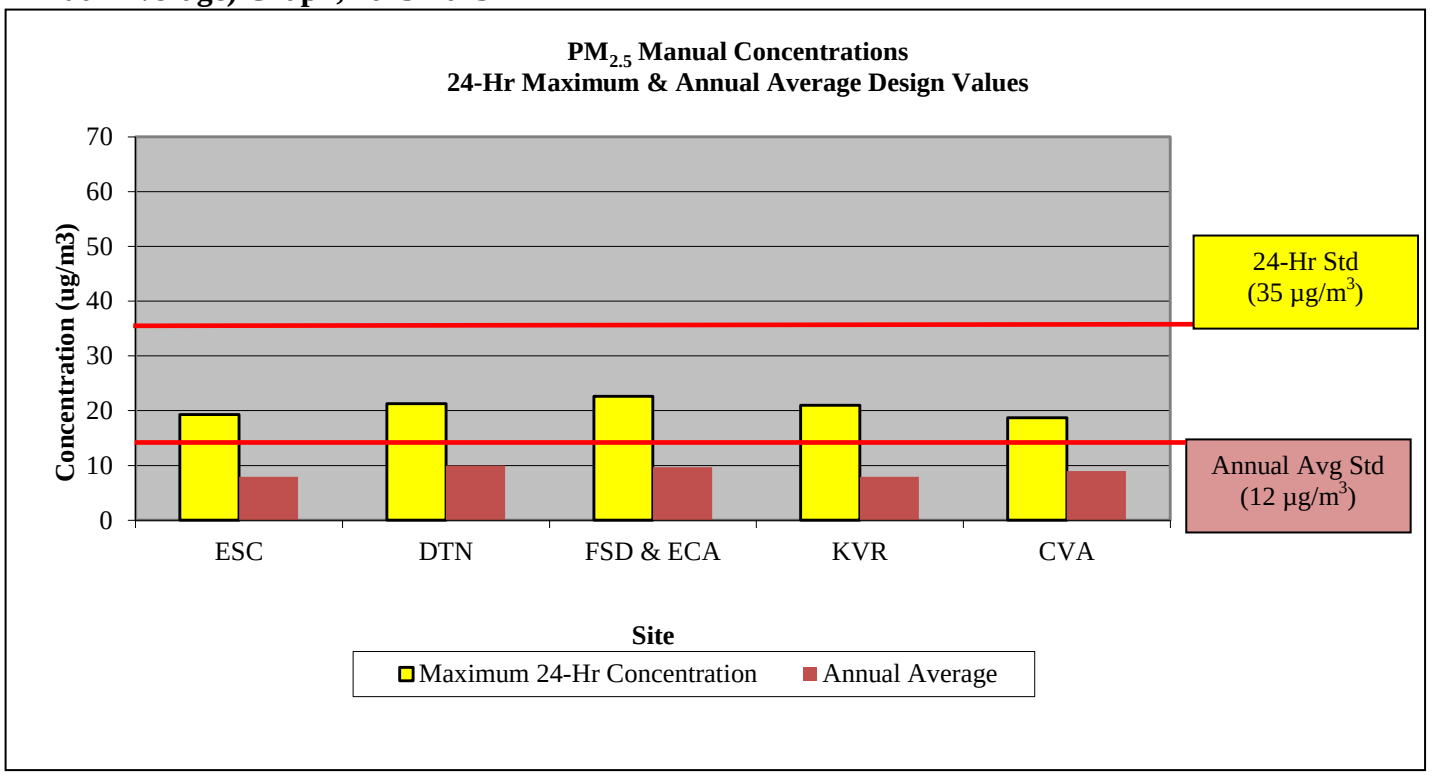
Table 8.24b lists the $PM_{2.5}$ Manual annual average Design Value measurements for each $PM_{2.5}$ Manual method monitoring location in Table 8.24b and Figure 8.3 shows the values graphically with respect to the National Standard.

Table 8.24b $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (Annual Average), 2013-2015

Manual Method	No (#)	Site (name)	Site Abbrev	Design Value for the Annual Avg ($\mu g/m^3$)	Number of Days Above the NAAQS (#)	Is the Annual Avg Design Value ≥ 85% of the NAAQS? (yes/no)	Is the Annual Avg. Design Value < 85% of the NAAQS? (yes/no)	Does the Annual Avg Design Value Meet the NAAQS? (yes/no)
	1	*Escondido	ESC	7.9	0	No	Yes	Yes
	2	San Diego-Beardsley	DTN	10.0	0	No	Yes	Yes
	3	El Cajon & Floyd Smith Dr	ECA & FSD	9.7	0	No	Yes	Yes
	4	Kearny Villa Rd	KVR	7.9	0	No	Yes	Yes
	5	Chula Vista	CVA	9.0	0	No	Yes	Yes

*Not sampled for an entire year, so the Design Values are incomplete

Figure 8.3 $PM_{2.5}$ Manual Concentrations for San Diego-by Site for the Design Value (24-Hr & Annual Average) Graph, 2013-2015



*Not sampled for an entire year, so the Design Values are incomplete

Section 8.7.0 $PM_{2.5}$ Continuous Concentrations for San Diego

All District $PM_{2.5}$ continuous samplers cannot be compared to the NAAQS, because they are non-regulatory units; therefore, the values cannot be compared to the $PM_{2.5}$ standards and can only be used for trends analysis and public informational use. ALL $PM_{2.5}$ continuous samplers are operated at 36% relative humidity, which makes them non-regulatory.

Section 8.7.1 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Year (24-Hr & Annual Average)

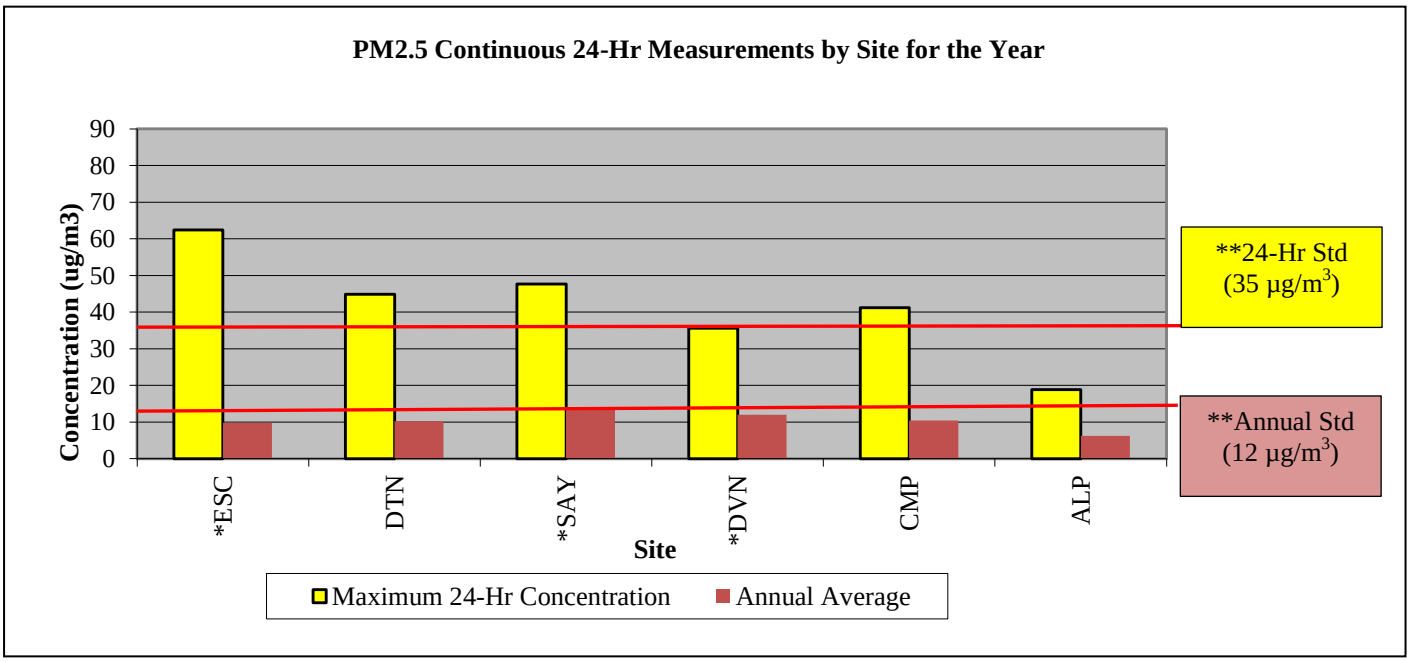
Table 8.25 lists the maximum $PM_{2.5}$ continuous 24-Hr measurements and Annual Average for each $PM_{2.5}$ continuous monitoring location and Figure 8.4 shows the values graphically. The measurements are not the Design Value (Yearly only).

Table 8.25 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Year (24-Hr & Annual Average), 2015

	No. (#)	Site (name)	Site Abbreviation	Maximum Concentration for 24-Hr (µg/m^3)	Annual Average (µg/m^3)
Continuous Method	1	*Escondido	ESC	62.4	9.8
	2	SD-Beardsley	DTN	44.9	10.2
	3	*San Ysidro	SAY	47.7	13.4
	4	*Donovan	DVN	35.6	12.0
	5	Camp Pendleton	CMP	41.2	10.4
	6	Alpine	ALP	18.8	6.2

*Not sampled for an entire year

Figure 8.4 $PM_{2.5}$ Continuous Yearly 24-Hr & Annual Average Measurements by Site Graph, 2015



*Not sampled for an entire year

** The measurements are not the Design Value (Yearly only) and all $PM_{2.5}$ continuous samplers are not regulatory; therefore the values cannot be compared to the $PM_{2.5}$ standards and can only be used for trends analysis and public informational use.

Section 8.7.2 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Design Value (24-Hr & Annual Average)

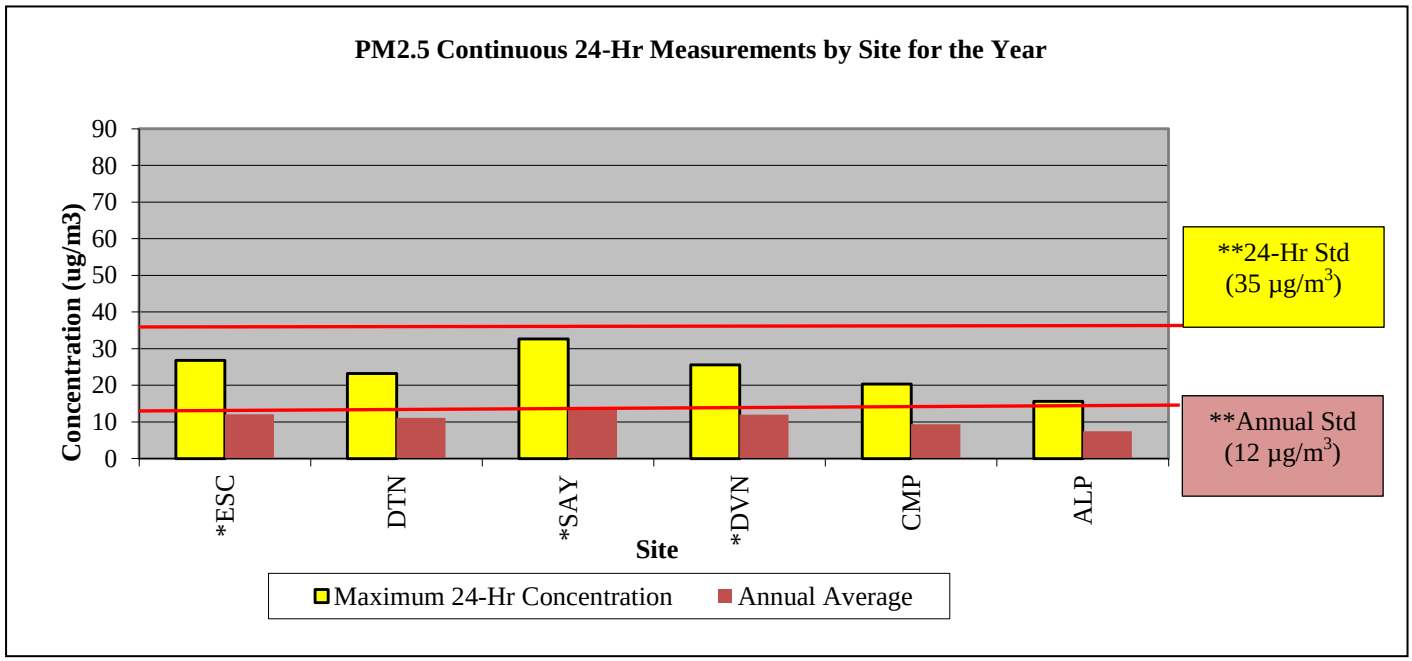
Table 8.26 lists the maximum $PM_{2.5}$ continuous 24-Hr measurements and Annual Average for each $PM_{2.5}$ continuous monitoring location and Figure 8.5 shows the values graphically. While the measurements are the Design Value, all $PM_{2.5}$ continuous samplers are not regulatory; therefore the values cannot be compared to the $PM_{2.5}$ standards and can only be used for trends analysis and public informational use.

Table 8.26 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Design Value (24-Hr & Annual Average), 2013-2015

Continuous Method	No. (#)	Site (name)	Site Abbreviation	Design Value Maximum Concentration for 24-Hr (µg/m^3)	Design Value Annual Average (µg/m^3)
	1	*Escondido	ESC	26.8	12.1
	2	SD-Beardsley	DTN	23.2	11.1
	3	*San Ysidro	SAY	32.6	13.3
	4	*Donovan	DVN	25.6	12.0
	5	Camp Pendleton	CMP	20.3	9.4
	6	Alpine	ALP	15.6	7.4

*Not sampled for an entire year, so the Design Values are incomplete

Figure 8.5 $PM_{2.5}$ Continuous Concentrations for San Diego-by Site for the Design Value (24-Hr & Annual Average) Graph, 2013-2015



*Not sampled for an entire year, so the Design Values are incomplete

****** All $PM_{2.5}$ continuous samplers are not regulatory; therefore the values cannot be compared to the $PM_{2.5}$ standards and can only be used for trends analysis and public informational use.

Chapter 9 Particulate Matter 10 µm (PM_{10})

Section 9.0.0 PM_{10} Introduction

PM_{10} was sampled for at locations throughout the SDAB (Figure 9.0) and referenced to the PM_{10} standards of the year (Table 9.0). The equipment are listed in Table 9.1. There is a PM_{10} (Lo-Vol) sampler at the Floyd Smith Dr. (FSD) location that is also part of the paired Lo-Vol samplers needed to calculate PMcoarse. Please Note:

- In 2015, the Escondido station was temporarily shut-down (see the Overview chapter for more information).
- In 2013, the El Cajon Station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive (FSD).

Figure 9.0 PM_{10} Overall Map

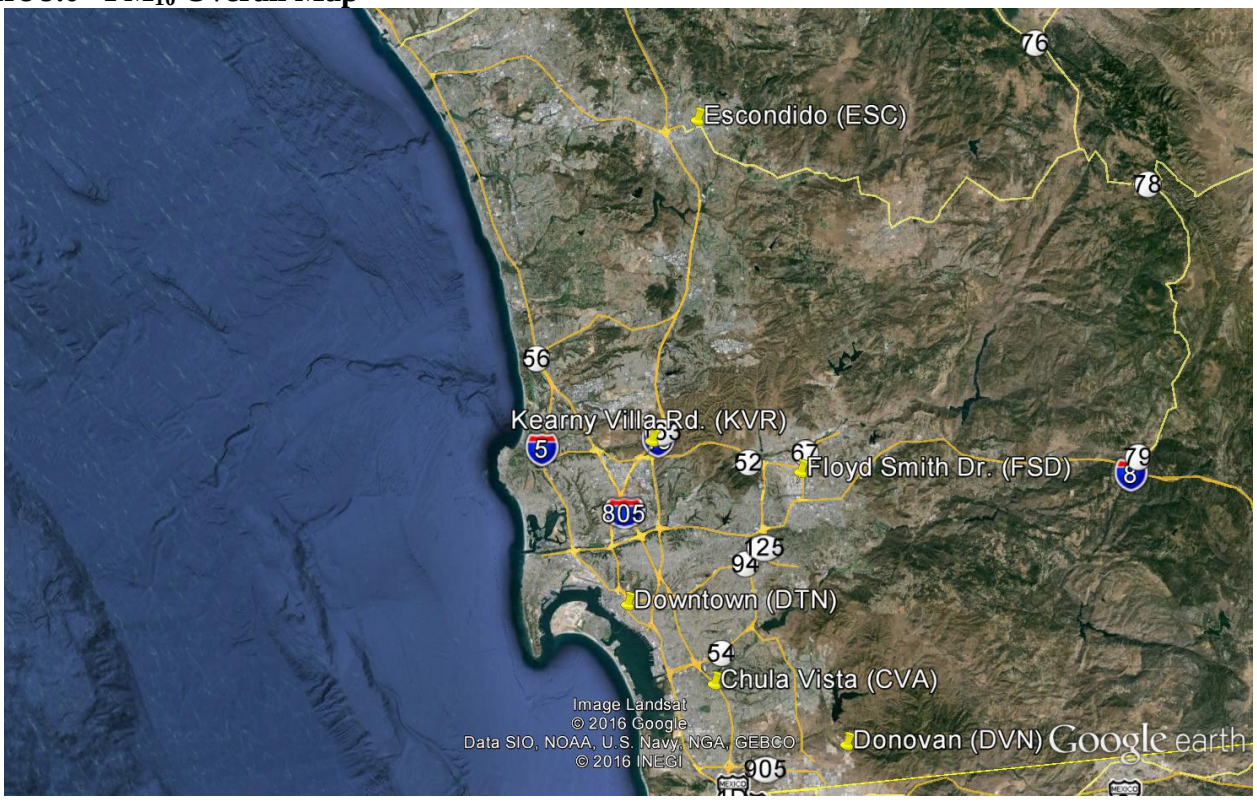


Table 9.0 PM_{10} State and National Standards for the Year

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards**		**National Standards**		
		Concentration	**Method**	**Primary**	**Secondary**	**Method**
Respirable Particulate Matter (PM10)[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		—		

Table 9.1 PM_{10} Sampling Network

	Abbreviation	CVA		DVN	FSD	ESC	KVR	DTN
	Name	Chula Vista		Donovan	Floyd Smith Dr.	Escondido	Kearny Villa Rd	San Diego – Beardsley
	Address	80 E. J St		480 Alta Rd	10537 Floyd Smith Dr	600 E. Valley Pkwy	Kearny Villa Rd	1110A Beardsley St.
	Latitude Longitude	32.631175° -117.059115°		32.578267° -116.921359°	32.817907° -116.968302°	33.127730° -117.075379°	32.845722° -117.123983°	32.701492° -117.149663°
	AQS ID	06-07- 0001		06-073-1014	06-073-1018	06-073-1002	06-073-1016	06-073-1010
PM_{10}	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Designation	O	QAC	O	O	O	O	O
	Method	SI	SI	SI	SI	SI	SI	SI
	Affiliation	Not Applicable	Not Applicable	Not Applicable	NCORE	Not Applicable	Not Applicable	Not Applicable
	Spatial Scale	NS	NS	NS	NS	NS	NS	NS
	Site Type	PE	PE	HC	PE	PE	PE	PE
	Objective (Federal)	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS
	Frequency	1:6	1:6	1:6	1:3	1:6	1:6	1:6
	Equipment	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Thermo 2025 w/o Very Sharp Cut Cyclone	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head	Graseby Metal Works body w/ Sierra Anderson 1200 Head

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Near-road
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 9.1.0 PM_{10} Minimum Monitoring Requirements

The District is federally mandated to monitor PM_{10} levels in accordance with the CFR. This section will state the different monitoring requirements for each program, e.g. ambient, NCore, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other PM_{10} network requirements, e.g. ambient PM_{10} sampler can fulfill a NCore PM_{10} sampler requirement. The District meets or exceeds all minimum requirements for PM_{10} monitoring for all programs.

Section 9.1.1 PM_{10} Minimum Monitoring Requirements-Ambient

All Districts are required to operate a minimum number of PM_{10} samplers irrespective of the PM_{10} network affiliation. These monitors can serve as fulfilling other PM_{10} network requirements, e.g. ambient PM_{10} sampling can fulfill a NCore PM_{10} sampling requirement. To ascertain the minimum number of samplers required, the Highest Concentration value must be calculated. Tables 9.2a - 9.2b summarizes these requirements.

4.6 Particulate Matter (PM10) Design Criteria[A]

(a) Table D-4 indicates the approximate number of permanent stations required in MSAs to characterize national and regional PM10 air quality trends and geographical patterns. The number of PM10 stations in areas where MSA populations exceed 1,000,000 must be in the range from 2 to 10 stations, while in low population urban areas, no more than two stations are required. A range of monitoring stations is specified in Table D-4 because sources of pollutants and local control efforts can vary from one part of the country to another and therefore, some flexibility is allowed in selecting the actual number of stations in any one locale. Modifications from these PM10 monitoring requirements must be approved by the Regional Administrator.

Table D–4 of Appendix D to Part 58—PM_{10}Minimum Monitoring Requirements (Approximate Number of Stations Per MSA)

Population Category	*High Concentration (120% of NAAQS)*	*Medium Concentration (>80% of NAAQS)*	*Low Concentration (<80% of NAAQS)*
>1,000,000	*6-10*	*4-8*	*2-4*

Table 9.2a PM_{10} Minimum Monitoring Requirement-Design Criteria for the Year (24-Hr), 2015

Site of Expected Maximum Concentration (name)	Site of Expected Maximum Concentration AQS ID (#)	Maximum Concentration for 24-hrs (µg/m^3)	Does the 24-Hr Design Value meet the NAAQS? (yes/no)	High Concentration Is the 24-Hr Design Value ≥ 120% of the NAAQS? (yes/no)	Medium Concentration Is the 24-Hr Design Value > 80% of the NAAQS? (yes/no)	Low Concentration Is the 24-Hr Design Value < 80% of the NAAQS? (yes/no)
Donovan	06-073-1014	136	Yes	No	No	Yes

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 4.6 "Particulate Matter (PM_{10}) Design Criteria" and Table D-4

Table 9.2b PM_{10} Minimum Monitoring Requirements-Ambient

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Minimum Number of PM_{10} Samplers Required (#)	Active Number of PM_{10} Samplers (#)	Needed Number of PM_{10} Samplers (#)
San Diego	San Diego	3.3 million	2 – 4 (Low Concentration)	6	None

Section 9.1.2 PM_{10} Minimum Monitoring Requirements-NCore

The District is required to operate a PM_{10} sampler as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, as well as other pollutants. For the NCore program, the District is required to collect PM_{coarse} ($PM_{7-2.5}$) data. PM_{coarse} data is the obtained by operating collocated PM_{10} and $PM_{2.5}$ samplers of the same make and model and on the same sampling frequency. The $PM_{2.5}$ concentrations are then subtracted from the PM_{10} concentrations to get the PM_{coarse} fraction. Table 9.3 lists the NCore PM_{10} requirements.

> *3. Design Criteria for NCore Sites*[B]
> *(b) The NCore sites must measure, at a minimum, $PM_{2.5}$ particle mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciated $PM_{10-2.5}$, O_3, SO_2, CO, NO/NOy, wind speed, wind direction, relative humidity, and ambient temperature.*

Table 9.3 PM_{10} Minimum Monitoring Requirements-NCore

Minimum Number of PM_{10} samplers Required for NCore Sites (#)	Total Number of PM_{10} samplers Active at NCore Sites (#)	Total Number of PM_{10} samplers Needed at NCore Sites (#)	NCore Sites/Locations (name)	NCore Sites/Locations AQS ID (#)
1	1	None	Floyd Smith Dr. (FSD)	06-073-1018

Section 9.1.3 PM_{10} Minimum Monitoring Requirements-Summary

Table 9.4 summarizes all the PM_{10} minimum monitoring requirements from Sections 9.1.1-9.1.2.

Table 9.4 PM_{10} Minimum Monitoring Requirements-Summary

CFR Programs Requirements for PM_{10} samplers (name)	Minimum Number of PM_{10} samplers Required (#)	Number of Active PM_{10} samplers (#)	Number of Needed PM_{10} samplers (#)
CFR EPA Table D-2 only=	2 - 4	6	None
NCore only=	1	1	None

[B] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 3, "Design Criteria for NCore Sites", subsection (b).

Section 9.2.0 PM_{10} Suitability for Comparison to the NAAQS

Many different criteria all required for PM10 data to be considered to be suitable for comparison to the NAAQS, e.g. siting, sampling frequency, etc. This section will state those criteria.

Section 9.2.1 PM_{10} Suitability for Comparison to the NAAQS, Equipment & Siting

The CFR requires that for PM_{10} data to be used in regulatory determinations of compliance with the PM_{10} NAAQS, the PM_{10} monitors must be sited according to Federal Regulations[C1] . All District PM_{10} samplers meets or exceeds all minimum monitoring and can be compared to the NAAQS. Table 9.5a summarizes these requirements.

Table 9.5a PM_{10} Suitability for Comparison to the NAAQS, Equipment & Siting

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Ambient	Particulate Matter ≤ 10 µm (Hi-Vol)	PM_{10}	85101 81102	µg/m^3 LC STD	105 001	24-Hr	7	Graseby Metal Works 2000H w/ Sierra Anderson 1200 Head	Gravimetric	063 063	1:6	RFPS-1287-063
NCore	Particulate Matter ≤ 10 µm (Lo-Vol)	PM_{10}	85101 81102	µg/m^3 LC STD	105 001	24-Hr	7	R & P Model 2025 PM-2.5 Sequential Air Sampler w/oVSCC	Gravimetric	127 127	1:3	RFPS-1298-127

Section 9.2.2 PM_{10} Suitability for Comparison to the NAAQS, Sampling Frequency

The CFR requires that for PM_{10} data to be used in regulatory determinations of compliance with the PM_{10} NAAQS, the PM_{10} monitors' sampling frequency must be in accordance with Federal regulations[C2]. All District PM_{10} samplers meets or exceeds all minimum monitoring requirements for the sampling frequency and can be compared to the NAAQS. Tables 9.5b summarize these requirements.

Table 9.5b PM_{10} Suitability for Comparison to the NAAQS, Sampling Frequency

Site of Expected Maximum Concentration (name)	Site of Expected Maximum Concentration AQS ID (#)	Maximum Concentration for 24-hrs (µg/m^3)	Is the Ratio of the Maximum Concentration < 0.8 to the NAAQS (yes/no)	What is the Minimum EPA Permitted Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)
Donovan	06-073-1014	136	No	1:6	1:6

Section 9.3.0 PM_{10} Concentrations for San Diego

PM_{10} concentrations do not correlate well to growth in population or vehicle usage, and high PM_{10} concentrations do not always occur in high population areas. Emissions from stationary sources and motor vehicles form secondary particles that contribute to PM_{10} in many areas. This section will illustrate the different metrics for comparison.

[C1] 40 CFR Part 58, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring" and Table E-4.

[C2] 40 CFR Part 58.12, Subpart B, "Operating Schedules".

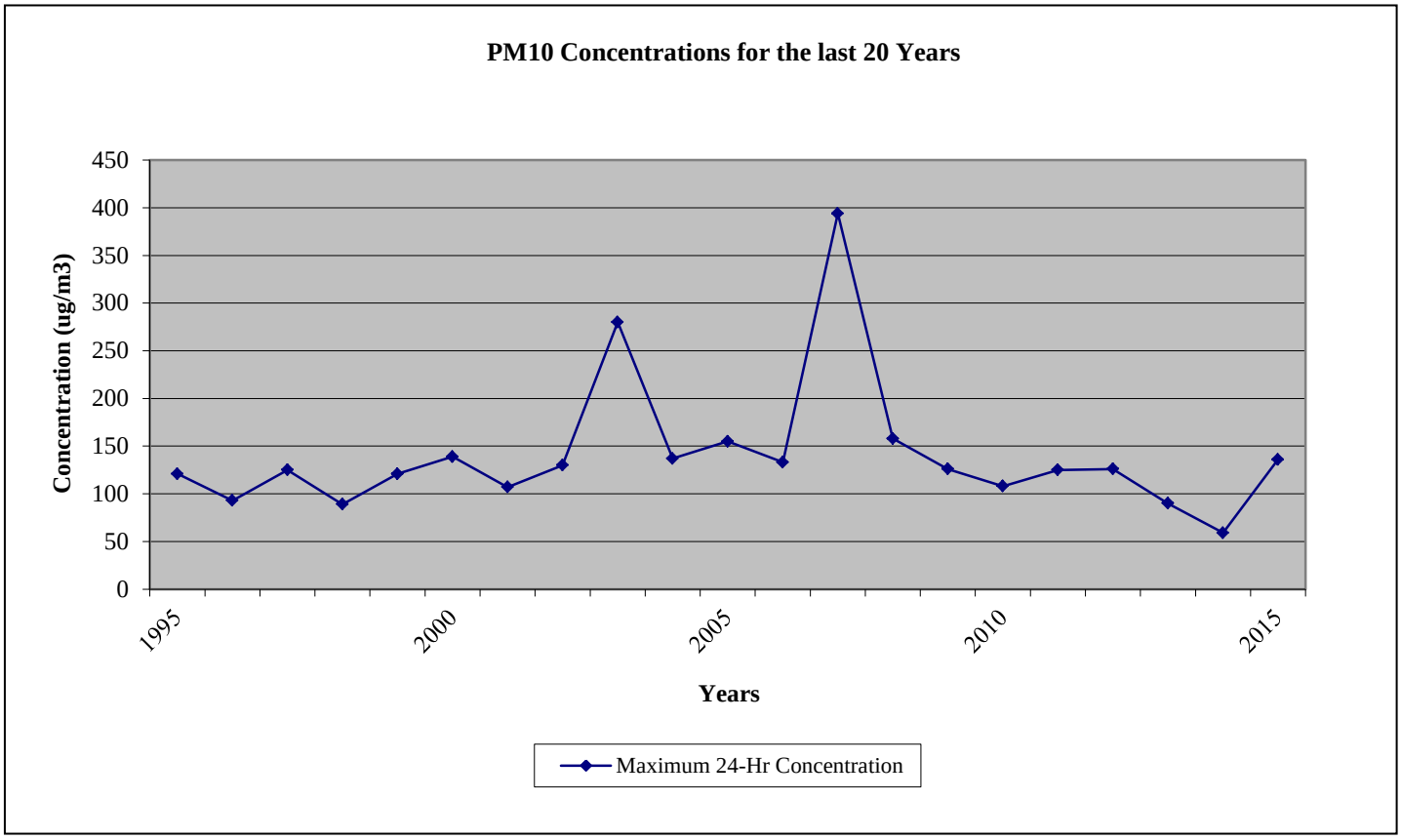
Section 9.3.1 PM_{10} Concentrations for San Diego-for the Last 20 Years

The three-year average of the annual average shows a large decrease; however, there is a great deal of variability from year-to-year. Much of this variability is due to meteorological conditions rather than changes in emissions. Due to the firestorms of 2003 and 2007, the annual average exceeded the National 24-hr standard for those years. The firestorms are considered as exceptional events and they do not have a lasting impact in the SDAB. Even with the last two firestorms, the County still qualifies for attainment status. Note: the "Days Above the National 24-Hr Standard" row in Table 9.6 and Figure 9.1 reflect the PM_{10} standard for that year.

Table 9.6 PM_{10} Concentrations for San Diego-for the Last 20 Years, 1995-2015

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Maximum 24-Hr Concentration ($\mu g/m^3$)	121	93	125	89	121	139	107	130	280	137	155	133	394	158	126	108	125	126	90	29	136
Days above the National Standard	0	0	0	0	0	0	0	0	2	0	2	0	2	1	0	0	0	0	0	0	0

Figure 9.1 PM_{10} Concentrations for San Diego-for the Last 20 Years Graph, 1995-2015



Section 9.3.2 PM_{10} Concentrations for San Diego-by Site at Standard Conditions (STD) for the Year (24-Hr & Annual Average)

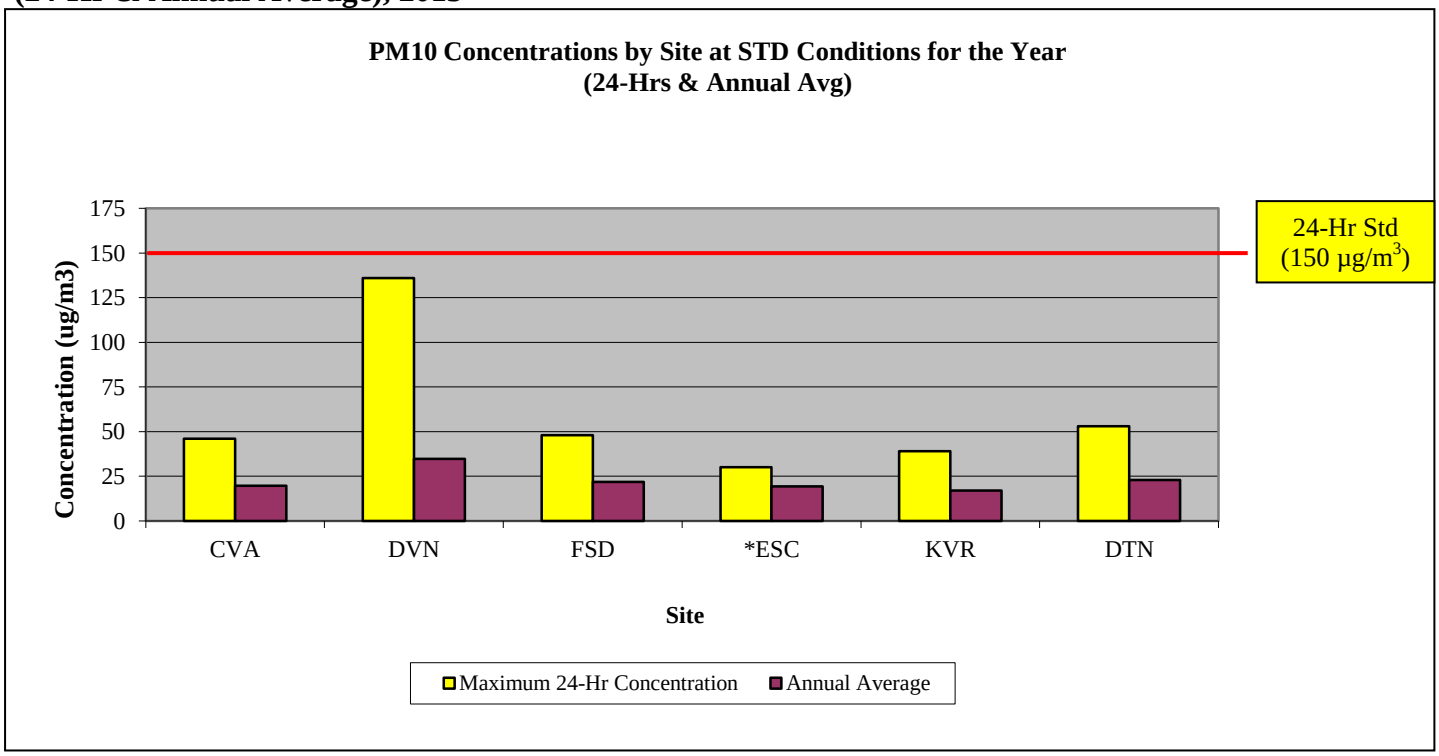
All data from the PM_{10} samplers are reported in STD conditions, as can be seen in Table 9.7 and Figure 9.2. The PM_{10} (Lo-Vol) sampler presents the data in LC and must be converted to STD conditions.

Table 9.7 PM_{10} Concentrations for San Diego-by Site at Standard Conditions (STD) for the Year (24-Hr & Annual Average), 2015

No. (#)	Site	Site Abbreviation	Maximum Concentration for 24-hrs (µg/m^3)	Annual Average (µg/m^3)	Number of Days Above the National Standard (#)
1	Chula Vista	CVA	46	19.7	0
2	Donovan	DVN	136	34.8	0
3	Floyd Smith Dr. (Lo-Vol)	FSD	48	21.9	0
4	Escondido	ESC	30	*19.4	0
5	Kearny Villa Road	KVR	39	17.0	0
6	San Diego-Beardsley	DTN	53	22.9	0

*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

Figure 9.2 PM_{10} Concentrations for San Diego-by Site at Standard Conditions (STD) for the Year (24-Hr & Annual Average), 2015



*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

Section 9.3.3 PM_{10} Concentrations for San Diego-by Site at Local Conditions (LC) for the Year (24-Hr & Annual Average)

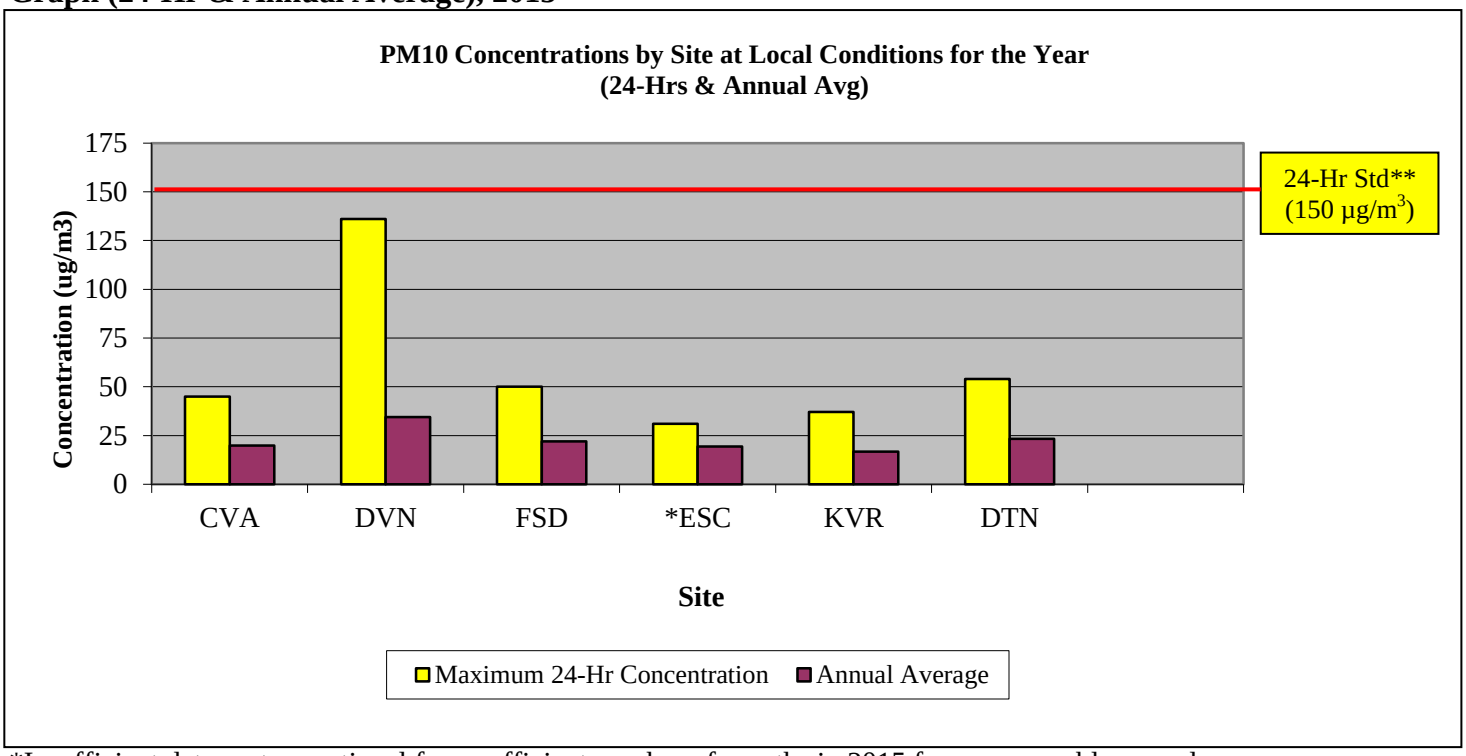
Table 9.8 and Figure 9.3 illustrate the data in Local Conditions (LC). Note the NAAQS is written for STD conditions; therefore the concentrations calculated to Local Conditions (LC) conditions are not comparable to the NAAQS.

Table 9.8 PM_{10} Concentrations for San Diego-by Site at Local Conditions (LC) for the Year (24-Hr & Annual Average), 2015

No. (#)	Site	Site Abbreviation	Maximum Concentration for 24-hrs (µg/m^3)	Annual Average (µg/m^3)
1	Chula Vista	CVA	45	19.9
2	Donovan	DVN	136	34.5
3	Floyd Smith Dr. (Lo-Vol)	FSD	50	22.0
4	Escondido	ESC	31	*19.3
5	Kearny Villa Rd.	KVR	37	16.7
6	San Diego-Beardsley	DTN	54	23.3

*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average

Figure 9.3 PM_{10} Concentrations for San Diego-by Site at Local Conditions (LC) for the Year Graph (24-Hr & Annual Average), 2015



*Insufficient data; not operational for a sufficient number of months in 2015 for a comparable annual average.

**Note: the NAAQS is written for STD conditions; therefore the concentrations calculated to Local Conditions (LC) are not comparable to the NAAQS. The listed NAAQS is for informational purposes only.

Chapter 10 National Core (NCore)

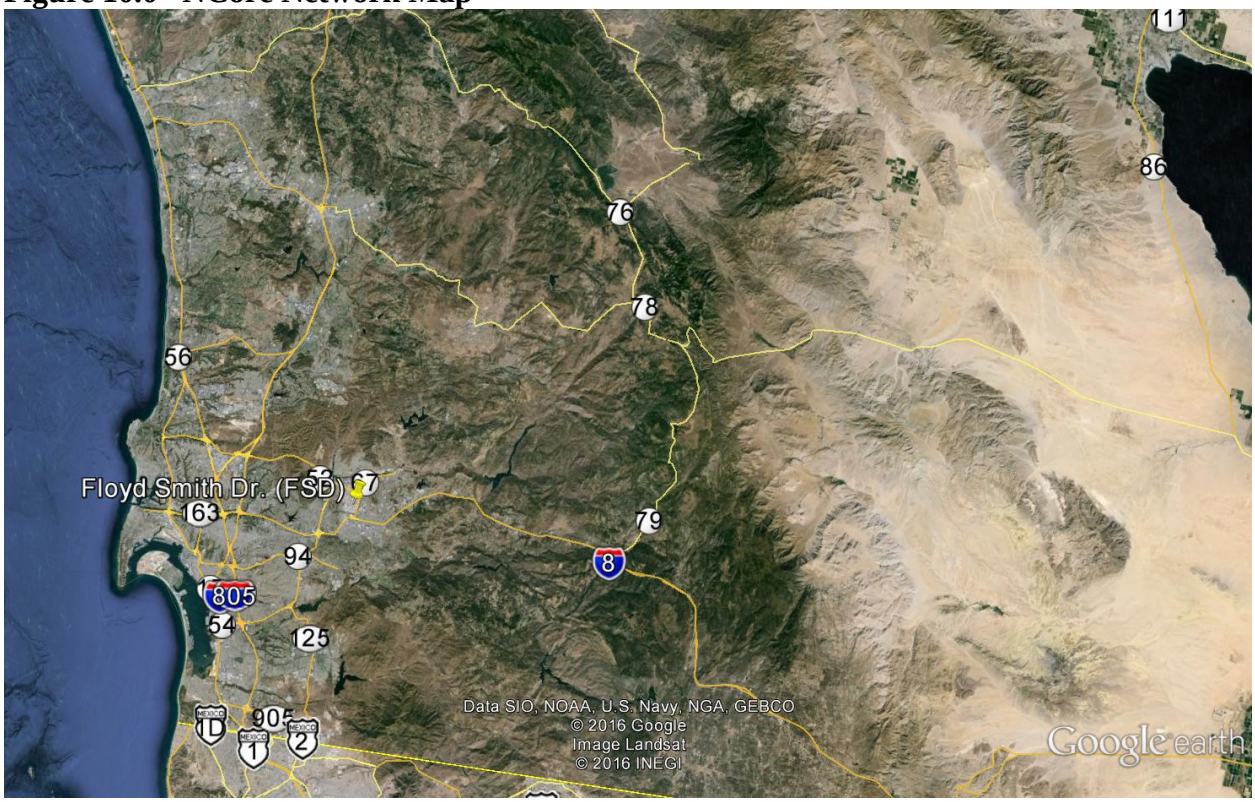
Section 10.0.0 NCore Introduction

National Core (NCore) is a multi-pollutant network that integrates several advanced measurement systems for particles, as well as pollutant gases with the existing equipment for a Photochemical Assessment Monitoring Station (PAMS). The EPA designated the El Cajon station (Figure 10.0) as the NCore site for the SDAB, so additional instrumentation that includes, PM_{coarse} (values calculated from paired Low-Volume particulate samplers, by subtracting the measured concentrations from a $PM_{2.5}$ Low Volume sampler from the measured concentrations from a PM_{10} Low Volume sampler, CO (trace level), SO_2 (trace level), NOy (Reactive Nitrogen Oxides), and Lead-TSP (Pb-TSP) . Please note:

- The El Cajon station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive, this station is called Floyd Smith Drive (FSD). NOy, $PM_{2.5}$ continuous, and meteorological sampling has been suspended at the temporary location. Once the District relocates to the original El Cajon location, NOy, $PM_{2.5}$ continuous and meteorological parameters will resume sampling.

The criteria gaseous pollutants for trace, ambient, and total levels, are referenced to ambient standards from the NAAQS Standards of that year.

Figure 10.0 NCore Network Map



Section 10.1.0 NCore Minimum Monitoring Requirements

The District is required to operate monitors as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, low ppb-ppt range. Tables 10.1a-b summarize these requirements. The District meets or exceeds all minimum requirements for NCore monitoring except for the following:

- NOy monitoring (highlighted in red)
- Meteorological monitoring (highlighted in red)
- $PM_{2.5}$ continuous monitoring (highlighted in red)

3. Design Criteria for NCore Sites[A]
(b) The NCore sites must measure, at a minimum, $PM_{2.5}$ particle mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciated $PM_{10-2.5}$, O_3, SO_2, CO, NO/NOy, wind speed, wind direction, relative humidity, and ambient temperature. NCore sites in CBSA with a population of 500,000 people (as determined in the latest Census) or greater shall also measure Pb either as Pb-TSP or Pb-PM_{10}.

Table 10.1a NCore Minimum Monitoring Requirements

MSA	County	Population Estimated from 2010 Census (#)	Minimum Number of Sites Required (#)	Number of Active Sites (#)	Number of Sites Needed
San Diego	San Diego	3.3 million	1	1	None

Table 10.1b NCore Minimum Monitoring Requirements-Equipment

Parameters	O_3	NOy	CO-TLE	SO_2-TLE	Pb-TSP	$PM_{2.5}$-Manual	$PM_{2.5}$-Continuous	PMcoarse	Wind Speed/ Wind Direction/ External Temperature/ %Relative Humidity
Minimum Number of Monitors Required (#)	1	1	1	1	1	1	1	1	1 each= 1 set
Number of Active Monitors (#)	1	0*	1	1	1	1	0*	1	0*
Number of Monitors Needed (#)	None	None*	None	None	None	None	None*	None	None*

*The FSD NCore location is temporary. Because FAA approval would be needed to erect the NOy and meteorological sensor towers, the EPA waived these NCore requirements at the FSD location. The $PM_{2.5}$ continuous sampler could not be installed, maintained, calibrated, and audited safely at the FSD location. Once EPA was informed, this requirement was likewise suspended.

[A] 40 CFR Part 58, Subpart G-Federal Monitoring, Appendix D, Section 3-Design Criteria for NCore sites

Section 10.2.0 NCore Suitability for Comparison to the NAAQS

Requirements for the sampling frequency of monitors for NCore pollutants are in the 40 CFR Part 58- "Ambient Air Quality Surveillance", Subpart B, Section 58.12 "Operating Schedules" and are shown in Table 10.2.

Table 10.2 NCore Suitability for Comparison to the NAAQS-Frequency & Equipment

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Sampling Frequency	Method ID
Ozone	O_3	44201	ppm	007	1-Hr	1	Thermo 49 series	Ultraviolet absorption	047	7/24	EQOA-0880-047
Carbon monoxide Trace Level	CO	42101	ppb	008	1-Hr	1	Thermo 48i-TLE	Nondispersive infrared	554	7/24	RFCA-0981-054
Sulfur dioxide Trace Level	SO_2	42101	ppb	008	1-Hr	1 5-min	Thermo 43i-TLE	Fluorescence	560	7/24	EQSA-0276-009
Lead	Pb	14129	µg/m^3 LC	105	24-Hr	7	Tisch TE-5170 BLVFC+	ICP/MS Acid filter extract with hot nitric acid	192	1:6	EQL-0710-192
Particulate Matter ≤ 2.5 µm (non-speciated)	$PM_{2.5}$	88101	µg/m^3 LC STD	105 001	24-Hr	7	R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC	Gravimetric	145	1:3	EQPM-0202-145 or RFPS-0498-118
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ CSN	See EPA	See EPA	See EPA	24-Hr	7	URG-3000N	See EPA	See EPA	1:3	Not Applicable
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ STN	See EPA	See EPA	See EPA	24-Hr	7	Met One SASS	See EPA	See EPA	1:3	Not Applicable
Particulate Matter ≤ 10 µm (Hi-Vol)	PM_{10}	88101	µg/m^3 LC STD	105 001	24-Hr	7	Graseby Metal Works 2000H w/ Sierra Anderson 1200 Head	Gravimetric	127 217	1:3	RFPS-1298-127

Section 10.3.0 NCore Concentrations for San Diego

The instrumentation needed for NCore designation are: PM_{coarse} (calculated values from paired PM_{10} & $PM_{2.5}$ Low Volume samplers); CO (trace level); SO_2 (trace level); NOy (total reactive Nitrogen Oxides); and, Pb-TSP (not operational until the 1st Qtr of 2012). Tables 10.3a-10.3e list the trend data.

Table 10.3a NCore Concentrations for San Diego-PMCoarse

*PMcoarse (µg/m^3)	2011	2012	2013	2014	2015
Max. 24-Hr. Concentration	30.7	29.0	29.6	21.8	31.2
98th Percentile of 24-Hr Concentration	24.8	26.0	25.7	21.8	24.6
Average of the Quarterly Means	13.2	13.1	13.9	13.8	13.5

*Note: PMcoarse (PMc) does not have FRM or FEM designation and cannot be compared to any NAAQS.
FSD and ECA were combined

Table 10.3b NCore Concentrations for San Diego-CO-TLE

CARBON MONOXIDE (ppm)	2011	2012	2013	2014	2015
Maximum 1-Hr. Concentration	1.8	2.3	1.9	2.0	1.4
Maximum 8-Hr. Concentration	1.3	1.9	1.2	1.8	1.1

Table 10.3c NCore Concentrations for San Diego-SO_2-TLE

SULFUR DIOXIDE (ppm)	2011	2012	2013	2014	2015
Maximum 1-Hr SO_2	0.001	0.002	0.007	0.001	0.001
Maximum 24-Hr SO_2	0.000	0.000	0.001	0.001	0.000
Annual Average SO_2	0.000	0.000	0.000	0.000	0.000

Table 10.3d1 NCore Concentrations for San Diego-NOy-NO

*NOy –NO (ppm)	2011	2012	2013	2014	2015
Maximum 1-Hr. Concentration	0.048	0.059	0.049	**	**
Annual Average	0.012	0.013	0.012	**	**

**The NOy sampler is not operational at the temporary NCore location; once we relocate back, NOy sampling will resume

Table 10.3d2 NCore Concentrations for San Diego-NO_2

*NO_2 (ppm)	2011	2012	2013	2014	2015
Maximum 1-Hr. Concentration	0.049	0.059	0.051	0.048	0.059
Annual Average	0.012	0012	0.012	*	0.010

*Not sampled for an entire year, so no calculations

Table 10.3e NCore Concentrations for San Diego-Pb

LEAD (µg/m^3)	2012	2013	2014	2015
Annual Average	0.005	0.005	0.009	0.008
Maximum 3-Month Average	0.006	0.007	0.011	0.012

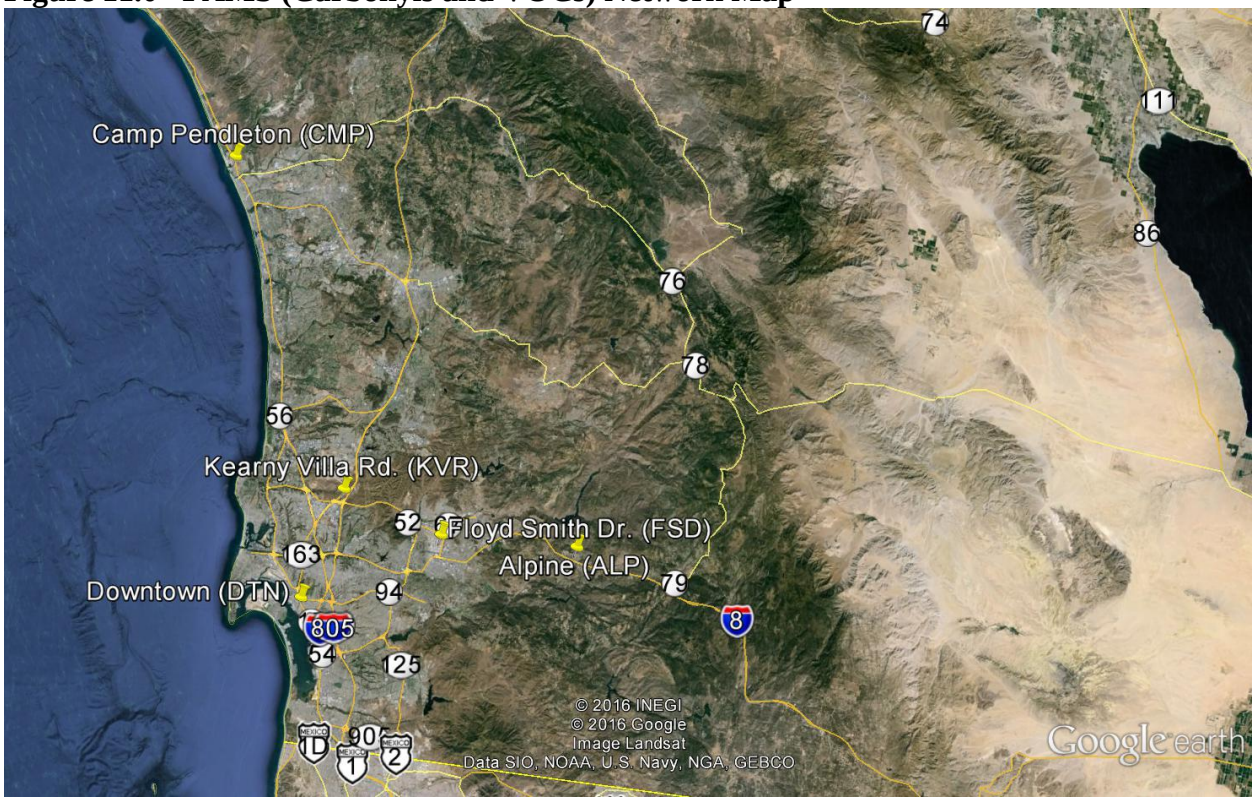
Chapter 11 Photochemical Assessment Monitoring Stations (PAMS)

Section 11.0.0 PAMS Introduction

PAMS and PAMS-related sampling was conducted at four sites (see Figure 11.0). KVR, is a PAMS-Carbonyl site, but due to irreparable failure of the sampler in late 2011, sampling was halted. As yet, there are no NAAQS standards to compare the data. The locations and equipment are listed in Table 11.0. Please note:

- The El Cajon station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive, this station is called Floyd Smith Drive (FSD).
- PAMS-VOCs at CMP, ALP and ECA
- PAMS-Carbonyls at KVR and ECA
- Unofficial PAMS-Carbonyls at DTN

Figure 11.0 PAMS (Carbonyls and VOCs) Network Map



The range of compounds for the PAMS program is in excess of 50 different possible ozone precursors and other compounds (See Tables 11.1b and 11.1c). The toxicity is gauged by risk factors instead of limits.

Table 11.0 PAMS Sampling Network

	Abbreviation	ALP	CMP		FSD		DTN	KVR[1]
	Name	Alpine	Camp Pendleton		Floyd Smith Dr.		San Diego – Beardsley	Kearny Villa Rd
	Address	2495A W. Victoria Dr.	21441 W. B St		10537 Floyd Smith Dr		1110A Beardsley St.	Kearny Villa Rd
	Latitude Longitude	32.842324° -116.767885°	33.217063° -117.396169°		32.817907° -116.968302°		32.701492° -117.149663°	32.845722° -117.123983°
	AQS ID	06-073-1006	06-073-1008		06-073-1018		06-073-1010	06-073-1016
PAMS	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	UNPAMS	SLAMS
	Method	Canister	Canister	Canister	Canister	Cartridges	Cartridges	Cartridges
	Affiliation	PAMS (Type III)	PAMS (Type I)	PAMS (Type I)	PAMS (Type II)	PAMS (Type II)	UNPAMS	PAMS (Type II)
	Spatial Scale	US	NS	NS	NS	NS	NS	NS
	Site Type	MXO	UPBD	QA	MXP	MXP	MXP	MXP
	Objective (Federal)	Research	Research	Research	Research	Research	Research	Research
	Analysis By	APCD	APCD	APCD	APCD	APCD	APCD	APCD
	Frequency	1:6	1:6	1:6	1:6	1:6	1:6	1:6
	Equipment	Xontech 910/912	Xontech 910/912	Xontech 910/912	Xontech 910/912	Xontech 925	Xontech 924	Xontech 925

[1] The station is still classified as a PAMS-Carbonyl location, but due to irreparable failure of the carbonyl collection sampler, the APCD was directed by the EPA to put the sampling on hiatus until the EPA can redesign the PAMS network.

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Near-road
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 11.1.0 PAMS Minimum Monitoring Requirements

The PAMS program is a multipronged approached to understand, predict, and control ozone concentrations. Ozone is not emitted directly; it is created by the interactions of several different pollutants/emissions, e.g. oxides of nitrogen (NOx), and volatile organic compounds (VOC), some carbonyls, etc. This enhanced monitoring network to track these different emissions has several different monitoring requirements, e.g. laboratory needs, meteorological needs, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). This section will state these requirements. Some of these monitors or samplers can serve as fulfilling other network requirements, e.g. ambient O_3 monitor can fulfill a PAMS O_3 monitoring requirement. The District meets or exceeds all minimum requirements for PAMS monitoring except for the following:

- Carbonyl sampling at Kearny Villa Rd. (highlighted in red)
- Upper Air Meteorology at Kearny Villa Rd. (highlighted in red)

Section 11.1.1.0 PAMS Minimum Monitoring Requirements-Sampling Season (24-Hr & 3-Hr)

The District is required to operate equipment required for the PAMS parameters for a minimum sampling period. Table 11.1 lists these requirements.

> *5.2 Monitoring Period.*
> *PAMS precursor monitoring must be conducted annually throughout the months of June, July and August (as a minimum) when peak O3 values are expected in each area. Alternate precursor monitoring periods may be submitted for approval to the Administrator as a part of the annual monitoring network plan required by § 58.10.*[A]

Table 11.1 PAMS Minimum Monitoring Requirements-Sampling Season (24-Hr & 3-Hr)

Minimum PAMS Monitoring Period (months)	Actual PAMS Monitoring Period 24-Hr Samples (months)	Is the PAMS Monitoring Period 24-Hr Samples Adequate? (yes/no)	Actual PAMS Monitoring Period 3-Hr Samples (months)	Is the PAMS Monitoring Period 3-Hr Samples Adequate? (yes/no)
June-July	Jan-Dec 24-hr samples	Yes	July-Oct 3-Hr samples	Yes

Section 11.1.2.0 PAMS Minimum Monitoring Requirements-VOC

The District is required to operate PAMS stations for VOC speciation analysis. This section will state these requirements.

Section 11.1.2.1 PAMS Minimum Monitoring Requirements-VOC Type 2 Stations

The District is required to operate Type 2 sites to monitor the magnitude and type of precursor emissions in the area where maximum precursor emissions are expected to impact and are suited for the monitoring of urban air toxic pollutants. Table 11.2 lists these requirements.

> *5.3 Minimum Monitoring Network Requirements.*
> *A Type 2 site is required for each area. Overall, only two sites are required for each area, providing all chemical measurements are made. For example, if a design includes two Type 2 sites, then a third site will be necessary to capture the NOy measurement.*[B1]

[A] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 5.2, "Monitoring Period"

[B1] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 5.3, "Minimum Monitoring Network Requirements"

Table 11.2 PAMS Minimum Monitoring Requirements-VOC Type 2 Stations (Table D-6, Item #1B)

Minimum Number of VOC Sites Required (#)	Number of Active VOC Sites (#)	Number of Needed VOC Sites (#)	Minimum Number of Type 2 VOC Sites Required (#)	Number of Active Type 2 VOC Sites (#)	Number of Needed Type 2 VOC Sites (#)
2	2 Floyd Smith Dr. Alpine	None	1	1 Floyd Smith	None

Section 11.1.2.2 PAMS Minimum Monitoring Requirements-VOC non-Type 2 Stations

The District is required to operate non-Type 2 sites to monitor the magnitude and type of precursor emissions in the area where maximum precursor emissions are expected to impact and are suited for the monitoring of urban air toxic pollutants. Tables 11.3 lists these requirements.

5.3 Minimum Monitoring Network Requirements.

The minimum required number and type of monitoring sites and sampling requirements are listed in Table D-6 of this appendix. Any alternative plans may be put in place in lieu of these requirements, if approved by the Administrator.[B2]

Table D–6 of Appendix D to Part 58—Minimum Required PAMS Monitoring Locations and Frequencies[B]

No	*Measurement* **A**	*Where required* ***B***	*Sampling frequenc*[1] *(all daily except for upper air meteorology)* ***C***
1	*Speciated VOC*[2]	*Two sites per area, one of which must be a Type 2 site*	*During the PAMS monitoring period:* *(1) Hourly auto GC, or* *(2) Eight 3-hour canisters, or* *(3) 1 morning and 1 a afternoon canister with a 3-hour or less averaging time* *plus Continuous Total Non-methane Hydrocarbon measurement.*
2	*Carbonyl sampling*	*Type 2 site in areas classified as serious or above for the 8-hour ozone standard*	*3-hour samples every day during the PAMS monitoring period.*
3	*NO_X*	*All Type 2 sites*	*Hourly during the ozone monitoring season.*
4	*NO_y*	*One site per area at the Type 3 or Type 1 site*	*Hourly during the ozone monitoring season.*
5	*CO (ppb level)*	*One site per area at a Type 2 site*	*Hourly during the ozone monitoring season.*
6	*Ozone*	*All sites*	*Hourly during the ozone monitoring season.*
7	*Surface met*	*All sites*	*Hourly during the ozone monitoring season.*
8	*Upper air meteorology*	*One representative location within PAMS area*	*Sampling frequency must be approved as part of the annual monitoring network plan required in 40 CFR 58.10.*

[1] *Daily or with an approved alternative plan.*

[B2] 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites", part 5.3, "Minimum Monitoring Network Requirements"

Table 11.3 PAMS Minimum Monitoring Requirements-VOC non-Type 2 Stations (Table D-6, Item #1B)

Minimum Number of non-Type II VOC Sites Required (#)	Number of Active non-Type II VOC Sites (#)	Number of Needed non-Type II VOC Sites (#)
1	1 Alpine	None

Section 11.1.2.3 PAMS Minimum Monitoring Requirements-VOC Sampling Frequency

The District is required to operate the VOC samplers on a specific frequency of collection. Table D-6 lists this information and Table 11.4 lists these requirements.

Table 11.4 PAMS Minimum Monitoring Requirements-VOC Sampling Frequency* (Table D-6, Item #1C)

Is There a Continuous Total NMHC analyzer? (yes/no)	How many 3-Hr Samples (#)	Time of Day? (#)	Number of Needed Samples (#)
No	4	2-morning samples 2-afternoon samples	None None

*The District monitors for PAMS under the EPA approved California Alternative PAMS Sampling Plan.

Section 11.1.3.0 PAMS Minimum Monitoring Requirements-Carbonyls

The District is required to operate PAMS stations for Carbonyl speciation analysis. This section will state these requirements.

Section 11.1.3.1 PAMS Minimum Monitoring Requirements-Carbonyls Type 2 Stations

Table D-6 lists this information the number and type of PAMS Carbonyls stations required and Table 11.5 lists these requirements.

Table 11.5 PAMS Minimum Monitoring Requirements-Carbonyls Type 2 Stations (Table D-6, Item #2B)

Minimum Number of Carbonyl Sites Required (#)	Number of Active Carbonyl Sites (#)	Number of Needed Carbonyl Sites (#)	Minimum Number of Type II Carbonyl Sites Required (#)	Number of Active Type II Carbonyl Sites (#)	Number of Needed Type II Carbonyl Sites (#)		Number of Unofficial Carbonyl Sites (#)
1	1* Floyd Smith Dr.	None	1	1* Floyd Smith Dr.	None		1 Downtown

*The carbonyl sampler experienced a catastrophic, irreparable failure at the San Diego-Kearny Villa Rd. site. In 2011, the EPA Region IX Authority instructed the District to suspend replacing the sampler until the PAMS program is re-engineered.

Section 11.1.3.2 PAMS Minimum Monitoring Requirements-Carbonyl Sampling Frequency

The District is required to operate the Carbonyl samplers on a specific frequency of collection. Table D-6 lists this information and Table 11.6 lists these requirements.

Table 11.6 PAMS Minimum Monitoring Requirements-Carbonyl Sampling Frequency* (Table D-6, Item #2C)

How many 3-Hr Samples (#)	Time of Day? (#)	Number of Needed Samples (#)
4	2-morning samples 2-afternoon samples	None None

*The District monitors for PAMS under the EPA approved California Alternative PAMS Sampling Plan.

Section 11.1.4.0 PAMS Minimum Monitoring Requirements-Gaseous Instruments

There are associated gaseous instrumentation requirements at PAMS stations. These can depend upon the Type of station, etc. section will state these requirements.

Section 11.1.4.1 PAMS Minimum Monitoring Requirements-Gaseous Instruments, NOx

The District is required to operate oxides of nitrogen analyzers as part of the PAMS program Table D-6 lists this information and Table 11.7 lists these requirements.

Table 11.7 PAMS Minimum Monitoring Requirements-Gaseous Instruments, NOx (Table D-6, Item #3B)

Number of Active Type II Sites (#)	Number of Active Type II Sites with NOx Monitors (#)	Number of NOx Monitors Needed at Type II Sites (#)		Number of Unofficial Type II Sites (#)	Number of Active Unofficial Type II Sites with NOx Monitors (#)	Number of NOx Monitors Needed at Unofficial Type II Sites (#)
2 Floyd Smith Dr. Kearny Villa Rd.	2 Floyd Smith Dr. Kearny Villa Rd.	None		1 Downtown	1 Downtown	None

Section 11.1.4.2 PAMS Minimum Monitoring Requirements-Gaseous Instruments, NOy

The District is required to operate a reactive oxide of nitrogen analyzer as part of the PAMS program Table D-6 lists this information and Table 11.8 lists these requirements.

Table 11.8 PAMS Minimum Monitoring Requirements-Gaseous Instruments, NOy (Table D-6, Item #4B)

Minimum Number of NOy Monitors Required Either at a Type I or Type III Site (#)	Number of Active Type I or Type III Sites (#)	Number of Active NOy Monitors at a Type I or Type III Site (#)	Number of NOy Monitors Needed (#)
1	2	1* Floyd Smith	None

*The District measures for NOy at the NCore location, a PAMS Type II site. The District was granted a waiver by the EPA Region IX Authority in 2011 to designate this site/location to satisfy the PAMS NOy requirement. NOx monitors are used at the PAMS Type I and III sites.

Section 11.1.4.3 PAMS Minimum Monitoring Requirements-Gaseous Instruments, CO

The District is required to operate a carbon monoxide analyzer as part of the PAMS program Table D-6 lists this information and Table 11.9 lists these requirements.

Table 11.9 PAMS Minimum Monitoring Requirements-Gaseous Instruments, CO (Table D-6, Item #5B)

Minimum Number of CO Monitors Required at a Type II Site (#)	Number of Active Type II Sites (#)	Number of Active CO Monitors at a Type II Site (#)	Number of CO Monitors Needed (#)
1	1	1	None

Section 11.1.4.4 PAMS Minimum Monitoring Requirements-Gaseous Instruments, O_3

The District is required to operate ozone analyzers as part of the PAMS program Table D-6 lists this information and Table 11.10 lists these requirements.

Table 11.10 PAMS Minimum Monitoring Requirements-Gaseous Instruments, O_3 (Table D-6, Item #6B)

Number of Active PAMS Sites (#)	Number of Active PAMS Sites with O_3 Monitors (#)	Number of O_3 Monitors Needed at PAMS Sites (#)		Number of Unofficial PAMS Sites (#)	Number of Active Unofficial PAMS Sites with O_3 Monitors (#)	Number of O_3 Monitors Needed at Unofficial PAMS Sites (#)
4 Floyd Smith Dr. Kearny Villa Rd. Camp Pendleton Alpine	4 Floyd Smith Dr. Kearny Villa Rd. Camp Pendleton Alpine	None		1 Downtown	1 Downtown	None

Section 11.1.5.0 PAMS Minimum Monitoring Requirements-Meteorology Instruments

There are meteorological instrumentation requirements at PAMS stations. This section will state those requirements.

Section 11.1.5.1 PAMS Minimum Monitoring Requirements-Meteorology Instruments, Surface

The District is required to operate surface meteorology sensors as part of the PAMS program Table D-6 lists this information and Table 11.11 lists these requirements.

Table 11.11 PAMS Minimum Monitoring Requirements-Meteorology Instruments, Surface (Table D-6, Item #7B)

Number of Active PAMS Sites (#)	Number of Active PAMS Sites with Meteorology (#)	Number of Meteorology Needed at PAMS Sites (#)		Number of Unofficial PAMS Sites (#)	Number of Active Unofficial PAMS Sites with Meteorology (#)	Number of Meteorology Needed at Unofficial PAMS Sites (#)
4 Floyd Smith Dr. Kearny Villa Rd. Camp Pendleton Alpine	4 Floyd Smith Dr. Kearny Villa Rd. Camp Pendleton Alpine	None		1 Downtown	1 Downtown	None

Section 11.1.5.2 PAMS Minimum Monitoring Requirements-Meteorology Instruments, Upper Atmosphere

The District is required to operate upper atmosphere sensors as part of the PAMS program Table D-6 lists this information and Table 11.12 lists these requirements.

Table 11.12 PAMS Minimum Monitoring Requirements-Meteorology Instruments, Upper Atmosphere
(Table D-6, Item #8B)

Minimum Number of Upper Air Meteorology Required in a PAMS area (#)	Number of Active Upper Air Meteorology Sites (#)	Number of Upper Air Meteorology Sites Needed (#)	Upper Air Meteorology Site Location (name)
1	0*	1*	Kearny Villa Road

*No longer operational

Section 11.1.6 PAMS Minimum Monitoring Requirements-Summary

Table 11.13 summarizes all the PAMS minimum monitoring requirements from sections 11.1.1-11.1.5.

Table 11.13 PAMS Summary of Minimum Monitoring Requirements

CFR Programs Requirements for PAMS (name)	Minimum Requirement (#)	Active	Number of Needed Requirements
PAMS monitoring season, 24-Hrs samples	July-June	Yes	None
PAMS monitoring season, 3-Hrs samples	July-Oct	Yes	None
PAMS season sample duration= 3-Hrs	3-Hrs	Yes	None
Minimum # of Type 2 VOC sites	1	Yes	None
Minimum # of non-Type 2 VOC sites	1	Yes	None
VOC sampling frequency during PAMS season, 3-Hrs	2 morning 2 afternoon	Yes	None
Minimum # of Type 2 Carbonyl sites	1	1	None
Carbonyl sampling frequency during PAMS season, 3-Hrs	2 morning 2 afternoon	Yes	None
Minimum # of NOx monitors = # of Type 2 sites	3	3	None
Minimum # of NOy monitors at non-Type 2 sites	1	1	None
Minimum # of CO monitors at one Type 2 sites	1	1	None
Minimum # of O3 monitors = # of PAMS sites	5	5	None
Minimum # of meteorological sensors = # of PAMS sites	5	5	None
Minimum # of upper atmosphere sensors	1	0	1

Section 11.2 PAMS Sampling Frequency & Equipment

During the non-PAMS season (November to the end of June), the samples have a 24-hour sampling duration. During the PAMS season (July to the end of October), the samplers collect four samples that each have a 3-hour sampling duration. The 3-hour samples are collected on a set time schedule, as follows: 0200 – 0500, 0500 – 0800, 1200 – 1500, and 1600 – 1900.

Table 11.14 PAMS Sampling Equipment

Pollutant	Abbreviation	Samplers	Collection Method	Collection Frequency	Analytical Method	Parameter Code	Method Code
Volatile Organic Compounds	VOC's	Xontech 910/912	Summa Canister	1:6	GC-FID	Table 11.2b	126
Carbonyl Compounds	n/a	Xontech 925	DNPH cartridges	1:6	HPLC	Table 11.2c	202
Carbonyl Compounds	n/a	Xontech 924	DNPH cartridges	1:6	HPLC	Table 11.2c	202

Table 11.15 PAMS VOC Parameter Codes

Compound	Parameter
Ethylene	43203
Acetylene	43206
Ethane	43202
Propylene	43205
Propane	43204
Isobutane	43214
Isobutylene	43270
1-Butene	43280
n-Butane	43212
trans-2-Butene	43216
cis-2-Butene	43217
Isopentane	43221
1-Pentene	43224
n-Pentane	43220
Isoprene	43243
Trans-2-pentene	43226
cis-2-Pentene	43227
2.2-Dimethylbutane	43244
Cyclopentane	43242
2.3-Cimethylbutane	43284
2-Methylpentane	43285
3-Methylpentane	43230
1-Hexene	43245
n-Hexane	43231
Methylcyclopentane	43262
2.4-Dimethylpentane	43247
Benzene	45201
cyclohexane	43248
2-Methylhexane	43263
2.3-Dimethylpentane	43291

Compound	Parameter
3-Methylhexane	43249
2.2.4-Trimethylpentane	43250
n-Heptane	43232
Methylcyclohexane	43261
2.3.4-Trimethylpentane	43252
Toluene	45202
2-Methylheptane	43960
3-Methylheptane	43253
n-Octane	43233
Ethylbenzene	45203
m-Xylene	45205
p-Xylene	45206
Styrene	45220
o-Xylene	45204
n-Nonane	43235
Isopropylbenzene	45210
n-Propylbenzene	45209
1-Ethyl 3-methylbenzene	45212
1-Ethyl 4-methylbenzene	45213
1.3.5-Trimethylbenzene	45207
1-Ethyl 2-methylbenzene	45211
1.2.4-Trimethylbenzene	45208
n-Decane	43238
1.2.3-Trimethylbenzene	45225
m-Diethylbenzene	45218
p-Diethylbenzene	45219
Undecane	43954
Total PAMS	43000
Total NMOC	43102

Table 11.16 PAMS Carbonyls

Compound	Parameter
Formaldehyde	43502
Acetaldehyde	43503
Acetone	43551

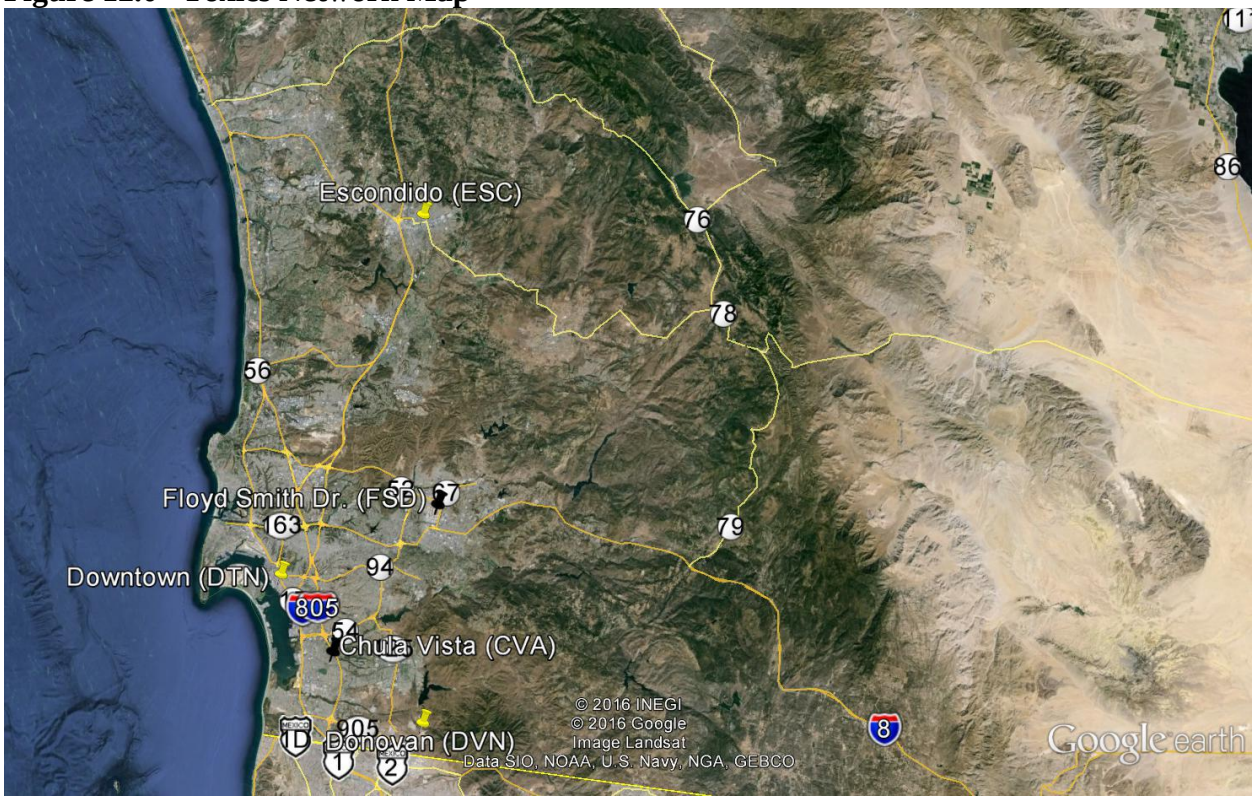
Chapter 12 Toxics Program

Section 12.0.0 Toxics Introduction

Toxics-related sampling was conducted at five sites; three SDAPCD sites and two CARB sites (Figure 12.0 and Table 12.0). As yet, there are no NAAQS standards which to compare the data. Please note:

- The El Cajon station was temporarily relocated to the Gillespie Field area off of Floyd Smith Drive, this station is called Floyd Smith Drive (FSD).
- Toxics-VOC at DVN, DTN, and ESC
- Toxics-Metals at DTN and DVN
- Toxics-Metals, VOC, and Carbonyls (CARB CA-TAC program) at ECA & FSD (only) and CVA

Figure 12.0 Toxics Network Map



The range of defined compounds for the Toxics program is in excess of 100 different possible carcinogenic, irritant, and mutagenic chemicals. Their toxicities are gauged by risk factors rather than limits.

Table 12.0 Toxics Sampling Network

	Abbreviation	CVA				FSD				ESC	DTN		DVN	
	Name	Chula Vista				El Cajon/Floyd Smith Dr.				Escondido	San Diego – Beardsley		Donovan	
	Address	80 E. J St.				10537 Floyd Smith Dr				600 E. Valley Pkwy	1110A Beardsley St.		480 Alta Rd.	
	Latitude Longitude	32.952106° -117.264086°				32.817907° -116.968302°				33.127730° -117.075379°	32.701492° -117.149663°		32.578267° -116.921359°	
	AQS ID	06-073-0001				06-073-1018				06-073-1002	06-073-1010		06-073-1014	
Toxics	Pollutant	Toxics-VOCs	Toxics-Metals	Toxics-Cr^{+6}	Toxics-Aldehydes	Toxics-VOCs	Toxics-Metals	Toxics-Cr^{+6}	Toxics-Aldehydes	Toxics-VOCs	Toxics-VOCs	Toxics-Metals	Toxics-VOCs	Toxics-Metals
	Monitor Type	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	CA TAC	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Method	Canister	Filter	Filter	Cartridges	Canister	Filter	Filter	Cartridges	Canister	Canister	Filter	Canister	Filter
	Affiliation	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Spatial Scale	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	SN
	Site Type	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE
	Objective (Federal)	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research	Research
	Analysis By	ARB	ARB	ARB	ARB	ARB	ARB	ARB	ARB	APCD	APCD	APCD	APCD	APCD
	Frequency	1:12	1:12	1:12	1:12	1:12	1:12	1:12	1:12	1:6	1:6	1:6	1:6	1:6
	Equipment	Xontech 910/912	Xontech 924	Xontech 924	Xontech 924	Xontech 910/912	Xontech 924	Xontech 924	Xontech 924	Xontech 910A FSL	Xontech 910A FSL	Xontech 924	Xontech 910A FSL	Xontech 924

[1] ECA station temporarily relocated to the FSD area
[2] OTM station relocated to the DVN area

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring Stations
NR= Monitors at sites meeting near road designs as per Part 58
PAMS= Photochemical Assessment Monitoring Stations
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Section 12.1.0 Toxics Minimum Monitoring Requirements

There are minimum monitoring requirements for the Toxics program.

Section 12.2.0 Toxics Sampling Frequency & Equipment Used

The EPA established the minimum collection frequency for VOCs, aldehydes, and other Hazardous Air Pollutants (HAPs) with respect to 24-hour integrated samples and are listed in Table 12.1a. The VOC analyzed compounds are in Table 12.1b. See ARB for parameter codes for their CA Toxic program.

Table 12.1a Toxics Equipment

Pollutant	Abbrev.	Collection Equipment	Collection Method	Collection Frequency	Analytical Method	Parameter Code	Method Code
Volatile Organic Compounds	VOCs	Xonteck 910A-FSL (SDAPCD) Xonteck 910/912 (ARB)	Fused Silica Lined (SDAPCD) Summa Canister (ARB)	1:6 (SDAPCD) 1:12 (ARB)	GC-MS	Table 12.1.b (SDAPCD) (See ARB)	210
Aldehydes	none	XonTech 924	DNPH cartridge	1:12 (ARB)	HPLC	(See ARB)	(See ARB)
Cr (VI)	none	XonTech 924	Teflon Filter	1:12 (ARB)	IC	(See ARB)	(See ARB)
Metals	none	XonTech 924	Teflon Filter	1:12 (SDAPCD) 1:12 (ARB)	Not analyzed (SDAPCD) (See ARB)	Not analyzed (SDAPCD) (See ARB)	Not analyzed (SDAPCD) (See ARB)

Table 12.1b Toxics VOCs Parameters Codes

Compound	Parmeter	Compound	Parmeter	Compound	Parmeter
Dichlorodifluoromethane	43823	Bromoform	43806	Toluene	45202
Chloromethane	43801	Styrene	45220	1,2-Dibromoethane	43843
4-Methyl-2-pentanone (MIBK)	43560	2-Methoxy-2-methylpropane	43372	trans-1,3-Dichloropropene	43830
Vinyl Chloride	43860	o-Xylene	45204	Chlorobenzene	45801
1,3-Butadiene	43218	4-Ethyltoluene	45213	Ethylbenzene	45203
Bromomethane	43819	1,3,5-Trimethylbenzene	45207	m,p-Xylene	45109
Chloroethane	43812	1,2,4-Trimethylbenzene	45208	Tetrachloroethene	43817
Trichlorofluoromethane	43811	1,3-Dichlorobenzene	45806	1,1,2-Trichloroethane	43820
Acrolein	43505	1,4-Dichlorobenzene	45807	Benzene	45201
Acetone	43551	1,2-Dichlorobenzene	45805	1,1,1-Trichloroethane	43814
2-Methyl-1,3-butadiene	43243	1,2,4-Trichlorobenzene	45810	Carbon Tetrachloride	43804
1,1-Dichloroethene	43826	Hexachlorobutadiene	43844	cis-1,3-Dichloropropene	43831
Acrylonitrile	43704	Acetonitrile	43702	1,2-Dichloroethane	43815
Methylene Chloride	43802	Vinyl acetate	43447	Trichloroethene	43824
Trichlorotrifluoroethane	43207	n-Hexane	43231	cis-1,2-Dichloroethene	43839
trans-1,2-Dichloroethene	43838	Ethyl acetate	43209	Chloroform	43803
1,1,2,2-Tetrachloroethane	43818	Methyl methacrylate	43441	Naphthalene	45850
1,1-Dichloroethane	43813	Dichlorotetrafluoroethane	43208	1,2-Dichloropropane	43829
2-Butanone	43552	Benzyl chloride	45809		

(left intentionally blank)

APPENDICES

Site Description Introduction

The appendices list the stations that comprise the San Diego Air Pollution Control District's ambient air quality network (Network) along with specific information required by the EPA for each monitor. This specific information is cross-referenced against the requirements for siting.

Federal requirements for the monitoring objectives and spatial scales, Table A1, are in the CFR annual update on July 1 of every year, 40 CFR Part 58, Subpart G-Federal Monitoring, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring". Table A1 summarizes these requirements and Table a2 defines the terminology and lists the monitor types and the definitions.

Table A1 Relationship between Site Types and Scales or Representativeness

Site Type	Definition	Appropriate Siting Scales	Permissible Scales & Definitions
Highest concentration,	Site located to determine the highest concentrations expected to occur in the area covered by the network	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Maximum ozone concentrations	Occurring downwind from the area of maximum precursor emissions.	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Maximum precursor impact	Are typically placed near the downwind boundary of the central business district (CBD) or primary area of precursor emissions mix	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Population Exposure	Sites located to determine typical concentrations in areas of high population density	Neighborhood, Urban	Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Source Oriented	Site located to determine the impact of significant sources or source categories on air quality	Micro, Middle, Neighborhood	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers)
General/Background	Sites located to determine general background concentration levels	Urban, Regional	Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Regional transport	Sites located to determine the extent of regional pollutant transport among populated areas and in support of secondary standards.	Urban, Regional	Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Welfare-related impacts	Sites located to measure air pollution impacts on visibility, vegetation damage, or other welfare based impacts	Urban, Regional	Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Upwind Background	Sites located to measure overwhelming incoming transport of ozone. Situated in the predominant upwind direction from the maximum precursor emissions location	Neighborhood Urban Regional	Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Quality Assurance	Site located for quality assurance requirements	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)

Table A2 Summary of Definitions in the Site Description Template

Glossary of Terms

Monitor Type
E= EPA
O= Other
SLAMS= State & Local monitoring station
SPM= Special purpose monitor
CATAC= California Toxics Monitoring

Site Type
EXDN= Extreme downwind
HC= Highest concentration
MXO= Maximum ozone concentration
MXP= Maximum precursor impact
PE= Population exposure
SO= Source oriented
UPBD= Upwind background
G/B= General/Background
RT= Regional Transport
WRI= Welfare related impacts
QA= Quality assurance

Method (Sampling/Analysis)
CL= Chemiluminescence
CT= Low Volume, size selective inlet, continuous
FL= Fluorescence
HV= High volume
IR= Nondispersive infrared
SI= High volume, size selective inlet
SP= Low volume, size selective inlet, speciated
Q= Low volume, size selective inlet, sequential
UV= Ultraviolet absorption
Canister= Evacuated stainless steel canisters
Cartridges= Di-nitrophenylhydrazine cartridges
FSL= Fused Silica Lined
Filter= Quartz filters

Spatial Scale
MI= Micro
MS= Middle
NS= Neighborhood
US= Urban Scale

Network Affiliation
BG= Border Grant
CSN STN= Trends Speciation
CSN SU= Supplemental Speciation
NATTS= National Air Toxics Trends Stations
NCORE= National Core Multi-pollutant Monitoring
NR= Monitors at sites meeting near road designs
PAMS= Photochemical Assessment Monitoring
UNPAMS= Unofficial PAMS site

Monitor Designation
PRI= Primary
QAC= Collocated
O= Other

Objective (Federal)
Data= Provide pollution data in a timely manner
NAAQS= Suitable for NAAQS comparison
Research= Research support
PI= Public Information

Federal requirements for correctly siting the inlet sample probe(s) are in the 40 CFR Part 58, Subpart G-Federal Monitoring, Appendix E, "Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring".

This specific information is presented in a site description template required by the EPA in all network plans. The pollutant monitors must be assigned a specific scale, type, monitoring objective, and designation. These parameters have specific guidelines that must be followed in order for the data collected from the monitors to be considered valid. Additionally, each monitor must meet certain physical parameters, e.g., distance from each other, distance from the road, distance from obstructions, etc. Table A3 summarizes these requirements. Figure A1 illustrates the distances PM samplers must be from the nearest traffic lane.

Modifications to the Site Template and General Information

The EPA supplies monitoring organizations with a site description template to use for the input of site information in the annual network plan. The District has modified the site description template into two tables. The section of the EPA template that lists the distance from obstructions, collocated monitors, etc., has been moved into a separate table with a more detailed accounting of the requirements provided in Table A3.

The traffic count is referenced to the closest cross street listed in the current Traffic Count database maintained by the San Diego Association of Governments (SANDAG). At some station locations, the closest cross street with an Annual Average Daily Traffic (AADT) count may be several hundred meters away. The vehicle count is estimated visually (this is stated, when applicable) and the traffic count for the closest major thoroughfare is also reported for comparison purposes.

Table A3 Summary of Probe Monitoring Paths

Pollutant (Name)	Scale <maximum monitoring path length> (Name)	Height from the ground to the probe, inlet or 80% of monitoring path[1] (meters)	Horizontal and vertical distance from supporting structures[2] to probe, inlet, or 90% of monitoring path[1] (meters)	Distance from trees to probe, inlet, or 90% of the monitoring path[1] (meters)	Average daily traffic count (#)	Distance from roadways to probe, inlet, or monitoring path[1,10] (meters)
SO_2[3,4,5,6]	Middle Neighborhood Urban Regional	Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1 > 1	> 10 > 10 > 10 > 10	For all scales Not Applicable	For all scales Not Applicable
CO[4,5,7]	Micro Middle Neighborhood	Min= 3.5, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1	> 10 > 10 > 10	For micro scale Not Applicable For all other scales ≤ 10,000 15,000 20,000 30,000 40,000 50,000 ≥ 60,000	For micro scale Min= 2, Max= 10 For all other scales 10 25 45 80 115 135 150
O_3[3,4,5]	Middle Neighborhood Urban Regional	Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1 > 1	> 10 > 10 > 10 > 10	For all scales ≥10,000 15,000 20,000 40,000 70,000 ≥ 110,000	For all scales 10 20 30 50 100 250
NOy & NO_2[3,4,5]	Micro Middle Neighborhood Urban, Regional	Min= 2, Max= 7 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1 > 1 > 1	> 10 > 10 > 10 > 10 > 10	For all scales ≥ 10,000 15,000 20,000 40,000 70,000 ≥ 110,000	For all scales 10 20 30 50 100 250
PAMS[3,4,5]	Neighborhood Urban	Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1	> 10 > 10	For all scales > 10,000 15,000 20,000 40,000 70,000 ≥ 110,000	For all scales 10 20 30 50 100 250
Pb[3,4,5,6,8] PM[3,4,5,6,8,9]	Micro Neighborhood Urban	Min= 2, Max= 7 Min= 2, Max= 15 Min= 2, Max= 15	> 2 > 2 > 2	> 10 > 10 > 10		Min= 5, Max= 15 (street canyon) Min= 2, Max= 10 (street) See Figure E-1 (below)

[1]Monitoring path for open path analyzers is applicable only to middle or neighborhood scale CO monitoring, middle, neighborhood, urban, and regional scale Now monitoring, and all applicable scales for monitoring SO_2, O_3 and O_3 precursors.

[2]When probe is located on a rooftop, this separation distance is in reference to walls, parapets, or penthouses located on roof.

[3] Should be > 20 meters from the dripline of tree(s) and must be 10 meters from the dripline when the tree(s) act as an obstruction

[4]Distance from sampler, probe, or 90% of monitoring path to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the sampler, probe, or monitoring path. Sites not meeting this criterion may be classified as middle scale.

[5]Must have unrestricted airflow 270 degrees around the probe or sampler; 180 degrees if the probe is on the side of a building or a wall.

[6]The sampler, probe, or monitoring path should be away from minor source, such as furnace or incineration flues. The separation distance is dependent on the height of the minor source's emission point, the type of waste burned, and the quality of the fuel (sulfur, ash, or lead content). This criterion is designed to avoid undue influences from minor sources.

[7]For microscale CO monitoring sites, the probe must be > 10 meters from a street intersection and preferably at a midblock location

[8] Collocated monitors must be within 4 meters of each other and at least 2 meters apart for flow rates > 200 liters/min or at least 1 meter apart for samplers having flow rates < 200 liters/min

[9] For particulate sampling, a minimum of 2 meters of separation from walls, parapets, and structures is required for rooftop site placement.

[10] Measured from the edge of the nearest lane to the sampler or inlet.

Figure A1 Distance of PM samplers to nearest traffic lane

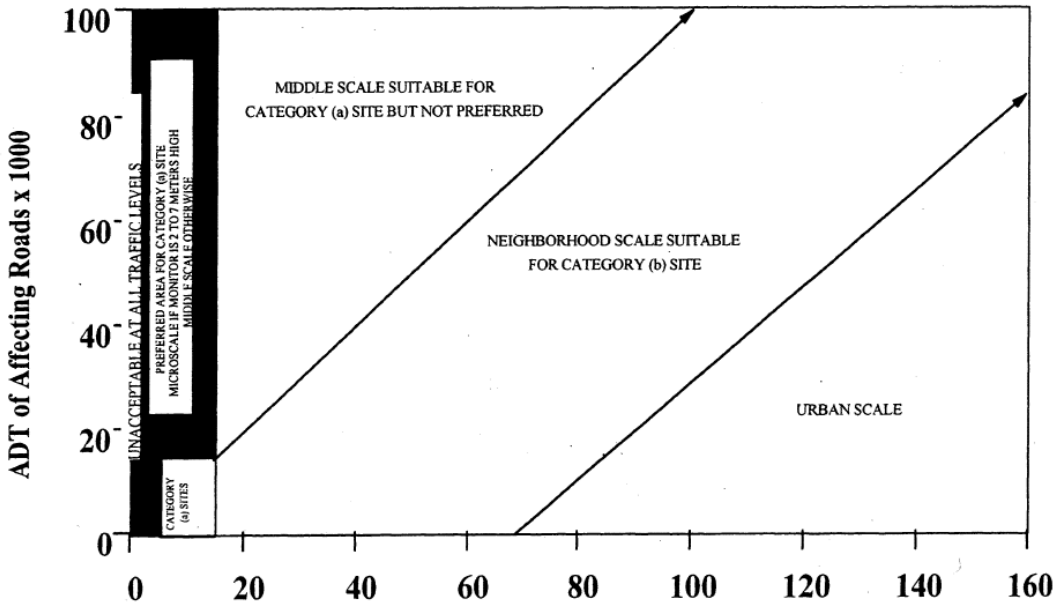


Figure E-1. Distance of PM samplers to nearest traffic lane (meters)

Section 1.0.0 Alpine Station Description and Statement of Purpose

Table 1.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Alpine
Year Established:	4/29/2015
Site Address:	2462 W. Victoria Dr.
Site Name Abbreviation:	ALP
AQS Number:	06-073-1006
Latitude:	32.842312°
Longitude:	-116.768277°
Elevation above Sea Level:	627 m
General Location:	Trailer adjacent to Padre reservoir
Ground Cover:	Asphalt
Distance to Road:	17 m west= W. Victoria Drive
Traffic Count (2010 AADT):	No traffic count is available for the closest cross street, W. Victoria Dr. estimated= 500 Alpine Blvd. at W. Victoria Dr.(south/slightly upwind 760 m) = 2,200
Site Description:	Due to its geographical location, each year the Alpine station records the highest ozone levels within the air basin. All particulate equipment is on the rooftop of the station.
Monitoring Objectives:	The Alpine location is a PAMS Type III site, intended to monitor maximum ozone concentrations occurring downwind from the area of maximum precursor emissions (NO_x and VOCs). It is also a site used to assess downwind transport of fine particulates ($PM_{2.5}$). NO_2 data continues to provide information on trends are an indication of the relative effectiveness of NO_x regulatory and control measures. The Alpine site also provides information used in making burn/no-burn decisions.
Planned Changes:	None

Figure 1.1 Alpine – Picture of the Location of the Station

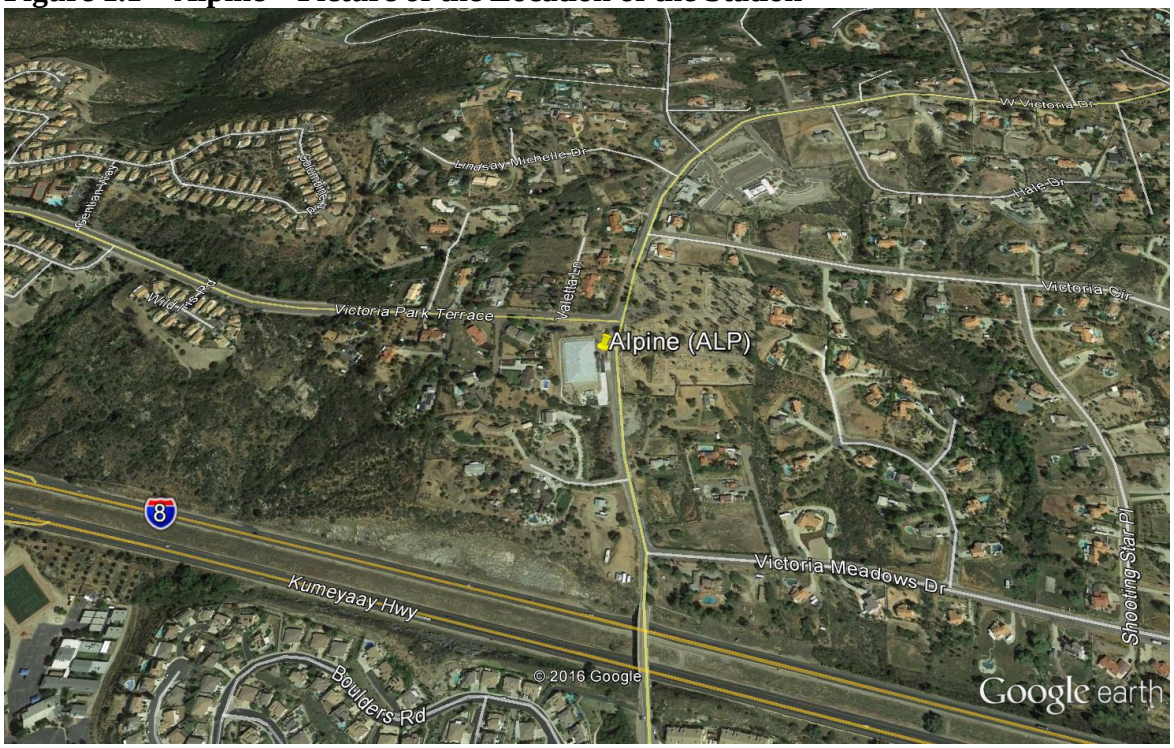


Table 1.2a Alpine - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air
POC	1	1	Not Applicable
Monitor designation	Other	Primary	Not Applicable
Parameter code	44201	42602 (NO_2)	Not Applicable
Basic monitoring objective	PI, NAAQS	PI, NAAQS	Not Applicable
Site type	Maximum ozone concentrations	Population Exposure	Not Applicable
Monitor type	SLAMS	SLAMS	Not Applicable
Network affiliation	PAMS	PAMS	Not Applicable
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701H
Method code	047	074	Not Applicable
FRM/FEM/ARM/Other	FEM	FRM	Not Applicable
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Urban Scale	Urban Scale	Not Applicable
Monitoring start date	4/29/2015	4/29/2015	4/29/2015
Current sampling frequency	Continuous	Continuous	Not Applicable
Required sampling frequency	Continuous	Continuous	Not Applicable
Sampling season	Year-round	Year-round	Not Applicable
Probe height	7.1 meters	7.1 meters	Not Applicable
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	13.3 meters	13.3 meters	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	Not Applicable
Residence time for reactive gases	3.1 sec	3.1 sec	Not Applicable
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	N/A
Frequency of QC check (one-point)	1:14	1:2	N/A
Annual Performance Evaluation date	11/19	12/7	12/4
NPAP (ARB) date	8/13/2015	8/13/2015	N/A

Table 1.2b Alpine - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (non-FEM)**
POC	1
Monitor designation	Other
Parameter code	88502 (LC)
Basic monitoring objective	PI, Research
Site type	Population Exposure
Monitor type	SLAMS
Network affiliation	N/A
Instrument manufacturer & model	Met One BAM 1020
Method code	733
FRM/FEM/ARM/Other	Other (non-FEM)
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Urban Scale
Monitoring start date	4/29/2015
Current sampling frequency	Continuous
Required sampling frequency	Continuous
Sampling season	Year-round
Probe height	5.0 meters
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	24.4 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	No
Frequency of flow rate verification	Semi-Monthly
Semi-Annual flow rate audits dates	11/7*
NPAP (ARB) date	8/13/2015

*Only operational for the last half of the year.

Table 1.2c Alpine - Other Pollutants Monitor Designations

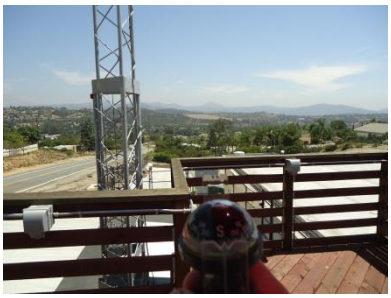
Pollutant	**PAMS-VOC**
POC	1 for 3-Hr samples 2 for 24-Hr samples
Monitor designation	Other
Parameter code	See PAMS Table 12.2b
Basic monitoring objective	Research
Site type	Maximum ozone concentrations
Monitor type	SLAMS
Network affiliation	PAMS Type III
Instrument manufacturer & model	Xontech 910 & 912
Method code	126
FRM/FEM/ARM/Other	Other
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Urban Scale
Monitoring start date	4/29/2015
Current sampling frequency	1:6
Required sampling frequency	1:6
Sampling season	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)
Probe height	4.8 meters
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	13.3 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	N/A
Frequency of QC check (one-point)	N/A
Annual Performance Evaluation date	N/A
NPAP (ARB) date	N/A

Table 1.2d Alpine - Meteorology Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp	Meteorological Rel. Humidity
POC	1	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101	62201
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS	PAMS	PAMS
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics	Rotronics
Method code	012	050	020	040	012
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Urban	Urban	Urban	Urban	Urban
Monitoring start date	4/29/2015	4/29/2015	4/29/2015	4/29/2015	4/29/2015
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	7.2 m	7.2 m	5.7 m	5.7 m
Distance from supporting structure	N/A	360°	360°	360°	360°
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A	N/A
Distance from trees	N/A	13.3 meters	13.3 meters	13.3 meters	13.3 meters
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	11/8	11/8	11/8	11/8	11/8
NPAP (ARB) date	N/A	*	*	*	*

*ARB does not have the equipment to audit.

Figure 1.2 Alpine – Pictures (Directional) from the Rooftop



Section 1.0.0 Alpine Station (temporary) Station Description and Statement of Purpose

Table 1.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Alpine (temporary)
Year Established:	8/18/2010
Site Address:	2495A W. Victoria Dr.
Site Name Abbreviation:	ALP
AQS Number:	06-073-1006
Latitude:	32.842324 ^{O}
Longitude:	116.767885 ^{O}
Elevation above Sea Level:	630 m
General Location:	Trailer in the SW corner of the Alpine cemetery
Ground Cover:	Packed dirt
Distance to Road:	20 m west= W. Victoria Drive
Traffic Count (2010 AADT):	No traffic count is available for the closest cross street, W. Victoria Dr. estimated= 500 Alpine Blvd. at W. Victoria Dr.(south/slightly upwind 760 m) = 2,200
Site Description:	The temporary Alpine location was on the Alpine cemetery on 08/18/2010, about 33 meters E of its original location. The original location was adjacent to the Padre reservoir and pump station. When the equipment and land underwent renovation, the sampling station relocated across the street. Due to its geographical location, each year the Alpine station records the highest ozone levels within the air basin.
Monitoring Objectives:	The Alpine location is a PAMS Type III site, intended to monitor maximum ozone concentrations occurring downwind from the area of maximum precursor emissions (NO_x and VOCs). It is also a site used to assess downwind transport of fine particulates ($PM_{2.5}$). NO_2 data continues to provide information on trends are an indication of the relative effectiveness of NO_x regulatory and control measures. The Alpine site also provides information used in making burn/no-burn decisions.
Planned Changes:	Decommissioned in 4/2015

Figure 1.1 Alpine - Picture of the Location of the Station

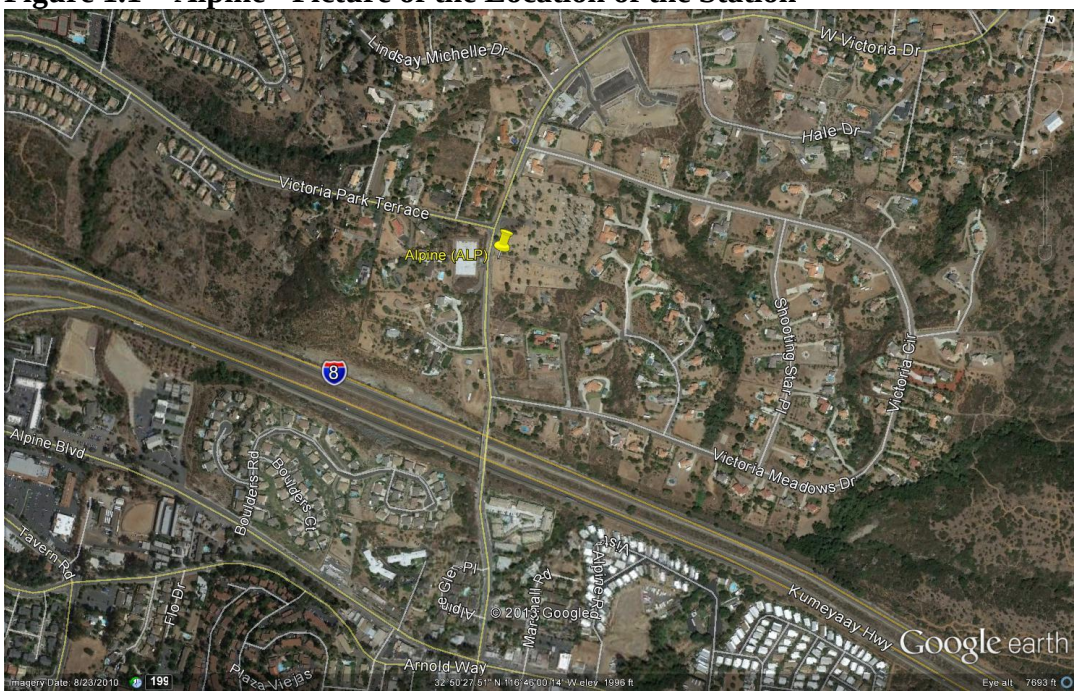


Table 1.2a Alpine (t) - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air
POC	1	1	N/A
Monitor designation	Other	Primary	N/A
Parameter code	44201	42602 (NO_2)	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A
Site type	Maximum ozone concentrations	Population Exposure	N/A
Monitor type	SLAMS	SLAMS	N/A
Network affiliation	PAMS	PAMS	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701H
Method code	047	074	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Urban Scale	Urban Scale	N/A
Monitoring start date	8/18/2010	8/18/2010	8/18/2010
Current sampling frequency	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	N/A
Sampling season	Year-round	Year-round	N/A
Probe height	6.0 meters	6.0 meters	N/A
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	13 meters	13 meters	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	4.15 sec	4.15 sec	N/A
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	N/A
Frequency of QC check (one-point)	1:14	1:2	N/A
Annual Performance Evaluation date	Closed before Evaluation	Closed before Evaluation	N/A
NPAP (ARB) date	Closed before NPAP	Closed before NPAP	N/A
MONITORING END DATE	4/2015	4/2015	4/2015

Table 1.2b Alpine (t) - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (non-FEM)**
POC	1
Monitor designation	Other (non-FEM)
Parameter code	88502 (LC)
Basic monitoring objective	PI, Research
Site type	Population Exposure
Monitor type	SLAMS
Network affiliation	N/A
Instrument manufacturer & model	Met One BAM 1020
Method code	733
FRM/FEM/ARM/Other	Other (non-FEM)
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Urban Scale
Monitoring start date	8/18/2010
Current sampling frequency	Continuous
Required sampling frequency	Continuous
Sampling season	Year-round
Probe height	5.0 meters
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	13 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	No
Frequency of flow rate verification	Semi-Monthly
Semi-Annual flow rate audits dates	Closed before Evaluation
NPAP (ARB) date	Closed before NPAP
PEP (EPA) date	n/a
MONITORING END DATE	4/2015

Table 1.2c Alpine (t) - Other Pollutants Monitor Designations

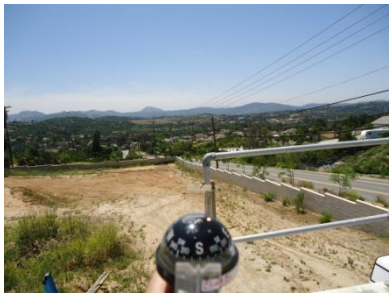
Pollutant	**PAMS-VOC**
POC	1 for 3-Hr samples 2 for 24-Hr samples
Monitor designation	Other
Parameter code	See PAMS Table 12.2b
Basic monitoring objective	Research
Site type	Maximum ozone concentrations
Monitor type	SLAMS
Network affiliation	PAMS Type III
Instrument manufacturer & model	Xontech 910 & 912
Method code	126
FRM/FEM/ARM/Other	Other
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Urban Scale
Monitoring start date	8/18/2010
Current sampling frequency	1:6
Required sampling frequency	1:6
Sampling season	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)
Probe height	4.9 meters
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	13 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	N/A
Frequency of QC check (one-point)	N/A
Annual Performance Evaluation date	N/A
NPAP (ARB) date	Closed before NPAP
MONITORING END DATE	4/2015

Table 1.2d Alpine (t) - Meteorology Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp	Meteorological Rel. Humidity
POC	1	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101	62201
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS	PAMS	PAMS
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics	Rotronics
Method code	012	050	020	040	012
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Urban	Urban	Urban	Urban	Urban
Monitoring start date	08/18/2010	08/18/2010	08/18/2010	08/18/2010	08/18/2010
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	7.2 m	7.2 m	5.7 m	5.7 m
Distance from supporting structure	N/A	360°	360°	360°	360°
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A	N/A
Distance from trees	N/A	13 meters	13 meters	13 meters	13 meters
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	Closed before Evaluation	Closed before Evaluation	Closed before Evaluation	Closed before Evaluation	Closed before Evaluation
NPAP (ARB) date	N/A	*	*	*	*
MONITORING END DATE	4/2015	4/2015	4/2015	4/2015	4/2015

*ARB does not have the equipment to audit.

Figure 1.2 Alpine – Pictures (Directional) from the Rooftop



Section 2.0.0 Camp Pendleton Station Description and Statement of Purpose

Table 2.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Camp Pendleton
Year Established:	4/1997
Site Address:	21441 West B St.
Site Name Abbreviation:	CMP
AQS Number:	06-073-1008
Latitude:	33.217063 ^{O}
Longitude:	-117.396169 ^{O}
Elevation above Sea Level:	16 m
General Location:	Trailer in the W corner of the parking lot across the Corporal Training facility and above the Del Mar beach on Camp Pendleton
Ground Cover:	Asphalt
Distance to Road:	41 m west= B St.
Traffic Count (2010 AADT):	No traffic count is available for the base; B St. estimated= 500 Interstate 5 (east/downwind 440 m)= 160,000
Site Description:	This station is a trailer located within the Marine Corps Camp Pendleton Base and sits atop a bluff overlooking the Pacific Ocean. In 1997, it replaced the Oceanside station about 7.6 km south east (east of I-5) of the CMP location. Due to its geographical location, this station records over-water transport from the South Coast Air Basin. Diesel truck motor pool 61 m west of the stations and at the base of the bluffs.
Monitoring Objectives:	This site functions as an upwind, PAMS Type I background characterization site.
Planned Changes:	None

Figure 2.1 Camp Pendleton – Picture of the Location of the Station

Table 2.2a Camp Pendleton - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air
POC	1	1	N/A
Monitor designation	Other	Primary	N/A
Parameter code	44201	42602 (NO_2)	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A
Site type	Upwind Background	Upwind Background	N/A
Monitor type	SLAMS	SLAMS	N/A
Network affiliation	PAMS	PAMS	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701H
Method code	047	074	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A
Monitoring start date	1997	1997	1997
Current sampling frequency	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	N/A
Sampling season	Year round	Year round	N/A
Probe height	5.9 meters	5.9 meters	5.9 meters
Distance from supporting structure	5.6 meters	5.6 meters	5.6 meters
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	35 m	35 m	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	7.0 sec	7.0 sec	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	n/a
Frequency of QC check (one-point)	1:2	1:2	N/A
Annual Performance Evaluation date	8/28	9/11	12/9
NPAP (ARB) date	Not done this year	Not done this year	N/A

Table 2.2b Camp Pendleton - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (non-FEM)**
POC	1
Monitor designation	Other
Parameter code	88502 (LC)
Basic monitoring objective	PI, Research
Site type	UPBD
Monitor type	O
Network affiliation	N/A
Instrument manufacturer & model	Met One BAM 1020
Method code	733
FRM/FEM/ARM/Other	Other (non-FEM)
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Urban
Monitoring start date	10/24/2005
Current sampling frequency	Continuous
Required sampling frequency	Continuous
Sampling season	Year-round
Probe height	5.0 meters
Distance from supporting structure	3.9 meters
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	35 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	No
Suitable for comparison to the NAAQS?	No
Frequency of flow rate verification	Semi-monthly
Semi-Annual flow rate audits dates	8/27 2/5
NPAP (ARB) date	Not done this year

Table 2.2c Camp Pendleton - Other Pollutants Monitor Designations

Pollutant	PAMS-VOC	PAMS-VOC (collocated)
POC	1 for 3-Hr samples 2 for 24-Hr samples	1 for 3-Hr samples 2 for 24-Hr samples
Monitor designation	O	QAC
Parameter code	See PAMS Table 12.2b	See PAMS Table 12.2b
Basic monitoring objective	Research	Research
Site type	Upwind background	Quality Assurance
Monitor type	SLAMS	O
Network affiliation	PAMS Type I	N/A
Instrument manufacturer & model	Xontech 910 & 912	Xontech 910 & 912
Method code	126	126
FRM/FEM/ARM/Other	N/A	N/A
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1997	7/2011
Current sampling frequency	1:6	1:6
Required sampling frequency	1:6	1:6
Sampling season	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)
Probe height	5.6 meters	5.6 meters
Distance from supporting structure	7.2 meters	7.5 meters
Distance from obstructions on roof	N/A	N/A
Distance from obstructions not on roof	N/A	N/A
Distance from trees	35 meters	35 meters
Distance to furnace or incinerator flue	N/A	N/A
Distance between collocated monitors	0.7 meters	0.7 meters
Unrestricted airflow	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A
Annual Performance Evaluation date	N/A	N/A
NPAP (ARB) date	N/A	N/A

Table 2.2d Camp Pendleton - Meteorological Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS	PAMS
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics
Method code	012	050	020	040
FRM/FEM/ARM/Other	O	O	O	O
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	1997	1997	1997	1997
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	10 m	10 m	5 m
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	35 meters	35 meters	35 meters	35 meters
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	9/25	9/25	9/25	9/25
NPAP (ARB) date	N/A	*	*	*

*ARB does not have the equipment to audit.

Figure 2.2 Camp Pendleton – Pictures (Directional) from the Rooftop








Section 3.0.0 Chula Vista Station Description and Statement of Purpose

Table 3.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Chula Vista
Year Established:	01/20/1972
Site Address:	80 East J St.
Site Name Abbreviation:	CVA
AQS Number:	06-073-0001
Latitude:	32.631175^{O}
Longitude:	-117.059115^{O}
Elevation above Sea Level:	55 m
General Location:	Trailer in the W corner of the Chula Vista Elementary School District offices parking lot
Ground Cover:	Asphalt
Distance to Road:	51 m northwest= E. J St.; 301 m south-southeast Hilltop Dr.
Traffic Count (2010 AADT):	Hilltop Dr. at E. J St.= 9,100
Site Description:	This station is a trailer located on the western corner of the Chula Vista Elementary School District Administration property, immediately south of Chula Vista Fire Station No. 2.
Monitoring Objectives:	Helps track trends for an area that has a high rate of asthma.
Planned Changes:	A new wood deck will replace the old one in 2016. Upon completion, a collocated $PM_{2.5}$ Manual sampler relocated from KVR and sited at CVA.

Figure 3.1 Chula Vista – Pictures of the Location of the Station

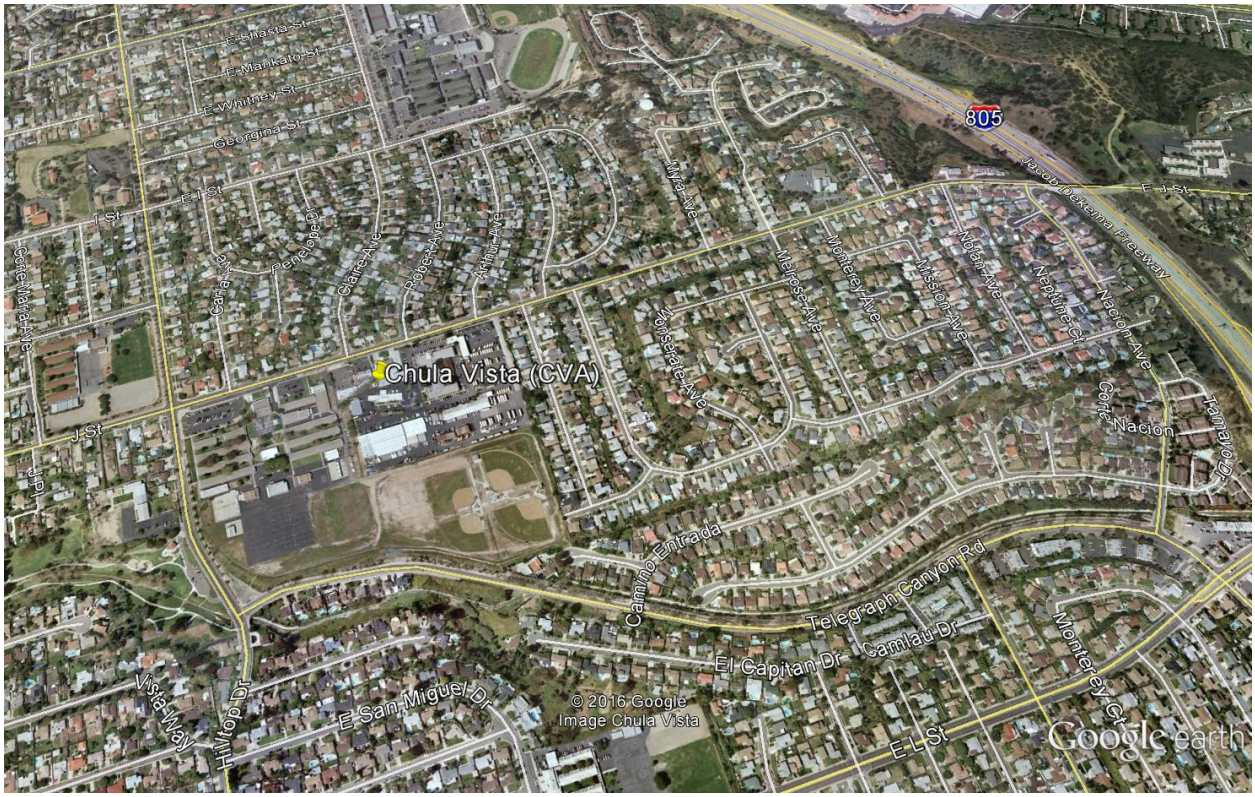


Table 3.2a Chula Vista - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air
POC	1	1	N/A
Monitor designation	Other	Primary	N/A
Parameter code	44201	42602 (NO_2)	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A
Site type	Population Exposure	Population Exposure	N/A
Monitor type	SLAMS	SLAMS	N/A
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701H
Method code	047	074	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Not Applicable
Monitoring start date	1974	1974	1997
Current sampling frequency	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	N/A
Sampling season	Year-round	Year-round	N/A
Probe height	6.0 meters	6.0 meters	6.0 meters
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	4.77 sec	4.77 sec	N/A
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	N/A
Frequency of QC check (one-point)	1:2	1:2	N/A
Annual Performance Evaluation date	5/28, 3/5	5/25, 3/27	7/6
NPAP (ARB) date	Not Done this Year	Not Done this Year	N/A

Table 3.2b Chula Vista - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Manual (FRM)**	**PM_{10} Manual**	**PM_{10} Manual (collocated)**
POC	1	1 (LC) 2 (STD)	2 (LC) 3 (STD)
Monitor designation	Primary	Primary	Quality Assurance
Parameter code	88101 (LC)	85101 (LC) 81102 (STD)	85101 (LC) 81102 (STD)
Basic monitoring objective	PI, Research	NAAQS	NAAQS
Site type	NAAQS	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 2025	GMW 2000H w/ SA 1200 Head	GMW 2000H w/ SA 1200 Head
Method code	145 (LC)	063	063
FRM/FEM/ARM/Other	FRM	FRM	FRM
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1999	1986	10/6/2012
Current sampling frequency	1:3	1:6	1:12
Required sampling frequency	1:3	1:6	1:12
Sampling season	Year-round	Year-round	Year-round
Probe height	5.6 meters	5.0 meters	5.0 meters
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	Yes (if PRI does not run)
Frequency of flow rate verification	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	6/4, 12/30	2/4, 7/21	2/4, 7/21
NPAP (ARB) date	Not Done this Year	Not Done this Year	Not Done this Year
PEP (EPA) date	2/17	N/A	N/A

Table 3.2c Chula Vista - Other Pollutants Monitor Designations

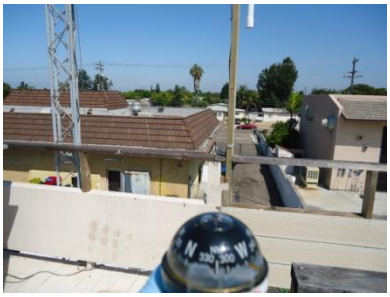
Pollutant	Toxics-VOC	Toxics-Metals	Toxics-Cr(VI)	Toxics-Aldehyde
POC	See ARB	See ARB	See ARB	See ARB
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	See ARB	See ARB	See ARB	See ARB
Basic monitoring objective	Research	Research	Research	Research
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	CA Toxics	CA Toxics	CA Toxics	CA Toxics
Network affiliation	CA Toxics	CA Toxics	CA Toxics	CA Toxics
Instrument manufacturer & model	Xontech 910	Xontech 924	Xontech 924	Xontech 924
Method code	See ARB	See ARB	See ARB	See ARB
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	ARB	ARB	ARB	ARB
Reporting agency	ARB	ARB	ARB	ARB
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1988	1988	1988	1988
Current sampling frequency	1:12	1:12	1:12	1:12
Required sampling frequency	1:6	1:6	1:6	1:6
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	5.6 meters	5.6 meters	5.6 meters	5.6 meters
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of flow rate verification	N/A	N/A	N/A	N/A
Semi-Annual flow rate audits dates	N/A	N/A	N/A	N/A
NPAP (ARB) date	N/A	N/A	N/A	N/A

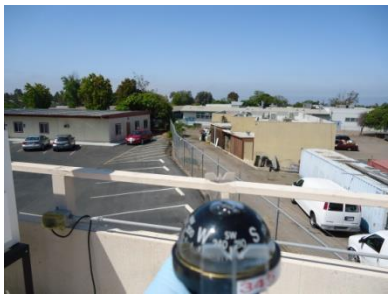
Table 3.2d Chula Vista - Meteorological Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics
Method code	012	050	020	040
FRM/FEM/ARM/Other	O	O	O	O
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	1972	1972	1972	1998
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	10 m	10 m	5 m
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	6/3	6/3	6/3	6/3
NPAP (ARB) date	N/A	*	*	*

*ARB does not have the equipment to audit.

Figure 3.2 Chula Vista – Pictures (Directional) form the Rooftop





Section 4.0.0 Del Mar Station Description and Statement of Purpose

Table 4.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Del Mar
Year Established:	10/14/1983
Site Address:	225 9th St.
Site Name Abbreviation:	DMR
AQS Number:	06-073-1001
Latitude:	32.952106°
Longitude:	-117.264086°
Elevation above Sea Level:	39 m
General Location:	Trailer in the NW corner of the Winston School parking lot
Ground Cover:	Asphalt
Distance to Road:	12.2 m west= Stratford Ct.
Traffic Count (2010 AADT):	No traffic count is available for the Stratford Ct, nor the closest cross street, 9th St.; the estimated AADT= 3,000 Del Mar Heights Rd. at Camino Del Mar (SE/downwind 512 m)= 16,200
Site Description:	This station is a trailer located on the western section of the fence line of Winston School parking lot in the city of Del Mar.
Monitoring Objectives:	The primary function of this site is to monitor background levels of ozone on non-transport days, and to measure ozone concentrations during periods of over-water transport from the South Coast Air Basin.
Planned Changes:	There are bushes less than 10 m from the inlet or the probe, but the bushes are 2 m below the inlet and are trimmed regularly to maintain this height. The measured values at this location compare with the ones at CMP and the vegetation does not impact the quality of the data.

Figure 4.1 Del Mar – Picture of the Location of the Station

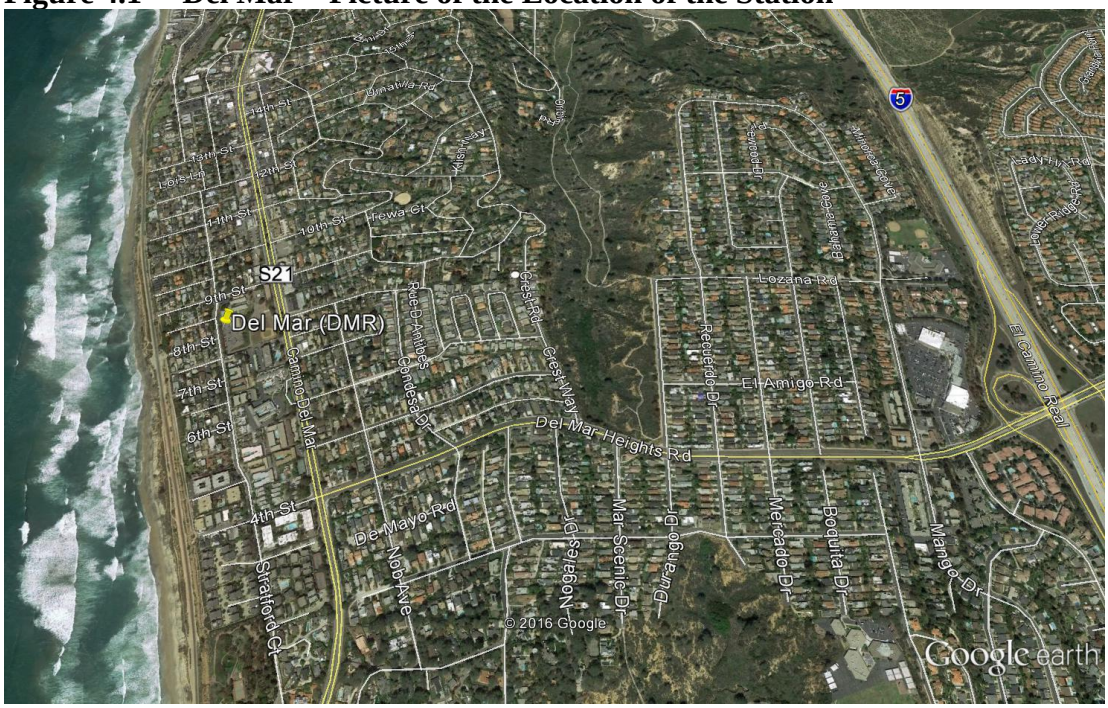


Table 4.2a Del Mar - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	Other Zero Air
POC	1	N/A
Monitor designation	O	N/A
Parameter code	44201	N/A
Basic monitoring objective	PI, NAAQS	N/A
Site type	General/ Background	N/A
Monitor type	SLAMS	N/A
Network affiliation	N/A	N/A
Instrument manufacturer & model	Thermo 49 series	Teledyne-API 701H
Method code	047	N/A
FRM/FEM/ARM/Other	FRM	N/A
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Neighborhood Scale	Not Applicable
Monitoring start date	10/1983	1997
Current sampling frequency	Continuous	N/A
Required sampling frequency	Continuous	N/A
Sampling season	Year- round	N/A
Probe height	4.2 meters	6.0 meters
Distance from supporting structure	N/A	N/A
Distance from obstructions on roof	N/A	N/A
Distance from obstructions not on roof	N/A	N/A
Distance from trees	19.7 meters	N/A
Distance to furnace or incinerator flue	N/A	N/A
Distance between collocated monitors	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}
Probe material for reactive gases	Teflon	N/A
Residence time for reactive gases	2.7 sec	N/A
Any changes within the next 18 months?	No	Yes
Suitable for comparison to the NAAQS?	Yes	N/A
Frequency of QC check (one-point)	1:14	N/A
Annual Performance Evaluation date	6/29	6/29
NPAP (ARB) date	Not done this Year	N/A

Table 4.2b Del Mar - Meteorology Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction
POC	1	1	1
Monitor designation	N/A	N/A	N/A
Parameter code	62107	61101	61104
Basic monitoring objective	N/A	N/A	N/A
Site type	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics
Method code	012	050	020
FRM/FEM/ARM/Other	O	O	O
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	1983	1983	1983
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round
Probe height	N/A	10 m	10 m
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	19.7 m	19.7 m	19.7 m
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	N/A	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A
Annual Performance Evaluation date	7/29	7/29	7/29
NPAP (ARB) date	N/A	*	*

*ARB does not have the equipment to audit.

Figures 4.2 Del Mar – Pictures (Directional) from the Ground*

*There is no deck from which to take pictures.

Section 5.0.0 Donovan Station Description and Statement of Purpose

Table 5.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Donovan
Year Established:	1/2005 PM10 sampler original site date; Relocated 800 m east on 7/2014
Site Address:	Donovan State Prison Rd. (200 m west of Alta Rd.)
Site Name Abbreviation:	DVN
AQS Number:	06-073-1014
Latitude:	32.578267 ^{O}
Longitude:	-116 .921359 ^{O}
Elevation above Sea Level:	185 m
General Location:	200 m east of Alta Rd on the Donovan Prison Rd.
Ground Cover:	Asphalt
Distance to Road:	26 m north= Donovan Prison Rd.
Traffic Count (2010 AADT):	No traffic count is available for Donovan Prison Rd.; AADT estimated= 300 Otay Mesa Rd. at Alta Rd. southwest/downwind 2,100 m = 5,900
Site Description:	This site is situated at the entrance to the Richard J. Donovan Correctional Facility.
Monitoring Objectives:	This site is primarily used to measure neighborhood scale concentrations in the southeast county.
Planned Changes:	None

Figure 5.1 Donovan – Picture of the Location

Table 5.2a Donovan - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air
POC	1	1	N/A
Monitor designation	Other	Primary	N/A
Parameter code	44201	42602 (NO_2)	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A
Site type	Population Exposure	Population Exposure	N/A
Monitor type	SLAMS	SLAMS	N/A
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701
Method code	047	074	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A
Monitoring start date	7/2014	7/2014	7/2014
Current sampling frequency	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	N/A
Sampling season	Year-round	Year-round	N/A
Probe height	6.6 meters	6.6 meters	N/A
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	Not Applicable
Residence time for reactive gases	5.48 sec	5.48 sec	Not Applicable
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A
Frequency of QC check (one-point)	1:2	1:2	1:2
Annual Performance Evaluation date	4/24	4/23	5/1
NPAP (ARB) date	Not Done this year	Not Done this year	N/A

Table 5.2b Donovan - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (non-FEM)**	**PM_{10} Manual (Hi-Vol)**
POC	1	1
Monitor designation	Other	Other
Parameter code	88502 (LC)	85101 (LC) 81102 (STD)
Basic monitoring objective	PI, Research	NAAQS
Site type	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Met One BAM 1020	GMW 2000H w/ SA 1200 Head
Method code	733	063
FRM/FEM/ARM/Other	Other (non-FEM)	FRM
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Population Exposure	Neighborhood Scale
Monitoring start date	1/21/2015	7/2014
Current sampling frequency	Continuous	1:6
Required sampling frequency	Continuous	1:6
Sampling season	Year-round	Year-round
Probe height	6.7 meters	6.0 meters
Distance from supporting structure	N/A	N/A
Distance from obstructions on roof	N/A	N/A
Distance from obstructions not on roof	N/A	N/A
Distance from trees	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A
Distance between collocated monitors	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	No	No
Frequency of flow rate verification	Semi-monthly	monthly
Semi-Annual flow rate audits dates	7/28, 11/30	5/01, 10/28
NPAP (ARB) date	Not Done this year	Not Done this year

Table 5.2c Donovan - Other Pollutants Monitor Designations

Pollutant	TOXICS-VOC	TOXICS-VOC (collocated)	TOXICS-Metals
POC	1	1	1
Monitor designation	Not Applicable	QAC	Not Applicable
Parameter code	See Toxics sec Table	See Toxics sec Table	Collected; Not analyzed
Basic monitoring objective	Research	Research	Research
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	Other (SDAPCD Network)	Other (SDAPCD Network)	Other (SDAPCD Network)
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Xontech 910A (Fused Silica Lined)	Xontech 910A (Fused Silica Lined)	Xontech 924
Method code	210	210	Collected; Not analyzed
FRM/FEM/ARM/Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2014	7/2014	7/2014
Current sampling frequency	1:12	1:12	1:12
Required sampling frequency	1:6	1:6	1:6
Sampling season	Year-round	Year-round	Year-round
Probe height	6.4 meters	6.4 meters	6.5 meters
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A
Frequency of flow rate verification	N/A	N/A	N/A
Semi-Annual flow rate audits dates	N/A	N/A	N/A
NPAP (ARB) date	N/A	N/A	N/A

Table 5.2d Donovan - Meteorological Equipment Monitor Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics
Method code	012	050	020	040
FRM/FEM/ARM/Other	O	O	O	O
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	7/2014	7/2014	7/2014	7/2014
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	10 m	10 m	5 m
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	7/14	7/14	7/14	7/14
NPAP (ARB) date	N/A	*	*	*

*ARB does not have the equipment to audit.

Figure 5.2 Donovan – Pictures (Directional) from the Rooftop

Section 6.0.0 San Diego / Beardsley St. Station Description and Statement of Purpose

Table 6.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	San Diego-Beardsley St.
Year Established:	7/14/2005
Site Address:	1110a Sigsbee St.
Site Name Abbreviation:	DTN
AQS Number:	06-073-1010
Latitude:	32.701492 ^{O}
Longitude:	-117.149663 ^{O}
Elevation above Sea Level:	8 m
General Location:	Trailer in the SW corner of the Perkins Elementary school parking lot
Ground Cover:	Asphalt
Distance to Road:	10.7 m north= Sigsbee St.
Traffic Count (2010 AADT):	Main St. at Sigsbee St.= 3,000
Site Description:	This site is centered in the heart of the Downtown/South Bay industrial zone, and captures emissions from Interstates 5, 805, 15 and Route 94, downtown San Diego, Lindbergh Field, North Island Naval Air Station, marine terminals, NASSCO shipyards, Continental Maritime shipyard, Southwest Marine, train yards, and harbor ship traffic.
Monitoring Objectives:	This site is in an Environmental Justice area. Forecasting of $PM_{2.5}$ levels for several monitoring sites (from Chula Vista to Kearny Mesa) is partially based upon the values collected at this site. This location is useful for capturing high NO_2 concentrations, and assessing ozone transport from the south (Baja, Mexico).
Planned Changes:	In July 2016, due to a multi-year school redevelopment construction project, the District had to permanently relocate to Sherman Elementary School in Sherman Heights.

Figure 6.1 Downtown – Picture of the Location of the Station

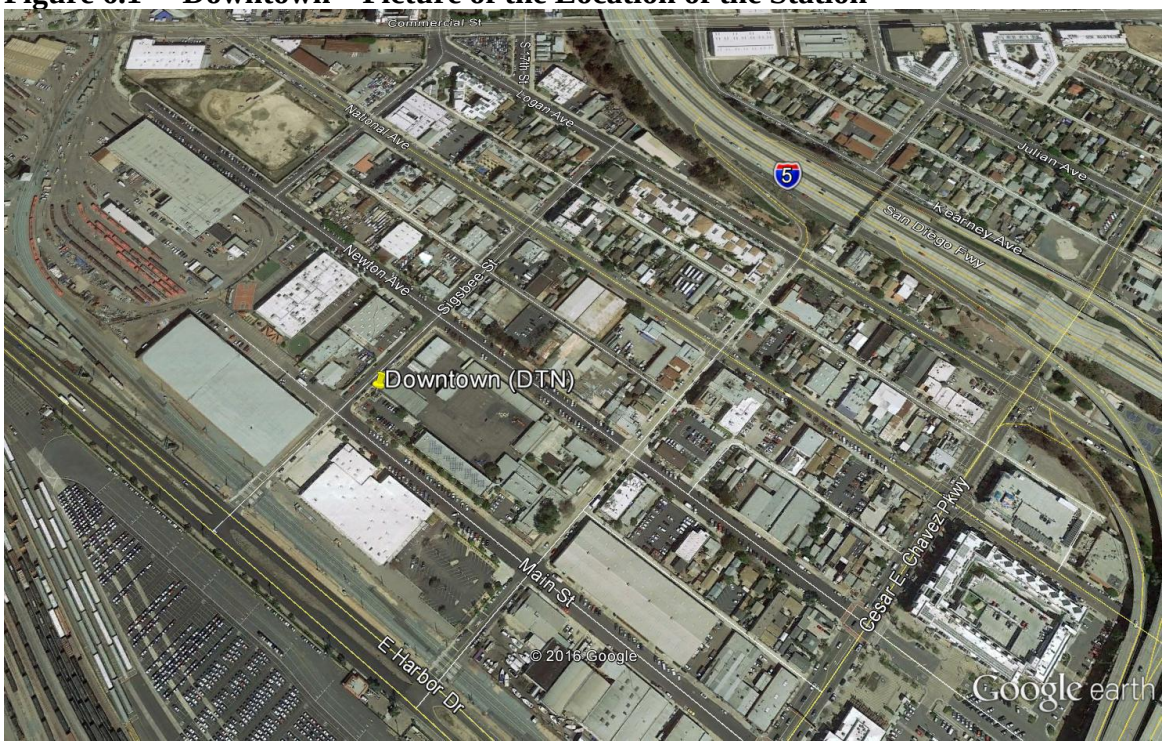


Table 6.2a Downtown - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	CO	Other Zero Air
POC	1	1	1	N/A
Monitor designation	Other	Primary	Other	N/A
Parameter code	44201	42602 (NO_2)	42101	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	PI, NAAQS	N/A
Site type	Population Exposure	Population Exposure	Population Exposure	N/A
Monitor type	SLAMS	SLAMS	SLAMS	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Thermo 48i	Teledyne-API 701H
Method code	047	074	054	N/A
FRM/FEM/ARM/Other	FEM	FRM	FRM	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	N/A
Monitoring start date	7/2005	7/2005	7/2005	7/2005
Current sampling frequency	Continuous	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	Continuous	N/A
Sampling season	Year-round	Year-round	Year-round	N/A
Probe height	6.0 meters	6.0 meters	6.0 meters	N/A
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	21 meters	21 meters	21 meters	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	5.01 sec	5.01 sec	5.01 sec	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	Yes	N/A
Frequency of QC check (one-point)	1:2	1:2	1:2	N/A
Annual Performance Evaluation date	2/26	3/4	2/27, 6/26	N/A
NPAP (ARB) Date	8/12/2015	8/12/2015	Not Done	N/A

Table 6.2b Downtown - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous**	**$PM_{2.5}$ Manual**	**$PM_{2.5}$ CSN, SU**	**PM_{10} Manual**
POC	1	1	1	1
Monitor designation	Other	Primary	N/A	Other
Parameter code	88502 (LC)	88101 (LC)	See $PM_{2.5}$ Table 9.3b	85101 (LC) 81102 (STD)
Basic monitoring objective	PI, Research	NAAQS	Research	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	Supplemental Speciation	SLAMS
Network affiliation	N/A	N/A	CSN SU SDAPCD Network	N/A
Instrument manufacturer & model	Met One BAM 1020	Thermo 2025	Met One SASS	GMW 2000H w/ SA 1200 Head
Method code	733	145	See $PM_{2.5}$ Chapter	063
FRM/FEM/ARM/Other	Other (non-FFEM)	FRM	Other	FRM
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2005	7/2005	8/10/2008	7/2005
Current sampling frequency	Continuous	1:3	1:6	1:6
Required sampling frequency	Continuous	1:3	1:6	1:6
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	5.7 meters	5.7 meters	5.5 meters	5.1 meters
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	21 meters	21 meters	21 meters	21 meters
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	No	Yes	N/A	Yes
Frequency of flow rate verification	Semi-monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	3/30, 8/25	3/24, 8/25	3/24, 8/25, 12/7	6/26, 12/17
NPAP (ARB) Date	8/12/2015	8/12/2015	8/12/2015	8/12/2015
PEP (EPA) date	N/A	8/19, 12/28	N/A	N/A

Table 6.2c Downtown - Other Pollutants Monitor Designations

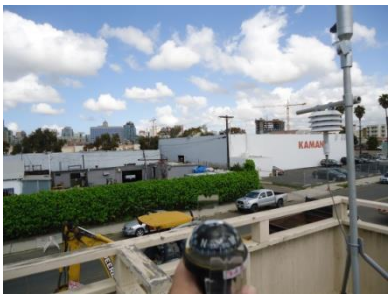
Pollutant	TOXIC-VOC	TOXIC-Metals	PAMS-Carbonyls (unofficial)
POC	1	1	1
Monitor designation	N/A	N/A	Other
Parameter code	See Toxics sec Table 13.b	Collected; not analyzed	See PAMS Table 12.2
Basic monitoring objective	Research	Research	Research
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	Other (SDAPCD Network)	Other (SDAPCD Network)	Unofficial PAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Xontech 910A (Fused Silica Lined)	Xontech 924	Xontech 924
Method code	210	Collected; not analyzed	202
FRM/FEM/ARM/Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1/2007	1/2005	7/2012
Current sampling frequency	1:6	1:12	1:6
Required sampling frequency	1:6	1:6	1:6
Sampling season	Year-round	Year-round	Year-round
Probe height	6.0 meters	5.7 meters	5.7 meters
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	21 meters	21 meters	21 meters
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	Yes
Frequency of QC check (one-point)	N/A	N/A	N/A
Annual Performance Evaluation date	N/A	N/A	N/A
NPAP (ARB) Date	N/A	N/A	N/A

Table 6.2d Downtown - Meteorological Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS	PAMS
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics
Method code	012	050	020	040
FRM/FEM/ARM/Other	O	O	O	O
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	7/2005	7/2005	7/2005	7/2005
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	10 m	10 m	5 m
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	21 m	21 m	21 m	21 m
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	7/15	7/15	7/15	7/15
NPAP (ARB) Date	N/A	*	*	*

*ARB does not have the equipment to audit.

Figure 6.2 Downtown – Pictures (Directional) from the Rooftop



Section 7.0.0 McClellan-Palomar Airport Station Description and Statement of Purpose

Table 7.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	McClellan-Palomar (Palomar)
Year Established:	3/10/2012 at old location; 11/1/2014 and current location
Site Address:	2192 Palomar Airport Rd.
Site Name Abbreviation:	CRQ
AQS Number:	06-073-1023
Latitude:	33.130822 ^{O}
Longitude:	-117.272686 ^{O}
Elevation above Sea Level:	92 m
General Location:	Adjacent to the business park (immediately north of the paved access road)
Ground Cover:	Paved
Distance to Road:	380 m east= El Camino Real
Traffic Count (2010 AADT):	El Camino Real at Palomar Airport Rd. (27,300)
Site Description:	Adjacent to business park. In 2014, the samplers were moved from the blast shield area to the current location. There is an auxiliary Airport only access road about 3 meters from the samplers with an AADT= 8; because of this low traffic count, the El Camino Real Drive AADT was used. Additionally, the measurements from the road used El Camino Real Drive.
Monitoring Objectives:	To quantify airborne lead particulates from the combustion of aviation gasoline.
Planned Changes:	AQS number changed to 06-073-1023 from 06-073-1020 to reflect the change in the site location from the run-up area to by the business park

Figure 7.1 Palomar Airport – Picture of the Location

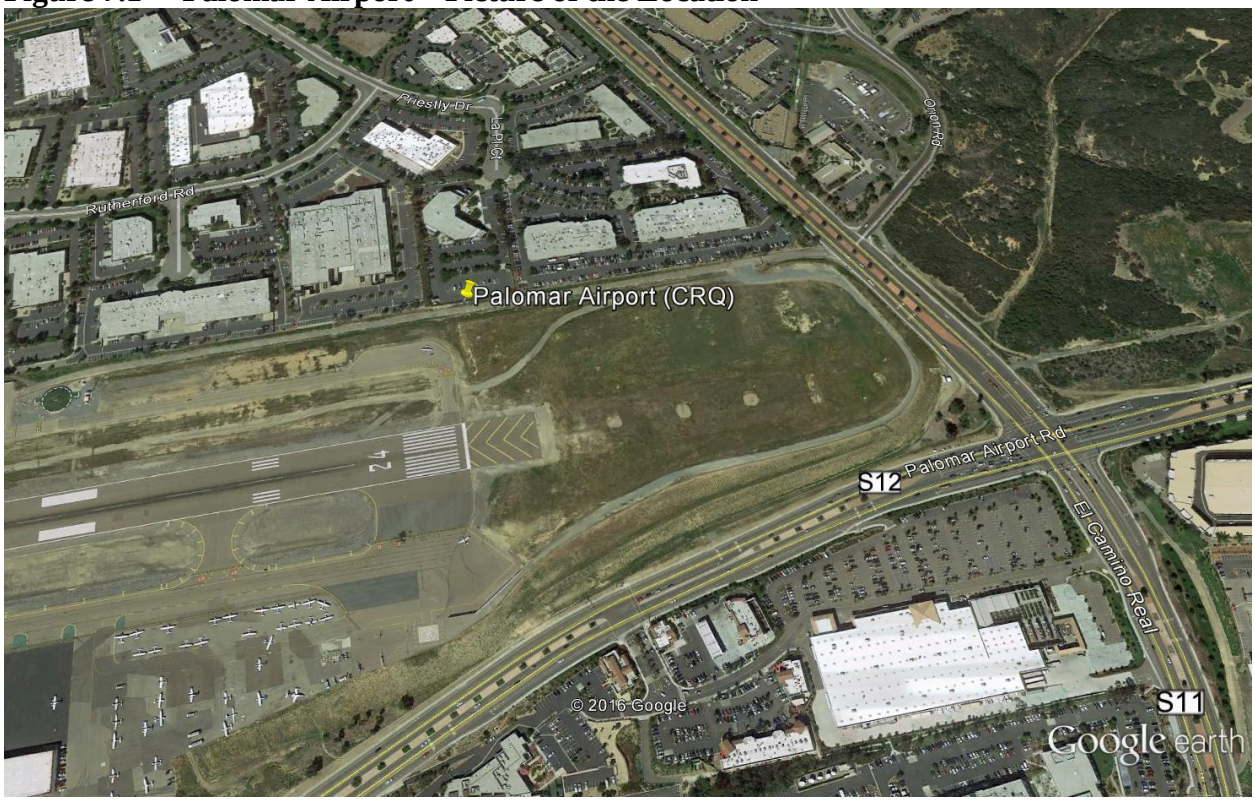


Table 7.2a Palomar Airport - Particulate Pollutants Monitor Designations

Pollutant	**Pb-TSP Hi-Vol (primary)**	**Pb-TSP Hi-Vol (collocated)**
POC	1	2
Monitor designation	PRI	QAC
Parameter code	14129	14129
Basic monitoring objective	NAAQS	NAAQS
Site type	Source Oriented	Source Oriented
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+
Method code	192	192
FRM/FEM/ARM/Other	FRM	FRM
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Micro Scale	Micro Scale
Monitoring start date	3/10/2012 (old site) 11/1/2014 (current site)	3/10/2012 (old site) 11/1/2014 (current site)
Current sampling frequency	1:6	1:12
Required sampling frequency	1:6	1:12
Sampling season	Year-round	Year-round
Probe height	3.1 meters	3.1 meters
Distance from supporting structure	N/A	N/A
Distance from obstructions on roof	N/A	N/A
Distance from obstructions not on roof	N/A	N/A
Distance from trees	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A
Distance between collocated monitors	3.0 meters	3.0 meters
Unrestricted airflow	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly
Semi-Annual flow rate audits dates	5/7, 9/25	5/7, 9/25
NPAP (ARB) date	8/17/2015	8/17/2015
PEP (EPA) date	None	None

Figure 7.1 Palomar Airport – Pictures (Directional) from the Ground*








*The sampler is situated at ground level

Section 8.0.0 Escondido Station Description and Statement of Purpose

Table 8.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Escondido
Year Established:	5/1972
Site Address:	600 E. Valley Parkway
Site Name Abbreviation:	ESC
AQS Number:	06-073-1002
Latitude:	33.127730 ^{O}
Longitude:	-117 .075379 ^{O}
Elevation above Sea Level:	200 m
General Location:	Trailer in the SE corner of the County Heath Complex
Ground Cover:	Asphalt
Distance to Road:	85 m northeast= Fig St.
Traffic Count (2010 AADT):	E. Valley Parkway at Fig St. = 2,500
Site Description:	Escondido is a city located in the north-eastern region of the populated portion of the County. It is located about 21 miles between Camp Pendleton and El Cajon. It has a population of about 140,000 people and covers an area of about 37 square miles. The station is across the street from Pomerado hospital.
Monitoring Objectives:	The Escondido site represents a major population center located in the inland North County along the Interstate 15/Highway 78 section of the County. It is impacted from the transportation corridor from the communities along these two highways. This location is like the El Cajon site and can be classified as a PAMS II location; it provides valuable data concerning the fate of coastal emissions, which react in sunlight to form ozone as they are carried eastward with the prevailing winds. This site is extremely important for burn/no-burn decisions.
Planned Changes:	In August 2016, due to a multi-year redevelopment construction project, the District had to shut down this station. Once the construction has been complete, the District will re-start monitoring (early 2017).

Figure 8.1 Escondido – Picture of the Location

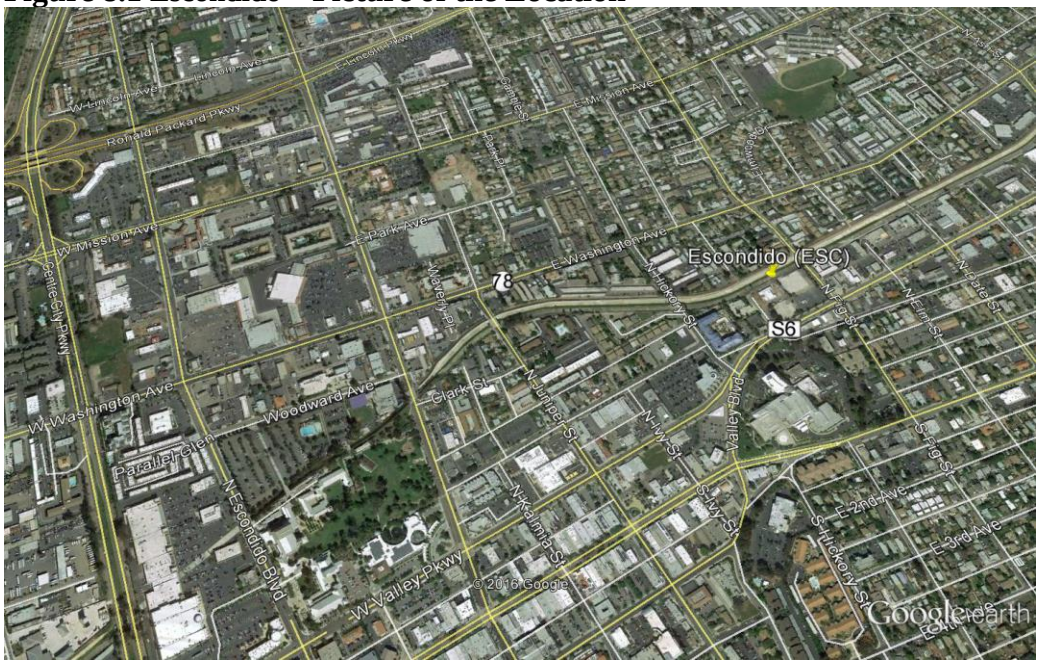


Table 8.2a Escondido - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	CO	Other Zero Air
POC	1	1	1	N/A
Monitor designation	Other	Primary	Other	N/A
Parameter code	44201	42602 (NO_2)	42101	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	PI, NAAQS	N/A
Site type	Population Exposure	Population Exposure	Population Exposure	N/A
Monitor type	SLAMS	SLAMS	SLAMS	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Thermo 48i	Teledyne-API 701
Method code	047	074	054	N/A
FRM/FEM/ARM/Other	FEM	FRM	FRM	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	N/A
Monitoring start date	11/21/1973	6/1/1974	10/29/1979	1997
Current sampling frequency	Continuous	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	Continuous	N/A
Sampling season	Year round	Year round	Year round	N/A
Probe height	6.2 meters	6.2 meters	6.2 meters	N/A
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	15.2 meters	15.2 meters	15.2 meters	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	4.76 sec	4.76 sec	4.76 sec	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	Yes	N/A
Frequency of QC check (one-point)	1:14	1:14	1:14	N/A
Annual Performance Evaluation date	*	*	*	*
NPAP (ARB) date	8/18/2015	8/18/2015	8/18/2015	N/A
MONITORING END DATE	8/27/2015	8/27/2015	8/27/2015	8/27/2015

*Shut-down before Annual Performance Evaluation and NPAP.

Table 8.2b1 Escondido - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Continuous	$PM_{2.5}$ Manual	$PM_{2.5}$ STN	$PM_{2.5}$ CSN	$PM_{2.5}$ CSN, SU	PM_{10} Manual (Hi-Vol)
POC	1	1	1	1	1	1
Monitor designation	O	PRI	N/A	N/A	N/A	PRI
Parameter code	88502 (LC)	88101 (LC)	See CARB	See CARB	See $PM_{2.5}$ Chapter	85101 (LC) 81102 (STD)
Basic monitoring objective	PI, Research	NAAQS	Research	Research	Research	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	N/A	SLAMS
Network affiliation	N/A	N/A	CSN STN	CSN STN	CSN SU	Not Applicable
Instrument manufacturer & model	Met One BAM 1020	Thermo 2025	Met One SASS	Met One SASS	Met One SASS	GMW 2000H w/ SA 1200 Head
Method code	733	145	See CARB	See CARB	See $PM_{2.5}$ Chapter	063
FRM/FEM/ARM/Other	Other	FRM	Other	Other	Other	FRM
Collecting agency	APCD	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	CARB	CARB	APCD	APCD
Reporting agency	APCD	APCD	CARB	CARB	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood
Monitoring start date	2/22/05	1/1/1999	7/20/2007	5/3/2007	2/24/2008	9/4/1991
Current sampling frequency	Continuous	1:3	1:6	1:6	1:6	1:6
Required sampling frequency	Continuous	1:6	N/A	N/A	N/A	1:6
Sampling season	Year round	Year round	Year round	Year round	Year round	Year round
Probe height	5.9 meters	5.6 meters	5.9 meters	5.9 meters	5.9 meters	5.6 meters
Distance from supporting structure	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A	N/A	N/A
Distance from trees	15.2 meters	15.2 meters	15.2 meters	15.2 meters	15.2 meters	15.2 meters
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	360^{O}	360^{O}	360^{O}	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	No	Yes	N/A	N/A	N/A	Yes
Frequency of flow rate verification	Semi-monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	5/21, *	7/15 *	5/21, *	5/21, *	5/21, *	7/2 *
NPAP (ARB) date	8/18/2015	8/18/2015	N/A	N/A	N/A	8/18/2015
PEP (EPA) date	N/A	*	N/A	N/A	N/A	N/A
MONITORING END DATE	8/27/2015	8/27/2015	8/27/2015	8/27/2015	8/27/2015	8/27/2015

*Shut-down before Annual Performance Evaluation and NPAP.

Table 8.2c Escondido - Other Pollutants Monitor Designations

Pollutant	TOXIC-VOC
POC	1
Monitor designation	N/A
Parameter code	See Toxics Chapter
Basic monitoring objective	Research
Site type	Population Exposure
Monitor type	Not Applicable
Network affiliation	SDAPCD Network
Instrument manufacturer & model	Xontech 910A (Fused Silica Lined)
Method code	210
FRM/FEM/ARM/Other	Other
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Neighborhood Scale
Monitoring start date	1/2007
Current sampling frequency	1:6
Required sampling frequency	1:6
Sampling season	Year-round
Probe height	5.7 meters
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	15.2 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	N/A
Frequency of flow rate verification	N/A
Semi-Annual flow rate audits dates	N/A
NPAP (ARB) date	N/A
MONITORING END DATE	8/27/2015

Table 8.2d Escondido - Meteorological Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	Data	Data	Data	Data
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics
Method code	012	050	020	040
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	6/1/1974	6/1/1974	6/1/1974	2/20/1975
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Probe height	N/A	10 m	10 m	5.0 m
Distance from supporting structure	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	15.2 meters	15.2 meters	15.2 meters
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	**	**	**	**
NPAP (ARB) date	*	*	*	*
MONITORING END DATE	8/27/2015	8/27/2015	8/27/2015	8/27/2015

*ARB does not have the equipment to audit.

*Shut-down before Annual Performance Evaluation and NPAP.

Figure 8.2 Escondido - Pictures (Directional) from the Rooftop

Section 9.0.0 Kearny Villa Road Station Description and Statement of Purpose

Table 9.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Kearny Villa Rd.
Year Established:	11/5/2010
Site Address:	None
Site Name Abbreviation:	KVR
AQS Number:	06-073-1016
Latitude:	32.845722 ^{O}
Longitude:	-117.123983 ^{O}
Elevation above Sea Level:	132 m
General Location:	Trailer in the SW corner of Camp Elliot (adjacent to Marine Corps Air Station Miramar).
Ground Cover:	Asphalt & Packed dirt
Distance to Road:	180 m west= Kearny Villa Rd. 542 m southwest= Ruffin Rd.
Traffic Count (2010 AADT):	Kearny Villa Rd. at Ruffin Rd = 11,000
Site Description:	When this location housed only a wind profiler, it was originally called Miramar (MMR). In 2011, when the District relocated the Overland station alongside the wind profiler, it was formally redesignated as KVR. Both are located on the southeast section of Marine Corps Air Station Miramar (MCAS).
Monitoring Objectives:	This site is a PAMS II location. It provides representative data for a large area and is quality assurance location for the $PM_{2.5}$ Manual program.
Planned Changes:	PAMS-Carbonyl sampling will resume in mid-2016

Table 9.1 Kearny Villa Road – Picture of the Location

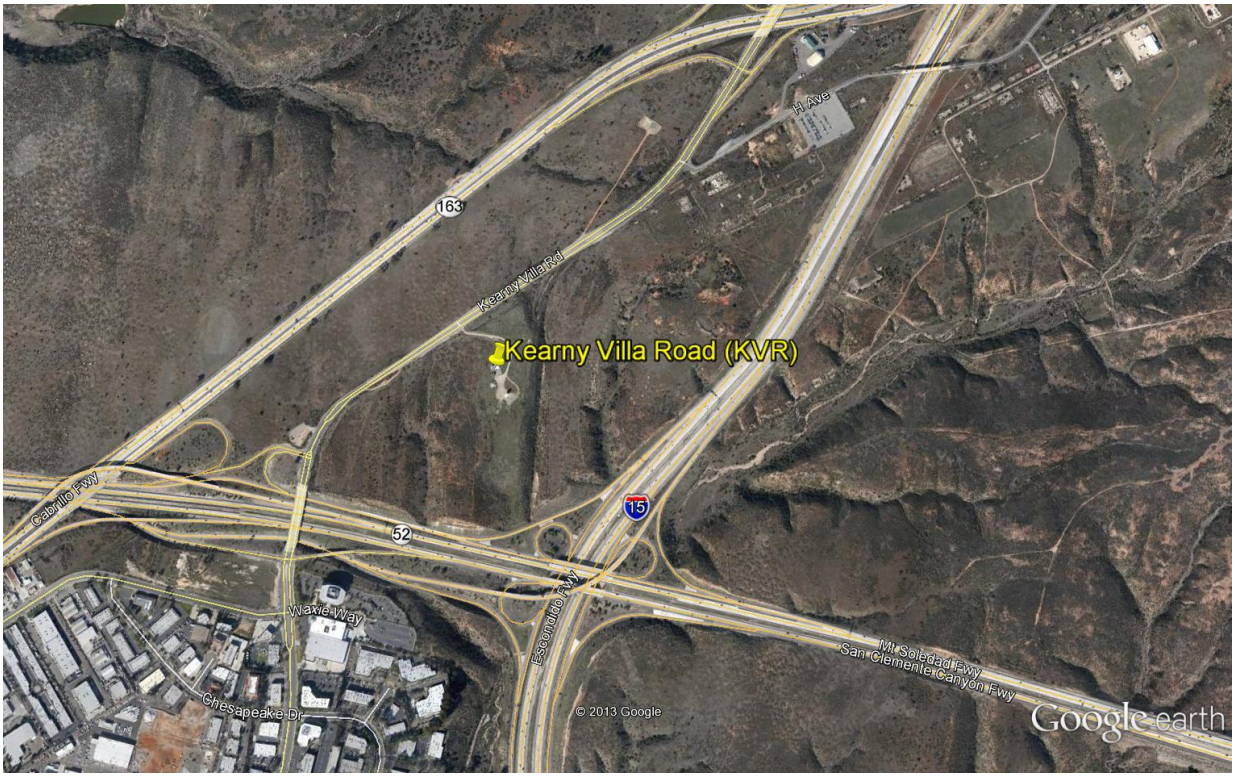


Table 9.2a Kearny Villa Road - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air
POC	1	1	N/A
Monitor designation	N/A	PRI	N/A
Parameter code	44201	42602 (NO_2)	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A
Site type	Population Exposure	Population Exposure	N/A
Monitor type	SLAMS	SLAMS	N/A
Network affiliation	PAMS	PAMS	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701H
Method code	047	074	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A
Monitoring start date	11/5/2010	11/5/2010	11/5/2010
Current sampling frequency	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	N/A
Sampling season	Year-round	Year-round	N/A
Probe height	7.3 meters	7.3 meters	7.3 meters
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	5.04 sec	5.04 sec	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A
Frequency of QC check (one-point)	1:2	1:2	N/A
Annual Performance Evaluation date	1/28, 9/17	1/29	N/A
NPAP (ARB) date	Not Done this Year	Not Done this Year	N/A

Table 9.2b Kearny Villa Road - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Manual	$PM_{2.5}$ Manual (collocated)	PM_{10} Manual Hi-Vol
POC	1	2	1
Monitor designation	PRI	QAC	PRI
Parameter code	88101 (LC)	88101 (LC)	85101 (LC) 81102 (STD)
Basic monitoring objective	NAAQS	NAAQS	NAAQS
Site type	Population Exposure	QA	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 2025	Thermo 2025	GMW 2000H w/ SA 1200 Head
Method code	145	145	063
FRM/FEM/ARM/Other	FRM	FRM	FRM
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	11/5/2010	11/5/2010	11/5/2010
Current sampling frequency	1:3	1:12	1:6
Required sampling frequency	1:3	1:12	1:6
Sampling season	Year-round	Year-round	Year-round
Probe height	5.6 meters	5.6 meters	5.6 meters
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	2.1 meters	2.1 meters	N/A
Unrestricted airflow	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	3/29, 10/22	*, 10/22	2/4, 7/21
NPAP (ARB) date	Not Done this Year	Not Done this Year	Not Done this Year
PEP (EPA) date	8/19	8/19	N/A

*Power supply problem with the collocated sampler. It did not get resolved until after the close of the quarter. All QC activities before and after the audit showed that the sampler was working within specifications.

Table 9.2c Kearny Villa Road - Other Pollutants Monitor Designations

Pollutant	***PAMS-Carbonyls**
POC	1 for 3-Hr samples 2 for 24-Hr samples
Monitor designation	N/A
Parameter code	See PAMS Table 12.2
Basic monitoring objective	Research
Site type	Population Exposure
Monitor type	SLAMS
Network affiliation	PAMS Type II
Instrument manufacturer & model	Xontech 925
Method code	202
FRM/FEM/ARM/Other	Other
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Neighborhood Scale
Monitoring start date	11/5/2010*
Current sampling frequency	1:6
Required sampling frequency	1:6
Sampling season	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)
Probe height	*
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	N/A
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	N/A
Suitable for comparison to the NAAQS?	N/A
Frequency of flow rate verification	N/A
Semi-Annual flow rate audits dates	N/A
NPAP (ARB) date	N/A

*While at the original PAMS Type II location in Kearny Mesa (San Diego-Overland), the instrument used to collect PAMS-carbonyl samples experienced catastrophic irreparable failure in the 4th quarter, 2011. The District was instructed by the EPA to cease PAMS-carbonyl sampling at this location until the EPA reengineers the PAMS program; therefore, PAMS-carbonyl monitoring was never undertaken at the Kearny Villa Road location.

Table 9.2d1 Kearny Villa Road - Meteorological Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp	Meteorological Rel. Humidity
POC	1	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101	62201
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS	PAMS	PAMS
Instrument manufacturer & model	Qualimetrics	Qualimetrics	Qualimetrics	Rotronics	Rotronics
Method code	012	050	020	040	012
FRM/FEM/ARM/Other	O	O	O	O	O
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	11/5/2010	11/5/2010	11/5/2010	11/5/2010	11/5/2010
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year round	Year round	Year round	Year round	Year round
Probe height	N/A	10 m	10 m	5.5 m	5.5 m
Distance from supporting structure	N/A	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	N/A	360°	360°	360°	360°
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	5/13	5/13	5/13	5/13	5/13
NPAP (ARB) date	N/A	*	*	*	

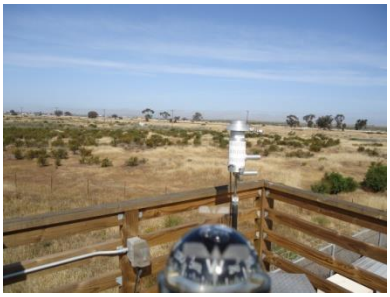
*ARB does not have the equipment to audit

Table 9.2d2 Kearny Villa Road - Meteorological Equipment (Additional) Designations

Pollutant	Barometric Pressure	Solar Radiation	**Upper-air wind & temperature
POC	1	1	N/A
Monitor designation	N/A	N/A	N/A
Parameter code	64101	63301	N/A
Basic monitoring objective	N/A	N/A	N/A
Site type	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS
Instrument manufacturer & model	Rotronics	Eppley	Radian LAP 3000
Method code	014	011	N/A
FRM/FEM/ARM/Other	O	O	O
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	11/5/2010	11/5/2010	1999
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round
Probe height	5.2 meters	5.2 meters	N/A
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	N/A	N/A	360^{o}
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A
Frequency of QC check (one-point)	N/A	N/A	N/A
Annual Performance Evaluation date	5/13	5/13	N/A
NPAP (ARB) date	*	*	N/A

**The Equipment is not operational and must be replaced

Figure 9.2 Kearny Villa Road – Pictures (Directional) from the Rooftop



Section 10.0.0 San Ysidro Station Description and Statement of Purpose

Table 10.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	San Ysidro
Year Established:	1/27/2015
Site Address:	795 East San Ysidro Blvd.
Site Name Abbreviation:	SAY
AQS Number:	06-073-1019
Latitude:	32.543475 ^{O}
Longitude:	-117.029028 ^{O}
Elevation above Sea Level:	20 m
General Location:	Rooftop of Federal detention facility
Ground Cover:	Paved
Distance to Road:	19 meters (Border Crossing lanes)
Traffic Count (2010 AADT):	AADT= 39, 691 (from border crossing)
Site Description:	On the rooftop of the Federal detention facility overlooking the San Ysidro Border Point of Entry (POE)/border crossing. This site is intended for the EPA Border 2020 program and is to measure the PM2.5 contributions from the POE.
Monitoring Objectives:	To quantify airborne particulates from the San Ysidro POE
Planned Changes:	Relocation about 180 meters east-southeast, due to demolition of the building on which the sampler is located.

Figure 10.1 San Ysidro – Picture of the Location

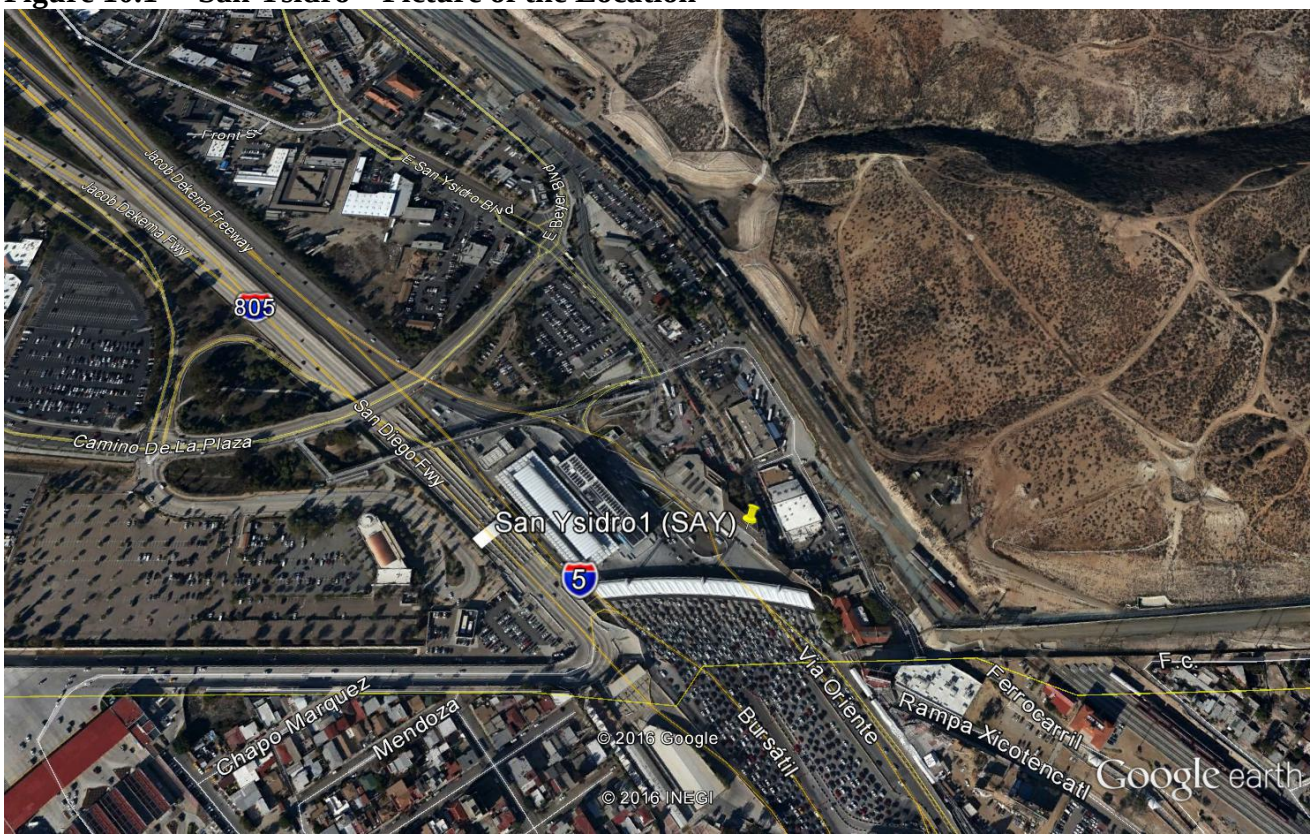


Table 10.2a San Ysidro – Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (non-FEM)**
POC	1
Monitor designation	Other
Parameter code	88502 (LC)
Basic monitoring objective	PI, Research
Site type	Source Oriented
Monitor type	SPM
Network affiliation	BG
Instrument manufacturer & model	Met One BAM 1020
Method code	733
FRM/FEM/ARM/Other	Other (non-FEM)
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Neighborhood Scale
Monitoring start date	1/27/2015
Current sampling frequency	Continuous
Required sampling frequency	Continuous
Sampling season	Year-round
Probe height	16.0 meters
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	N/A
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360^{O}
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	No
Frequency of flow rate verification	Semi-Monthly
Semi-Annual flow rate audits dates	* 7/10
NPAP (ARB) date	Not done this year

*Not operational for an entire year, so two audits were not conducted

Figure 10.2 San Ysidro – Pictures (Directional) from the Roof

Section 11.0.0 Floyd Smith Dr. Station Description and Statement of Purpose

Table 11.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	El Cajon – Floyd Smith Dr.
Year Established:	7/2014
Site Address:	10537 Floyd Smith Drive
Site Name Abbreviation:	FSD
AQS Number:	06-073-1018
Latitude:	32.817907°
Longitude:	-116.968302°
Elevation above Sea Level:	119 m
General Location:	Trailer at the junction of Floyd Smith Dr. and W. Bradley Ave.
Ground Cover:	Packed dirt with some ground vegetation and mulch
Distance to Road:	14.9 m south= W. Bradley Ave.
Traffic Count (2010 AADT):	W. Bradley St. at N. Johnson Ave. (250 m East of the FSD)= 5,300. Floyd Smith Dr. is a circuit street to access the back area of some facilities on airport property. No traffic count is available for Floyd Smith Drive; estimated= 200
Site Description:	This station is a trailer on a lot at the junction of Floyd Smith Dr. and W. Bradley Ave., perpendicular to hangars to the northwest and an abandoned parking lot to the northeast. The gaseous monitors and samplers inlets are above the roof of the trailer. All particulate samplers are on the ground.
Monitoring Objectives:	The El Cajon site represents a major population center located in an inland valley, downwind of the heavily populated coastal zone. It is impacted from the transportation corridor of Interstate 8 and its major arteries. It is classified as a PAMS Type II site, being a maximum ozone precursor emissions impact site.
Planned Changes:	The school grounds on which the station is located is to be remodeled, so the station has temporarily relocated to the Gillespie Field area. Once the remodeling is finished, the District will return to the same school, but located about 200 m west of the original location. This station will relocate back to Lexington Elementary School in 2016.

Figure 11.1 Floyd Smith Dr. – Picture of the Location

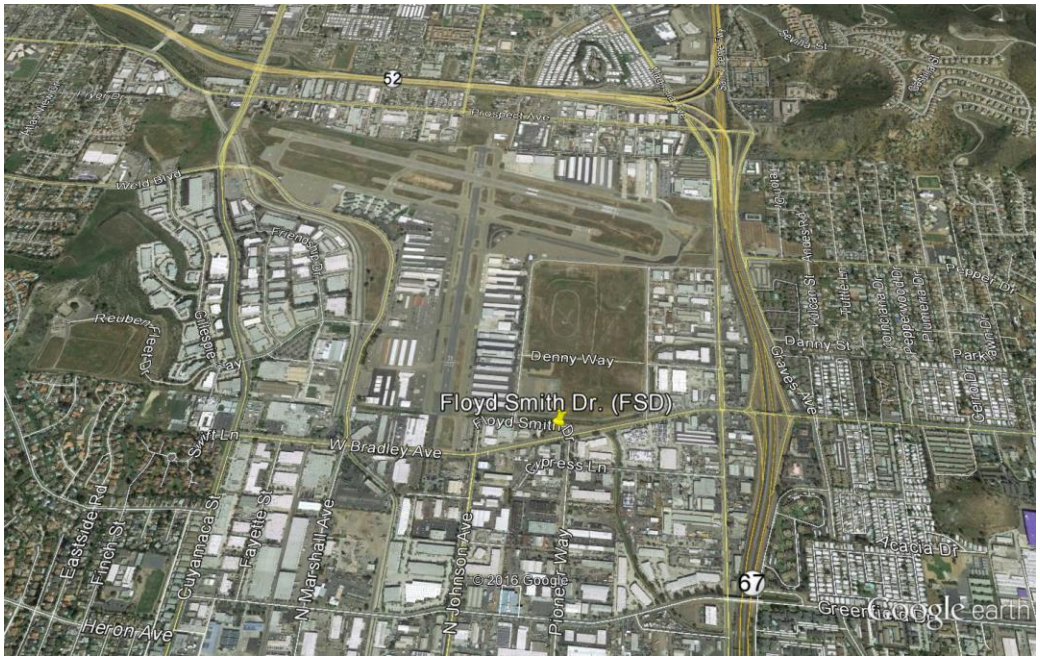


Table 11.2a Floyd Smith Dr. - Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air	CO-TLE	SO_2-TLE
POC	1	1	N/A	3	3
Monitor designation	Other	Primary	N/A	Not Applicable	Not Applicable
Parameter code	44201	42602 (NO_2)	N/A	42101	42401
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A	PI, NAAQS	PI, NAAQS
Site type	Population Exposure	Population]Exposure	N/A	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	N/A	SLAMS	SLAMS
Network affiliation	PAMS, NCore	PAMS	N/A	NCore	NCore
Instrument manufacturer & model	Thermo 49i	Thermo 42i	Teledyne-API 701H	Thermo 48i-TLE	Thermo 43i-TLE
Method code	047	074	N/A	554	560
FRM/FEM/ARM/Other	FEM	FRM	N/A	FRM	FEM
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2014	7/2014	7/2014	7/2014	7/2014
Current sampling frequency	Continuous	Continuous	N/A	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	N/A	Continuous	Continuous
Sampling season	Year-round	Year-round	N/A	Year-round	Year-round
Probe height	7.3 Meters	7.3 meters	N/A	7.3 Meters	7.3 meters
Distance from supporting structure	N/A	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	360^O	360^O	360^O	360^O	360^O
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	Borosilicate glass	Borosilicate glass
Residence time for reactive gases	9.13 sec	9.13 sec	N/A	9.13 sec	9.13 sec
Any changes within the next 18 months?	Yes	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	Yes	Yes
Frequency of QC check (one-point)	1:14	1:2	N/A	1:2	1:2
Annual Performance Evaluation date	7/23, 12/18	9/23, 12/21	12/29	6/17, 9/18, 12/22	6/17, 9/24, 12/22
ARB (NPAP) date	8/11/2015	8/11/2015	N/A	4/9/2015	4/9/2015

Table 11.2b Floyd Smith Dr. - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Manual	$PM_{2.5}$ STN	$PM_{2.5}$ CSN	$PM_{2.5}$ CSN, SU	PM_{10} Manual (Lo-Vol)	PM_{coarse} Manual (paired samplers)	Pb-TSP Manual (Hi-Vol)
POC	1	1	1	1	2 (LC) 3 (STD)	1	1
Monitor designation	Primary	Other	Other	Other	Other	Other	Other
Parameter code	88101 (LC)	See RTI	See RTI	See $PM_{2.5}$ Table 9.3b	85101 (LC) 81102 (STD)	86101 (LC)	14129
Basic monitoring objective	NAAQS	Research	Research	Research	NAAQS	Research	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	N/A	SLAMS	SLAMS	SLAMS
Network affiliation	NCore	NCore, CSN STN	NCore, CSN STN	CSN SU	NCore	NCore	NCore
Instrument manufacturer & model	Thermo 2025	Met One SASS	URG-3000N	Met One SASS	Thermo 2025	Thermo 2025	Tisch TE-5170BLVFC+
Method code	145	See RTI	See RTI	See PM2.5 Table 9.3b	127	176	192
FRM/FEM/ARM/Other	FRM	Other	Other	Other	FRM	Other	FRM
Collecting agency	APCD	APCD	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	EPA	EPA	APCD	APCD	APCD	APCD
Reporting agency	APCD	EPA	EPA	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2014	7/2014	7/2014	7/2014	7/2014	7/2014	7/2014
Current sampling frequency	1:3	1:3	1:3	1:6	1:3	1:3	1:6
Required sampling frequency	1:3	1:6	1:6	1:6	1:3	1:3	1:6
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Probe height	3.1 meters	3.1 meters	3.1 meters	3.1 meters	3.1 meters	3.1 meters	3.1 meters
Distance from supporting structure	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Distance to furnace or incinerator flue	N/A	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	N/A
Unrestricted airflow	360^{O}	360^{O}	360^{O}	360^{O}	360^{O}	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	No	No	No	Yes	No	No
Frequency of flow rate verification	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	6/18, 12/7	6/18, 12/7	6/18, 12/7	6/18, 12/7	6/18, 12/7	6/18, 12/7	6/18, 12/7
ARB date	8/11/2015	N/A	N/A	N/A	8/11/2015	8/11/2015	8/11/2015
PEP (EPA) date	12/5	N/A	N/A	N/A	N/A	N/A	Not done

Table 11.2c Floyd Smith Dr. - Other Pollutants Monitor Designations

Pollutant	PAMS-VOC	PAMS-Carbonyls
POC	1 for 3-Hr samples 2 for 24-Hr samples	1 for 3-Hr samples 2 for 24-Hr samples
Monitor designation	Other	Other
Parameter code	See PAMS Table 12.2b	See PAMS Table 12.2c
Basic monitoring objective	Research	Research
Site type	Maximum Precursor Impact	Maximum Precursor Impact
Monitor type	SLAMS	SLAMS
Network affiliation	PAMS Type II	PAMS Type II
Instrument manufacturer & model	Xontech 910 & 912	Xontech 925
Method code	126	202
FRM/FEM/ARM/Other	Other	Other
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/2014	7/2014
Current sampling frequency	1:6	1:6
Required sampling frequency	1:6	1:6
Sampling season	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)	3-Hr (Jul-Oct) 24-Hr (Nov-Jun)
Probe height	6.1 meters	6.1 meters
Distance from supporting structure	N/A	N/A
Distance from obstructions on roof	N/A	N/A
Distance from obstructions not on roof	N/A	N/A
Distance from trees	N/A	N/A
Distance to furnace or incinerator flue	N/A	N/A
Distance between collocated monitors	N/A	N/A
Unrestricted airflow	360^{O}	360^{O}
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A
Frequency of flow rate verification	N/A	N/A
Semi-Annual flow rate audits dates	N/A	N/A
ARB date	N/A	N/A

Table 11.2d Floyd Smith Dr. - Meteorological Equipment Monitor Designations + Other

Pollutant	**Other Internal Temp**
POC	1
Monitor designation	N/A
Parameter code	62107
Basic monitoring objective	N/A
Site type	N/A
Monitor type	SLAMS
Network affiliation	NCore, PAMS
Instrument manufacturer & model	Qualimetrics
Method code	012
FRM/FEM/ARM/Other	Other
Collecting agency	APCD
Analytical laboratory	APCD
Reporting agency	APCD
Spatial scale	Neighborhood scale
Monitoring start date	7/2014
Current sampling frequency	Continuous
Required sampling frequency	Continuous
Sampling season	Year-round
Probe height	N/A
Distance from supporting structure	N/A
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	N/A
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	N/A
Probe material for reactive gases	N/A
Residence time for reactive gases	N/A
Any changes within the next 18 months?	Yes
Suitable for comparison to the NAAQS?	N/A
Frequency of flow rate verification	N/A
Semi-Annual flow rate audits dates	9/25
ARB date	N/A

Section 12.0.0 Rancho Carmel Drive Station Description and Statement of Purpose

Table 12.1 General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Rancho Carmel Drive
Year Established:	3/26/2015
Site Address:	11403 Rancho Carmel Drive
Site Name Abbreviation:	RCD
AQS Number:	06-073-1017
Latitude:	32.985442°
Longitude:	-117.082180°
Elevation above Sea Level:	218 m
General Location:	On City of San Diego Pump Station grounds
Ground Cover:	Packed Dirt
Distance to Road:	33 meters to I-15 North; 24 meters to Rancho Carmel Drive
Traffic Count (2010 AADT):	AADT (FE adjusted) for I-15= 358,000 (estimated) AADT for Rancho Carmel Dr. at Carmel Mtn Rd.(700 meters downwind) = 14,500
Site Description:	Is on the hill overlooking I-15. The probe is horizontal.
Monitoring Objectives:	This is the 1st near-road site. It measures NO2 & CO contributions from I-15
Planned Changes:	None.

Figure 12.1 Rancho Carmel Drive - Picture of the Location of the Station

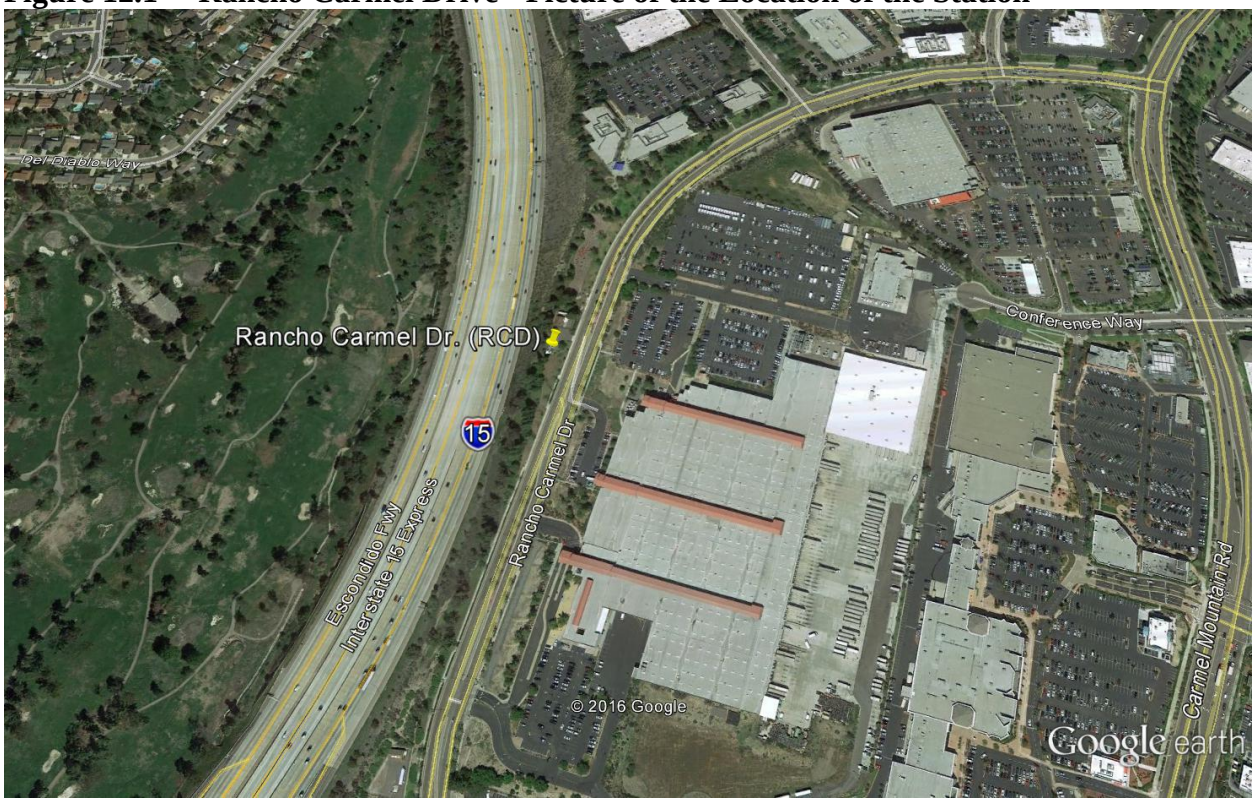


Table 12.2a Rancho Carmel Drive - Gaseous Pollutants Monitor Designations + Other

Pollutant	NO_2	CO	Other Zero Air
POC	1	1	N/A
Monitor designation	Primary	Other	N/A
Parameter code	42602 (NO_2)	42101	N/A
Basic monitoring objective	PI, NAAQS	PI, NAAQS	N/A
Site type	Source Oriented	Source Oriented	N/A
Monitor type	SLAMS	SLAMS	N/A
Network affiliation	NR	NR	N/A
Instrument manufacturer & model	Thermo 42i	Thermo 48i	Teledyne-API 701H
Method code	074	054	N/A
FRM/FEM/ARM/Other	FRM	FRM	N/A
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Micro Scale	Micro Scale	N/A
Monitoring start date	3/26/2015	4/24/2015	3/26/2015
Current sampling frequency	Continuous	Continuous	N/A
Required sampling frequency	Continuous	Continuous	N/A
Sampling season	Year-round	Year-round	N/A
Probe height	3.0	3.0	N/A
Distance from supporting structure	N/A	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A
Distance from obstructions not on roof	N/A	N/A	N/A
Distance from trees	11.0 meters	11.0 meters	N/A
Distance to furnace or incinerator flue	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	270^{O}	270^{O}	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A
Residence time for reactive gases	6.1 sec	6.1 sec	N/A
Any changes within the next 18 months?	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	N/A
Frequency of QC check (one-point)	1:2	1:2	N/A
Annual Performance Evaluation date	12/8	12/15	12/28
NPAP (ARB) Date	8/13	8/13	N/A

Figure 12.2 Rancho Carmel Drive– Pictures (Directional) from the Ground*








***There is no deck from which to take pictures. The probe is horizontal from the side of station on an incline, so all picture are taken from behind the stations (about 5 meters behind the probe for safety reasons).