

***Report on Quarterly Air Monitoring, Area
IV, Second Quarter 2024, **Revision 1*****

***Santa Susana Field Laboratory
Ventura County, California***



***Prepared for:
United States
Department of Energy***

***Prepared by:
North Wind Portage, Inc.***

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**REPORT ON QUARTERLY AIR MONITORING, AREA IV,
SECOND QUARTER 2024, SANTA SUSANA FIELD
LABORATORY, VENTURA COUNTY, CA**

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Prepared for:

U.S. Department of Energy
4100 Guardian Street, Suite 160
Simi Valley, California 93063

Prepared by:

North Wind Portage, Inc.
1425 Higham Street
Idaho Falls, Idaho 83402

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EXECUTIVE SUMMARY

This report summarizes the United States Department of Energy (DOE) air monitoring activities conducted during the second quarter of 2024 (Q2/2024), which is the twenty-fifth quarter (Q25) of the monitoring period (April 1, 2024, to June 30, 2024) at Area IV within the Santa Susana Field Laboratory (SSFL), located in Ventura County, California. The area specifically discussed within this report is the DOE portion, Area IV of SSFL, known as the Energy Technology Engineering Center (ETEC). The program is continuing for a seventh year, which consists of 2024, reporting periods Q24 through Q27.

This quarterly report has been developed by North Wind Portage, Inc., on behalf of DOE in cooperation with The Boeing Company (Boeing) and the National Aeronautics and Space Administration (NASA), as part of the Baseline Air Monitoring Program.

In accordance with the *Final Baseline Air Monitoring Work Plan, Santa Susana Field Laboratory, Ventura County, California* (NASA 2017), the responsible parties are monitoring for particulate matter between 2.5 and 10 microns in aerodynamic diameter (PM₁₀), volatile organic compounds (VOCs), and radionuclides at air monitoring stations DOE-1, DOE-2, DOE-3, and DOE-4 encompassing the ETEC, Area IV portion of SSFL. Having developed the baseline levels for PM₁₀, VOCs, and radionuclides helps distinguish between levels that naturally occur or were previously present at the ETEC site and if onsite remediation activities produce elevated results. Air monitoring will be continued throughout remediation activities to be able to compare results from onsite remediation activities to baseline data in the Annual Air Monitoring Reports.

The following air monitoring activities conducted during 2024, second quarter, by DOE within Area IV are summarized in this report:

- Collected meteorological data from one location (DOE-4);
- Collected PM₁₀ data from four locations (DOE-1 through DOE-4);
- Collected air samples from four locations (DOE-1 through DOE-4) for VOC laboratory analysis; and
- Collected radionuclide samples for laboratory analysis from four locations (DOE-1 through DOE-4).

PM₁₀ data, meteorological data, and radionuclide data all met the data completeness goal of 80%, and VOC data met the completeness goal of 85% for Q2/2024. The Q3/2024 monitoring period of the Air Monitoring Program will begin July 1, 2024.

The following site activities were conducted during Q2/2024 by DOE within Area IV:

- Quarterly site-wide groundwater level monitoring;
- CDM Smith conducted groundwater sampling activities at the Former Sodium Disposal Facility as a part of groundwater interim measures; and
- Surveillance and maintenance.

CONTENTS

EXECUTIVE SUMMARY	v
ACRONYMS AND ABBREVIATIONS	viii
1. INTRODUCTION.....	1-1
1.1 Regional Climate and Wind Direction	1-2
2. SUMMARY	2-1
3. ANALYTICAL SAMPLING EVENTS.....	3-1
4. DATA.....	4-1
4.1 Meteorological Data	4-1
4.2 PM ₁₀ Data	4-4
4.3 Volatile Organic Compound Data	4-5
4.4 Radionuclide Data	4-6
5. QA/QC ACTIVITIES.....	5-1
5.1 Field QA/QC	5-1
5.2 Laboratory QA/QC.....	5-5
5.3 Audit Results	5-5
6. REFERENCES	6-1

FIGURES

Figure 1 – SSFL Air Monitoring Locations

Figure 2 – DOE Air Monitoring Locations

Figure 3 – DOE Quarterly Wind Rose

TABLES

Table 1. Data screening quality control codes for meteorological data.....	4-1
Table 2. Data screening summary for monitored meteorological parameters.....	4-3
Table 3. PM ₁₀ data completeness for April 1, 2024, to June 30, 2024.....	4-4
Table 4. Top five PM ₁₀ 24-hour average concentration days for Q2/2024.....	4-5
Table 5. Ambient air VOC data completeness.	4-5
Table 6. Gross alpha and beta-gamma average results for Q2/2024.	4-7
Table 7. Meteorological sensor recommended maintenance frequency (Met One).....	5-4
Table 8. PM ₁₀ audit completeness.	5-5

APPENDICES

Appendix A – PM₁₀ Daily Averages and Monthly Statistics

Appendix B – Analytical Results for Ambient Air VOCs

Appendix C – Radionuclide Results

Appendix D – PM₁₀ Monthly Audit Reports and Flow Verification Results

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
μCi	microcurie(s)
μg/m ³	microgram(s) per cubic meter
Boeing	The Boeing Company
CAAQS	California Ambient Air Quality Standards
CFR	Code of Federal Regulations
DASC	Data Assessment Statistical Calculator
DOE	U.S. Department of Energy
DTSC	State of California Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
ETEC	Energy Technology Engineering Center
GC	gas chromatography
Hg	mercury
HHRA	Human Health Risk Assessment
m	meter(s)
m/sec	meter(s) per second
mb	millibar(s)
MDC	minimum detectable concentration
mL	milliliter(s)
mph	miles per hour
MS	mass spectrometry
MDL	method detection limit
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NIST	National Institute of Standards and Technology
pCi	picocurie(s)
PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
Q25	twenty-fifth quarter
QA	quality assurance
QC	quality control
RAWS	Remote Automatic Weather Stations
RPD	relative percent difference
SDG	sample delivery group
SSFL	Santa Susana Field Laboratory
VOC	volatile organic compound

1. INTRODUCTION

National Aeronautics and Space Administration (NASA), The Boeing Company (Boeing), and the U.S. Department of Energy (DOE), also known as the responsible parties, are performing air monitoring at the Santa Susana Field Laboratory (SSFL) site located in Ventura County, California. The SSFL was a business segment of Boeing. SSFL includes 2,849 acres located atop a range of hills between the Simi and San Fernando valleys, north of Los Angeles. The westernmost 290 acres of the SSFL, known as Area IV, contains both DOE and Boeing former facilities. The DOE portion is mainly contained within the 90 acres known as the Energy Technology Engineering Center (ETEC).

When opened in the late 1950s, ETEC was ideally remote from population centers to enable development of security-sensitive projects. These projects supported research for DOE and its predecessor agencies for nuclear research and energy development. Area IV included buildings that house test apparatus for large-scale heat transfer and fluid mechanics experiments, mechanical and chemical test facilities, office buildings, and auxiliary facilities.

Air monitoring is being conducted in accordance with the *Final Baseline Air Monitoring Work Plan, Santa Susana Field Laboratory, Ventura County, California* (NASA 2017), which was submitted to the State of California Department of Toxic Substances Control (DTSC) on September 21, 2017. DTSC approved the Work Plan. Final locations of the air monitoring locations were approved by DTSC on January 30, 2018 (DTSC 2018).

The objective of the Air Monitoring Program is to evaluate project conditions and provide a basis for determining the magnitude of deviation from those baseline conditions that may result from onsite remediation activities at SSFL. Responsible parties are monitoring for particulate matter between 2.5 and 10 microns in aerodynamic diameter (PM₁₀), and volatile organic compounds (VOCs), at 14 locations at SSFL. Data was collected for four perimeter samplers (DOE-1 through DOE-4) and analyzed for gross alpha and gross beta. Individual radionuclide concentrations were determined by analysis at an offsite laboratory for these same four locations. Meteorological data is also collected as a part of the Air Monitoring Program.

Figure 1 shows the air monitoring locations for the Air Monitoring Program. These locations were selected based on the areas to be remediated, with consideration of winds in the area, topographic features, and accessibility. The air monitoring sites were also selected based on guidance obtained from the U.S. Environmental Protection Agency's (EPA's) *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Ambient Air Monitoring Program* (EPA 2017) and *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA 2000). Sites were evaluated per 40 Code of Federal Regulations (CFR) 58, Appendix C – Ambient Air Quality Monitoring Methodology. DOE is responsible for DOE-1, DOE-2, DOE-3, and DOE-4 of the 14 monitoring locations, represented in Figure 1. VOCs, PM₁₀, and radionuclides are monitored at the four DOE monitoring locations, and meteorological conditions are monitored at the DOE-4 location. The DOE monitoring locations DOE-1 through DOE-4 are shown in Figure 2.

This report summarizes the results and quality assurance (QA) activities performed during the second quarter of 2024 (Q2/2024), which was from April 1, 2024, through June 30, 2024.

1.1 Regional Climate and Wind Direction

The climate in the SSFL area is characterized as “Mediterranean.” The mean temperature during the winter months is approximately 50 degrees Fahrenheit (°F) and the mean temperature in the summer months is approximately 70°F. Based on climate data from 2020 through 2023 from Weather Currents, average rainfall is on the order of 14.69 inches per year. The majority of the rainfall occurs between December and April with January and February being the wettest months.

During Q2/2024, the Simi Valley received approximately 1.7 inches of rainfall.

The average hourly wind speed in Simi Valley varies significantly by season. The more turbulent part of the year lasts for 6 months, from November to April, with average western wind speeds of more than 7 miles per hour (mph). The calmer time of year lasts for 6 months, with northerly winds from May to October.

During the fall, winter, and spring, Santa Ana winds can blow from the north or northeast in excess of 35 mph.

2. SUMMARY

This report summarizes the air monitoring data collected during the Q2/2024 reporting period (April 1, 2024, through June 30, 2024).

Quality objectives and data completeness were met for all meteorological, PM₁₀, VOC, and radionuclide data for Q2/2024 of the Air Monitoring Program. Urban background data compared with air monitoring data indicate that the PM₁₀ concentrations measured at stations DOE-1, DOE-2, DOE-3, and DOE-4 during Q2/2024 are comparable to the PM₁₀ concentrations measured at stations characterizing urban background. Other sources that emit VOC characteristics are motor vehicle emissions, fossil fuel combustion, and wildfires. The results are reflected when considering SSFL site's urban background and relatively remote location from vehicle traffic. Six PM₁₀ concentrations exceeded the California Ambient Air Quality Standard (CAAQS; 50 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) and two of these values were above the National Ambient Air Quality Standard (NAAQS; 150 $\mu\text{g}/\text{m}^3$).

During Q2/2024 no downtime was observed for the units at DOE-2 and DOE-4. The unit at DOE-1 was down on April 8, 2024, ~~due to voltage output converter issues and not operating properly; the voltage output converter was readjusted and the unit restarted~~ the unit was replaced on May 5, 2024. The unit at DOE-3 experienced intermittent downtime of a day to multiple days throughout Q2/2024 in April, May, and June as a result of the unit shutting off because it wasn't getting enough volts to keep running due to voltage converter issues; the voltage output converter was readjusted and the unit restarted without any downtime for the rest of the quarter on June 25, 2024.

During Q2/2024 two VOC analytes were detected above the EPA regional screening level (RSL). Benzene was detected at DOE-1 and DOE-2, and ethyl acetate was detected at DOE-1, DOE-2, and DOE-4. Benzene is a chemical used in a variety of industries and applications, such as gasoline, plastic manufacturing, adhesives, cleaning products, paint thinners, dyes, pesticides, pharmaceuticals, and printing inks. Ethyl acetate is a solvent used in a variety of industries and applications, such as adhesives, paint and coating products, pharmaceuticals, and printing inks. By using the results from the baseline Air Monitoring Program, along with other site characterization information, analytes were selected for routine air monitoring during soil disturbances. Establishing sources for specific contaminants or performing source apportionment was not a requirement for identifying remedial air quality impacts nor was it within the scope or data quality objectives of the Air Monitoring Program.

Data collected during Q2/2024 agrees with data collected, analyzed, and reported by the State of California DTSC, Los Angeles County Emergency Response Organization, the DOE Emergency Response organization, or other Multi-Agency Task Forces. Air monitoring at Area IV of the SSFL is to be continued starting July 1, 2024, for the Q3/2024 of the Air Monitoring Program.

Site activities during Q2/2024 included quarterly site-wide groundwater level monitoring, surveillance and maintenance, and groundwater sampling activities conducted by CDM Smith at the Former Sodium Disposal Facility as part of the groundwater interim measures.

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3. ANALYTICAL SAMPLING EVENTS

VOCs are collected according to the EPA Toxic Compendium Method TO-15, *Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* (EPA 1999). Twenty-four-hour time-integrated samples are collected into Summa canisters via a flow controller and sent to an offsite laboratory for analysis. VOCs are collected every other week. There were six VOC sampling events with six field duplicate samples collected during this reporting period.

During Q2/2024, radionuclide samples were collected at four perimeter sampler locations, DOE-1 through DOE-4. These samples were collected on glass fiber (Type A/E) filters that are changed twice a week. After a minimum 120-hour holding time to allow the decay of short-lived radon and thoron daughter products, the samples are simultaneously counted for gross alpha and beta activity with a low-background, thin-window, gas-flow proportional-counting system continually purged with P-10 argon/methane counting gas over a preset time interval. There were 104 airborne radioactivity filter samples collected in Q2/2024 — 26 each at DOE-1, DOE-2, DOE-3, and DOE-4. Following analysis for gross alpha and gross beta radiation, sample filters were combined to form one composite sample representative of each location. The four composite samples were then analyzed for individual radionuclides at an offsite laboratory.

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4. DATA

Sections 4.1 through 4.4 discuss Q2/2024 air monitoring data.

4.1 Meteorological Data

General Summary

Meteorological data, also called weather data, is being collected as part of the ETEC cleanup and restoration effort. This information, particularly the wind direction and wind speed, can be used to help understand how dust and other air pollutants from the site are carried by the wind to possibly affect nearby public and residential areas. This is especially important when the E-BAM particulate monitors at the site detect higher-than-normal amounts of dust in the air. Scientific computer models can be used with this weather data in association with the particulate monitoring data to describe the air quality for the communities near the ETEC site. However, before the weather data can be used with the computer models it must first be quality tested for completeness and accuracy to ensure it meets acceptance criteria. A detailed description of the weather data collection and quality testing is provided in the following paragraphs.

Monitored meteorology parameters at the DOE-4 station included wind speed, wind direction, air temperature at 2 meters (m) and 10 m, relative humidity, precipitation, barometric pressure, and solar radiation. In addition, statistical parameters provided by the data logger included delta temperature (i.e., the 10-m temperature minus the 2-m temperature), maximum wind speed (i.e., wind gust), and standard deviation of wind direction. Observations were recorded at 15-minute intervals corresponding to minutes :00, :15, :30, and :45 each hour. There were 91 days in this reporting period (Q2/2024) from 01 Apr 2024 through 30 Jun 2024 with a total of 8,736 possible 15-minute observations. This is the second quarter of Year 7 of the baseline monitoring.

Data Validation and Statistics

Data validation screening was performed on the recorded meteorological observations pursuant to EPA's *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA 2000) Table 8-4 (Suggested Data Screening Criteria) and Table 8-3 (Suggested Quality Control Codes). Validation screening provided the basis for evaluating data completeness and for determining sensor performance and/or maintenance status. Validation was performed following each weekly data download. Data validation quality control codes applied to the meteorological observations are defined in Table 1.

Table 1. Data screening quality control codes for meteorological data.

Code	Meaning	Description (as used for ETEC meteorological data validation)
0	Valid	PASS – Observation is accurate within the performance limits of the instrument (i.e., value passes all data validation screening criteria).
3	Acceptable	PASS – Observation originally failed initial quality control (QC) check (see Code 6), but additional review using other independent data and meteorological judgment support final validity.
6	Failed initial QC check	FAIL – Observation did not pass data validation screening criteria.
7	Suspect	FAIL – Observation failed initial data validation QC check (see Code 6) and could not be verified through additional review using other independent data.
8	Invalid	FAIL – Observation judged to be inaccurate or in error, and the cause is known.
9	Missing	FAIL – Observation was not collected.

The validation screening involved comparing, on an individual parameter basis, the recorded values (i.e., observations) against the EPA screening criteria shown in Table 2. The data validation procedure involved an initial automated review to apply a first-level QC Code of 0 (valid), 6 (failed), or 9 (missing) as defined in Table 1. Observations initially flagged with a QC Code = 6 were then manually (i.e., second-level) reviewed by a project meteorologist. The procedure is outlined below:

- Values meeting all screening criteria for the respective meteorological parameter were automatically considered “valid” (QC Code = 0).
- Values not meeting a screening criterion were automatically flagged as “failed initial QC” (QC Code = 6). These values were subjected to second-level manual meteorological review using other available observations (e.g., 2-m vs. 10-m temperature at DOE-4 or from nearby Remote Automatic Weather Stations [RAWS] meteorological station CEEC1 in the Cheeseboro Canyon, California, area located 2.6 miles south of the DOE-4 site), and meteorological judgment:
 - Values confirmed by second-level review were deemed “acceptable” (final QC Code = 3).
 - Otherwise, the values were deemed “suspect” (final QC Code = 7).
- Observations known to be inaccurate (QC Code = 8).
- Missing observations were automatically flagged as “missing” (QC Code = 9).

Values that pass validation with a final QC Code of 0 or 3 are included in the data completeness statistics and the final validated meteorological data set. Values with a final QC Code of 7, 8, or 9 are excluded from the final dataset and counted against the data completeness percentage. Quarterly data statistics for the meteorological parameters are listed in Table 2 along with year-to-date and project-to-date results. Year-to-date and project-to-date percentages are calculated as total valid observations through the completed quarters for the year divided by the total possible observations through this same period.

The completeness goal for meteorological data is 80% on an annual basis. Data completeness statistics for all completed reporting quarters in Year 7 of the baseline monitoring are presented in Table 2. Data completeness to-date for Year 7 exceeds 80% for all meteorological parameters being monitored except relative humidity. For this parameter, the low data completeness is due to data loss caused by a failed sensor during a previous quarter. The sensor had failed in Q4/2023 and was replaced late in Q1/2024.

Wind Rose

The final validated 15-minute meteorological dataset was used to develop the wind rose for Q2/2024 as presented in Figure 3. A wind rose is a graphical representation of wind speed and direction distribution (or wind climatology) for the period of interest. The frequency of winds blowing from specific directions are shown as petals on the wind rose, with the frequency of wind speeds depicted by color bands. Calm winds are identified as being less than 0.5 meters per second (m/sec).

During Q2/2024, data capture for wind speed and direction at DOE-4 was 100%. The average and maximum wind speeds were 3.35 m/sec and 14.7 m/sec, respectively. The maximum recorded wind gust was 19.9 m/sec. The predominant wind directions this quarter were from the east-southeast (ESE).

Table 2. Data screening summary for monitored meteorological parameters.

Meteorological Parameter	Screening Criteria ⁽¹⁾ (for valid sensor responses)	Data Completeness Percent (%) ⁽²⁾		
		Q2/2024 (Q25)	Year 7 to Date	Project to Date
Wind Speed	between 0 and 25 m/sec	100	100	95.89
	> 0.1 m/sec variation over 3 hours			
	> 0.5 m/sec variation over 12 hours			
Wind Direction	between 0 and 360 degrees	100	100	96.53
	> 1 degree variation over 3 hours			
	> 10 degree variation over 12 hours			
Standard Deviation of Wind Direction	Inherits the completeness stats of Wind Direction	100	100	96.53
Temperature @ 10 m	≤ local record high (monthly basis)	100	99.99	96.53
	≥ local record low (monthly basis)			
	> 0.5°C variation over 12 hours			
Temperature @ 2 m	≤ local record high (monthly basis)	100	99.45	96.48
	≥ local record low (monthly basis)			
	> 0.5°C variation over 12 hours			
Delta Temperature	≤ 0.1°C during daytime	100	99.44	96.48
	≥ -0.1°C during nighttime			
	between -3.0 and 5.0°C			
Relative Humidity (and Dewpoint Temperature)	relative humidity between 0–100%	100	55.81	88.56
	dew point T ≤ ambient T			
	dew point T ≤ 5.0°C variation over 1 hour			
	dew point T > 0.5°C variation over 12 hours			
Precipitation	≤ 1 inch in 1 hour	100	100	96.52
	≤ 4 inches in 24 hours			
	≥ 2 inches in 3 months			
Barometric Pressure	between 871 and 982 mb (local) (i.e., between 940 and 1060 mb sea level)	100	100	96.53
	≤ 6 mb variation over 3 hours			
	> 0 at night			
Solar Radiation	≤ maximum possible for date, time, lat/long	100	100	96.49

(1) Screening criteria from EPA Meteorological Monitoring Guidance (EPA 2000), Table 8-4.

(2) Data Completeness % = [Observations Passing] / [Possible Observations].

- a. Missing or suspect observations count against data completeness statistics.
- b. Year Two is an abbreviated data collection year spanning the period Apr 15–Dec 31, 2019 (i.e., Quarters 5, 6, and 7). This was done to synchronize future data collection years with calendar years.
- c. Last column in this table represents the cumulative Completeness % for all completed quarterly reporting periods.

Note: The number of possible 15-minute observations in the completed reporting periods:

- Q01 = 8,736 • Q02 = 8,832 • Q03 = 8,832 • Q04 = 8,640 • Year One = 35,040
- Q05 = 8,736 • Q06 = 8,832 • Q07 = 7,488 (only 3 quarters) • Year Two = 25,056 (abbreviated)
- Q08 = 8,736 • Q09 = 8,736 • Q10 = 8,832 • Q11 = 8,832 • Year Three = 35,136
- Q12 = 8,640 • Q13 = 8,736 • Q14 = 8,832 • Q15 = 8,832 • Year Four = 35,040
- Q16 = 8,640 • Q17 = 8,736 • Q18 = 8,832 • Q19 = 8,832 • Year Five = 35,040
- Q20 = 8,640 • Q21 = 8,736 • Q22 = 8,832 • Q23 = 8,832 • Year Six = 35,040
- Q24 = 8,736 • Q25 = 8,736 • Project = 217,824 (to-date)

4.2 PM₁₀ Data

PM₁₀ data, defined as coarse particles between 2.5 and 10 microns in aerodynamic diameter, are measured at the ETEC site. Sources of particulate matter can be naturally occurring or caused by human activity. The air monitoring conducted at ETEC is used to determine if any suspended particles are from activities conducted onsite or if they are consistent with surrounding air quality data. Some of the naturally occurring particles can originate from high winds, forest or grass fires, burning of fossil fuels in vehicles, or stirred-up road dust.

PM₁₀ data are collected with Met One E-BAM monitors at four monitoring locations. The Met One E-BAM uses the principle of beta attenuation to provide a determination of mass concentration. Twenty-four-hour concentrations are calculated from the hourly concentrations. There were 91 days in this reporting period.

- DOE-1 had valid readings 63 out of 91 days.
- DOE-2 had valid readings all 91 days.
- DOE-3 had valid readings 63 out of 91 days.
- DOE-4 had valid readings all 91 days.

DOE-2 and DOE-4 had data completeness of 100% for PM₁₀ in Q2/2024, and DOE-1 and DOE-3 had data completeness of 69%, for a total data completeness of 85%, exceeding the project goal of 80% completeness for total samples collected during Q2/2024 (see Table 3). The cumulative total project data completeness has been calculated as 93% from April 2018 through June 2024. The complete table of daily averages for Q2/2024 is presented in Appendix A. During Q2/2024 no downtime was observed for the units at DOE-2 and DOE-4. The unit at DOE-1 was down on April 8, 2024, ~~due to voltage output converter issues and not operating properly; the voltage output converter was readjusted and the unit restarted~~ the unit was replaced on May 5, 2024. The unit at DOE-3 experienced intermittent downtime of a day to multiple days throughout Q2/2024 in April, May, and June as a result of the unit shutting off because it wasn't getting enough volts to keep running due to voltage converter issues; the voltage output converter was readjusted and the unit restarted without any downtime on June 25, 2024. See the PM₁₀ daily average table in Appendix A for specific downtime dates.

The nearby State and Local Air Monitoring Stations (SLAMS), Simi Valley – Cochran Street – PM₁₀ Daily Averages, from 01/01/2023 to 03/31/2024 are presented in Appendix A. At the time of writing this report, the data posted is the most current available. Please note, per the EPA website, this EPA data is updated twice per year: once in June to capture the complete data for the prior year and once in December to capture the data for the summer (ozone season).

Table 3. PM₁₀ data completeness for April 1, 2024, to June 30, 2024.

Location	Valid Readings (Days)	Possible Readings (Days)	Data Completeness (Percent)
DOE-1	63	91	69%
DOE-2	91	91	100%
DOE-3	63	91	69%
DOE-4	91	91	100%

Average Total Data Completeness 85%

The five highest PM₁₀ results identified for the reporting period are listed in Table 4 along with the CAAQS for PM₁₀. PM₁₀ concentrations were consistent with levels typically found in urban air. Of these top five

results, four were recorded at DOE-3, and one at DOE-4. In total for Q2/2024, six values were above the CAAQS of 50 µg/m³ and two of the values were above the NAAQS of 150 µg/m³. Over these dates elevated winds and nearby wildfires may have contributed to the elevated readings since on those days the elevated readings correlate very closely with wind direction change coming out of the north/northwest from the direction of the Post Fire. Historically, it has been noticeable that there is a direct correlation between wildfires, high wind speeds, and higher PM₁₀ readings.

Table 4. Top five PM₁₀ 24-hour average concentration days for Q2/2024.

Date	Location	PM ₁₀ Value (µg/m ³)	CAAQS (µg/m ³)
6/23/2024	DOE-4	173.30000	50
6/29/2024	DOE-3	150.37500	50
6/30/2024	DOE-3	83.87500	50
6/28/2024	DOE-3	79.33300	50
4/10/2024	DOE-3	69.41600	50

Note: Bold number and gray shaded indicates value exceeded CAAQS.

4.3 Volatile Organic Compound Data

VOCs are organic chemicals that have a high vapor pressure, which causes them to evaporate quickly and enter the surrounding air. VOCs can be naturally occurring or man-made. The VOC data collected can help distinguish between man-made detections from onsite activities or naturally existing organic chemicals. The VOC data collected are compared against screening levels. These screening levels are risk-based concentrations derived from standardized equations combining exposure information with toxicity data.

All four DOE locations were sampled during each of the six VOC sampling events this period. Data completeness goals for VOCs exceeded the project goal of 85% (see Table 5).

Table 5. Ambient air VOC data completeness.

Location	Valid Readings (Days)	Possible Readings (Days)	Data Completeness (Percent)
DOE-1	6	6	100%
DOE-2	6	6	100%
DOE-3	6	6	100%
DOE-4	6	6	100%

Average Total Data Completeness 100%

VOC detection results are presented in Table B-1 (Appendix B), including comparison to the April 2019 DTSC Human Health Risk Assessment (HHRA) Note 3 Screening Levels (DTSC 2019) or the EPA RSLs. Benzene was detected at the April 11, 2024, sampling at two locations at concentrations of 0.85 µg/m³ and 5.7 µg/m³, each of which exceeds its EPA RSL limit of 0.097 µg/m³. Ethyl acetate was detected above the EPA RSL limit of 73 µg/m³ during the April 11, 2024, sampling at three locations at concentrations of 200;J+ µg/m³, 2,800;DJ+ µg/m³, and 240;J+ µg/m³. Ethyl acetate was detected above the EPA RSL limit of 73 µg/m³ during the June 18, 2024, sampling at two locations at concentrations of 83 µg/m³ and 74 µg/m³.

Two man-made VOC analytes, dichlorodifluoromethane (freon-12) and ethyl acetate, have been detected routinely at all four monitoring stations, during all quarterly sampling events, and in duplicate samples indicating that these VOCs were not caused by the building demolition activities performed during June 2020 through February 2022. These analytes were also detected as estimated values at NASA stations but were not detected at Boeing stations. Based on laboratory QC data (method blanks, clean canister

certifications), the sampling process and laboratory process are not the sources of the two analytes. The onsite source of the analytes is currently unknown.

Neither the establishment of sources for specific contaminants nor the performance of source apportionment was required for identifying remedial air quality impacts, nor was either within the scope or data quality objectives of the Air Monitoring Program.

4.4 Radionuclide Data

ETEC continuously monitors air at multiple locations for radioactive particles. This is performed for two reasons: (1) to determine the background airborne radioactivity concentration so that any possible releases from work activities can be detected, and (2) to detect any possible release from existing activities.

There were 104 airborne radioactivity filter samples collected in Q2/2024 — 26 each for DOE-1, DOE-2, DOE-3, and DOE-4. Each sample was collected on a glass-fiber filter (as discussed in Section 3) and was analyzed using a “low background” Protean radiation counter system onsite. These samples included background radioactive materials and the potential of Area IV-specific radioactive materials.

The alpha and beta data are presented in Table C-1 (Appendix C). The onsite analysis determined only “alpha” or “beta/gamma” and did not analyze for specific isotopes. Isotopic analysis was performed later by an offsite laboratory. Each sample produced a gross alpha and beta-gamma count. The analysis compared these values with the background radiation count rates, and using the volume of air collected determined the net counts and the minimum detectable concentration (MDC) for each sampling event. Some results in Table C-1 (Appendix C) are shown as negative values (because detector background is subtracted from the result).

All alpha samples were below the MDC. Approximately 30% of the beta samples were below MDC, and the gross (background radioactive material included) samples exceeded the MDC in 70% of samples, indicating the presence of airborne radioactive material (including background materials). The beta-gamma samples greater than the MDC were only slightly above the MDC and were well below the effluent limits specified in California regulations. The elevated (but still low) results may be due to more airborne dust or smoke. Historically there has been a noticeable direct correlation between high wind speeds and higher beta result readings.

Following collection and onsite analysis, the air filters were composited and analyzed for specific radionuclides by an offsite laboratory. This data is shown in Table C-2 (Appendix C). This laboratory data determined that most radioactive material present was natural in origin, consisting of beryllium-7, polonium-210, potassium-40, combined radium-226 and radium-228, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, and uranium-238.

While artificial radionuclides (e.g., cesium-137, strontium-90, plutonium-239) were present in very small amounts, none of the results were above the MDC in Q2/2024. The presence of these radionuclides is considered a part of the normal variation of global fallout and resuspension activities.

A summary of the gross air sampling data is shown in Table 6 below.

Table 6. Gross alpha and beta-gamma average results for Q2/2024.

Location	Average alpha result (μCi/mL)	Average alpha MDC (μCi/mL)	Average beta result (μCi/mL)	Average beta MDC (μCi/mL)
DOE-1	-2.06E-16	6.42E-15	3.22E-14	2.39E-14
DOE-2	-1.05E-15	6.42E-15	4.43E-14	2.39E-14
DOE-3	-4.30E-16	6.46E-15	3.53E-14	2.42E-14
DOE-4	-6.07E-16	6.39E-15	3.74E-14	2.40E-14
Average	-5.75E-16	6.42E-15	3.73E-14	2.40E-14

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5. QA/QC ACTIVITIES

The following QA/QC activities were conducted for the PM₁₀, VOC, radionuclide, and meteorological data collection and analysis.

5.1 Field QA/QC

5.1.1 PM₁₀

The 24-hour daily averages for Q2/2024 are presented in Appendix A along with the monthly minimum, maximum, and 95th percentile for each station location. In addition, the nearby SLAMS, Simi Valley – Cochran Street – PM₁₀ Daily Averages, from 01/01/2023 to 03/31/2024 along with the monthly average minimum, maximum, and 95th percentile for the Simi Valley – Cochran Street location, are presented in Appendix A. Please note, only the Simi Valley PM₁₀ data from the SLAMS have been reported. The Simi Valley PM_{2.5} and the Reseda PM_{2.5} have not been reported here since this report discusses only PM₁₀ data, not PM_{2.5} data. In addition, per the EPA website, this EPA data is updated twice per year: once in June to capture the complete data for the prior year, and once in December to capture the data for the summer (ozone season). At the time of writing this report the data posted is the most current available.

Flow Verifications

Functionality of the Met One E-BAM units is verified and recorded monthly during instrument audits; however, the instruments are also checked several times a week for operability. During the monthly audits, the Met One E-BAM temperature, pressure, and flow rate are verified against a National Institute of Standards and Technology (NIST) traceable flowmeter. The flow rate audit results are presented as bias percentages. The average quarterly bias for each DOE site (DOE-1, DOE-2, DOE-3, and DOE-4) is compared to the flow rate measurement quality objective of +/- 4%.

E-BAM units are occasionally swapped out for maintenance. When this occurs during a quarter, the reported quarterly bias percentage for the affected DOE site is based on the combined monthly audit results for the E-BAM units that operated at the site during that quarter. During Q2/2024, the monitor at DOE-1 was found to not be operating properly during the first month of the quarter (i.e., April 2024). It was replaced at the start of the second month (May 2024). This resulted in two audits for DOE-1 during the month of May 2024. The quarterly flow rate bias percentages at the four E-BAM sites ranged from -2.66 to -1.93%. These results were within the flow rate measurement quality objective of +/- 4%.

Complete audit reports and flow verification results for Q2/2024 are presented in Appendix D of this document. The flow rate verifications were based on 40 CFR 58, Appendix A, 3.3.1 and 4.2.2 through 4.2.3, along with the *Guideline on the Meaning and the Use of Precision and Bias Data Required by 40 CFR Part 58 Appendix A* (EPA 2007). The *Data Assessment Statistical Calculator* (DASC) tool, which is an EPA Excel-based software application, was used to perform the necessary statistical calculations based on the flowrate data collected during the monthly audits. Sections 2 and 2.5 of this EPA guidance document (EPA 2007) provide additional information and instruction for using the DASC tool.

5.1.2 VOCs

All data underwent at least two levels of QC review at the laboratory prior to transmission to North Wind. A minimum of 20% of the transmitted VOC results undergo a Level IV third-party data validation, annually. During this quarter, one of the six SDGs, P2401456, underwent the Level IV data validation. The data

validation ensures that the required analytical measurement quality objectives are met to ensure the data are of sufficient quality for their intended purpose.

Each location had valid readings on the six sample days for a sample completeness of 100%. Data completeness goals for VOCs exceeded the project goal of 85%.

5.1.3 Field Duplicates

Six field duplicates were collected during this reporting period. Six sampling events were conducted for the Q2/2024 effort. Fifteen sample and duplicate analyte detections were within the quality objective of +/- 15% relative percent difference (RPD). There were no other detections associated with the samples and associated duplicates collected during this reporting period. The following analytes in the field duplicate pairs exceeded the quality objective of +/- 15% RPD:

- Ethyl acetate, acrolein, and carbon disulfide for P2401456.
- Propanol[2-] and ethyl acetate for P2402060 and P2402236.
- Carbon disulfide, ethyl acetate, and toluene for P2402494.

5.1.4 Canister Pressure

Vacuum in the canisters is measured before and after sampling with an analog pressure gauge to ensure proper function. Final canister vacuums ranged from -4.5 inches mercury (Hg) to -1.0 inches Hg during this reporting period.

5.1.5 Radiological

The detector for onsite gross alpha and beta sample analysis is calibrated annually by a third-party vendor using sources traceable to the NIST. The detector is checked by counting alpha- and beta-emitting sources at the site when received from the vendor following calibration. This establishes an acceptable performance range for daily source checks. On each day the detector is used, performance is determined with the site source. The detector may be used if the daily check is within the acceptable performance range.

Samples analyzed at the offsite laboratory are QC-checked at the laboratory. These QC checks include blanks, laboratory replicates, matrix spikes, and matrix spike duplicates. Barium, which behaves chemically similar to radium, is used as a carrier to determine the yield of the chemical extraction.

Since Q2/2021, 100% of the radiological analytical results have undergone Level IV, third-party data validation. The data validation ensures that the required analytical measurement quality objectives are met to ensure the data are of sufficient quality for their intended purpose.

5.1.6 Meteorological

During the reporting period, a weekly data validation screening and review was performed on the monitored meteorological parameters based on the EPA guidance document *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA 2000), Table 8-4 – Suggested Data Screening Criteria, as outlined in Section 4.1. The data validation procedure provided the basis for evaluating data completeness and for determining sensor performance and/or maintenance status.

5.1.7 Maintenance

Routine visual checks were performed on the meteorological station during weekly data downloading site visits. This included inspection of the meteorological tower sensors, E-BAM monitoring unit wind sensors, and solar-powered batteries to ensure proper functioning.

5.1.8 Corrective Action

Issues and corrective actions regarding the PM₁₀ monitors and the meteorological station are noted in Sections 5.1.8.1 and 5.1.8.2, respectively. Issues and corrective actions regarding the E-BAM monitors are noted in Section 4.2. No issues or corrective actions were noted regarding the remaining monitoring equipment or sampling events during this reporting period.

5.1.8.1 PM₁₀ Monitors

Refer to Section 4.2 for a detailed description of PM₁₀ air monitoring equipment issues.

5.1.8.2 Meteorological Station

This section covers data quality issues and associated corrective actions that occurred during the current monitoring quarter. The data percent completion goal of $\geq 80\%$ was met during Q2/2024 for all parameters except relative humidity. Quality issues this quarter included: (1) continued post-processing of the delta temperature data to resolve a datalogger programming equation where the 10-m and 2-m temperature parameters are reversed, (2) although the relative humidity sensor was replaced during the previous quarter and is performing within quality specifications, the data loss that occurred during that period has resulted in $< 80\%$ year-to-date data completion for this parameter, and (3) preventative maintenance replacement of the temperature sensors at 2 m and 10 m. Also, the recommended sensor maintenance schedule is provided for reference.

This section covers data quality issues and associated corrective actions that occurred during the current monitoring quarter. The year-to-date annual data percent completion goal of $\geq 80\%$ was met during Q2/2024 for all parameters except relative humidity. Quality issues this quarter included: (1) continued post-processing of the delta temperature data to resolve a datalogger programming equation where the 10-m and 2-m temperature parameters are reversed, and (2) although the relative humidity sensor was replaced during the previous quarter and is performing within quality specifications, the data loss that occurred during that period has resulted in $< 80\%$ year-to-date data completion for this parameter. Also, the recommend sensor maintenance schedule is provided for reference.

(1) Delta Temperature Calculation

- Data Quality Issue:
 - For meteorological monitoring, delta temperature should be defined as T at the higher level minus T at the lower level. However, the datalogger was improperly programmed to calculate the inverse of delta temperature when the station was replaced after the Woolsey Wildfire during Q3. Consequently, delta temperature observations are being calculated with an opposite sign compared to the values from the original data logger.

- Corrective Action:

- Datalogger Equation – Instead of reprogramming the datalogger to correctly calculate delta temperature, an adjustment multiplication factor of “-1” has been applied to the delta temperature values from the new data logger prior to performing the data validation.

Resolution – With application of the “-1” multiplication factor, delta temperature values in the validated project dataset accurately present delta temperature as:

$$\text{Delta Temperature} = [\text{Temperature @ 10 m}] \text{ minus } [\text{Temperature @ 2 m}]$$

(2) Relative Humidity Sensor:

- Data Quality Issue:

- The relative humidity sensor was replaced in Q1/2024. Although the replaced relative humidity sensor has performed within quality specifications for the entire Q2/2024 (i.e., Q2/2024 data completeness = 100%), the 7,721 lost relative humidity 15-minute observations during Q1/2024 (i.e., Q1/2024 data completeness = 11.62%) has limited the potential year 2024 maximum annual data completeness for relative humidity to 78%.

- Corrective Actions:

- No corrective action needed – Data collection will continue for this parameter with the understanding that an annual data completion goal of 80% cannot be achieved for relative humidity for year 2024.

(3) Recommended Maintenance Schedule:

Although not a corrective action, the manufacturer’s recommended maintenance frequency for meteorological sensors is presented below for information purposes. Proper and timely maintenance of the meteorological sensors is critical for ensuring that the data are not only valid (based on screening criteria) but also accurate. Schedules for maintenance and calibration are provided in the sensor user manuals and based on the in-service time of the sensor. Table 7 lists the recommended maintenance schedules for the Met One sensors installed at the DOE-4 meteorological station.

Table 7. Meteorological sensor recommended maintenance frequency (Met One).

Sensor	Frequency	Maintenance
WS	6–12 Month	Inspect for proper operation (manual check of pulses per revolution, bearing condition, anemometer cup condition, and bearing replacement if warranted)
	12–24 Month	Return to Met One for complete overhaul
WD	6–12 Month	Inspect for proper operation (manual check of sensor readings through 360°)
	6–12 Month	Field calibration
	12–24 month	Replace bearings & potentiometer
T	6–12 Month	Inspect sensor for proper operation (field comparison sensor reading against a precision mercury thermometer)
RH	6–12 Month	Inspect sensor for proper operation (compare sensor reading against local weather service or field psychrometer)
	12 Month	Return sensor to Met One for calibration and replacement of O-rings and filter membrane
Rain Gauge	6 Month	Clean sensor and bucket and field verify proper operation
Pressure	12 Month	Return sensor to Met One for calibration and replacement of O-rings and filter membrane
Radiometer	Monthly	Clean sensor glass dome with clean rag/tissue

Note: Maintenance schedules are as specified in the respective Met One sensor user manuals.

5.2 Laboratory QA/QC

This report covers 30 air monitoring samples for VOCs collected and analyzed according to the EPA Toxic Compendium Method TO-15, *Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* (EPA 1999). These samples were reported under six SDGs by the laboratory. All six SDG analyses were performed by ALS in Simi Valley, CA. For each SDG, the laboratory ran continuing calibration verification, a method blank, and laboratory control samples, and verified surrogate recoveries for each sample.

The laboratory provided certified clean canisters for the sampling events. The certification of the canister batch is considered the equipment blank for each sampling event. The ALS case narrative discusses the cleaning of the canisters.

5.3 Audit Results

The PM₁₀ instruments were calibrated at the manufacturer and were functioning properly upon installation. The PM₁₀ instruments were audited monthly with a secondary NIST traceable flow meter. Although audits occur only monthly, the instruments were checked several times a week to ensure that they were functioning. Table 8 lists the dates for audits conducted in April through June. No flow rate comparisons exceeded the project's acceptance criterion of +/- 4. The sample nozzles and support vanes were cleaned as needed. Complete audit reports are presented in Appendix D.

Table 8. PM₁₀ audit completeness.

Location	Met One E-BAM Serial Number	Parameter	Date
DOE-1	W23314	PM ₁₀	05/06/2024*
DOE-2	Y12096	PM ₁₀	04/22/2024
DOE-3	X16067	PM ₁₀	04/22/2024
DOE-4	B18932	PM ₁₀	04/22/2024
DOE-1	W23314	PM ₁₀	05/23/2024
DOE-2	Y12096	PM ₁₀	05/23/2024
DOE-3	X16067	PM ₁₀	05/23/2024
DOE-4	B18932	PM ₁₀	05/23/2024
DOE-1	W23314	PM ₁₀	06/26/2024
DOE-2	Y12096	PM ₁₀	06/26/2024
DOE-3	X16067	PM ₁₀	06/26/2024
DOE-4	B18932	PM ₁₀	06/26/2024

Note:

* = There is no April audit for W23313. This is the initial audit for W23314, which replaced W23313.

6. REFERENCES

~~10 Code of Federal Regulations (CFR) 20, Appendix B, "Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage," Table 2-~~

40 CFR 58, Appendix C – Ambient Air Quality Monitoring Methodology.

40 CFR 136, Appendix B – Definition and Procedure for the Determination of the Method Detection Limit.

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California Environmental Protection Agency, DTSC. 2022. Human and Ecological Risk Office Human Health Risk Assessment Note Number 3, DTSC-modified Screening Levels. April. Available online at: [Human Health Risk Assessment Note 3 -June 2020 revised May 2022 \(ca.gov\)](#) and [HHRA-Note-3-Tables-June2020-Revised-May2022A.xlsx \(live.com\)](#).

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Figure 1 – SSFL Air Monitoring Locations

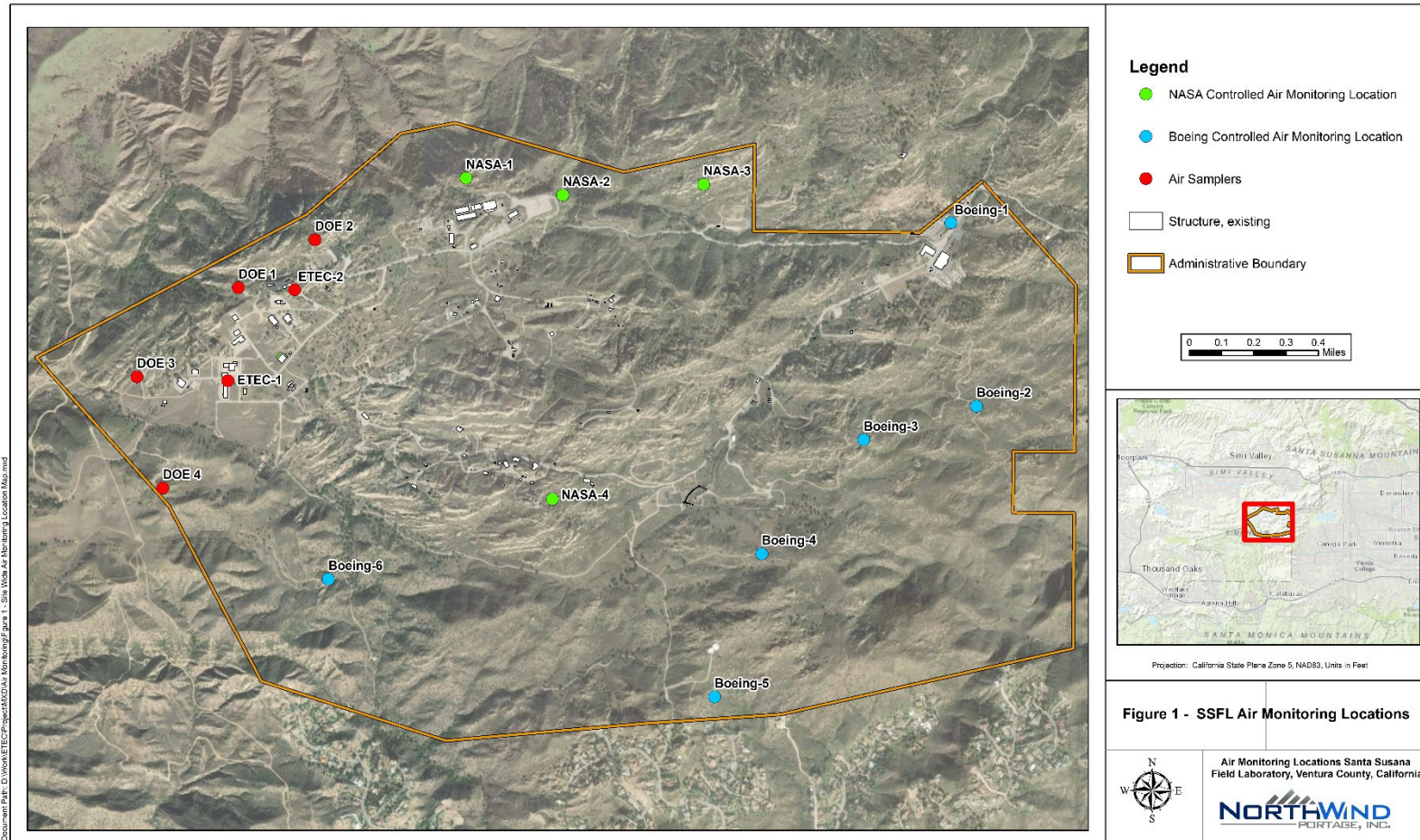
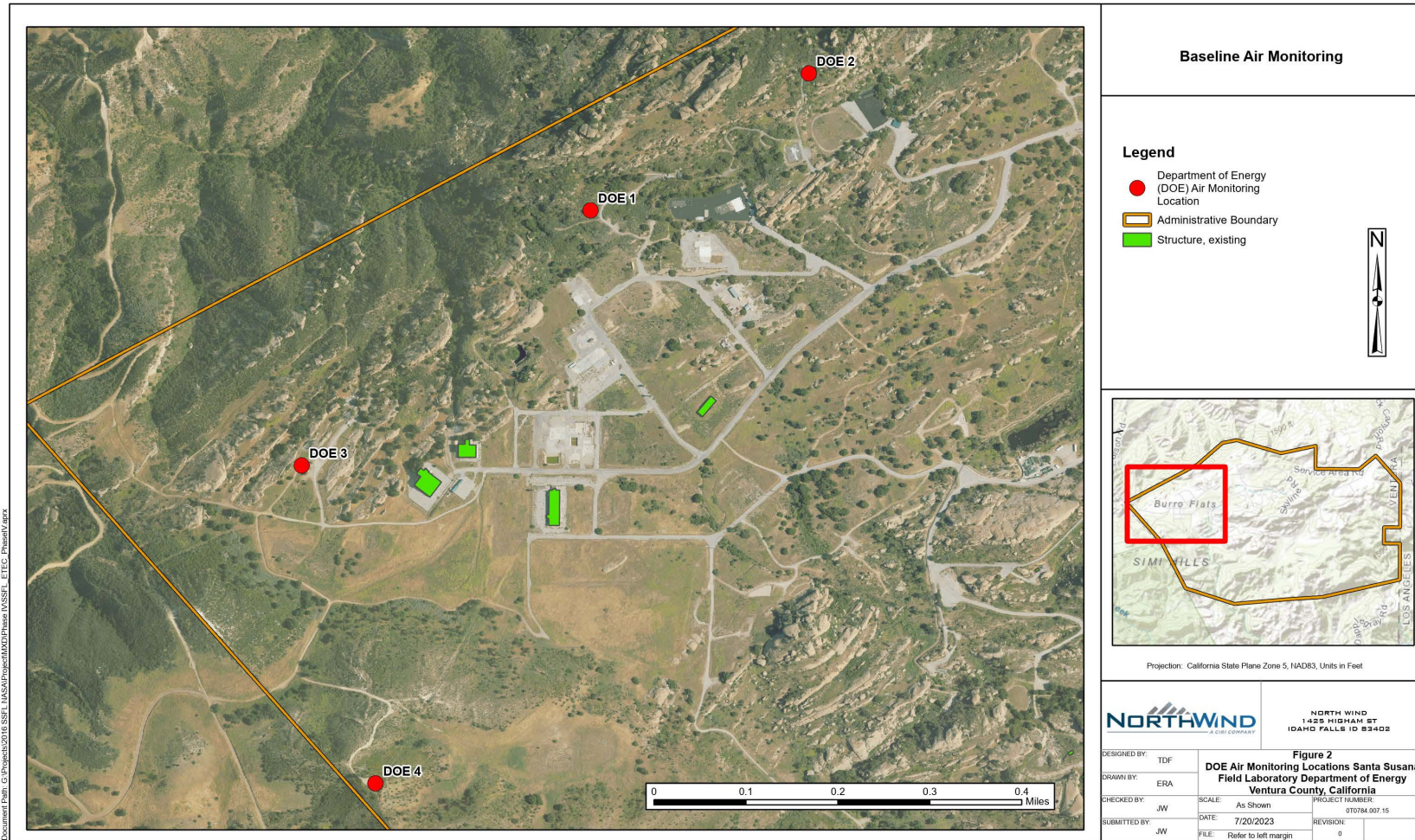
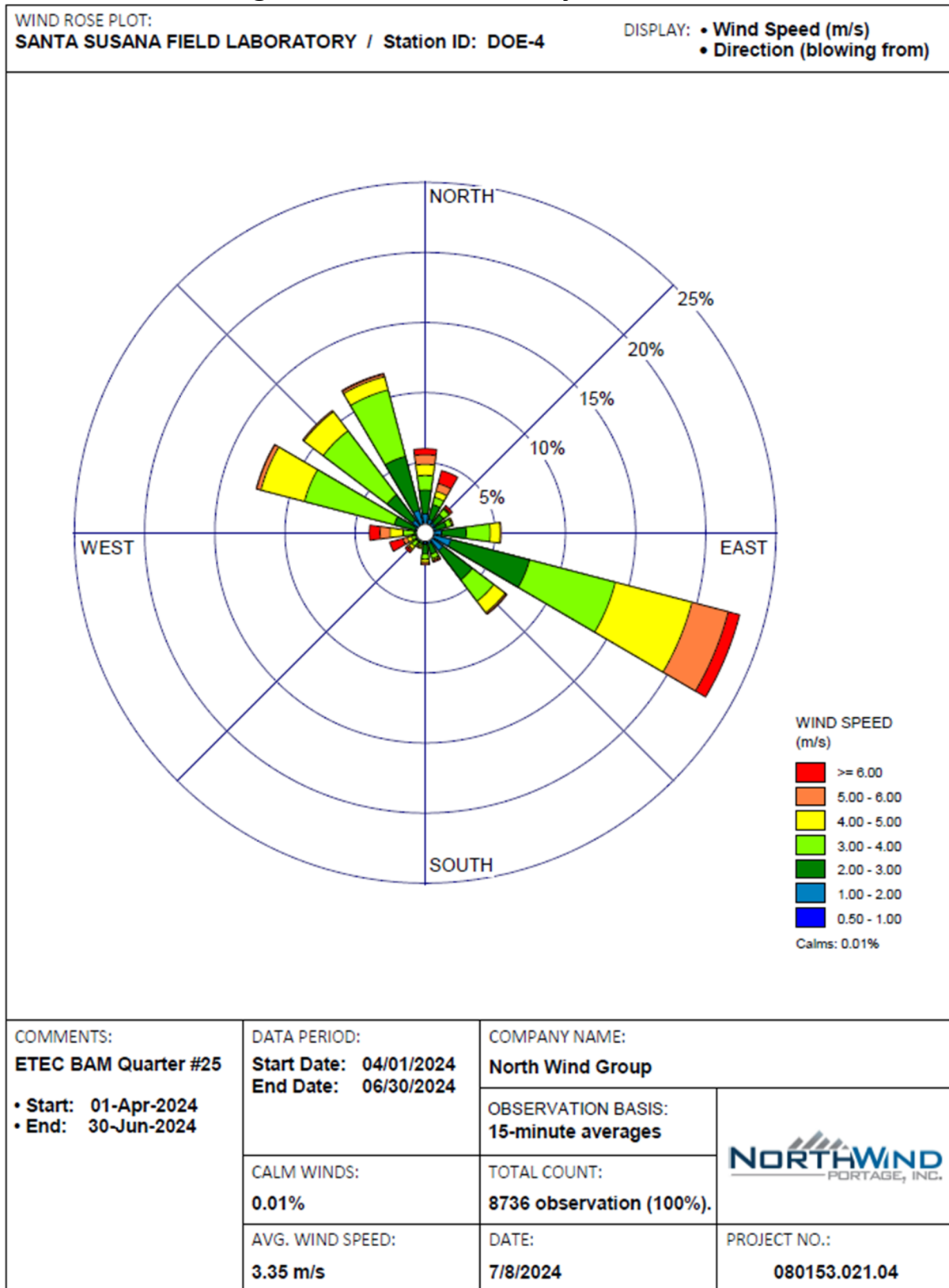


Figure 2 – DOE Air Monitoring Locations



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Figure 3 – DOE Quarterly Wind Rose



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APPENDIX A

PM₁₀ Daily Averages and Monthly Statistics

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PM₁₀ Daily Averages

Site ID	DOE-1	DOE-2	DOE-3	DOE-4
Sample Date	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)
04/01/24	4.333	4.333	2.75	1.995
04/02/24	8.041	14.208	5.666	3.604
04/03/24	15.333	14.416	11	7.279
04/04/24	12.25	11.5	8.25	3.491
04/05/24	4.5	5.708	3.125	2.366
04/06/24	4.958	5.083	4.416	2.945
04/07/24	4.583	9.041	4.541	2.85
04/08/24	—	6.291	6.041	3.65
04/09/24	—	5.583	8	3.995
04/10/24	—	9.75	69.416	7.158
04/11/24	—	12.041	13.041	8.237
04/12/24	—	32.333	23.166	8.654
04/13/24	—	12.833	6.041	3.291
04/14/24	—	8.291	0.583	0.891
04/15/24	—	9.291	—	1.795
04/16/24	—	9.916	0.791	3.575
04/17/24	—	8.416	7.416	6.341
04/18/24	—	14.25	12.75	7.945
04/19/24	—	20.041	13.208	6.579
04/20/24	—	15.458	—	8.633
04/21/24	—	17.375	—	11.404
04/22/24	—	13.541	—	9.266
04/23/24	—	16.875	—	3.112
04/24/24	—	9.291	—	4.283
04/25/24	—	12.041	—	3.537
04/26/24	—	12.458	10.541	7.125
04/27/24	—	5.833	5.5	4.241
04/28/24	—	13.583	9.75	17.104
04/29/24	—	12.833	9.125	6.575
04/30/24	—	17.666	17.083	11.22
05/01/24	—	19.75	—	12.216
05/02/24	—	26.416	—	12.912
05/03/24	—	18.833	—	9.229
05/04/24	—	10.833	—	4.42
05/05/24	—	6.291	—	3.775
05/06/24	14.166	7	—	4.1

Site ID	DOE-1	DOE-2	DOE-3	DOE-4
Sample Date	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)
05/07/24	13.583	13.416	19.791	6.287
05/08/24	19.708	16.958	17.458	9.32
05/09/24	21.125	19.041	20.041	10.041
05/10/24	15.875	17.125	14.958	8.020
05/11/24	10.541	12.666	—	6.583
05/12/24	15.833	18.625	—	9.470
05/13/24	15.708	17.166	—	6.666
05/14/24	14.791	12.375	7.333	6.791
05/15/24	11.416	12.208	6.458	4.745
05/16/24	9.125	8.875	9.333	5.845
05/17/24	11.125	12.083	9.208	5.654
05/18/24	10.875	14.5	8.666	4.483
05/19/24	9.458	10.375	9.25	4.150
05/20/24	14.041	10.208	12.541	4.195
05/21/24	20.416	19.083	18	8.575
05/22/24	17.125	16.541	15.5	8.758
05/23/24	23.25	22.541	24.125	19.137
05/24/24	16.041	13.708	12.916	9.037
05/25/24	9.416	8.25	10.208	4.445
05/26/24	8.625	10.791	9.208	4.845
05/27/24	14.958	27.25	13.5	7.737
05/28/24	15.916	19.458	14.958	9.629
05/29/24	16.25	21.041	27.041	9.120
05/30/24	21.625	20.083	18.166	12.304
05/31/24	17.083	16.583	13.208	7.829
06/01/24	13	14.25	—	4.050
06/02/24	14	12.583	—	4.508
06/03/24	13.666	17.583	14.333	9.279
06/04/24	21.583	18.666	18.208	10.933
06/05/24	23	17.458	20.041	12.233
06/06/24	20.375	26.291	18.583	11.291
06/07/24	14.166	20.083	14.458	6.433
06/08/24	13.916	14.416	10.791	4.170
06/09/24	10.041	12.416	—	4.179
06/10/24	16.166	24.75	—	8.462
06/11/24	16.375	18.041	—	9.808

Site ID	DOE-1	DOE-2	DOE-3	DOE-4
Sample Date	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)
06/12/24	16	21.083	4.583	5.616
06/13/24	14.5	23.75	16.875	7.529
06/14/24	16.666	22.208	21.083	9.183
06/15/24	26.541	28.583	—	13.945
06/16/24	51.333	47.833	—	24.387
06/17/24	38.458	34.541	30.5	13.575
06/18/24	36.041	39.25	39.125	16.645
06/19/24	29.958	33.541	8.958	10.600
06/20/24	27.208	31.666	—	13.487
06/21/24	29.708	24.041	—	12.283
06/22/24	21.5	21.208	—	15.125
06/23/24	11.541	8.625	—	173.300
06/24/24	14.625	12.75	—	10.495
06/25/24	17.916	24.083	12.791	12.870
06/26/24	21.416	21.041	24.318	12.666
06/27/24	25.541	23.333	28.375	13.695
06/28/24	26.791	27.833	79.333	13.333
06/29/24	24.875	18.875	150.375	11.925
06/30/24	20.083	12.083	83.875	10.500

Notes:

"—" indicates a filter sensor pressure failure with no value.

Negative values mean the background exceeded the particulate count.

Gray-shaded boxes with bold numbers indicate value exceeded CAAQS but is below the NAAQS of 150 µg/m³.

Orange-shaded boxes with bold numbers indicate value exceeded CAAQS and the NAAQS of 150 µg/m³.

EPA – Simi Valley – Cochran Street – PM₁₀ Daily Averages, 01/01/2023–03/31/2024

	Simi Valley AQS # 061112002
Simi Valley PM ₁₀ Sample Date	PM ₁₀ (µg/m ³) (CAAQS 50 µg/m ³)
01/01/23	12
01/02/23	9
01/03/23	3
01/04/23	2
01/05/23	12
01/06/23	9
01/07/23	12
01/08/23	10
01/09/23	1
01/10/23	11
01/11/23	17
01/12/23	6
01/13/23	17
01/14/23	11
01/15/23	8
01/16/23	4
01/17/23	5
01/18/23	11
01/24/23	16
01/25/23	6
01/26/23	10
01/27/23	13
01/28/23	19
01/29/23	14
01/30/23	8
01/31/23	16
02/01/23	6
02/02/23	15
02/03/23	14
02/05/23	7
02/06/23	3
02/07/23	4
02/08/23	8
02/09/23	7
02/10/23	12
02/11/23	15

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
02/12/23	11
02/13/23	14
02/14/23	26
02/15/23	9
02/16/23	8
02/17/23	10
02/18/23	13
02/19/23	15
02/20/23	17
02/21/23	33
02/22/23	20
02/23/23	5
02/24/23	2
02/25/23	3
02/26/23	6
02/27/23	6
02/28/23	6
03/01/23	6
03/02/23	8
03/03/23	14
03/04/23	21
03/05/23	10
03/06/23	7
03/07/23	7
03/08/23	12
03/09/23	12
03/10/23	3
03/11/23	2
03/12/23	2
03/13/23	8
03/14/23	6
03/15/23	7
03/16/23	13
03/17/23	17
03/18/23	12
03/19/23	11
03/20/23	6

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
03/21/23	7
03/22/23	7
03/23/23	10
03/24/23	8
03/25/23	9
03/26/23	11
03/27/23	13
03/28/23	11
03/29/23	8
03/30/23	5
03/31/23	9
04/01/23	9
04/02/23	13
04/03/23	12
04/04/23	10
04/05/23	11
04/06/23	12
04/07/23	17
04/08/23	13
04/09/23	13
04/10/23	20
04/11/23	19
04/12/23	25
04/13/23	11
04/14/23	16
04/15/23	20
04/16/23	20
04/17/23	23
04/18/23	26
04/19/23	27
04/20/23	24
04/21/23	20
04/22/23	16
04/23/23	23
04/24/23	22
04/25/23	27
04/26/23	25

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
04/27/23	23
04/28/23	21
04/29/23	18
04/30/23	18
05/01/23	10
05/02/23	6
05/03/23	4
05/04/23	4
05/05/23	5
05/06/23	5
05/07/23	9
05/08/23	14
05/09/23	17
05/10/23	19
05/11/23	18
05/12/23	27
05/13/23	29
05/14/23	29
05/15/23	23
05/16/23	17
05/17/23	18
05/18/23	28
05/19/23	24
05/20/23	21
05/21/23	16
05/22/23	18
05/23/23	9
05/24/23	13
05/25/23	15
05/26/23	12
05/27/23	17
05/28/23	16
05/29/23	12
05/30/23	14
05/31/23	11
06/01/23	24
06/02/23	27

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
06/03/23	24
06/04/23	21
06/05/23	12
06/06/23	13
06/07/23	8
06/08/23	10
06/09/23	15
06/10/23	15
06/11/23	11
06/12/23	9
06/13/23	11
06/14/23	15
06/15/23	12
06/16/23	15
06/17/23	19
06/18/23	16
06/19/23	16
06/20/23	21
06/21/23	25
06/22/23	24
06/23/23	19
06/24/23	19
06/25/23	16
06/26/23	22
06/27/23	26
06/28/23	27
06/29/23	28
06/30/23	32
07/01/23	24
07/02/23	20
07/03/23	23
07/04/23	28
07/05/23	32
07/06/23	25
07/07/23	27
07/08/23	28
07/09/23	25

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
07/10/23	30
07/11/23	25
07/12/23	20
07/13/23	19
07/14/23	27
07/15/23	32
07/16/23	27
07/17/23	33
07/18/23	29
07/19/23	26
07/20/23	29
07/21/23	36
07/22/23	25
07/23/23	28
07/24/23	31
07/25/23	33
07/26/23	36
07/27/23	36
07/28/23	41
07/29/23	37
07/30/23	38
07/31/23	85
08/01/23	33
08/02/23	27
08/03/23	27
08/04/23	34
08/05/23	30
08/06/23	23
08/07/23	26
08/08/23	25
08/09/23	25
08/10/23	17
08/11/23	17
08/12/23	21
08/13/23	21
08/14/23	26
08/15/23	24

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
08/16/23	24
08/17/23	29
08/18/23	28
08/19/23	20
08/20/23	5
08/21/23	6
08/22/23	16
08/23/23	19
08/24/23	16
08/25/23	14
08/26/23	12
08/27/23	15
08/28/23	19
08/29/23	20
08/30/23	28
08/31/23	30
09/01/23	30
09/02/23	4
09/03/23	11
09/04/23	14
09/05/23	22
09/06/23	21
09/07/23	23
09/08/23	21
09/09/23	16
09/10/23	18
09/11/23	29
09/12/23	27
09/13/23	29
09/14/23	28
09/15/23	26
09/16/23	21
09/17/23	7
09/18/23	15
09/19/23	18
09/20/23	24
09/21/23	31

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
09/22/23	31
09/23/23	36
09/24/23	29
09/25/23	26
09/26/23	22
09/27/23	32
09/28/23	33
09/29/23	31
09/30/23	14
10/01/23	13
10/02/23	15
10/03/23	22
10/04/23	17
10/05/23	15
10/06/23	12
10/07/23	19
10/08/23	17
10/09/23	21
10/10/23	20
10/11/23	38
10/12/23	54
10/13/23	31
10/14/23	24
10/15/23	18
10/16/23	24
10/17/23	30
10/18/23	28
10/19/23	25
10/20/23	18
10/21/23	19
10/22/23	13
10/23/23	15
10/24/23	20
10/25/23	17
10/26/23	16
10/27/23	18
10/28/23	19

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
10/29/23	62
10/30/23	21
10/31/23	11
11/01/23	19
11/02/23	20
11/03/23	27
11/04/23	25
11/05/23	23
11/06/23	18
11/07/23	16
11/08/23	17
11/09/23	16
11/10/23	18
11/11/23	12
11/12/23	16
11/13/23	20
11/14/23	28
11/15/23	17
11/16/23	7
11/17/23	9
11/18/23	7
11/19/23	12
11/20/23	52
11/21/23	9
11/22/23	6
11/23/23	15
11/24/23	17
11/25/23	12
11/26/23	7
11/27/23	6
11/28/23	13
11/29/23	10
11/30/23	10
12/01/23	11
12/02/23	15
12/03/23	14
12/04/23	11

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
12/05/23	12
12/06/23	17
12/07/23	15
12/08/23	10
12/09/23	33
12/10/23	11
12/11/23	19
12/12/23	31
12/13/23	17
12/14/23	11
12/15/23	11
12/16/23	9
12/17/23	8
12/18/23	16
12/19/23	8
12/20/23	6
12/21/23	4
12/22/23	7
12/23/23	14
12/24/23	20
12/25/23	15
12/26/23	20
12/27/23	22
12/28/23	18
12/29/23	19
12/30/23	15
12/31/23	18
01/01/24	10
01/02/24	11
01/03/24	7
01/04/24	5
01/05/24	15
01/06/24	12
01/07/24	6
01/08/24	6
01/13/24	14
01/14/24	21

Simi Valley AQS # 061112002	
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
01/15/24	19
01/16/24	12
01/17/24	15
01/18/24	22
01/19/24	23
01/20/24	9
01/21/24	4
01/22/24	2
01/23/24	3
01/24/24	14
01/25/24	8
01/26/24	3
01/27/24	1
01/28/24	2
01/29/24	9
01/30/24	12
01/31/24	20
02/01/24	3
02/02/24	9
02/03/24	9
02/04/24	3
02/05/24	1
02/06/24	1
02/07/24	5
02/08/24	4
02/09/24	4
02/10/24	4
02/11/24	5
02/12/24	5
02/13/24	10
02/14/24	13
02/15/24	8
02/16/24	12
02/17/24	14
02/18/24	3
02/19/24	0
02/20/24	0

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
02/21/24	3
02/22/24	8
02/23/24	4
02/24/24	6
02/25/24	8
02/26/24	10
02/27/24	7
02/28/24	11
02/29/24	11
03/01/24	1
03/02/24	3
03/03/24	6
03/04/24	7
03/05/24	9
03/06/24	5
03/07/24	3
03/08/24	11
03/09/24	8
03/10/24	6
03/11/24	7
03/12/24	11
03/13/24	12
03/14/24	47
03/15/24	11
03/16/24	12
03/17/24	12
03/18/24	11
03/19/24	18
03/20/24	18
03/21/24	21
03/22/24	21
03/23/24	9
03/24/24	4
03/25/24	11
03/26/24	18
03/27/24	16
03/28/24	11

	Simi Valley AQS # 061112002
Simi Valley PM₁₀ Sample Date	PM₁₀ (µg/m³) (CAAQS 50 µg/m³)
03/29/24	9
03/30/24	3
03/31/24	1

Notes:

Data supplied from https://aqs.epa.gov/aqsweb/airdata/download_files.html#Meta Only the Simi Valley PM₁₀ data from the State and Local Air Monitoring Stations (SLAMS) have been reported here. The Simi Valley PM_{2.5} and the Reseda PM_{2.5} have not been reported here since this report discusses only PM₁₀ data, not PM_{2.5} data. This webpage page contains pre-generated files of data available for download. The files are updated twice per year: once in June to capture the complete data for the prior year, and once in December to capture the data for the summer (ozone season). At the time of writing this report the data posted is the most current available.

Gray-shaded boxes with bold numbers indicate value exceeded CAAQS but is below the NAAQS of 150 µg/m³.

PM₁₀ Monthly Statistics

Location ID	April 2024			May 2024			June 2024		
	PM ₁₀			PM ₁₀			PM ₁₀		
	High	Low	95th PCTL	High	Low	95th PCTL	High	Low	95th PCTL
DOE-1	15.33300	4.33300	14.40810	23.25000	8.62500	21.50000	51.33300	10.04100	37.37035
DOE-2	32.33300	4.33300	18.97225	27.25000	6.29100	24.47850	47.83300	8.62500	37.13095
DOE-3	69.41600	0.58300	22.55770	27.04100	6.45800	23.92080	150.3750	4.58300	93.85000
DOE-4	17.10400	0.89100	11.32120	19.13700	3.77500	12.60800	173.3000	4.05000	20.90310

PCTL = percentile

EPA – Simi Valley – Cochran Street – PM₁₀ Monthly Statistics, 01/01/2023–03/31/2024

Location ID	January 2023			February 2023			March 2023		
	PM 2.5 / PM 10			PM 2.5 / PM 10			PM 2.5 / PM 10		
	High	Low	95th PCTL	High	Low	95th PCTL	High	Low	95th PCTL
Simi Valley AQS # 061112002 (PM ₁₀)	19.00000	1.00000	17.00000	33.00000	2.00000	24.20000	21.00000	2.00000	15.50000

Location ID	April 2023			May 2023			June 2023		
	PM 2.5 / PM 10			PM 2.5 / PM 10			PM 2.5 / PM 10		
	High	Low	95th PCTL	High	Low	95th PCTL	High	Low	95th PCTL
Simi Valley AQS # 061112002 (PM ₁₀)	27.00000	9.00000	26.55000	29.00000	4.00000	28.50000	32.00000	8.00000	27.55000

Location ID	July 2023			August 2023			September 2023		
	PM 2.5 / PM 10			PM 2.5 / PM 10			PM 2.5 / PM 10		
	High	Low	95th PCTL	High	Low	95th PCTL	High	Low	95th PCTL
Simi Valley AQS # 061112002 (PM ₁₀)	85.00000	19.00000	39.50000	34.00000	5.00000	31.50000	36.00000	4.00000	32.55000

Location ID	October 2023			November 2023			December 2023		
	PM 2.5 / PM 10			PM 2.5 / PM 10			PM 2.5 / PM 10		
	High	Low	95th PCTL	High	Low	95th PCTL	High	Low	95th PCTL
Simi Valley AQS # 061112002 (PM ₁₀)	62.00000	11.00000	46.00000	52.00000	6.00000	27.55000	33.00000	4.00000	26.50000

Location ID	January 2024			February 2024			March 2024		
	PM 2.5 / PM 10			PM 2.5 / PM 10			PM 2.5 / PM 10		
	High	Low	95th PCTL	High	Low	95th PCTL	High	Low	95th PCTL
Simi Valley AQS # 061112002 (PM ₁₀)	23.00000	1.00000	21.70000	14.00000	0.00000	12.60000	47.00000	1.00000	21.00000

Notes:

Data supplied from https://aqs.epa.gov/aqsweb/airdata/download_files.html#Meta. Only the Simi Valley PM₁₀ data from the State and Local Air Monitoring Stations (SLAMS) have been reported here. The Simi Valley PM_{2.5} and the Reseda PM_{2.5} have not been reported here since this report discusses only PM₁₀ data, not PM_{2.5} data. This webpage page contains pre-generated files of data available for download. The files are updated twice per year: once in June to capture the complete data for the prior year, and once in December to capture the data for the summer (ozone season).

APPENDIX B

Analytical Results for Ambient Air VOCs

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Table B-1. Ambient air VOC detection results compared to Screening Level Values.

Location ID	Sample Date	Analyte	Method Detection Limit	Result	Screening Level Value	SL Source
DOE-1	04/11/2024	Benzene	0.12	0.85	0.097	DTSC HHRA NOTE 3
DOE-1	04/11/2024	Dichlorodifluoromethane	0.14	2.9	100	US EPA RSL
DOE-1	04/11/2024	Ethyl acetate	1.2	200 (;J+)	73	US EPA RSL
DOE-1	04/11/2024	Toluene	0.1	0.91	310	DTSC HHRA NOTE 3
DOE-1	04/11/2024	Trichlorofluoromethane	0.13	1.4	1300	DTSC HHRA NOTE 3
DOE-2	04/11/2024	Benzene	0.11	5.7	0.097	DTSC HHRA NOTE 3
DOE-2	04/11/2024	Carbon disulfide	0.24	1.8	730	US EPA RSL
DOE-2	04/11/2024	Dichlorodifluoromethane	0.13	3.1	100	US EPA RSL
DOE-2	04/11/2024	Ethyl acetate	1.2	2,800 (;DJ+)	73	US EPA RSL
DOE-2	04/11/2024	Isopropanol	0.33	1.9	210	US EPA RSL
DOE-2	04/11/2024	Toluene	0.097	6.5	310	DTSC HHRA NOTE 3
DOE-2	04/11/2024	Trichlorofluoromethane	0.12	1.5	1300	DTSC HHRA NOTE 3
DOE-3	04/11/2024	Dichlorodifluoromethane	0.13	2.9	100	US EPA RSL
DOE-3	04/11/2024	Ethyl acetate	1.1	31 (;J+)	73	US EPA RSL
DOE-3	04/11/2024	Trichlorofluoromethane	0.12	1.4	1300	DTSC HHRA NOTE 3
DOE-4	04/11/2024	Dichlorodifluoromethane	0.13	2.9	100	US EPA RSL
DOE-4	04/11/2024	Ethyl acetate	1.2	240 (;J+)	73	US EPA RSL
DOE-4	04/11/2024	Toluene	0.1	0.87	310	DTSC HHRA NOTE 3
DOE-4	04/11/2024	Trichlorofluoromethane	0.13	1.4	1300	DTSC HHRA NOTE 3
DOE-1	04/26/2024	Dichlorodifluoromethane	0.12	2.8	100	US EPA RSL
DOE-1	04/26/2024	Ethyl acetate	1.1	25	73	US EPA RSL
DOE-1	04/26/2024	Trichlorofluoromethane	0.11	1.3	1300	DTSC HHRA NOTE 3
DOE-2	04/26/2024	Dichlorodifluoromethane	0.12	2.9	100	US EPA RSL
DOE-2	04/26/2024	Ethyl acetate	1.1	10	73	US EPA RSL
DOE-2	04/26/2024	Trichlorofluoromethane	0.11	1.3	1300	DTSC HHRA NOTE 3
DOE-3	04/26/2024	Dichlorodifluoromethane	0.13	2.8	100	US EPA RSL
DOE-3	04/26/2024	Ethyl acetate	1.1	11	73	US EPA RSL
DOE-3	04/26/2024	Trichlorofluoromethane	0.12	1.3	1300	DTSC HHRA NOTE 3
DOE-4	04/26/2024	Dichlorodifluoromethane	0.12	2.9	100	US EPA RSL
DOE-4	04/26/2024	Ethyl acetate	1.1	20	73	US EPA RSL
DOE-4	04/26/2024	Trichlorofluoromethane	0.11	1.3	1300	DTSC HHRA NOTE 3
DOE-1	05/09/2024	Ethyl acetate	1.1	63	73	US EPA RSL
DOE-1	05/09/2024	Isopropanol	0.31	1.8	210	US EPA RSL
DOE-1	05/09/2024	Toluene	0.092	1.1	310	DTSC HHRA NOTE 3
DOE-1	05/09/2024	Trichlorofluoromethane	0.11	1.3	1300	DTSC HHRA NOTE 3
DOE-2	05/09/2024	Dichlorodifluoromethane	0.12	2.3	100	US EPA RSL
DOE-2	05/09/2024	Ethyl acetate	1.1	17	73	US EPA RSL
DOE-2	05/09/2024	Trichlorofluoromethane	0.11	1.3	1300	DTSC HHRA NOTE 3
DOE-3	05/09/2024	Dichlorodifluoromethane	0.12	2.3	100	US EPA RSL
DOE-3	05/09/2024	Ethyl acetate	1.1	40	73	US EPA RSL
DOE-3	05/09/2024	Toluene	0.092	0.83	310	DTSC HHRA NOTE 3
DOE-3	05/09/2024	Trichlorofluoromethane	0.11	1.2	1300	DTSC HHRA NOTE 3

Location ID	Sample Date	Analyte	Method Detection Limit	Result	Screening Level Value	SL Source
DOE-4	05/09/2024	Dichlorodifluoromethane	0.13	2.3	100	US EPA RSL
DOE-4	05/09/2024	Ethyl acetate	1.2	70	73	US EPA RSL
DOE-4	05/09/2024	Toluene	0.10	0.90	310	DTSC HHRA NOTE 3
DOE-4	05/09/2024	Trichlorofluoromethane	0.12	1.2	1300	DTSC HHRA NOTE 3
DOE-1	05/22/2024	Dichlorodifluoromethane	0.12	2.6	100	US EPA RSL
DOE-1	05/22/2024	Ethyl acetate	1.1	26	73	US EPA RSL
DOE-1	05/22/2024	Toluene	0.092	0.83	310	DTSC HHRA NOTE 3
DOE-1	05/22/2024	Trichlorofluoromethane	0.12	1.2	1300	DTSC HHRA NOTE 3
DOE-2	05/22/2024	Dichlorodifluoromethane	0.12	2.6	100	US EPA RSL
DOE-2	05/22/2024	Ethyl acetate	1.1	14	73	US EPA RSL
DOE-2	05/22/2024	Trichlorofluoromethane	0.11	1.3	1300	DTSC HHRA NOTE 3
DOE-3	05/22/2024	Dichlorodifluoromethane	0.13	2.6	100	US EPA RSL
DOE-3	05/22/2024	Ethyl acetate	1.1	13	73	US EPA RSL
DOE-3	05/22/2024	Isopropanol	0.32	1.6	210	US EPA RSL
DOE-3	05/22/2024	Trichlorofluoromethane	0.12	1.3	1300	DTSC HHRA NOTE 3
DOE-4	05/22/2024	2-butanone	0.34	1.5	5200	US EPA RSL
DOE-4	05/22/2024	Dichlorodifluoromethane	0.12	2.6	100	US EPA RSL
DOE-4	05/22/2024	Ethyl acetate	1.1	4.5	73	US EPA RSL
DOE-4	05/22/2024	Isopropanol	0.31	1.6	210	US EPA RSL
DOE-4	05/22/2024	Trichlorofluoromethane	0.12	1.2	1300	DTSC HHRA NOTE 3
DOE-1	06/04/2024	Dichlorodifluoromethane	0.13	2.2	100	US EPA RSL
DOE-1	06/04/2024	Ethyl acetate	1.1	5.1	73	US EPA RSL
DOE-1	06/04/2024	Isopropanol	0.32	1.5	210	US EPA RSL
DOE-1	06/04/2024	Trichlorofluoromethane	0.12	1.2	1300	DTSC HHRA NOTE 3
DOE-2	06/04/2024	Dichlorodifluoromethane	0.13	2.3	100	US EPA RSL
DOE-2	06/04/2024	Ethyl acetate	1.1	30	73	US EPA RSL
DOE-2	06/04/2024	Isopropanol	0.32	1.5	210	US EPA RSL
DOE-2	06/04/2024	Toluene	0.096	0.92	310	DTSC HHRA NOTE 3
DOE-2	06/04/2024	Trichlorofluoromethane	0.12	1.2	1300	DTSC HHRA NOTE 3
DOE-3	06/04/2024	Carbon disulfide	0.23	2.0	730	US EPA RSL
DOE-3	06/04/2024	Dichlorodifluoromethane	0.12	2.2	100	US EPA RSL
DOE-3	06/04/2024	Ethyl acetate	1.1	4.5	73	US EPA RSL
DOE-3	06/04/2024	Toluene	0.092	1.2	310	DTSC HHRA NOTE 3
DOE-3	06/04/2024	Trichlorofluoromethane	0.12	1.1	1300	DTSC HHRA NOTE 3
DOE-4	06/04/2024	Dichlorodifluoromethane	0.14	2.4	100	US EPA RSL
DOE-4	06/04/2024	Ethyl acetate	1.2	8.2	73	US EPA RSL
DOE-4	06/04/2024	Isopropanol	0.35	1.7	210	US EPA RSL
DOE-4	06/04/2024	Trichlorofluoromethane	0.13	1.1	1300	DTSC HHRA NOTE 3
DOE-1	06/18/2024	Dichlorodifluoromethane	0.13	2.4	100	US EPA RSL
DOE-1	06/18/2024	Ethyl acetate	1.2	83	73	US EPA RSL
DOE-1	06/18/2024	Toluene	0.099	1.5	310	DTSC HHRA NOTE 3
DOE-1	06/18/2024	Trichlorofluoromethane	0.12	1.1	1300	DTSC HHRA NOTE 3
DOE-2	06/18/2024	Dichlorodifluoromethane	0.13	2.4	100	US EPA RSL

Location ID	Sample Date	Analyte	Method Detection Limit	Result	Screening Level Value	SL Source
DOE-2	06/18/2024	Ethyl acetate	1.1	74	73	US EPA RSL
DOE-2	06/18/2024	Toluene	0.096	1.2	310	DTSC HHRA NOTE 3
DOE-2	06/18/2024	Trichlorofluoromethane	0.12	1.1	1300	DTSC HHRA NOTE 3
DOE-3	06/18/2024	Dichlorodifluoromethane	0.12	2.4	100	US EPA RSL
DOE-3	06/18/2024	Ethyl acetate	1.1	63	73	US EPA RSL
DOE-3	06/18/2024	Toluene	0.090	1.1	310	DTSC HHRA NOTE 3
DOE-3	06/18/2024	Trichlorofluoromethane	0.11	1.1	1300	DTSC HHRA NOTE 3
DOE-4	06/18/2024	Carbon disulfide	0.23	7.4	730	US EPA RSL
DOE-4	06/18/2024	Dichlorodifluoromethane	0.13	2.4	100	US EPA RSL
DOE-4	06/18/2024	Ethyl acetate	1.1	52	73	US EPA RSL
DOE-4	06/18/2024	Toluene	0.095	1.0	310	DTSC HHRA NOTE 3
DOE-4	06/18/2024	Trichlorofluoromethane	0.12	1.1	1300	DTSC HHRA NOTE 3

Note:

Bold text and gray-shaded boxes indicate detection above reporting limit, and also exceeds the EPA or DTSC Screening Level.

J+ = The result is an estimated quantity. The associated numerical value is high bias in the reported results due to high LCS recovery and/or poor field duplicate precision.

D=Identified in an analysis at a secondary dilution.

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APPENDIX C

Radionuclide Results

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Table C-1. Gross alpha and gross beta air sample results for air samplers.

Sample Collection Date	Result Alpha (mCi/mL)	MDC – Alpha (mCi/mL)	Result Beta (mCi/mL)	MDC – Beta (mCi/mL)
Sample location DOE-1				
4/1/2024	-1.56E-15	5.53E-15	3.13E-14	2.20E-14
4/5/2024	2.61E-16	5.30E-15	3.03E-14	2.11E-14
4/8/2024	-1.98E-15	7.02E-15	9.73E-16	2.80E-14
4/12/2024	1.54E-15	5.38E-15	5.00E-14	2.14E-14
4/15/2024	3.46E-16	7.02E-15	2.36E-14	2.80E-14
4/19/2024	1.78E-15	5.34E-15	2.27E-14	2.13E-14
4/22/2024	-3.20E-16	7.04E-15	5.66E-14	2.81E-14
4/26/2024	-1.25E-15	5.32E-15	1.70E-14	2.12E-14
4/29/2024	-2.66E-15	7.05E-15	1.94E-14	2.81E-14
5/3/2024	3.56E-15	5.72E-15	6.90E-14	2.06E-14
5/6/2024	2.03E-15	7.62E-15	1.25E-14	2.74E-14
5/10/2024	-1.53E-15	5.67E-15	2.13E-14	2.04E-14
5/13/2024	3.22E-16	7.52E-15	4.12E-14	2.71E-14
5/17/2024	3.04E-15	5.70E-15	3.35E-14	2.05E-14
5/20/2024	-3.76E-15	7.63E-15	3.93E-14	2.75E-14
5/24/2024	-7.77E-16	5.73E-15	3.08E-14	2.06E-14
5/28/2024	-1.53E-15	5.69E-15	2.20E-14	2.05E-14
5/31/2024	1.66E-15	7.51E-15	4.25E-14	2.70E-14
6/3/2024	-3.47E-16	7.48E-15	5.75E-14	2.69E-14
6/7/2024	-1.82E-15	5.81E-15	3.63E-14	2.09E-14
6/10/2024	2.67E-15	7.52E-15	1.41E-14	2.71E-14
6/14/2024	-4.63E-15	5.75E-15	1.85E-14	2.07E-14
6/17/2024	-1.36E-17	7.60E-15	5.39E-14	2.73E-14
6/21/2024	-1.01E-17	5.65E-15	2.54E-14	2.03E-14
6/24/2024	-1.39E-15	7.69E-15	2.89E-14	2.77E-14
6/28/2024	1.00E-15	5.66E-15	3.83E-14	2.04E-14

Sample Collection Date	Result Alpha (mCi/mL)	MDC – Alpha (mCi/mL)	Result Beta (mCi/mL)	MDC – Beta (mCi/mL)
Sample location DOE-2				
4/1/2024	-1.56E-15	5.53E-15	1.19E-14	2.20E-14
4/5/2024	7.64E-16	5.30E-15	2.93E-14	2.11E-14
4/8/2024	-3.19E-16	7.02E-15	2.92E-14	2.80E-14
4/12/2024	1.27E-15	5.33E-15	7.76E-14	2.12E-14
4/15/2024	-1.65E-15	7.02E-15	6.73E-14	2.79E-14
4/19/2024	-2.43E-16	5.34E-15	3.96E-14	2.13E-14
4/22/2024	-1.99E-15	7.04E-15	7.85E-14	2.80E-14
4/26/2024	-7.44E-16	5.31E-15	2.95E-14	2.11E-14
4/29/2024	-1.99E-15	7.06E-15	1.16E-14	2.81E-14
5/3/2024	5.00E-16	5.72E-15	3.31E-14	2.06E-14
5/6/2024	1.69E-15	7.62E-15	1.64E-14	2.74E-14
5/10/2024	-2.62E-16	5.64E-15	2.96E-14	2.03E-14
5/13/2024	-1.36E-15	7.56E-15	9.30E-14	2.72E-14
5/17/2024	2.78E-15	5.69E-15	7.50E-14	2.05E-14
5/20/2024	-3.08E-15	7.63E-15	5.55E-14	2.74E-14
5/24/2024	-2.66E-16	5.73E-15	4.99E-14	2.06E-14
5/28/2024	-2.80E-15	5.69E-15	9.61E-15	2.05E-14
5/31/2024	-2.04E-15	7.57E-15	4.60E-14	2.73E-14
6/3/2024	-2.00E-15	7.43E-15	4.48E-14	2.67E-14
6/7/2024	2.49E-16	5.80E-15	3.10E-14	2.09E-14
6/10/2024	-2.70E-15	7.53E-15	2.07E-14	2.71E-14
6/14/2024	-1.81E-15	5.75E-15	2.33E-14	2.07E-14
6/17/2024	-2.39E-15	7.60E-15	7.38E-14	2.73E-14
6/21/2024	-1.78E-15	5.67E-15	5.30E-14	2.04E-14
6/24/2024	-2.39E-15	7.63E-15	7.38E-14	2.74E-14
6/28/2024	-3.29E-15	5.66E-15	4.95E-14	2.04E-14

Sample Collection Date	Result Alpha (mCi/mL)	MDC – Alpha (mCi/mL)	Result Beta (mCi/mL)	MDC – Beta (mCi/mL)
Sample location DOE-3				
4/1/2024	6.07E-16	6.29E-15	8.14E-15	2.50E-14
4/5/2024	7.65E-16	5.32E-15	4.03E-14	2.12E-14
4/8/2024	-3.15E-16	6.94E-15	2.97E-14	2.81E-14
4/12/2024	1.51E-15	5.27E-15	5.79E-14	2.13E-14
4/15/2024	-6.24E-15	7.77E-15	4.24E-14	3.15E-14
4/19/2024	-4.90E-16	5.28E-15	3.51E-14	2.14E-14
4/22/2024	2.98E-15	6.96E-15	5.72E-14	2.82E-14
4/26/2024	-1.98E-15	5.25E-15	4.18E-14	2.13E-14
4/29/2024	-3.17E-16	6.98E-15	-1.51E-14	2.83E-14
5/3/2024	2.79E-15	5.71E-15	3.18E-14	2.06E-14
5/6/2024	-2.05E-15	7.62E-15	2.98E-14	2.74E-14
5/10/2024	9.96E-16	5.64E-15	1.97E-14	2.03E-14
5/13/2024	3.25E-16	7.58E-15	7.92E-14	2.73E-14
5/17/2024	-1.02E-17	5.69E-15	6.90E-14	2.05E-14
5/20/2024	-2.40E-15	7.63E-15	-8.45E-16	2.75E-14
5/24/2024	-2.57E-15	5.74E-15	1.50E-14	2.07E-14
5/28/2024	-1.02E-17	5.69E-15	3.06E-14	2.05E-14
5/31/2024	3.28E-16	7.66E-15	9.75E-15	2.76E-14
6/3/2024	1.63E-15	7.36E-15	2.53E-14	2.65E-14
6/7/2024	-5.28E-16	5.80E-15	3.58E-14	2.09E-14
6/10/2024	-4.71E-15	7.52E-15	1.13E-14	2.71E-14
6/14/2024	-1.55E-15	5.76E-15	4.69E-14	2.07E-14
6/17/2024	-1.03E-15	7.60E-15	7.94E-14	2.73E-14
6/21/2024	2.03E-15	5.73E-15	2.58E-14	2.06E-14
6/24/2024	-6.86E-16	7.53E-15	3.78E-14	2.71E-14
6/28/2024	-2.63E-16	5.66E-15	7.44E-14	2.04E-14

Sample Collection Date	Result Alpha (mCi/mL)	MDC – Alpha (mCi/mL)	Result Beta (mCi/mL)	MDC – Beta (mCi/mL)
Sample location DOE-4				
4/1/2024	-2.84E-15	5.47E-15	4.92E-16	2.22E-14
4/5/2024	9.97E-18	5.26E-15	5.25E-14	2.13E-14
4/8/2024	-6.44E-16	6.94E-15	1.09E-14	2.82E-14
4/12/2024	-9.87E-16	5.26E-15	6.40E-14	2.13E-14
4/15/2024	-1.62E-15	6.91E-15	2.04E-14	2.80E-14
4/19/2024	-7.41E-16	5.29E-15	2.32E-14	2.15E-14
4/22/2024	-6.46E-16	6.96E-15	8.22E-14	2.82E-14
4/26/2024	1.25E-15	5.24E-15	6.08E-14	2.12E-14
4/29/2024	-2.63E-15	6.98E-15	1.74E-14	2.83E-14
5/3/2024	4.32E-15	5.71E-15	4.97E-14	2.06E-14
5/6/2024	-6.94E-16	7.62E-15	3.12E-14	2.74E-14
5/10/2024	-1.00E-17	5.63E-15	1.63E-14	2.03E-14
5/13/2024	5.05E-15	7.57E-15	4.84E-14	2.72E-14
5/17/2024	3.03E-15	5.69E-15	2.69E-14	2.05E-14
5/20/2024	-2.74E-15	7.64E-15	3.23E-14	2.75E-14
5/24/2024	-7.79E-16	5.75E-15	5.43E-14	2.07E-14
5/28/2024	1.77E-15	5.69E-15	3.43E-14	2.05E-14
5/31/2024	6.68E-16	7.65E-15	3.76E-14	2.75E-14
6/3/2024	-2.64E-15	7.37E-15	2.30E-14	2.65E-14
6/7/2024	-5.28E-16	5.80E-15	3.31E-14	2.09E-14
6/10/2024	-3.03E-15	7.52E-15	1.03E-14	2.71E-14
6/14/2024	-1.30E-15	5.76E-15	3.76E-14	2.07E-14
6/17/2024	-3.06E-15	7.59E-15	3.28E-14	2.73E-14
6/21/2024	-2.65E-16	5.72E-15	2.95E-14	2.06E-14
6/24/2024	-5.72E-15	7.53E-15	7.52E-14	2.71E-14
6/28/2024	-1.02E-15	5.67E-15	6.84E-14	2.04E-14

Note: Some values are negative after background subtraction.

Table C-2. Individual radionuclide analysis for the composite filter samples.

Radionuclide	DOE 5400.5 Fig III-1 D	DOE 5400.5 Fig III-1 W	DOE 5400.5 Fig III-1 Y	Result (pCi/sample)	MDC (pCi/sample)	Data Qualifier	Airborne Concentration (uCi/mL)
Q2/2024 Location DOE-1 Air Volume/Sample 4.16E+7mL							
Actinium-228	4E-11	1E-10	1E-10	0.182	64.5	U ; U	4.38E-15
Americium-241		2E-14		0.0882	0.421	U ; UJ	2.12E-15
Beryllium-7		5E-8	4E-8	190	176	;	4.57E-12
Cesium-137	4E-10			-8.61	13.5	U ; U	-2.07E-13
Cobalt-60		4E-10	8E-11	3.22	15.6	U ; U	7.74E-14
Plutonium-238		3E-14	4E-14	0.0634	0.402	U ; U	1.52E-15
Plutonium-239		2E-14	4E-14	0.0634	0.401	U ; U	1.52E-15
Plutonium-241		1E-12	2E-12	5.94	35.5	U ; U	1.43E-13
Polonium-210	1E-12	1E-12		6.59	0.363	;	1.58E-13
Potassium-40	9E-10			102	151	U ; U	2.45E-12
Ra-228		3E-12		1.99	5.67	U ; U	4.78E-14
Radium-226, -228 combined		1E-12		0.793	2.84	U ; U	1.91E-14
Strontium-90	5E-11		9E-12	-0.119	1.21	U ; U	-2.86E-15
Thorium-228		5E-14	4E-14	1.12	0.652	;	2.69E-14
Thorium-230		4E-14	5E-14	0.903	0.716	; UJ	2.17E-14
Thorium-232		7E-15	1E-14	0.660	0.505	; UJ	1.59E-14
Uranium-233/234	4E-12	2E-12	9E-14	0.839	0.603	; UJ	2.02E-14
Uranium-235/236	5E-12	2E-12	1E-13	-0.0193	0.386	U ; U	-4.64E-16
Uranium-238	5E-12	2E-12	1E-13	1.58	0.504	; J	3.80E-14
Q2/2024 Location DOE-2 Air Volume/Sample 4.16E+7mL							
Actinium-228	4E-11	1E-10	1E-10	-2.16	45.2	U ; U	-5.19E-14
Americium-241		2E-14		0.172	0.460	U ; U	4.13E-15
Beryllium-7		5E-8	4E-8	49.2	148	U ; U	1.18E-12
Cesium-137	4E-10			-2.61	10.8	U ; U	-6.27E-14
Cobalt-60		4E-10	8E-11	-2.24	12.1	U ; U	-5.38E-14
Plutonium-238		3E-14	4E-14	-0.139	0.586	U ; U	-3.34E-15
Plutonium-239		2E-14	4E-14	0.183	0.402	U ; U	4.40E-15
Plutonium-241		1E-12	2E-12	-8.62	41.3	U ; U	-2.07E-13
Polonium-210	1E-12	1E-12		6.00	0.746	;	1.44E-13

Radionuclide	DOE 5400.5 Fig III-1 D	DOE 5400.5 Fig III-1 W	DOE 5400.5 Fig III-1 Y	Result (pCi/sample)	MDC (pCi/sample)	Data Qualifier	Airborne Concentration (uCi/mL)
Potassium-40	9E-10			12.8	198	U ; U	3.08E-13
Ra-228		3E-12		4.29	3.81	; UJ	1.03E-13
Radium-226, -228 combined		1E-12		1.91	1.79	; UJ	4.59E-14
Strontium-90	5E-11		9E-12	-0.817	1.96	U ; U	-1.96E-14
Thorium-228		5E-14	4E-14	0.920	1.01	U ; U	2.21E-14
Thorium-230		4E-14	5E-14	0.416	0.771	U ; U	1.00E-14
Thorium-232		7E-15	1E-14	1.27	0.611	; UJ	3.05E-14
Uranium-233/234	4E-12	2E-12	9E-14	0.550	0.507	; UJ	1.32E-14
Uranium-235/236	5E-12	2E-12	1E-13	0.0356	0.379	U ; U	8.56E-16
Uranium-238	5E-12	2E-12	1E-13	1.16	0.166	; UJ	2.79E-14
Q2/2024 Location DOE-3 Air Volume/Sample 4.16E+7mL							
Actinium-228	4E-11	1E-10	1E-10	-7.82	36.6	U ; U	-1.88E-13
Americium-241		2E-14		0.0339	0.361	U ; U	8.15E-16
Beryllium-7		5E-8	4E-8	176	110	UI ; UJ	4.23E-12
Cesium-137	4E-10			2.14	12.7	U ; U	5.14E-14
Cobalt-60		4E-10	8E-11	-1.47	9.31	U ; U	-3.53E-14
Plutonium-238		3E-14	4E-14	0.0973	0.464	U ; U	2.34E-15
Plutonium-239		2E-14	4E-14	-0.0729	0.500	U ; U	-1.75E-15
Plutonium-241		1E-12	2E-12	-9.44	42.1	U ; U	-2.27E-13
Polonium-210	1E-12	1E-12		6.20	0.548	;	1.49E-13
Potassium-40	9E-10			72.7	158	U ; U	1.75E-12
Ra-228		3E-12		0.324	3.63	U ; U	7.79E-15
Radium-226, -228 combined		1E-12		4.58	1.87	; UJ	1.10E-13
Strontium-90	5E-11		9E-12	1.11	1.73	U ; U	2.67E-14
Thorium-228		5E-14	4E-14	0.104	1.25	U ; U	2.50E-15
Thorium-230		4E-14	5E-14	0.0252	1.17	U ; U	6.06E-16
Thorium-232		7E-15	1E-14	1.06	0.878	; UJ	2.55E-14
Uranium-233/234	4E-12	2E-12	9E-14	0.840	0.493	; UJ	2.02E-14
Uranium-235/236	5E-12	2E-12	1E-13	-0.0343	0.396	U ; U	-8.25E-16
Uranium-238	5E-12	2E-12	1E-13	1.04	0.381	; UJ	2.50E-14
Q2/2024 Location DOE-4 Air Volume/Sample 4.16E+7mL							

Radionuclide	DOE 5400.5 Fig III-1 D	DOE 5400.5 Fig III-1 W	DOE 5400.5 Fig III-1 Y	Result (pCi/sample)	MDC (pCi/sample)	Data Qualifier	Airborne Concentration (uCi/mL)
Actinium-228	4E-11	1E-10	1E-10	-7.64	48.3	U ; U	-1.84E-13
Americium-241		2E-14		0.165	0.442	U ; U	3.97E-15
Beryllium-7		5E-8	4E-8	-34.2	112	U ; U	-8.22E-13
Cesium-137	4E-10			0.986	12.7	U ; U	2.37E-14
Cobalt-60		4E-10	8E-11	-3.56	11.1	U ; U	-8.56E-14
Plutonium-238		3E-14	4E-14	0.121	0.405	U ; U	2.91E-15
Plutonium-239		2E-14	4E-14	-0.0250	0.289	U ; U	-6.01E-16
Plutonium-241		1E-12	2E-12	-2.44	48.8	U ; U	-5.87E-14
Polonium-210	1E-12	1E-12		23.0	0.551	;	5.53E-13
Potassium-40	9E-10			-7.66	156	U ; U	-1.84E-13
Ra-228		3E-12		3.31	4.39	U ; U	7.96E-14
Radium-226, -228 combined		1E-12		3.42	1.69	; UJ	8.22E-14
Strontium-90	5E-11		9E-12	-0.609	1.32	U ; U	-1.46E-14
Thorium-228		5E-14	4E-14	1.07	0.752	;	2.57E-14
Thorium-230		4E-14	5E-14	0.826	0.658	; UJ	1.99E-14
Thorium-232		7E-15	1E-14	0.777	0.526	; UJ	1.87E-14
Uranium-233/234	4E-12	2E-12	9E-14	0.836	0.447	; UJ	2.01E-14
Uranium-235/236	5E-12	2E-12	1E-13	0.256	0.403	U ; U	6.15E-15
Uranium-238	5E-12	2E-12	1E-13	0.737	0.326	; UJ	1.77E-14

Notes and Data Qualifier meanings:

DOE Order 5400.5 -- Derived Concentration Guides for Air and Water, Figure III-1

Intake limits are based on removal half-times from the lung (D = 0.5 days, W = 50 days, Y = 500 days)

MDC - Minimum Detectable Concentration

Airborne Concentration (uCi/mL) = (Result (pCi/sample)) / ((Air Volume (mL)/Sample)*1000000)

;- separates lab qualifiers from data validation qualifiers

pCi/sample - Picocuries per sample

uCi/mL - Microcuries per milliliter

mL - milliliters

"-" indicates no value.

U U - Analyte was analyzed for but not detected and is qualified as a non-detect.

UI – Results are considered a false positive due to high peak-width.

UJ – The analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

J – The analyte was detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

APPENDIX D

PM₁₀ Monthly Audit Reports and Flow Verification Results

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