GROUND-BASED SAMPLING FOR TOXINS
JANUARY MONTHLY REPORT

December 20, 2022- January 31, 2023

Operational Summaries,
Data Summaries and Plots

Prepared for

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1.0 INTRODUCTION

The Colorado Department of Public Health & Environment Air Pollution Control Division (APCD) is conducting twelve (12) months of community monitoring as a result of the Air Toxics Act (Colorado HB21-1189). The bill created a new program at APCD to regulate toxics air contaminates at four (4) covered facilities located in Commerce City, Henderson, and Pueblo. As a part of this program, APCD is establishing a community monitoring program that prioritizes disproportionately impacted communities to better protect public health. The objectives of the monitoring program consist of monitoring for benzene, hydrogen sulfide (H_2S), and hydrogen cyanide (HCN), with supporting meteorological measurements, to help characterize impacts on the surrounding disproportionately impacted communities.

The facilities covered by HB21-1189 are the Suncor Refinery (Commerce City), the Phillips 66 Pipeline Terminal (Commerce City), the Sinclair Pipeline Terminal (Henderson), and Goodrich Carbon Products (Pueblo). These facilities have been divided into three (3) sampling regions. Air Resource Specialists, Inc. (ARS) is the contractor responsible for this monitoring effort, which will consist of thirty (30) days of sampling of each compound at each sampling region per quarter.

This monthly data submittal report describes all work performed by Air Resource Specialists, Inc. (ARS) for the project site for the monitoring period December 20, 2022, through January 31, 2023.

Any questions regarding the content of this report or the accompanying digital data files should be addressed to:

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2.0 OPERATIONAL SUMMARIES

Operational activities for this project consist of site installations, routine sampling per an established schedule, quarterly maintenance visits, and emergency visits.

Significant events that occurred during the December 20, 2022, through January 31, 2023, timeframe include the following:

- ARS installed monitoring locations at the Eagle Point Recreation Center in Commerce City (A1) and Baca Elementary School in Pueblo (C1) on December 20. Meteorological monitoring commenced.
- Benzene and H_2S sampling commenced at A1 and C1 on December 21.
- HCN sampling commenced at A1 and C1 on January 13.
- Solar radiation sensors were installed at A1 and C1 on January 17.
- ARS installed a monitoring location at DuPont Elementary School (B1) in Commerce City on January 31. Meteorological monitoring commenced.

Significant deviations from the established sampling schedule include:

- Benzene and H_2S samples were collected 1-day early on January 17 due to a winter storm expected on the January 18 sample change day. The samples collected were 13-day samples. The new sorbent tubes deployed were 15-day samples.

Sampling issues or corrective actions taken include:

- None

3.0 AIR TOXICS SAMPLING STATISTICS

Statistics for samples collected during the December 20, 2022, to January 31, 2023, monitoring period are displayed in the table below. The table compares samples collected for each monitoring region against the requirements of the project. The statement of work requires 30 sampling days per quarter. Benzene and H2S sampling frequency is twice the requirement in the statement of work. Collection statistics are slightly skewed since this report encompasses more than a month of data. Duplicate samples and field blanks are required to be collected at a 10% rate over the course of each quarter.

Table 3-1

14-day Benzene Sample Collection
December 20, 2022 - January 31, 2023

		Monthly		Quarterly	
Sampling Region	**Site**	**Collected**	**Required**	**Collected**	**Required**
A	A1	3	1	3	3
B	B1	0	1	0	3
C	C1	3	1	3	3

Table 3-2

Benzene Duplicate Sample and Field Blank Collection
December 20, 2022 - January 31, 2023

Duplicate		Field Blank	
Collected	**%**	**Collected**	**%**
1	17%	1	17%

Table 3-3

14-day H_2S Sample Collection
December 20, 2022 – January 31, 2023

		Monthly		Quarterly	
Sampling Region	**Site**	**Collected**	**Required**	**Collected**	**Required**
A	A1	3	1	3	3
B	B1	0	1	0	3
C	C1	3	1	3	3

Table 3-4

H_2S Duplicate Sample and Field Blank Collection
December 20, 2022 – January 31, 2023

Duplicate		Field Blank	
Collected	**%**	**Collected**	**%**
6	100%	0	0%

Table 3-5

HCN Sample Collection
December 20, 2022 – January 31, 2023

		Monthly		Quarterly	
Sampling Region	**Site**	**Collected**	**Required**	**Collected**	**Required**
A	A1	9	10	9	30
B	B1	0	10	0	30
C	C1	9	10	9	30

Table 3-6

HCN Duplicate Sample and Field Blank Collection
December 20, 2022 – January 31, 2023

Duplicate		Field Blank	
Collected	**%**	**Collected**	**%**
4	22%	3	17%

Sampling frequency for HCN will be higher for the remainder of first quarter of 2023. This will ensure the quarterly requirements will be met.

4.0 AIR TOXIC DATA SUMMARIES

The tables below summarize the air toxics data collected during the period of December 20, 2022 to January 31, 2023.

Table 4-1

14-Day Benzene Data
December 20, 2022 – January 31, 2023

SITE	Sampling Start Day	Sampling End Day	Days	Concentration (ppb)	MDL (ppb)	Notes
A1	12/21/2022	1/4/2023	14	0.294	0.0609	
A1	12/21/2022	1/4/2023	14	0.319	0.0609	Duplicate
A1	1/4/2023	1/17/2023	13	0.514	0.0661	
A1	1/17/2023	2/1/2023	15	0.337	0.0588	
C1	12/21/2022	1/4/2023	14	0.163	0.0606	
C1	1/4/2023	1/17/2023	13	0.166	0.0647	
C1	1/17/2023	2/1/2023	15	0.183	0.0573	
C1	1/17/2023	2/1/2023	15	ND	0.0573	Field Blank
		Maximum		0.514		
		Minimum		0.163		
		Average		0.282		

Table 4-2

14-Day H_2S Data
December 20, 2022 – January 31, 2023

SITE	Sampling Start Day	Sampling End Day	Days	Concentration (ppb)	LOD (ppb)	Notes
A1	12/21/2022	1/4/2023	14	ND	0.14	
A1	12/21/2022	1/4/2023	14	ND	0.14	Duplicate
A1	1/4/2023	1/17/2023	13	ND	0.14	
A1	1/4/2023	1/17/2023	13	0.27	0.14	Duplicate
A1	1/17/2023	2/1/2023	15	0.16	0.14	
A1	1/17/2023	2/1/2023	15	0.33	0.14	Duplicate
C1	12/21/2022	1/4/2023	14	ND	0.14	
C1	12/21/2022	1/4/2023	14	ND	0.14	Duplicate
C1	1/4/2023	1/17/2023	13	ND	0.14	
C1	1/4/2023	1/17/2023	13	ND	0.14	Duplicate
C1	1/17/2023	2/1/2023	15	0.32	0.14	
C1	1/17/2023	2/1/2023	15	ND	0.14	Duplicate
		Maximum		0.33		
		Minimum		0.16		
		Average		0.25		

Table 4-3

HCN Data
December 20, 2022 – January 31, 2023

SITE	Sampling Date	Time	Duration (min)	Concentration (ppb)	MDL (ppb)	Notes
A1	1/13/2023	6:55	486	ND	0.8	
A1	1/17/2023	8:22	550	ND	0.7	
A1	1/17/2023	8:40	531	ND	0.7	Duplicate
A1	1/19/2023	7:58	552	ND	0.6	
A1	1/19/2023	8:09	552	ND	0.7	Duplicate
A1	1/20/2023	7:20	516	ND	0.7	
A1	1/23/2023	8:40	482	ND	0.8	
A1	1/23/2023	7:48	511	ND	0.7	
A1	1/25/2023	7:40	475	ND	0.8	
A1	1/26/2023	7:43	471	ND	0.8	
A1	1/31/2023	6:55	447	ND	0.9	
C1	1/13/2023	9:31	183	ND	2.2	
C1	1/17/2023	11:40	186	ND	2.0	
C1	1/19/2023	11:15	180	ND	2.2	
C1	1/20/2023	9:50	180	ND	2.3	
C1	1/20/2023	9:50	N/A	ND		Field Blank
C1	1/23/2023	11:25	182	ND	2.1	
C1	1/23/2023	10:28	188	ND	2.1	
C1	1/23/2023	10:36	183	ND	2.1	Duplicate
C1	1/23/2023	10:36	N/A	ND		Field Blank
C1	1/25/2023	10:16	181	ND	2.1	
C1	1/26/2023	10:07	180	ND	2.2	
C1	1/31/2023	11:17	180	ND	2.0	

4.1 METEOROLOGICAL DATA COLLECTION STATISTICS AND SUMMARIES

The tables and graphs below summarize the meteorological data collected during the period of December 20, 2022 to January 31, 2023.

4.1.1 Site A1

- Data Collection Statistics for A1 - Hourly Data
- Wind Rose for A1
- Stackplots - Hourly Data