UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS
75202-2733

November 17, 2015

Bossier Parish School Board
ATTN: Keith E. Norwood, PE
Supervisor of Planning
Bossier Instructional Center, T-26
2719 Airline Drive
Bossier City, Louisiana 71111

RE: May 2015 Sampling of Haughton High School – Delaney Field
210 E. McKinley, Haughton, Louisiana

Dear Mr. Norwood,

The Environmental Protection Agency (EPA) conducted real-time air monitoring and collected soil and air samples from Haughton High School, Delaney Field, in May 2015. The monitoring and sampling was conducted to establish a baseline for soil and air prior to implementation of the removal operations at Camp Minden. Air monitoring was for carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxide (NO), nitrogen dioxide (NO2), NOX, sulfur dioxide (SO2), and fine particulates (2.5 micrometers [PM2.5]). Soil samples were analyzed for dioxin/furans, semi-volatile organic compounds (SVOCs), pH, and volatile organic compounds (VOCs). The air samples were analyzed for dioxin/furans, SVOCs, particulates (PM10 and PM2.5), and volatile organic compounds (VOCs).

Maximum detections for air monitoring are summarized on Table 1 - Air Monitoring Summary, and the data collected during the monitoring period is presented as graphs. The analytical results for the soil samples are summarized on the attached Table 2 - Soil Analytical Results. The results for the air samples are summarized on Tables 3 through 5 - Air Analytical Results. The monitoring and sampling location is shown on the attached figure.

Thank you for your cooperation. Please contact me at 214-665-2779 (office), Adam.Adams@epa.gov (email), or the EPA toll free number 800-533-3508 if you have any questions.

Adam Adams
On-Scene Coordinator
Prevention and Response Branch
USEPA Region 6 Dallas, TX

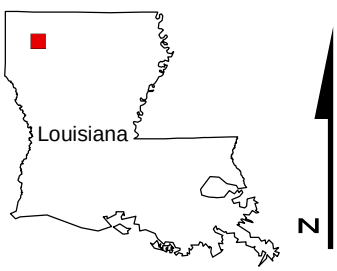
Enclosures: Table 1 – Air Monitoring Summary with graphs by analyte
Table 2 – Soil Analytical Results
Table 3 – Air Analytical Results – Dioxin/Furans
Table 4 – Air Analytical Results – SVOCs and Particulates
Table 5 – Air Analytical Results - VOCs
Figure 1 - Sample Location Map
Toxicology Summary

0 300 600

Feet

LEGEND

- Soil Sampling Location
- Air Sampling Location



TDD NO: 5/WESTON-042-15-006
CONTRACT NO: EP-W-06-042

SOURCE: 2010 Microsoft Corporation and its data suppliers

US EPA REGION 6

FIGURE 1
SAMPLE LOCATION MAP
HAUGHTON HIGH SCHOOL
DELANEY FIELD
210 E. MCKINLEY
HAUGHTON, BOSSIER PARISH
LOUISIANA

DATE	PROJECT NO	SCALE
NOVEMBER 2015	20406.012.005.0934.01	AS SHOWN

FILE: L:\20406_START3_R6\EXPLO_SYSTEMS\GIS\1_WESTON-042-14-012\Figure 1 Sample Location Map Haughton High School.mxd 3:31:41 PM 11/2/2015 millerv

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VI

Air Monitoring Summary

Camp Minden Baseline Event
Haughton High School – Delaney Field
Start Time: 05-9-2015 10:01 - End Time: 05-11-2015 12:00

Below is a summary of Haughton High School – Delaney Field Air Monitoring Data collected at the location referenced above. The table contains a detailed listing of the following:

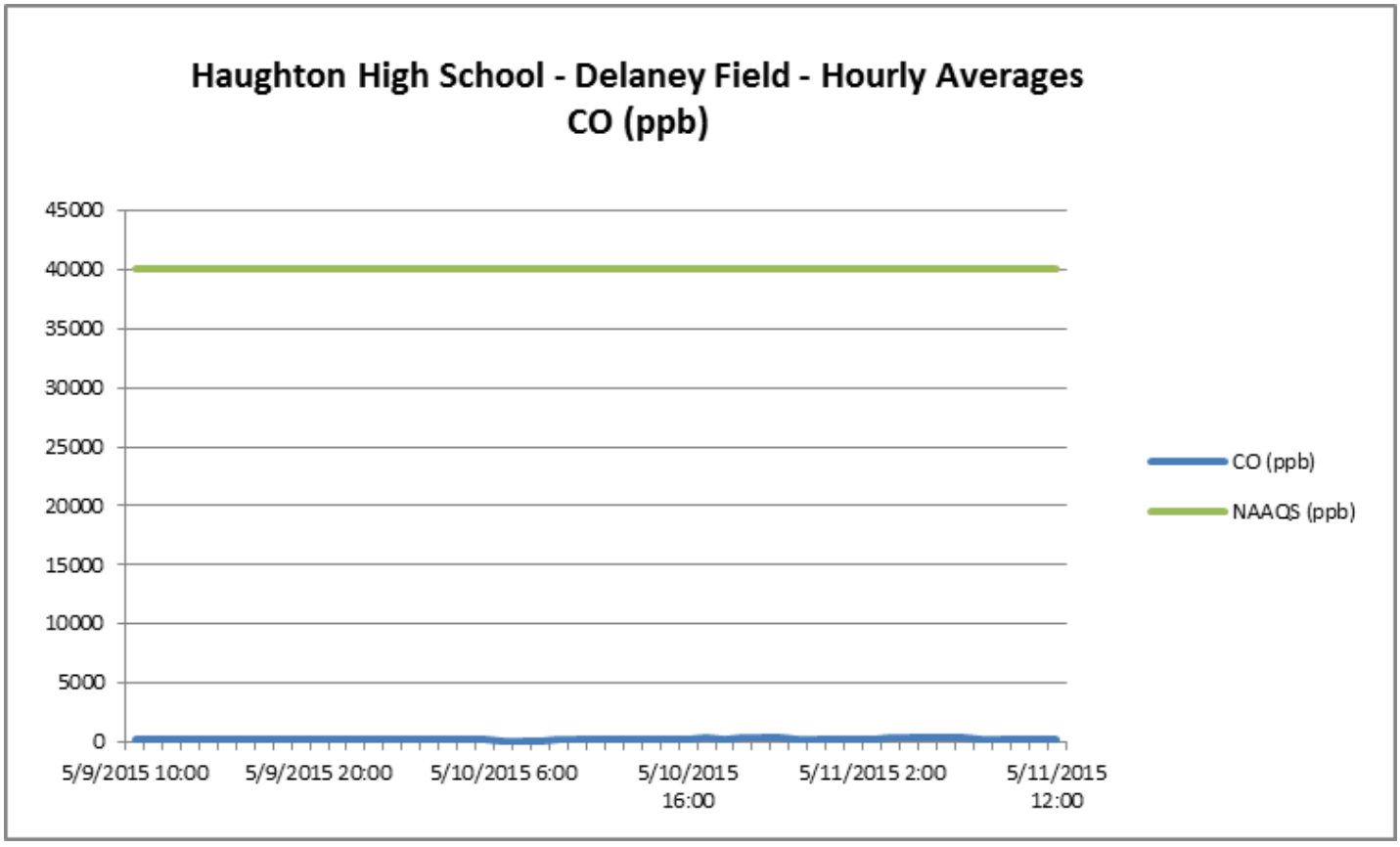
1 Total count of readings from May 9, 2015 10:01 through May 11, 2015 12:00
2 Average reading of each analyte from May 9, 2015 10:01 through May 11, 2015 12:00
3 Maximum reading of each analyte from May 9, 2015 10:01 through May 11, 2015 12:00

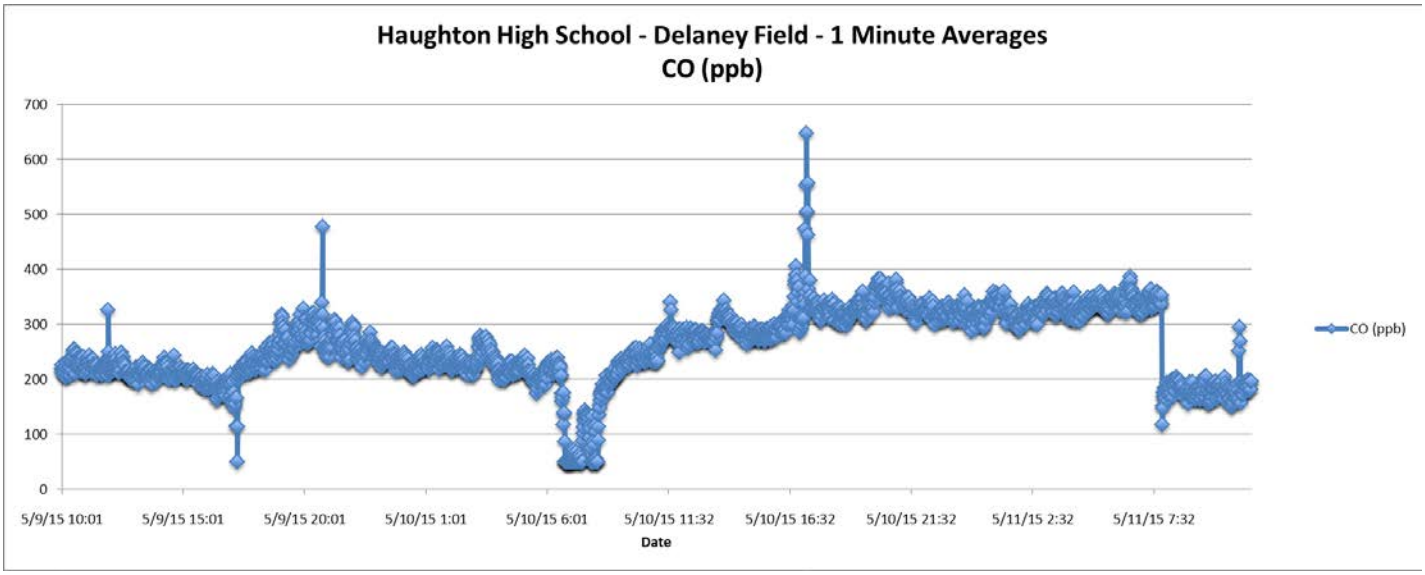
National Ambient Air Quality Standards (NAAQS) are listed with specific time frames and calculation formulas. Please visit NAAQS website for more in-depth information on how these are calculated - http://www.epa.gov/air/criteria.html.

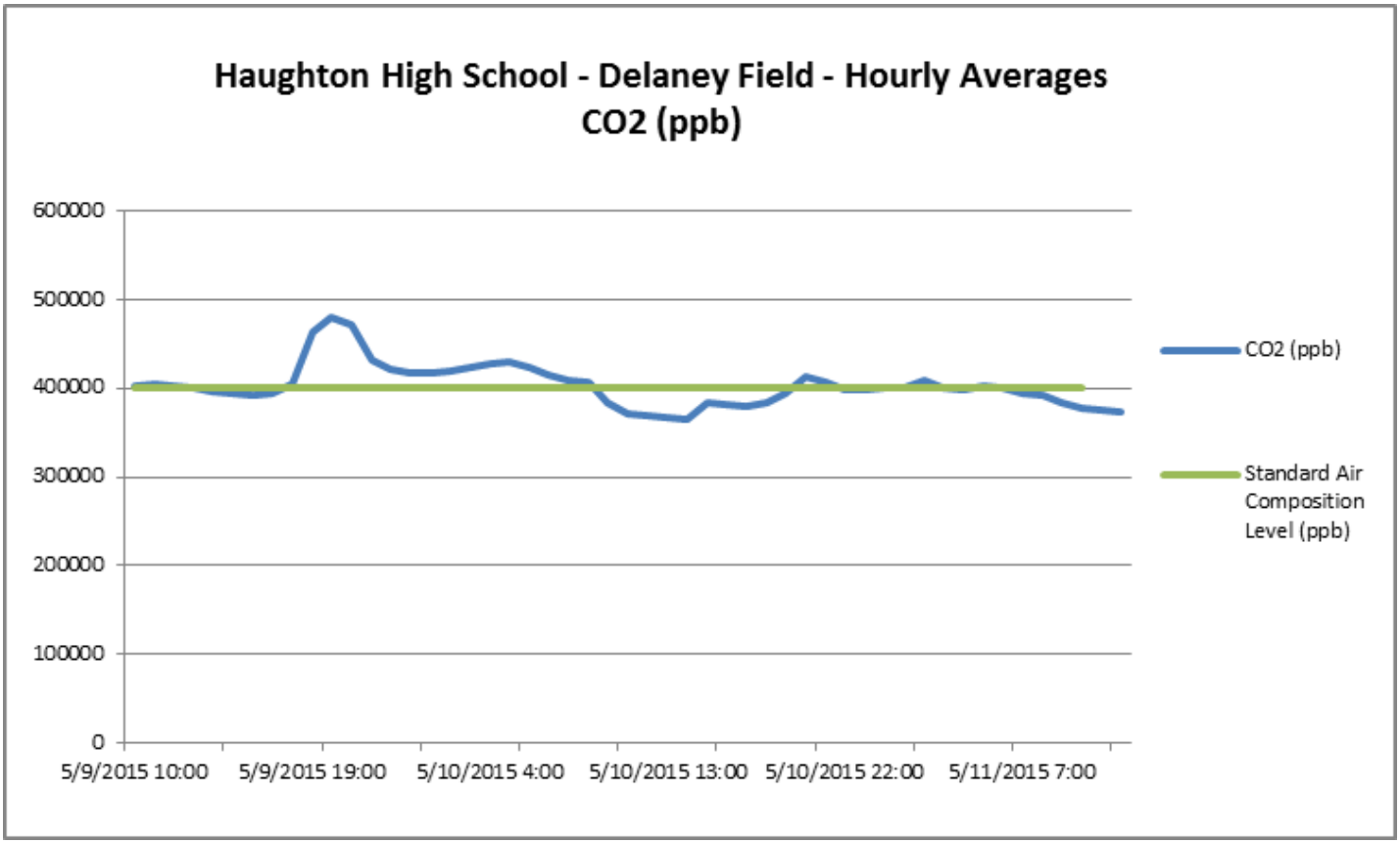
** Note: PM2.5 was captured in 60-min averages. All other analytes were captured in 1-min averages.

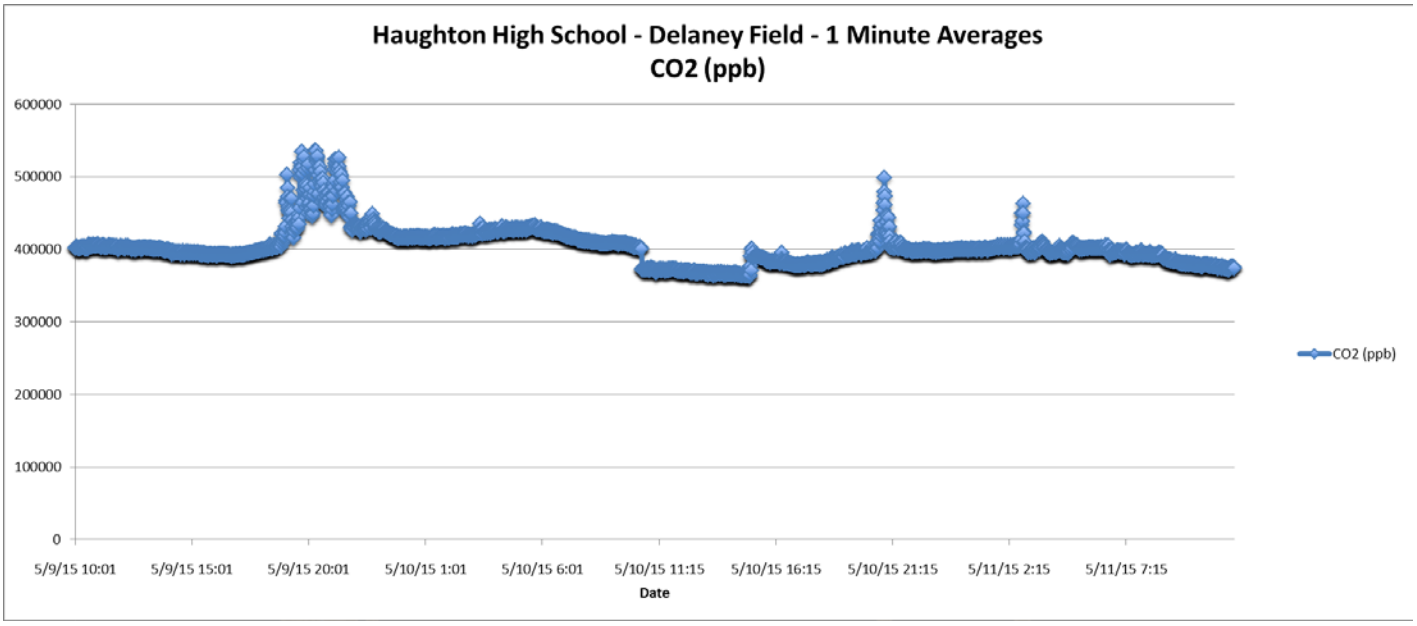
Summary of Location: Haughton High School – Delaney Field

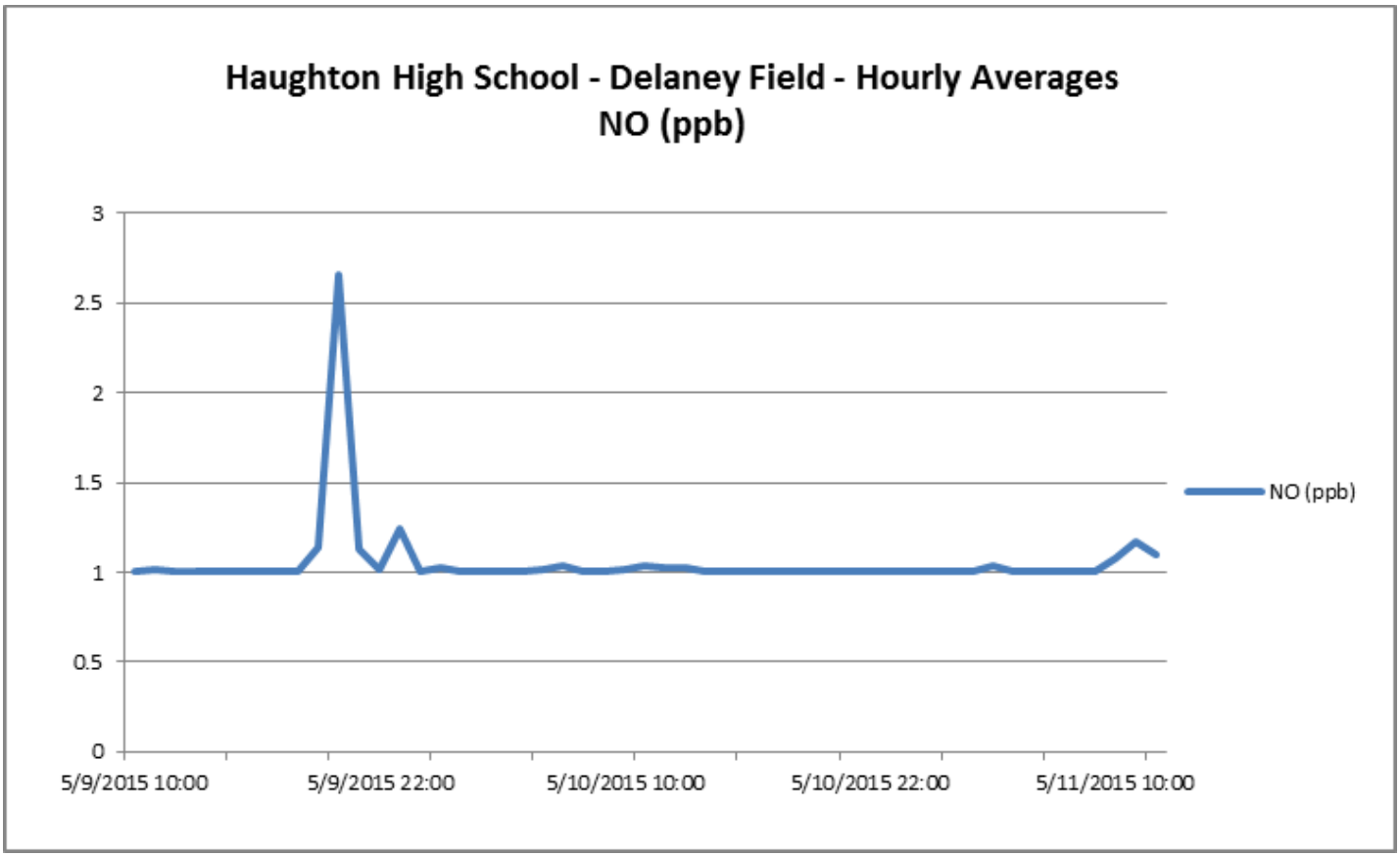
Parameter	Count of 1-min Readings	Maximum Average Concentration	Maximum Detection	Units	NAAQS standard
CO	2941	356.2	647	ppb	40,000 (1-hour)
CO2	2979	480400	536600	ppb	
NO	2943	2.655	21.3	ppb	
NO2	2943	4.155	8.1	ppb	100 (1-hour)
NOX	2943	5.115	26.4	ppb	188 (1-hour)
SO2	2743	1.121	2.968	ppb	365 (3-hour)
Parameter	Count of 60-min Readings	Average Concentration	Maximum Detection	Units	NAAQS standard
PM 2.5	48	4.654	13.7	ug/m3	35 (24-hour)

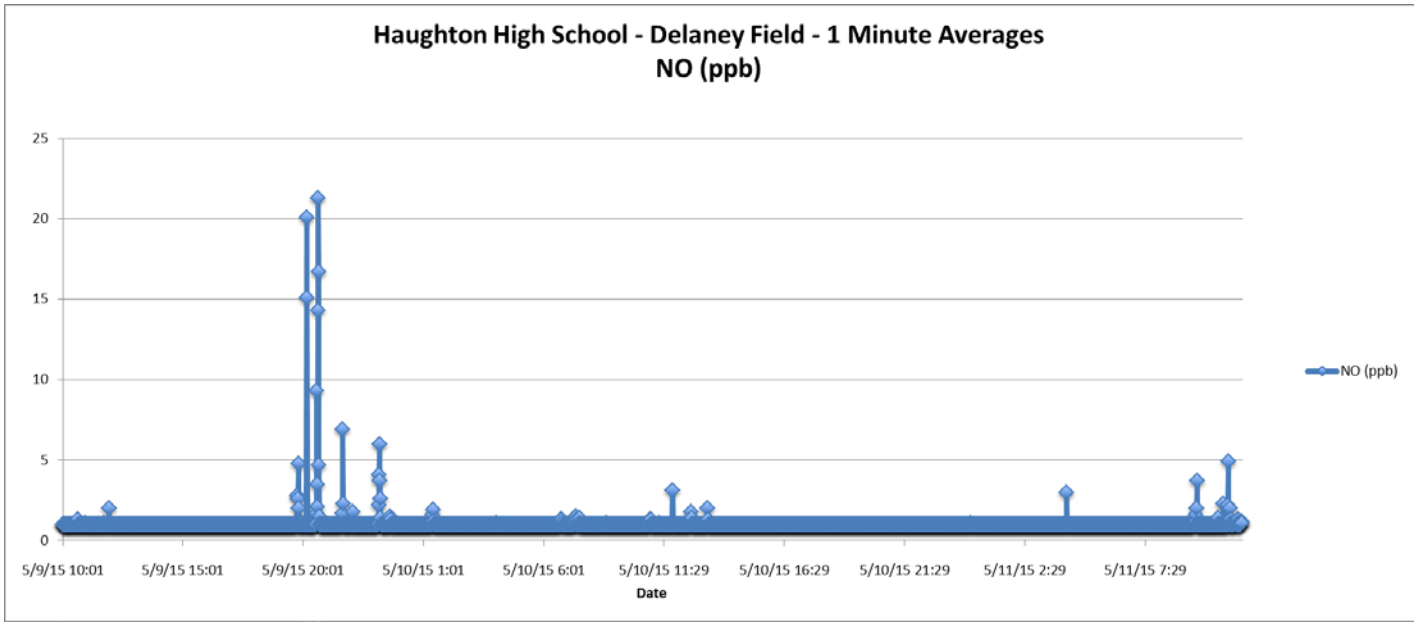

Haughton High School - Delaney Field - Hourly Averages
CO (ppb)
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
5/9/2015 10:00
5/9/2015 20:00
5/10/2015 6:00
5/10/2015 16:00
5/11/2015 2:00
5/11/2015 12:00
CO (ppb)
NAAQS (ppb)

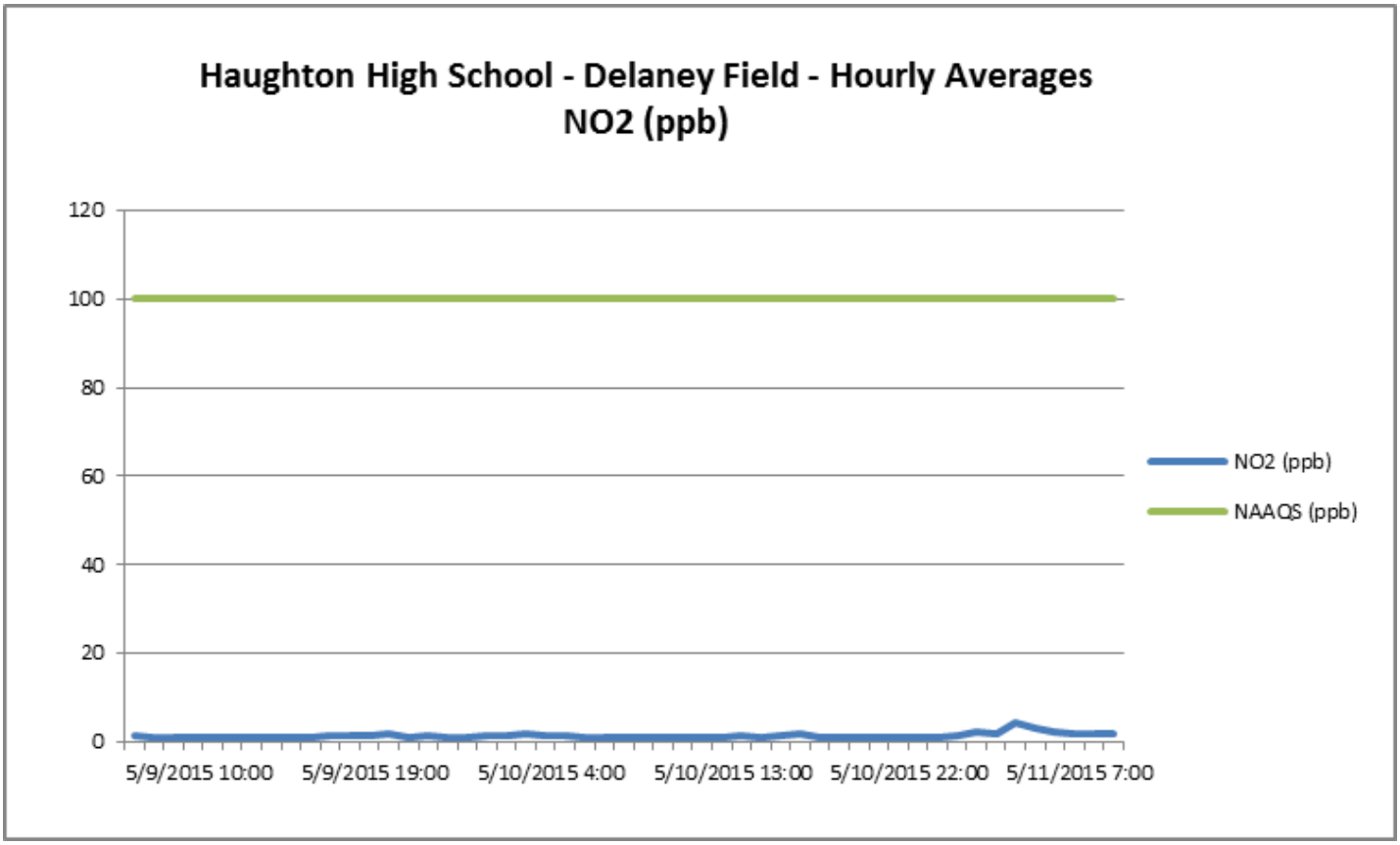

Haughton High School - Delaney Field - 1 Minute Averages
CO (ppb)
700
600
500
400
300
200
100
0
5/9/15 10:01
5/9/15 15:01
5/9/15 20:01
5/10/15 1:01
5/10/15 6:01
5/10/15 11:32
5/10/15 16:32
5/10/15 21:32
5/11/15 2:32
5/11/15 7:32
Date
CO (ppb)

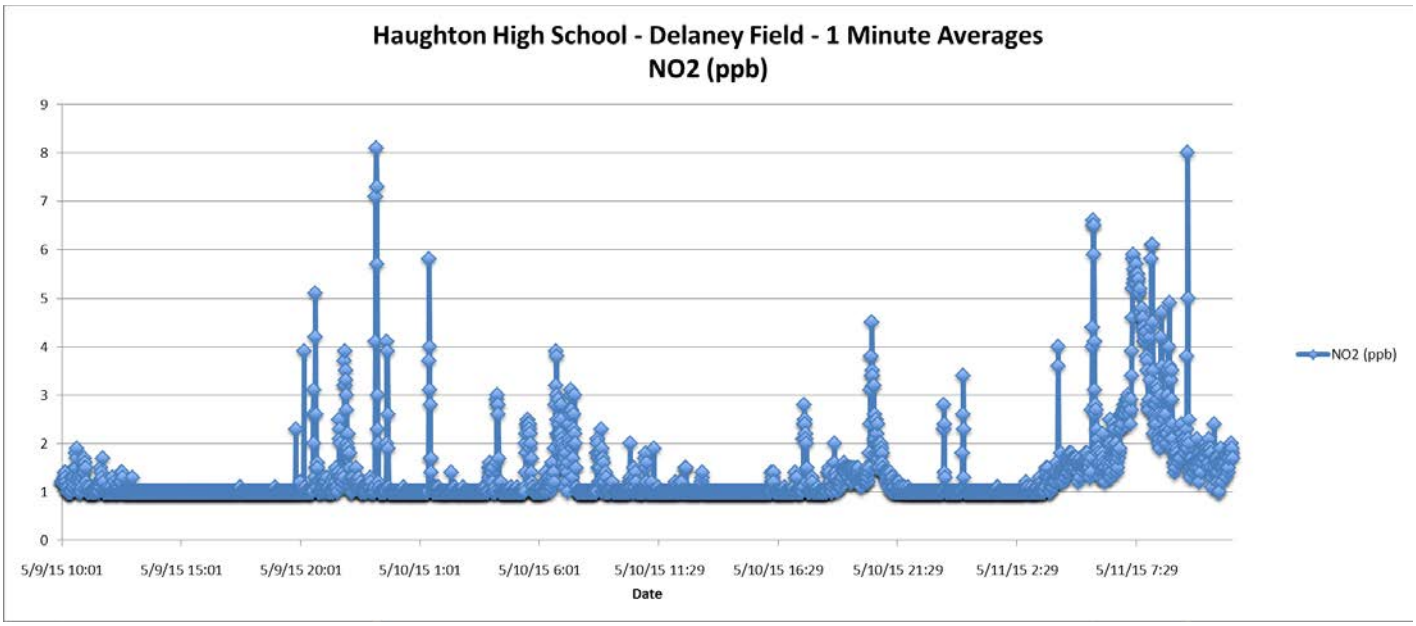

Haughton High School - Delaney Field - Hourly Averages
CO2 (ppb)
600000
500000
400000
300000
200000
100000
0
5/9/2015 10:00
5/9/2015 19:00
5/10/2015 4:00
5/10/2015 13:00
5/10/2015 22:00
5/11/2015 7:00
CO2 (ppb)
Standard Air Composition Level (ppb)

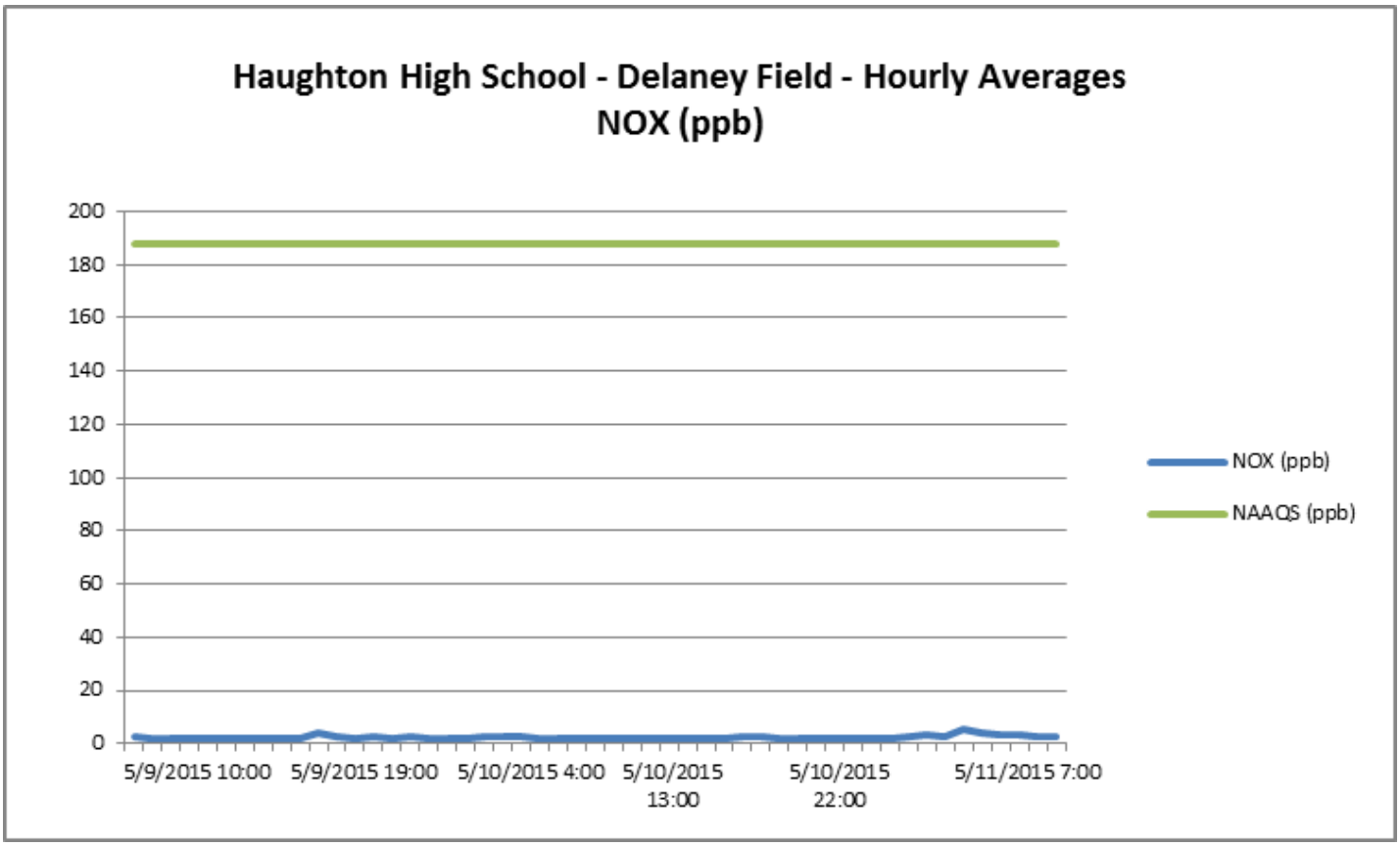

Haughton High School - Delaney Field - 1 Minute Averages
CO2 (ppb)
600000
500000
400000
300000
200000
100000
0
5/9/15 10:01
5/9/15 15:01
5/9/15 20:01
5/10/15 1:01
5/10/15 6:01
5/10/15 11:15
5/10/15 16:15
5/10/15 21:15
5/11/15 2:15
5/11/15 7:15
Date
CO2 (ppb)

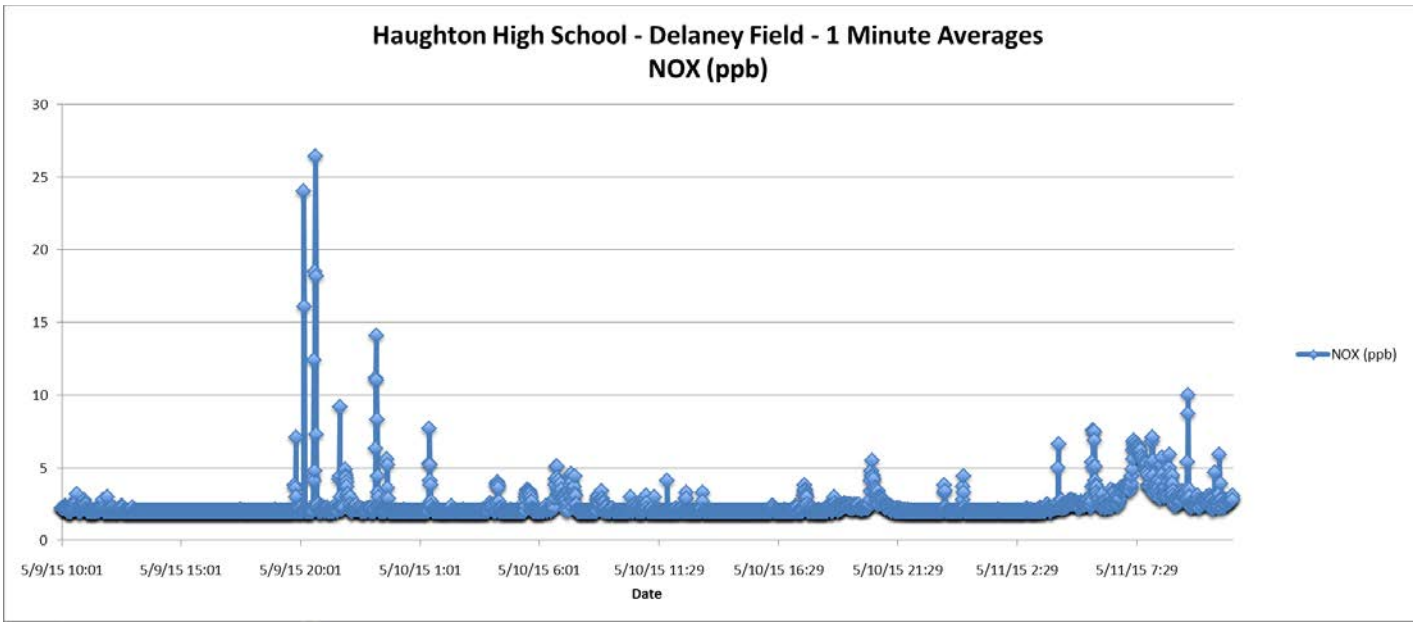

Haughton High School - Delaney Field - Hourly Averages
NO (ppb)
3
2.5
2
1.5
1
0.5
0
5/9/2015 10:00
5/9/2015 22:00
5/10/2015 10:00
5/10/2015 22:00
5/11/2015 10:00
NO (ppb)

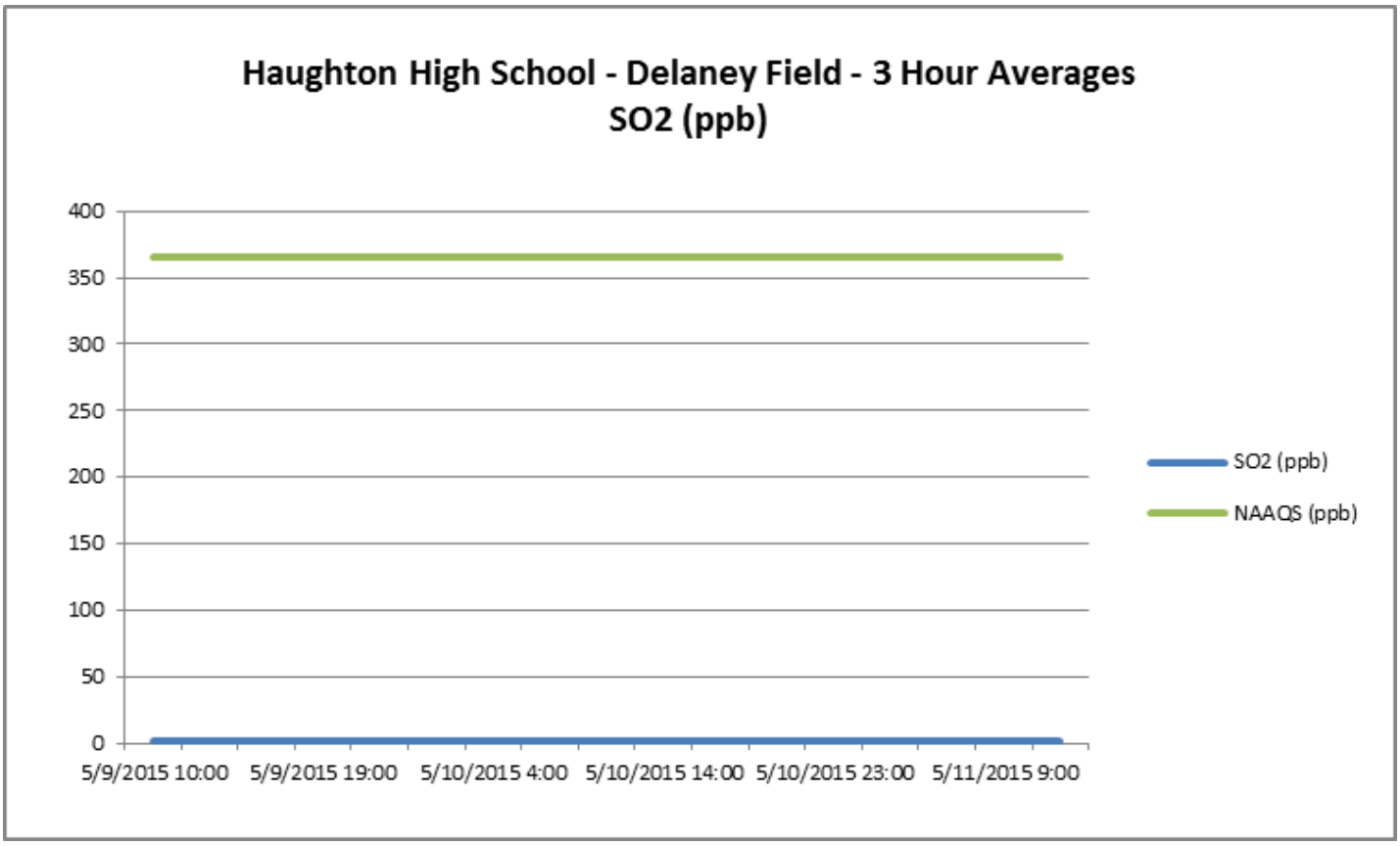

Haughton High School - Delaney Field - 1 Minute Averages
NO (ppb)
25
20
15
10
5
0
5/9/15 10:01
5/9/15 15:01
5/9/15 20:01
5/10/15 1:01
5/10/15 6:01
5/10/15 11:29
5/10/15 16:29
5/10/15 21:29
5/11/15 2:29
5/11/15 7:29
Date
NO (ppb)

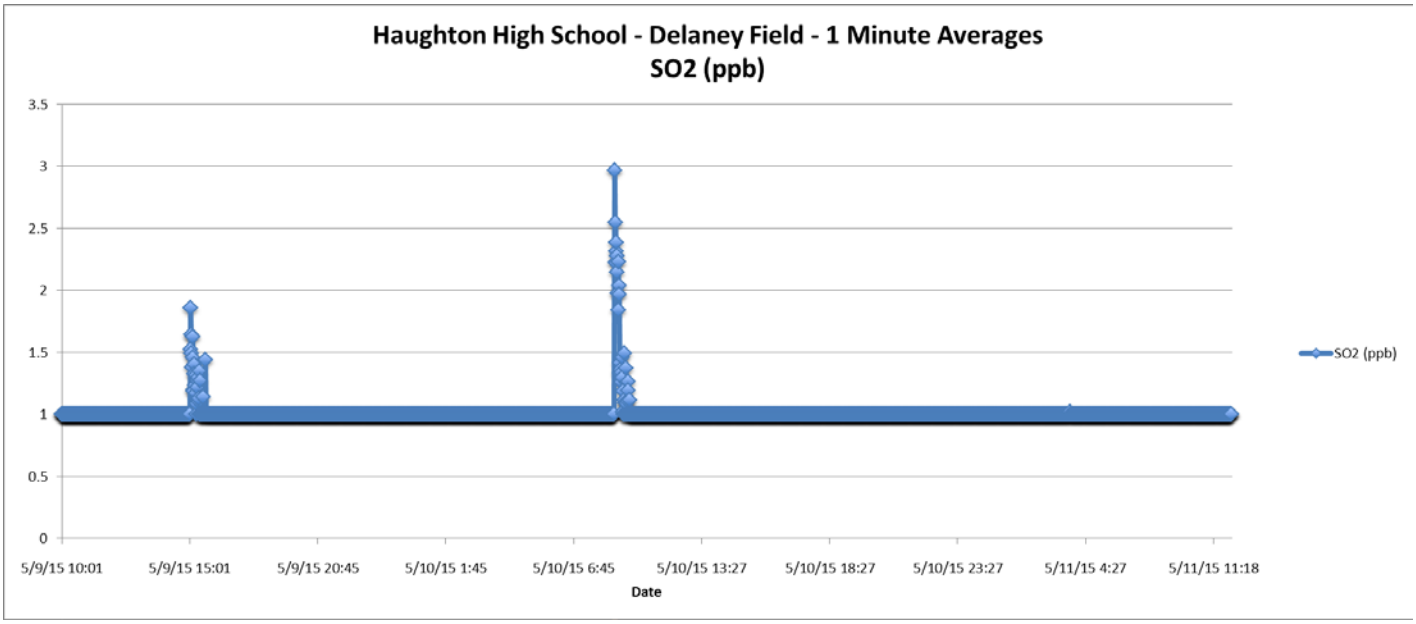

Haughton High School - Delaney Field - Hourly Averages
NO2 (ppb)
120
100
80
60
40
20
0
5/9/2015 10:00
5/9/2015 19:00
5/10/2015 4:00
5/10/2015 13:00
5/10/2015 22:00
5/11/2015 7:00
NO2 (ppb)
NAAQS (ppb)

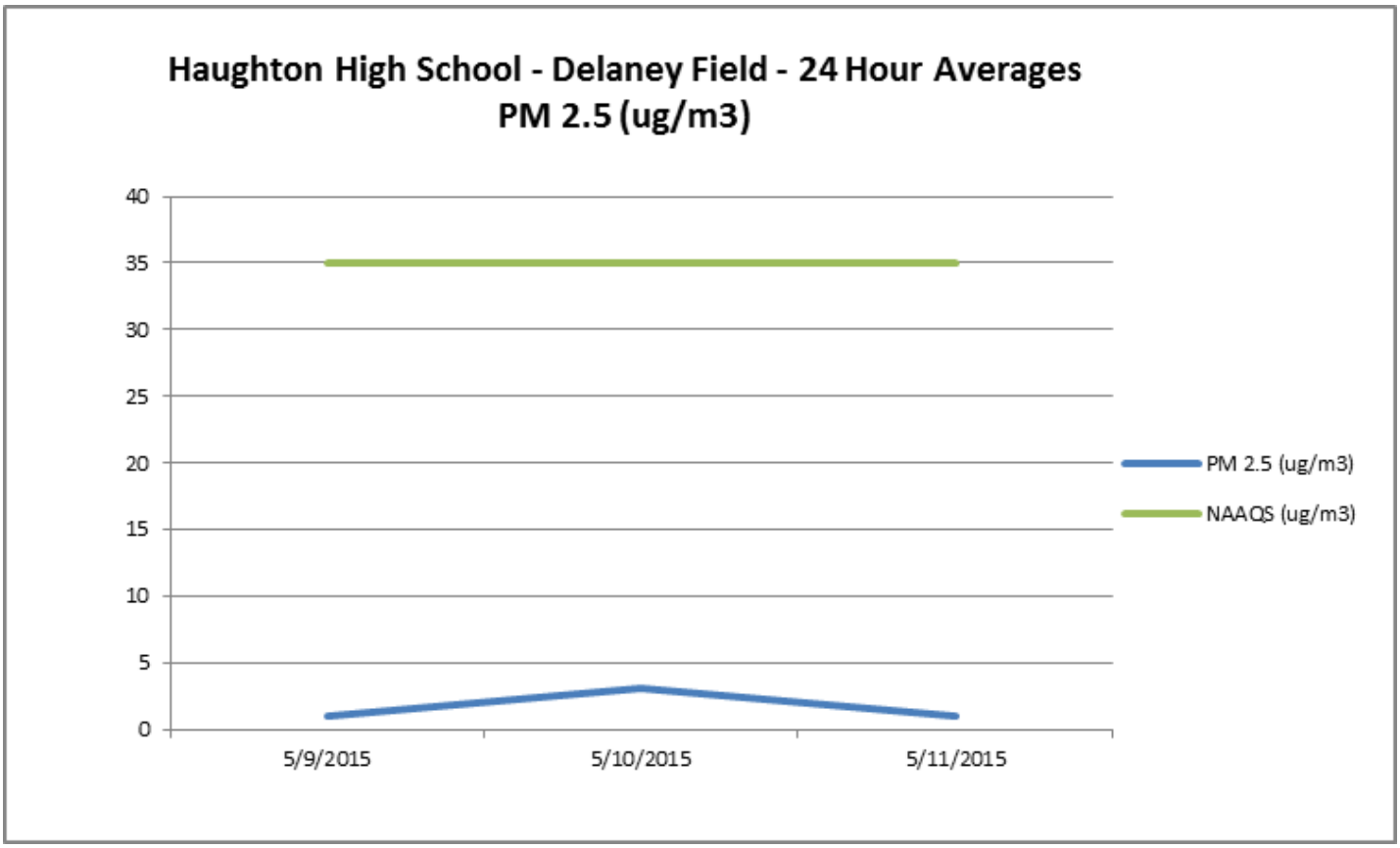

Haughton High School - Delaney Field - 1 Minute Averages
NO2 (ppb)
9
8
7
6
5
4
3
2
1
0
5/9/15 10:01
5/9/15 15:01
5/9/15 20:01
5/10/15 1:01
5/10/15 6:01
5/10/15 11:29
5/10/15 16:29
5/10/15 21:29
5/11/15 2:29
5/11/15 7:29
Date
NO2 (ppb)


Haughton High School - Delaney Field - Hourly Averages
NOX (ppb)
200
180
160
140
120
100
80
60
40
20
0
5/9/2015 10:00
5/9/2015 19:00
5/10/2015 4:00
5/10/2015 13:00
5/10/2015 22:00
5/11/2015 7:00
NOX (ppb)
NAAQS (ppb)


Haughton High School - Delaney Field - 1 Minute Averages
NOX (ppb)
30
25
20
15
10
5
0
5/9/15 10:01
5/9/15 15:01
5/9/15 20:01
5/10/15 1:01
5/10/15 6:01
5/10/15 11:29
5/10/15 16:29
5/10/15 21:29
5/11/15 2:29
5/11/15 7:29
Date
NOX (ppb)


Haughton High School - Delaney Field - 3 Hour Averages
SO2 (ppb)
400
350
300
250
200
150
100
50
0
5/9/2015 10:00
5/9/2015 19:00
5/10/2015 4:00
5/10/2015 14:00
5/10/2015 23:00
5/11/2015 9:00
SO2 (ppb)
NAAQS (ppb)


Haughton High School - Delaney Field - 1 Minute Averages
SO2 (ppb)
3.5
3
2.5
2
1.5
1
0.5
0
5/9/15 10:01
5/9/15 15:01
5/9/15 20:45
5/10/15 1:45
5/10/15 6:45
5/10/15 13:27
5/10/15 18:27
5/10/15 23:27
5/11/15 4:27
5/11/15 11:18
Date
SO2 (ppb)


Haughton High School - Delaney Field - 24 Hour Averages
PM 2.5 (ug/m3)
40
35
30
25
20
15
10
5
0
5/9/2015
5/10/2015
5/11/2015
PM 2.5 (ug/m3)
NAAQS (ug/m3)

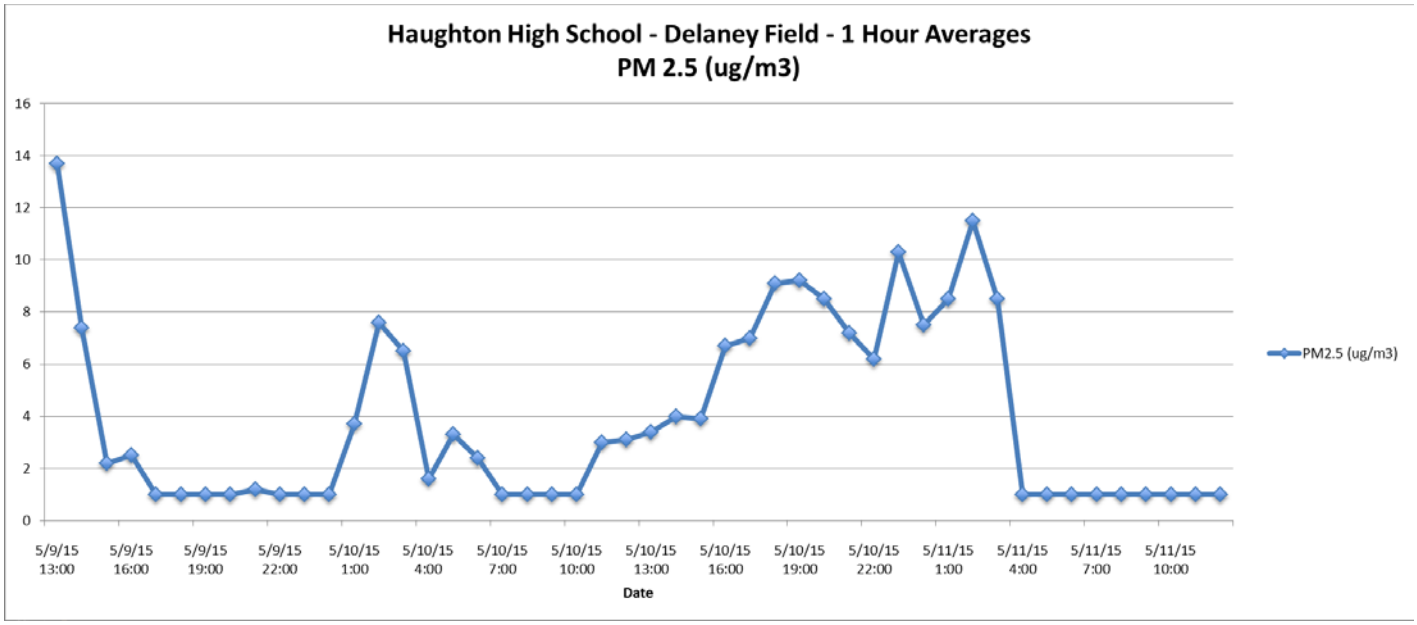

Haughton High School - Delaney Field - 1 Hour Averages
PM 2.5 (ug/m3)
16
14
12
10
8
6
4
2
0
5/9/15 13:00
5/9/15 16:00
5/9/15 19:00
5/9/15 22:00
5/10/15 1:00
5/10/15 4:00
5/10/15 7:00
5/10/15 10:00
5/10/15 13:00
5/10/15 16:00
5/10/15 19:00
5/10/15 22:00
5/11/15 1:00
5/11/15 4:00
5/11/15 7:00
5/11/15 10:00
Date
PM2.5 (ug/m3)

Table 2
Soil Analytical Results
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Property	Haughton High School - Delaney Field
			Station	HHS01
			Date	5/14/2015
			Type	FS
Analyte	**CAS.NO**	**Units**	--	--
Dioxin TEQ				
TEQ WHO2005 ND=0	3333-30-0	ng/kg	--	**3.05**
TEQ WHO2005 ND=0.5	3333-30-1	ng/kg	--	**4.65**
Dioxin/Furans				
1,2,3,4,6,7,8,9-OCDD	3268-87-9	ng/kg	--	**5930 J**
1,2,3,4,6,7,8,9-OCDF	39001-02-0	ng/kg	--	**13.3**
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	--	**79**
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	--	**5.7**
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	--	4.67 U
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	--	4.67 U
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	--	4.67 U
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	--	**1.91 J**
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	--	4.67 U
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	--	**2.25 J**
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	--	4.67 U
1,2,3,7,8-PeCDD	40321-76-4	ng/kg	--	4.67 U
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	--	4.67 U
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	--	4.67 U
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	--	4.67 U
2,3,7,8-TCDD	1746-01-6	ng/kg	--	0.935 U
2,3,7,8-TCDF	51207-31-9	ng/kg	--	0.935 U
Total Heptachlorodibenzofuran	38998-75-3	ng/kg	--	**16.2**
Total Heptachlorodibenzo-p-dioxin	37871-00-4	ng/kg	--	**186**
Total Hexachlorodibenzofuran	55684-94-1	ng/kg	--	**4.33 J**
Total Hexachlorodibenzo-p-dioxin	34465-46-8	ng/kg	--	**23.6**
Total Pentachlorodibenzofuran	30402-15-4	ng/kg	--	4.67 U
Total Pentachlorodibenzo-p-dioxin	36088-22-9	ng/kg	--	4.67 U
Total Tetrachlorodibenzofuran	30402-14-3	ng/kg	--	0.935 U
Total Tetrachlorodibenzo-p-dioxin	41903-57-5	ng/kg	--	0.935 U
pH				
pH	C-006	pH Units	--	**5.8**
SVOCs				
2,4-Dinitrotoluene	121-14-2	µg/Kg	--	226 U
2,6-Dinitrotoluene	606-20-2	µg/Kg	--	226 U
2-Methylnaphthalene	91-57-6	µg/Kg	--	226 U
Acenaphthene	83-32-9	µg/Kg	--	226 U
Acenaphthylene	208-96-8	µg/Kg	--	226 U
Anthracene	120-12-7	µg/Kg	--	226 U
Benzo (a) anthracene	56-55-3	µg/Kg	--	226 U
Benzo (a) pyrene	50-32-8	µg/Kg	--	226 U
Benzo (b) fluoranthene	205-99-2	µg/Kg	--	226 U
Benzo (g,h,i) perylene	191-24-2	µg/Kg	--	226 U
Benzo (k) fluoranthene	207-08-9	µg/Kg	--	226 U

Table 2
Soil Analytical Results
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Property	Haughton High School - Delaney Field
			Station	HHS01
			Date	5/14/2015
			Type	FS
Analyte	**CAS.NO**	**Units**	**--**	**--**
Chrysene	218-01-9	µg/Kg	--	226 U
Dibenz (a,h) anthracene	53-70-3	µg/Kg	--	226 U
Di-n-butyl phthalate	84-74-2	µg/Kg	--	226 U
Fluoranthene	206-44-0	µg/Kg	--	226 U
Fluorene	86-73-7	µg/Kg	--	226 U
Indeno (1,2,3-cd) pyrene	193-39-5	µg/Kg	--	226 U
Naphthalene	91-20-3	µg/Kg	--	226 U
N-Nitrosodiphenylamine/Diphenylamine	86-30-6/122-39-4	µg/Kg	--	226 U
Phenanthrene	85-01-8	µg/Kg	--	226 U
Pyrene	129-00-0	µg/Kg	--	226 U
VOCs				
1,1,1-Trichloroethane	71-55-6	µg/Kg	--	4.5 U
1,1,2,2-Tetrachloroethane	79-34-5	µg/Kg	--	4.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	µg/Kg	--	4.5 U
1,1,2-Trichloroethane	79-00-5	µg/Kg	--	4.5 U
1,1-Dichloroethane	75-34-3	µg/Kg	--	4.5 U
1,1-Dichloroethene	75-35-4	µg/Kg	--	4.5 U
1,2,4-Trichlorobenzene	120-82-1	µg/Kg	--	4.5 U
1,2-Dibromo-3-chloropropane	96-12-8	µg/Kg	--	4.5 U
1,2-Dibromoethane	106-93-4	µg/Kg	--	4.5 U
1,2-Dichlorobenzene	95-50-1	µg/Kg	--	4.5 U
1,2-Dichloroethane	107-06-2	µg/Kg	--	4.5 U
1,2-Dichloropropane	78-87-5	µg/Kg	--	4.5 U
1,3-Dichlorobenzene	541-73-1	µg/Kg	--	4.5 U
1,4-Dichlorobenzene	106-46-7	µg/Kg	--	4.5 U
2-Butanone	78-93-3	µg/Kg	--	4.5 U
2-Hexanone	591-78-6	µg/Kg	--	4.5 U
4-Methyl-2-pentanone	108-10-1	µg/Kg	--	4.5 U
Acetone	67-64-1	µg/Kg	--	**12.4 B, J**
Benzene	71-43-2	µg/Kg	--	4.5 U
Bromodichloromethane	75-27-4	µg/Kg	--	4.5 U
Bromoform	75-25-2	µg/Kg	--	4.5 U
Bromomethane	74-83-9	µg/Kg	--	4.5 U
Carbon disulfide	75-15-0	µg/Kg	--	4.5 U
Carbon tetrachloride	56-23-5	µg/Kg	--	4.5 U
Chlorobenzene	108-90-7	µg/Kg	--	4.5 U
Chloroethane	75-00-3	µg/Kg	--	4.5 U
Chloroform	67-66-3	µg/Kg	--	4.5 U
Chloromethane	74-87-3	µg/Kg	--	4.5 U
cis-1,2-Dichloroethene	156-59-2	µg/Kg	--	4.5 U
cis-1,3-Dichloropropene	10061-01-5	µg/Kg	--	4.5 U
Cyclohexane	110-82-7	µg/Kg	--	4.5 U
Dibromochloromethane	124-48-1	µg/Kg	--	4.5 U

Table 2
Soil Analytical Results
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Property	Haughton High School - Delaney Field
			Station	HHS01
			Date	5/14/2015
			Type	FS
Analyte	**CAS.NO**	**Units**	**--**	**--**
Dichlorodifluoromethane	75-71-8	µg/Kg	--	4.5 U
Ethylbenzene	100-41-4	µg/Kg	--	4.5 U
Isopropylbenzene	98-82-8	µg/Kg	--	4.5 U
meta-/para-Xylene	na	µg/Kg	--	9 U
Methyl acetate	79-20-9	µg/Kg	--	4.5 U
Methyl tert-butyl ether	1634-04-4	µg/Kg	--	4.5 U
Methylcyclohexane	108-87-2	µg/Kg	--	4.5 U
Methylene chloride	75-09-2	µg/Kg	--	4.5 U
ortho-Xylene	95-47-6	µg/Kg	--	4.5 U
Styrene	100-42-5	µg/Kg	--	4.5 U
Tetrachloroethene	127-18-4	µg/Kg	--	4.5 U
Toluene	108-88-3	µg/Kg	--	4.5 U
trans-1,2-Dichloroethene	156-60-5	µg/Kg	--	4.5 U
trans-1,3-Dichloropropene	10061-02-6	µg/Kg	--	4.5 U
Trichloroethene	79-01-6	µg/Kg	--	4.5 U
Trichlorofluoromethane	75-69-4	µg/Kg	--	4.5 U
Vinyl chloride	75-01-4	µg/Kg	--	4.5 U
Xylenes (total)	1330-20-7	µg/Kg	--	**0**

NOTES:

ng/kg - nanograms per kilogram

µg/kg - micrograms per kilogram

FS - Field Sample

TEQ - Toxicity Equivalency Quotient calculated based on 2005 World Health Organization (WHO) dioxin toxicity equivalency factors (TEF).

B - Found in blank

J - Estimated value

U - Below detection limit

Bolded values denote detections

Table 3
Air Analytical Results - Dioxin/Furans
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Station	Haughton High School - Delaney Field
			Station Code	HHS01-Air
			Date	5/11/2015
			Type	FS
Analyte	**CAS.NO**	**Units**	**--**	**--**
TEQ Calculation 2005				
TEQ (Dioxin) ND = DL	1746-01-6	pg/m3	--	**0.0067255678716**
TEQ (Dioxin) ND = 0	1746-01-6	pg/m3	--	**0.0013257266216**
TEQ (Dioxin) ND = DL/2	1746-01-6	pg/m3	--	**0.0040256472466**
Dioxins/Furans				
1,2,3,4,6,7,8-HpCDD	35822-46-9	pg/m3	--	**0.023280284 J**
1,2,3,4,6,7,8-HpCDF	67562-39-4	pg/m3	--	**0.011166645 J**
1,2,3,4,7,8,9-HpCDF	55673-89-7	pg/m3	--	0.001670393 U
1,2,3,4,7,8-HxCDD	39227-28-6	pg/m3	--	0.003011969 U
1,2,3,4,7,8-HxCDF	70648-26-9	pg/m3	--	**0.00180192 J**
1,2,3,6,7,8-HxCDD	57653-85-7	pg/m3	--	0.003314481 U
1,2,3,6,7,8-HxCDF	57117-44-9	pg/m3	--	**0.002998816 J**
1,2,3,7,8,9-HxCDD	19408-74-3	pg/m3	--	0.003117191 U
1,2,3,7,8,9-HxCDF	72918-21-9	pg/m3	--	0.001075891 U
1,2,3,7,8-PeCDD	40321-76-4	pg/m3	--	0.001749309 U
1,2,3,7,8-PeCDF	57117-41-6	pg/m3	--	0.002499014 U
2,3,4,6,7,8-HxCDF	60851-34-5	pg/m3	--	**0.002656846 J**
2,3,4,7,8-PeCDF	57117-31-4	pg/m3	--	0.002525319 U
2,3,7,8-TCDD	1746-01-6	pg/m3	--	0.001749309 U
2,3,7,8-TCDF	51207-31-9	pg/m3	--	**0.001986058 J**
OCDD	3268-87-9	pg/m3	--	**0.116664475 J**
OCDF	39001-02-0	pg/m3	--	**0.006313297 J**
Total HpCDD	37871-00-4	pg/m3	--	**0.058266474 J**
Total HpCDF	38998-75-3	pg/m3	--	**0.015257135 J**
Total HxCDD	34465-46-8	pg/m3	--	**0.030251217 J**
Total HxCDF	55684-94-1	pg/m3	--	**0.037222149 J**
Total PeCDD	36088-22-9	pg/m3	--	**0.008786006 J**
Total PeCDF	30402-15-4	pg/m3	--	**0.048533474 J**
Total TCDD	41903-57-5	pg/m3	--	**0.016966987**
Total TCDF	55722-27-5	pg/m3	--	**0.069840852**

Notes:

pg/m3 - picograms per cubic meter

AAS - State of Louisiana Limit Values

Bolded values denote detections

FS - Field Sample

J - Estimated concentration, detected between the sample detection limit (SDL) and the practical quantitation limit (PQL).

NP - Limit Not Published

TEQ - Toxicity Equivalency Quotient calculated based on 2005 World Health Organization (WHO) dioxin toxicity equivalency factors (TEF).

U - Not detected above the indicated detection limit.

Table 4
Air Analytical Results - SVOCs and Particulates
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Station	Haughton High School - Delaney Field	
			Station Code	HHS01-Air	
			Date	5/10/2015	5/11/2015
			Type	FS	FS
Analyte	**CAS.NO**	**Units**	**--**	**--**	**--**
Semi-Volatile Organic Compounds (SVOCs)					
2,4-Dinitrotoluene	121-14-2	µg/m3	--	0.014 U	0.013 U
2,6-Dinitrotoluene	606-20-2	µg/m3	--	0.014 U	0.013 U
2-Chloronaphthalene	91-58-7	µg/m3	--	0.0027 U	0.0027 U
2-Methylnaphthalene	91-57-6	µg/m3	--	**0.0039**	**0.0028**
Acenaphthene	83-32-9	µg/m3	--	0.0027 U	0.0027 U
Acenaphthylene	208-96-8	µg/m3	--	0.0027 U	0.0027 U
Anthracene	120-12-7	µg/m3	--	0.0027 U	0.0027 U
Benzo(a)anthracene	56-55-3	µg/m3	--	0.0027 U	0.0027 U
Benzo(a)pyrene	50-32-8	µg/m3	--	0.0027 U	0.0027 U
Benzo(b)fluoranthene	205-99-2	µg/m3	--	0.0027 U	0.0027 U
Benzo(g,h,i)perylene	191-24-2	µg/m3	--	0.0027 U	0.0027 U
Benzo(k)fluoranthene	207-08-9	µg/m3	--	0.0027 U	0.0027 U
Chrysene	218-01-9	µg/m3	--	0.0027 U	0.0027 U
Dibenz(a,h)anthracene	53-70-3	µg/m3	--	0.0027 U	0.0027 U
di-n-Butylphthalate	84-74-2	µg/m3	--	0.055 U	0.053 U
Diphenylamine	122-39-4	µg/m3	--	0.027 U	0.027 U
Fluoranthene	206-44-0	µg/m3	--	0.0027 U	0.0027 U
Fluorene	86-73-7	µg/m3	--	0.0027 U	0.0027 U
Indeno(1,2,3-c,d)pyrene	193-39-5	µg/m3	--	0.0027 U	0.0027 U
Naphthalene	91-20-3	µg/m3	--	**0.0064**	**0.004**
Phenanthrene	85-01-8	µg/m3	--	**0.0056**	**0.0043**
Pyrene	129-00-0	µg/m3	--	0.0027 U	0.0027 U
Particulate Size					
PM10	PM10	µg/m3	--	**30**	**28.1**
PM2.5	PM2.5	µg/m3	--	**14.5**	**14**

Notes:

µg/m3 - micrograms per cubic meter

Bolded values denote detections

FS - Field Sample

J - Estimated concentration, detected between the sample detection limit (SDL) and the practical quantitation limit (PQL).

U - Not detected above the indicated detection limit.

Table 5
Air Analytical Results - Volatile Organic Compounds (VOCs)
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Station	Haughton High School - Delaney Field		
			Station Code	HHS01-Air		
			Date	6/9/2015	6/9/2015	6/9/2015
			Type	FS	FT	DUP
Analyte	**CAS.NO**	**Units**	**--**	**--**	**--**	**--**
VOCs						
1,1,1-Trichloroethane	71-55-6	µg/m3	--	4.6 U	4.1 U	4.3 U
1,1,2,2-Tetrachloroethane	79-34-5	µg/m3	--	5.7 U	5.1 U	5.4 U
1,1,2-Trichloroethane	79-00-5	µg/m3	--	4.6 U	4.1 U	4.3 U
1,1-Dichloroethane	75-34-3	µg/m3	--	3.4 U	3 U	3.2 U
1,1-Dichloroethene	75-35-4	µg/m3	--	3.3 U	3 U	3.1 U
1,2,4-Trichlorobenzene	120-82-1	µg/m3	--	25 U	22 U	23 U
1,2,4-Trimethylbenzene	95-63-6	µg/m3	--	4.1 U	3.7 U	3.9 U
1,2-Dibromoethane (EDB)	106-93-4	µg/m3	--	6.4 U	5.8 U	6.1 U
1,2-Dichlorobenzene	95-50-1	µg/m3	--	5 U	4.5 U	4.7 U
1,2-Dichloroethane	107-06-2	µg/m3	--	3.4 U	3 U	3.2 U
1,2-Dichloropropane	78-87-5	µg/m3	--	3.8 U	3.5 U	3.6 U
1,3,5-Trimethylbenzene	108-67-8	µg/m3	--	4.1 U	3.7 U	3.9 U
1,3-Butadiene	106-99-0	µg/m3	--	1.8 U	1.6 U	1.7 U
1,3-Dichlorobenzene	541-73-1	µg/m3	--	5 U	4.5 U	4.8 U
1,4-Dichlorobenzene	106-46-7	µg/m3	--	5 U	4.5 U	4.8 U
1,4-Dioxane	123-91-1	µg/m3	--	12 U	11 U	11 U
2,2,4-Trimethylpentane	540-84-1	µg/m3	--	3.9 U	3.5 U	3.7 U
2-Butanone (Methyl Ethyl Ketone)	78-93-3	µg/m3	--	9.8 U	8.8 U	9.3 U
2-Hexanone	591-78-6	µg/m3	--	14 U	12 U	13 U
2-Propanol	67-63-0	µg/m3	--	8.2 U	7.4 U	7.8 U
3-Chloropropene	107-05-1	µg/m3	--	10 U	9.4 U	9.9 U
4-Ethyltoluene	622-96-8	µg/m3	--	4.1 U	3.7 U	3.9 U
4-Methyl-2-pentanone	108-10-1	µg/m3	--	3.4 U	3.1 U	3.2 U
Acetone	67-64-1	µg/m3	--	20 U	18 U	19 U
alpha-Chlorotoluene	100-44-7	µg/m3	--	4.3 U	3.9 U	4.1 U
Benzene	71-43-2	µg/m3	--	2.7 U	2.4 U	2.5 U
Bromodichloromethane	75-27-4	µg/m3	--	5.6 U	5 U	5.3 U
Bromoform	75-25-2	µg/m3	--	8.6 U	7.8 U	8.2 U
Bromomethane	74-83-9	µg/m3	--	32 U	29 U	31 U
Carbon Disulfide	75-15-0	µg/m3	--	10 U	9.3 U	9.8 U
Carbon Tetrachloride	56-23-5	µg/m3	--	5.2 U	4.7 U	5 U
Chlorobenzene	108-90-7	µg/m3	--	3.8 U	3.4 U	3.6 U
Chloroethane	75-00-3	µg/m3	--	8.8 U	7.9 U	8.3 U
Chloroform	67-66-3	µg/m3	--	4.1 U	3.7 U	3.8 U
Chloromethane	74-87-3	µg/m3	--	17 U	15 U	16 U
cis-1,2-Dichloroethene	156-59-2	µg/m3	--	3.3 U	3 U	3.1 U
cis-1,3-Dichloropropene	10061-01-5	µg/m3	--	3.8 U	3.4 U	3.6 U
Cumene	98-82-8	µg/m3	--	4.1 U	3.7 U	3.9 U
Cyclohexane	110-82-7	µg/m3	--	2.9 U	2.6 U	2.7 U
Dibromochloromethane	124-48-1	µg/m3	--	7.1 U	6.4 U	6.7 U
Ethanol	64-17-5	µg/m3	--	6.3 U	5.6 U	6 U
Ethyl Benzene	100-41-4	µg/m3	--	3.6 U	3.2 U	3.4 U
Freon 11	75-69-4	µg/m3	--	4.7 U	4.2 U	4.4 U
Freon 113	76-13-1	µg/m3	--	6.4 U	5.7 U	6 U
Freon 114	76-14-2	µg/m3	--	5.8 U	5.2 U	5.5 U
Freon 12	75-71-8	µg/m3	--	4.1 U	3.7 U	3.9 U
Heptane	142-82-5	µg/m3	--	3.4 U	3.1 U	3.2 U
Hexachlorobutadiene	87-68-3	µg/m3	--	36 U	32 U	34 U
Hexane	110-54-3	µg/m3	--	2.9 U	2.6 U	2.8 U
m,p-Xylene	108-38-3/106-42-3	µg/m3	--	3.6 U	3.2 U	3.4 U
Methyl tert-butyl ether	1634-04-4	µg/m3	--	3 U	2.7 U	2.8 U
Methylene Chloride	75-09-2	µg/m3	--	29 U	26 U	27 U
o-Xylene	95-47-6	µg/m3	--	3.6 U	3.2 U	3.4 U
Propylbenzene	103-65-1	µg/m3	--	4.1 U	3.7 U	3.9 U
Styrene	100-42-5	µg/m3	--	3.6 U	3.2 U	3.4 U
Tetrachloroethene	127-18-4	µg/m3	--	5.7 U	5.1 U	5.4 U

Table 5
Air Analytical Results - Volatile Organic Compounds (VOCs)
Haughton High School - Delaney Field
Camp Minden - Explo Baseline Study

			Station	Haughton High School - Delaney Field		
			Station Code	HHS01-Air		
			Date	6/9/2015	6/9/2015	6/9/2015
			Type	FS	FT	DUP
Analyte	CAS.NO	Units	--	--	--	--
Tetrahydrofuran	109-99-9	µg/m3	--	2.5 U	2.2 U	2.3 U
Toluene	108-88-3	µg/m3	--	3.1 U	2.8 U	3 U
trans-1,2-Dichloroethene	156-60-5	µg/m3	--	3.3 U	3 U	3.1 U
trans-1,3-Dichloropropene	10061-02-6	µg/m3	--	3.8 U	3.4 U	3.6 U
Trichloroethene	79-01-6	µg/m3	--	4.5 U	4 U	4.2 U
Vinyl Chloride	75-01-4	µg/m3	--	2.1 U	1.9 U	2 U

Notes:

µg/m3 - micrograms per cubic meter

DUP - Field Duplicate Sample

FS - Field Sample

FT - Field Triplicate

U - Not detected above the indicated detection limit.

Toxicology Summary – Haughton High School – Delaney Field

Soil Results

The EPA collected one soil sample from Haughton High School – Delaney Field. The soil sample was analyzed for the presence of volatile organic chemicals (VOCs), semivolatile organic chemicals (SVOCs) and dioxin/furans. Analytical results were compared to the Regional Screening Level (RSL) and the Preliminary Remediation Goal (PRG) for residential and industrial soils. The results indicated that VOCs, SVOCs, and dioxin/furans did not exceed the comparison levels

In addition, these dioxin levels may be reflective of background values in the Camp Minden area. A comprehensive evaluation identified 18 studies with data on dioxin background levels in both rural and urban areas. The data from this evaluation found that TEQ concentrations in background rural soils ranged from 0.1 to 22.9 ng/kg, while mean rural TEQ concentrations ranged from 1.1 to 7.1 ng/kg and that the concentration in urban and suburban soils were substantially higher and more variable than those in rural soils, with TEQ concentrations ranging from 0.1 to 186.2 ng/kg. The range of the mean TEQ concentrations in urban/suburban soils was also substantially higher and range from 2.2 to 56.6 ng/kg" (Urban et al, 2013).

Air Monitoring/Sampling Data

The EPA did air monitoring and sampling at one location located at the Haughton High School – Delaney Field. Analytical result were compared to the National Ambient Air Quality Standards (NAAQS) air quality standards as well as the Regional Screening Level (RSL). The air monitoring and analytical data did not exceed the comparison levels.

The 24-hour average PM2.5 level did exceed the RSL standard of 12 $\mu g/m^3$, however it did not exceed the 24-hour NAAQS standard of 35 $\mu g/m^3$.

Reference

Urban, J.D, Wikoff, D.S, Bunch, A.T, Harris, M.A., Haws, L.C. 2013. A review of background dioxin concentrations in urban/suburban and rural soils across the United States: Implications for site assessment and the establishment of soil cleanup levels. Science of the Total Environment, 466-467.