



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 Princeton Elementary School
1895 Winfield Road, Princeton, Louisiana

Dear Mr. Norwood,

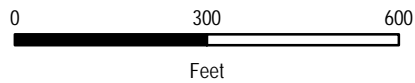
The Environmental Protection Agency (EPA) conducted real-time air monitoring and collected soil and air samples from Princeton Elementary in May 2015. The monitoring and sampling was conducted to establish a baseline for soil and air prior to implementation of the removal operations at Camp Minden. Air monitoring was for carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxide (NO), nitrogen dioxide (NO₂), NO_x, sulfur dioxide (SO₂), and fine particulates (2.5 micrometers [PM_{2.5}]). 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 PM_{2.5}), 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 and 4 - 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, Particulates and VOCs
Figure 1 - Sample Location Map
Toxicology Summary



LEGEND

-  Soil Sampling Location
-  Air Sampling Location



US EPA REGION 6

FIGURE 1
SAMPLE LOCATION MAP
PRINCETON ELEMENTARY SCHOOL
1895 WINFIELD RD
PRINCTON, BOSSIER PARISH
LOUISIANA

DATE NOVEMBER 2015	PROJECT NO 20406.012.005.0934.01	SCALE AS SHOWN
-----------------------	-------------------------------------	-------------------

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

SOURCE: 2010 Microsoft Corporation and its data suppliers

U.S. ENVIRONMENTAL PROTECTION AGENCY

Region VI



Air Monitoring Summary

Camp Minden Baseline Event
Princeton Elementary School

Start Time: 05-10-2015 10:01 - End Time: 05-12-2015 11:30

Below is a summary of Princeton Elementary School 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 10, 2015 10:01 through May 12, 2015 11:30
- 2 Average reading of each analyte from May 10, 2015 10:01 through May 12, 2015 11:30
- 3 Maximum reading of each analyte from May 10, 2015 10:01 through May 12, 2015 11:30

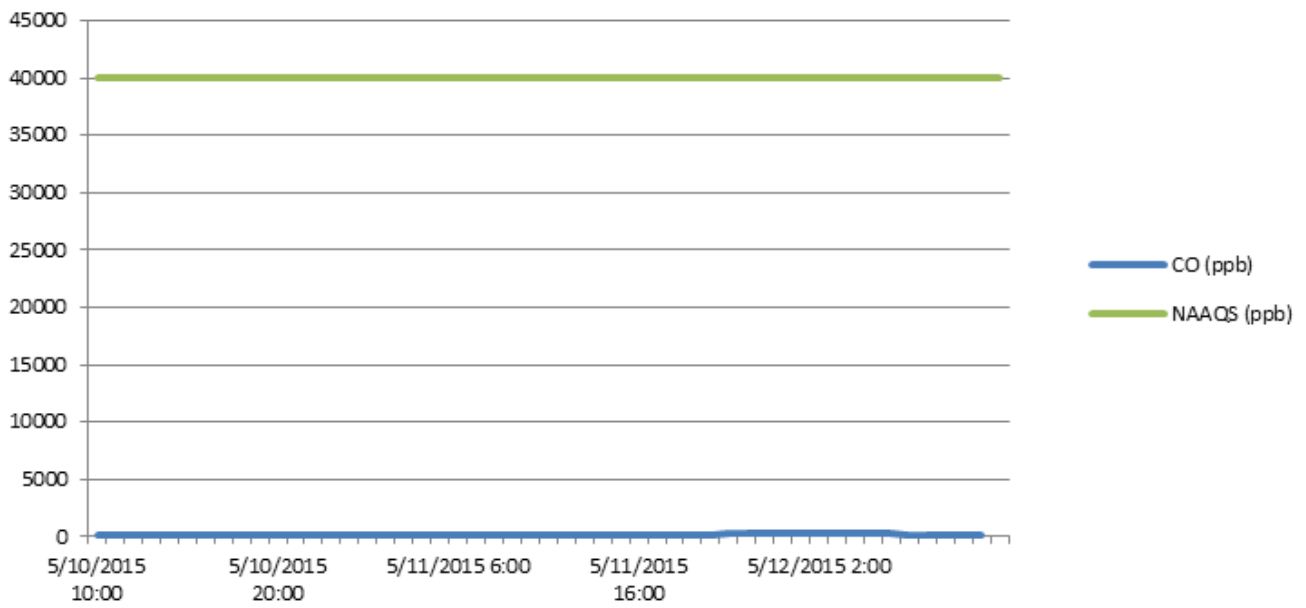
National Ambient Air Quality Standards (NAAQS) are listed with specific time frames and calculation formulas. Please visit NAAQS website for more in-depth information on how these are calculated - <http://www.epa.gov/air/criteria.html>.

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

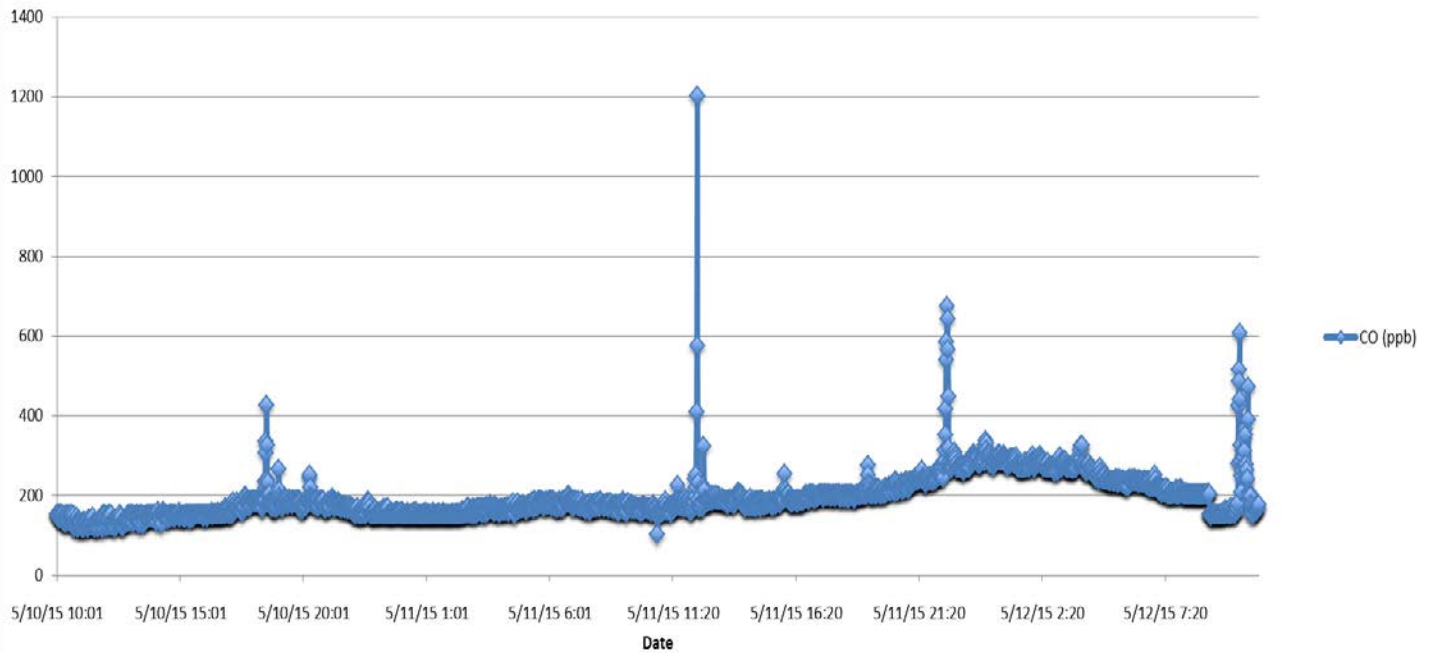
Summary of Location: Princeton Elementary School

Parameter	Count of 1-min Readings	Maximum Average Concentration	Maximum Detection	Units	NAAQS Standard
CO	2928	305	1202	ppb	40,000 (1-hour)
CO2	2951	507700	543700	ppb	
NO	2942	2.262	7.6	ppb	
NO2	2942	3.468	11.6	ppb	100 (1-hour)
NOX	2942	5.455	15.9	ppb	188 (1-hour)
SO2	2884	2.574	6.292	ppb	365 (3-hour)
Parameter	Count of 60-min Readings	Maximum Average Concentration	Maximum Detection	Units	NAAQS Standard
PM 2.5	46	18.48	30.4	ug/m3	35 (24-hour)

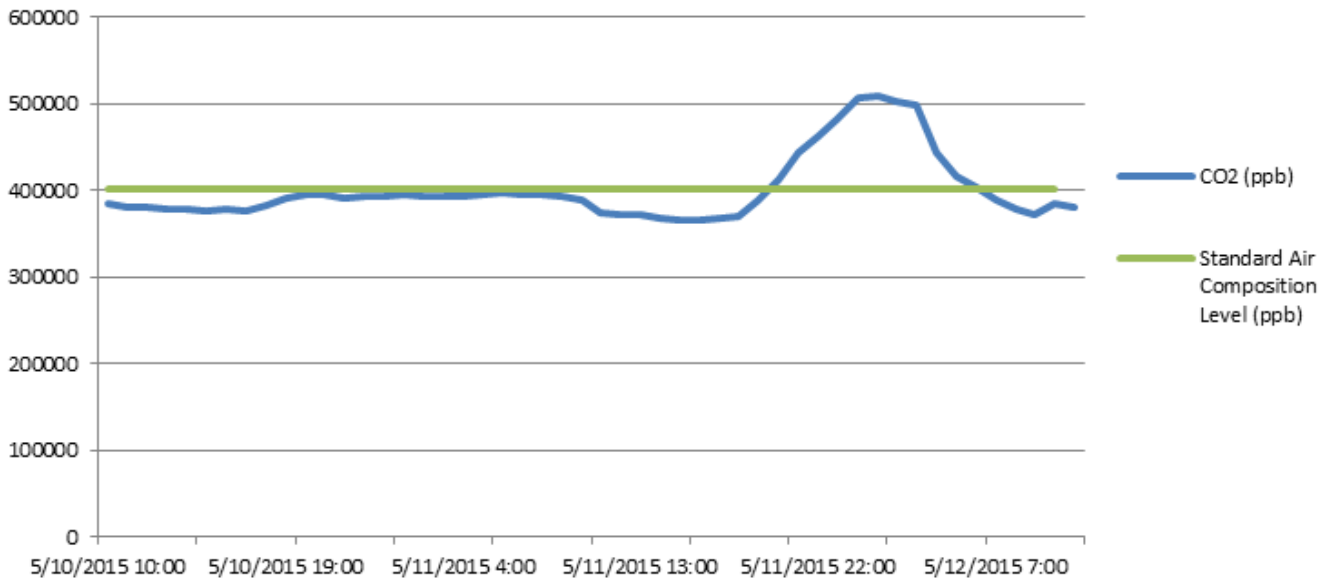
Princeton Elementary School - Hourly Averages CO (ppb)



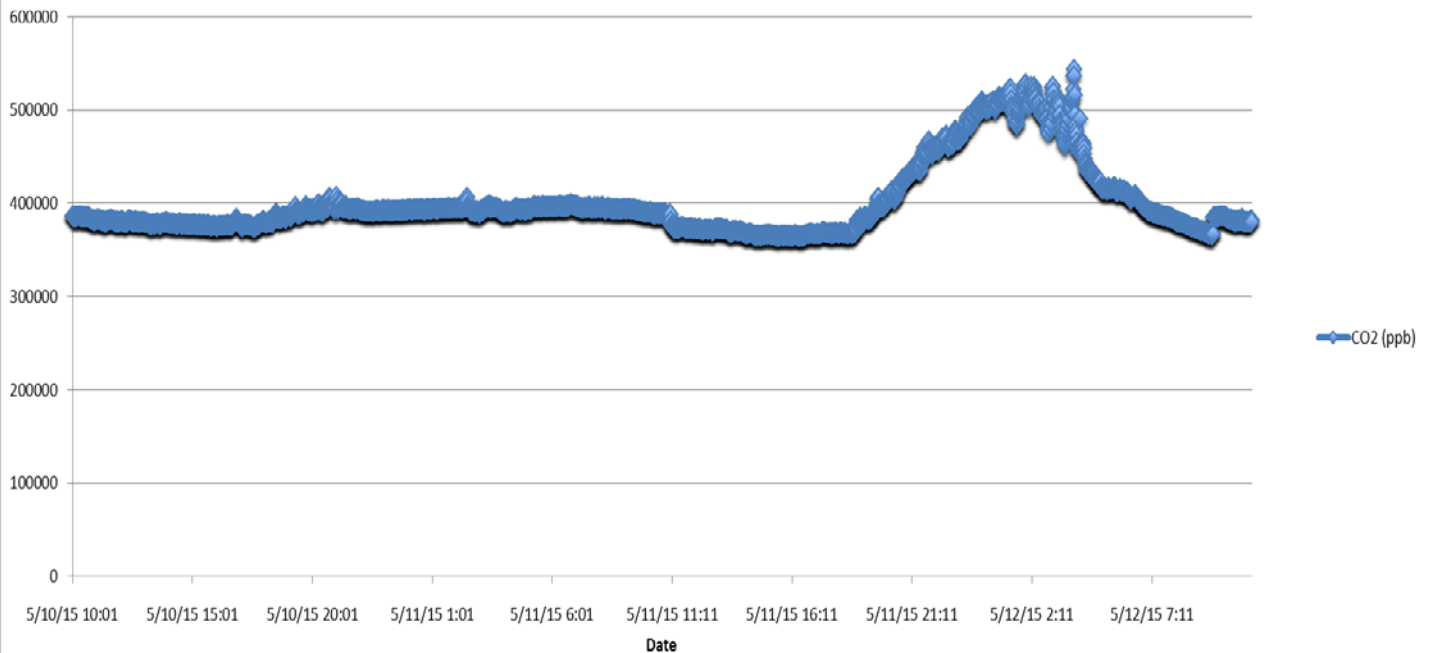
Princeton Elementary School - 1 Minute Averages CO (ppb)



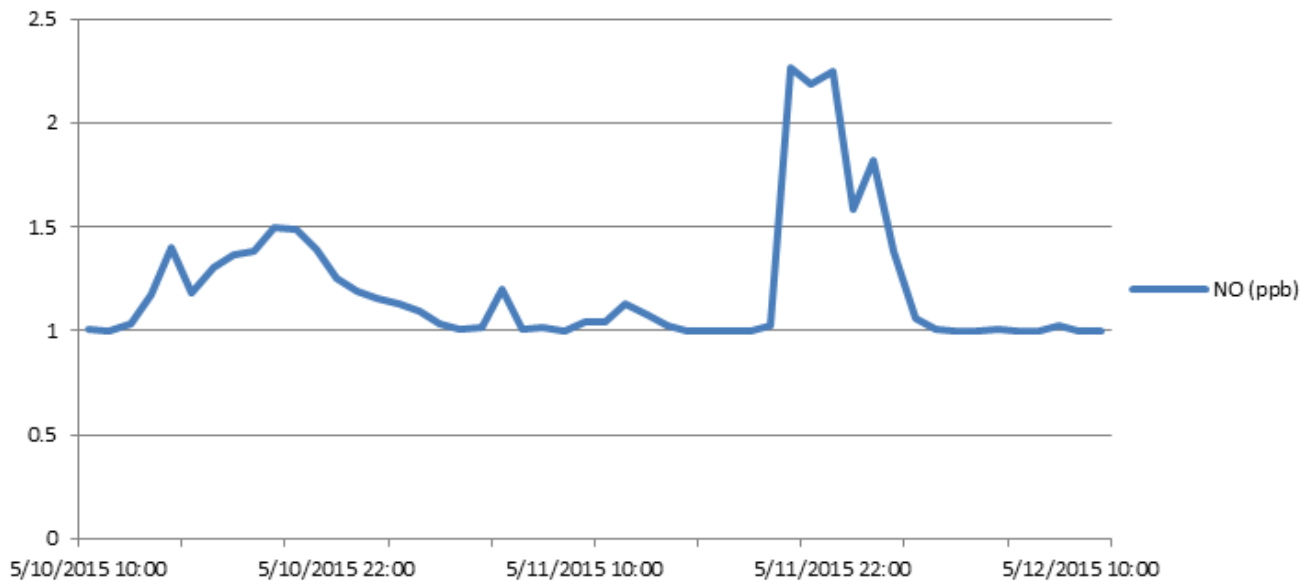
Princeton Elementary School - Hourly Averages CO2 (ppb)



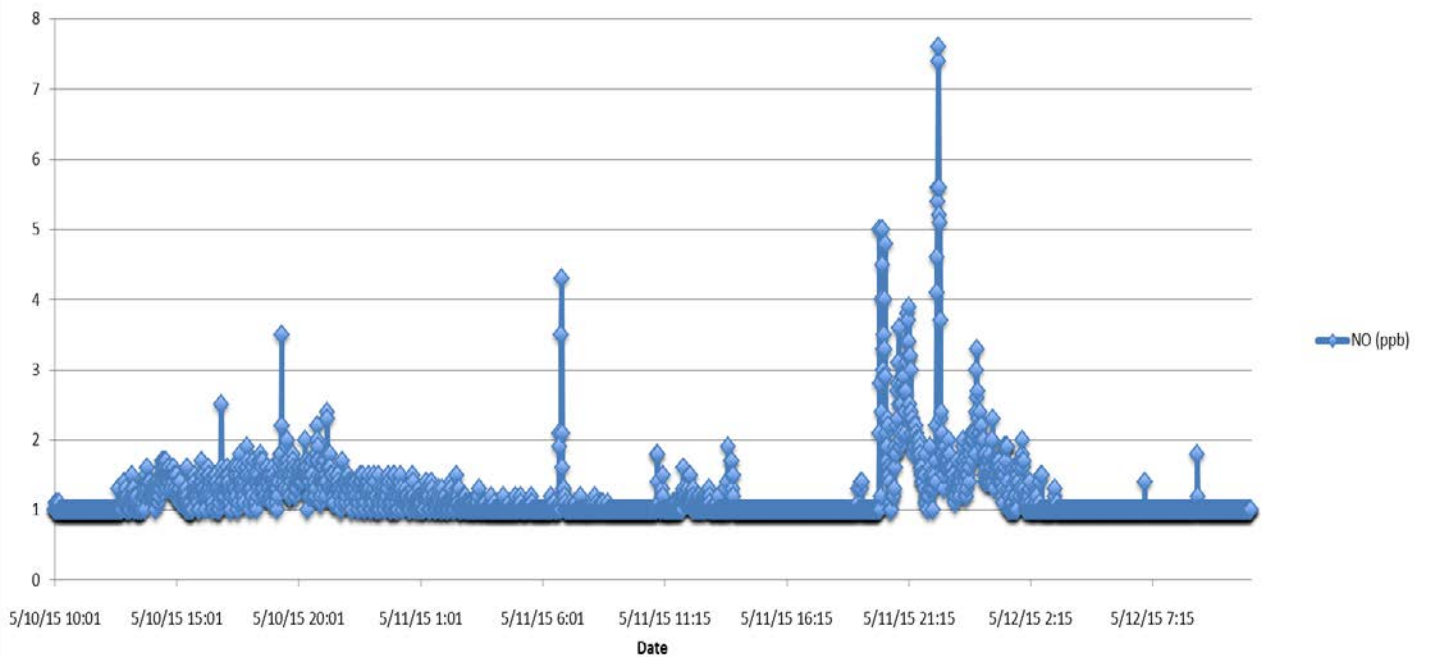
Princeton Elementary School - 1 Minute Averages CO2 (ppb)



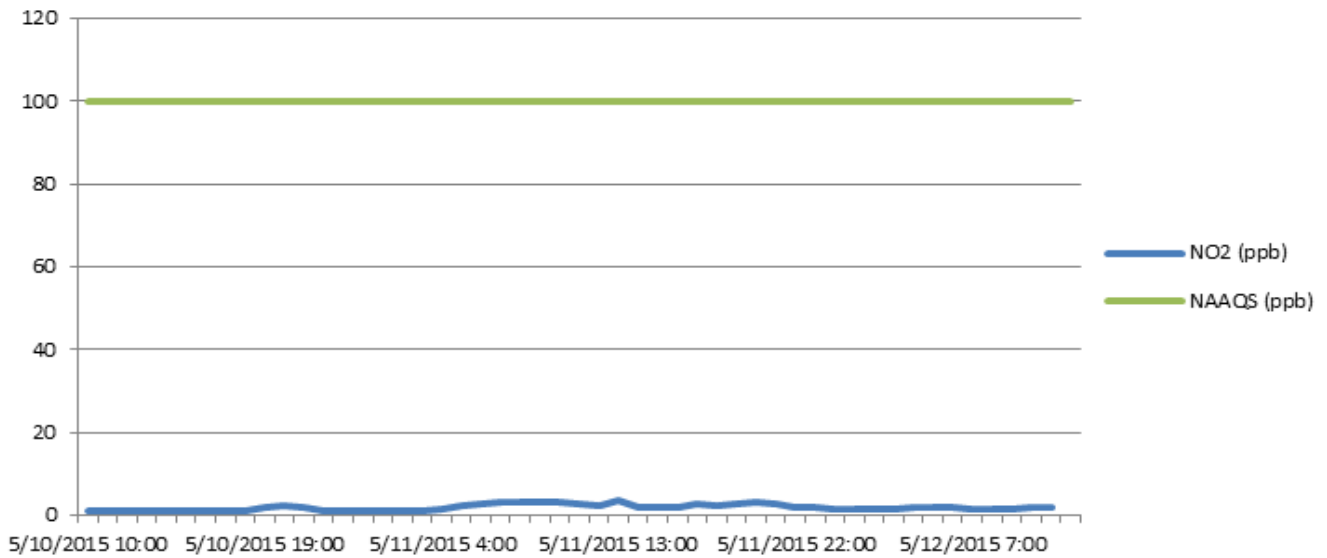
Princeton Elementary School - Hourly Averages NO (ppb)



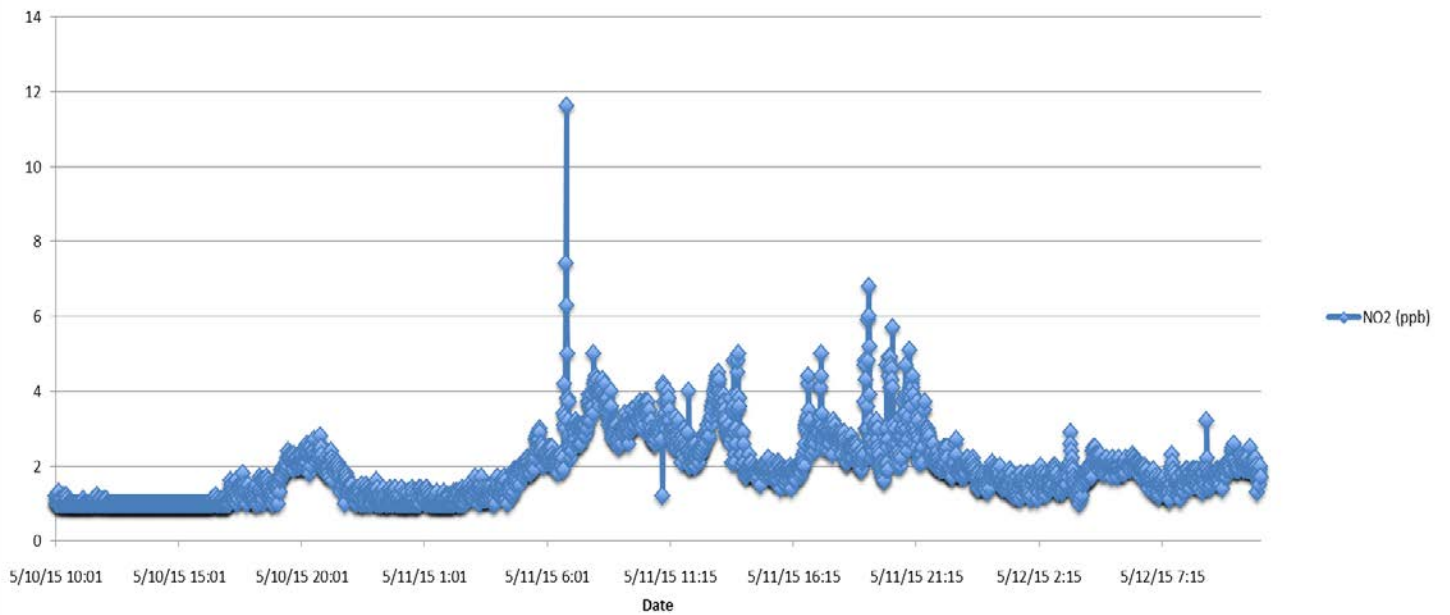
Princeton Elementary School - 1 Minute Averages NO (ppb)



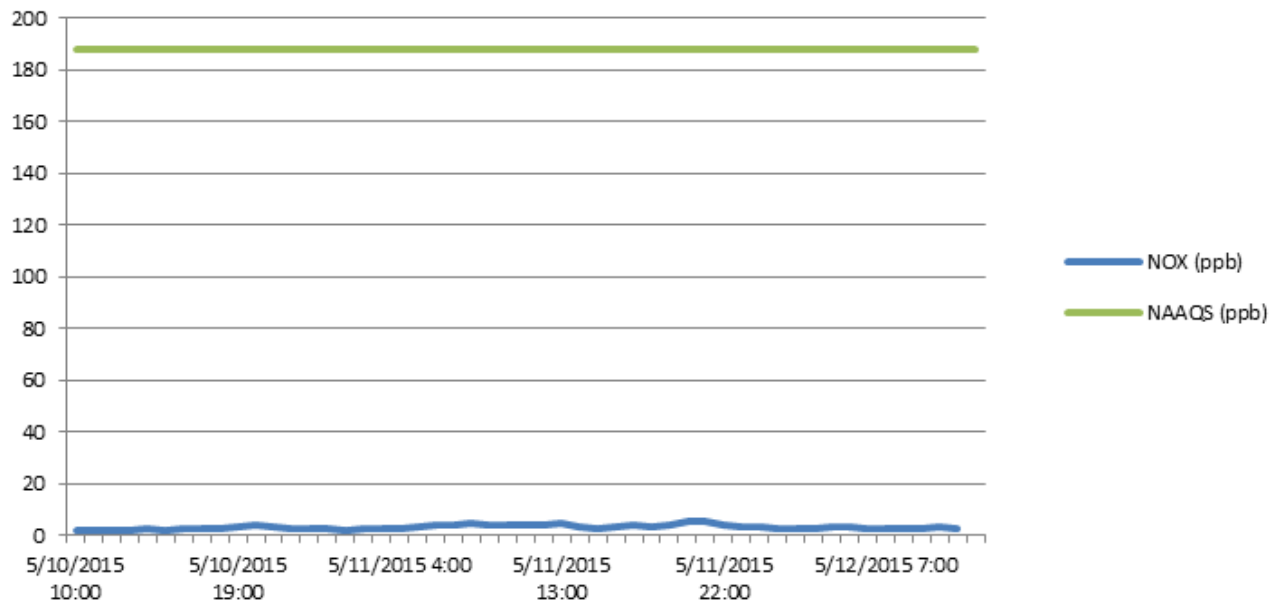
Princeton Elementary School - Hourly Averages NO2 (ppb)



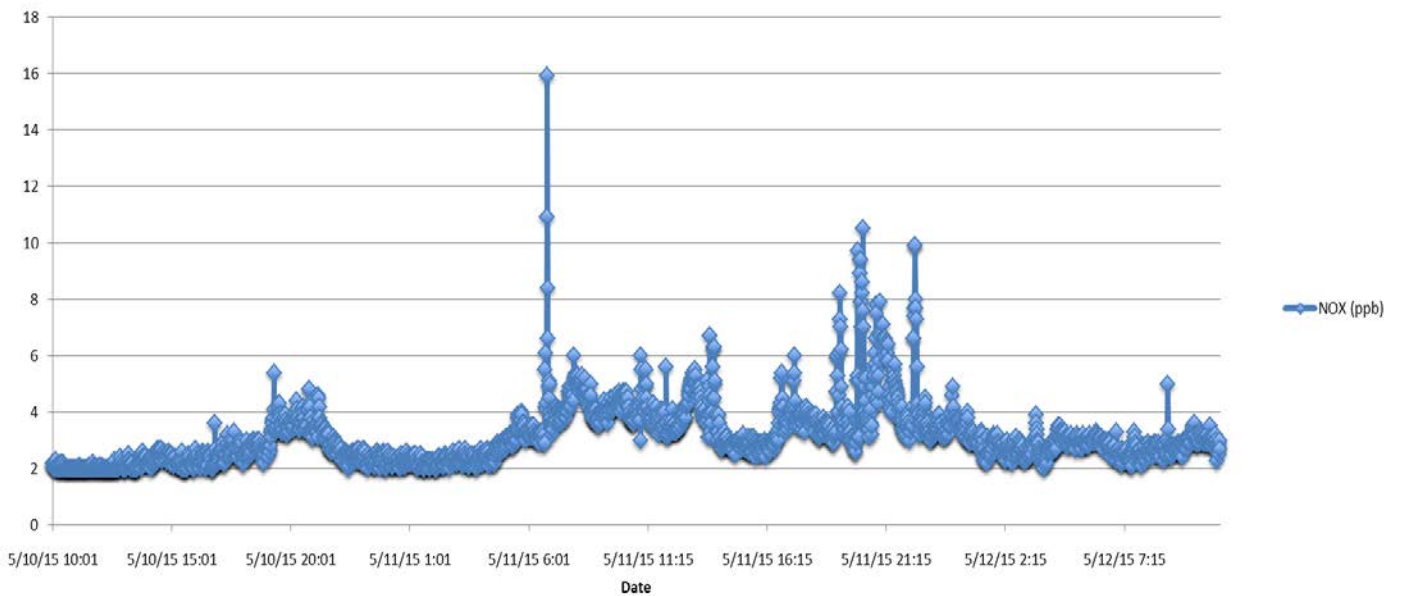
Princeton Elementary School - 1 Minute Averages NO2 (ppb)



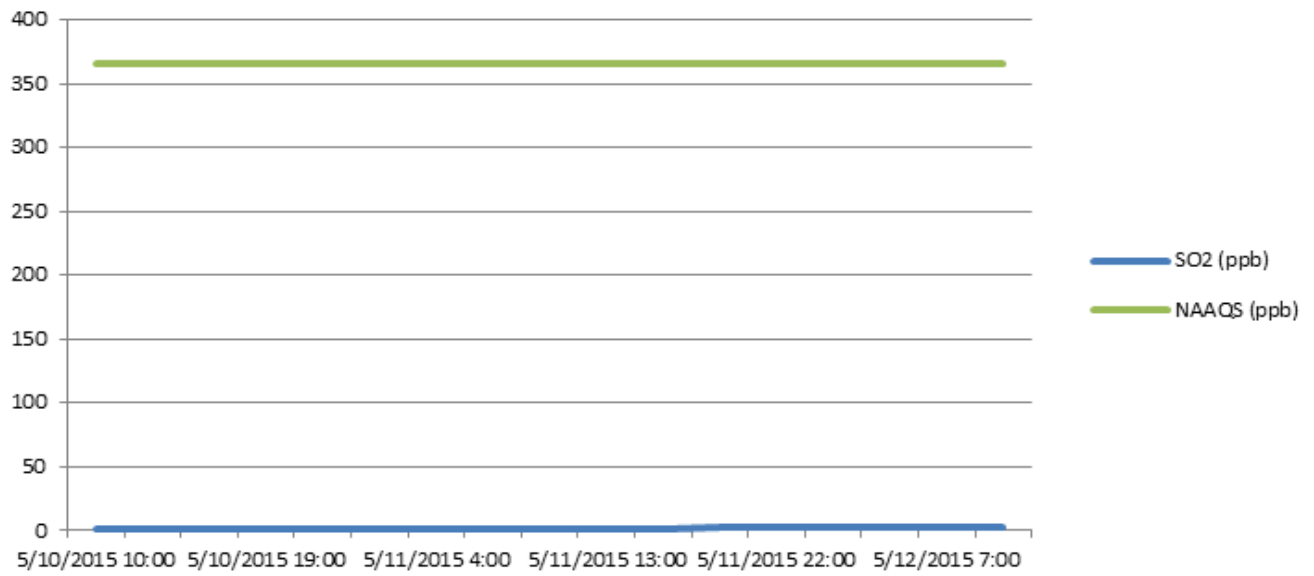
Princeton Elementary School - Hourly Averages NOX (ppb)



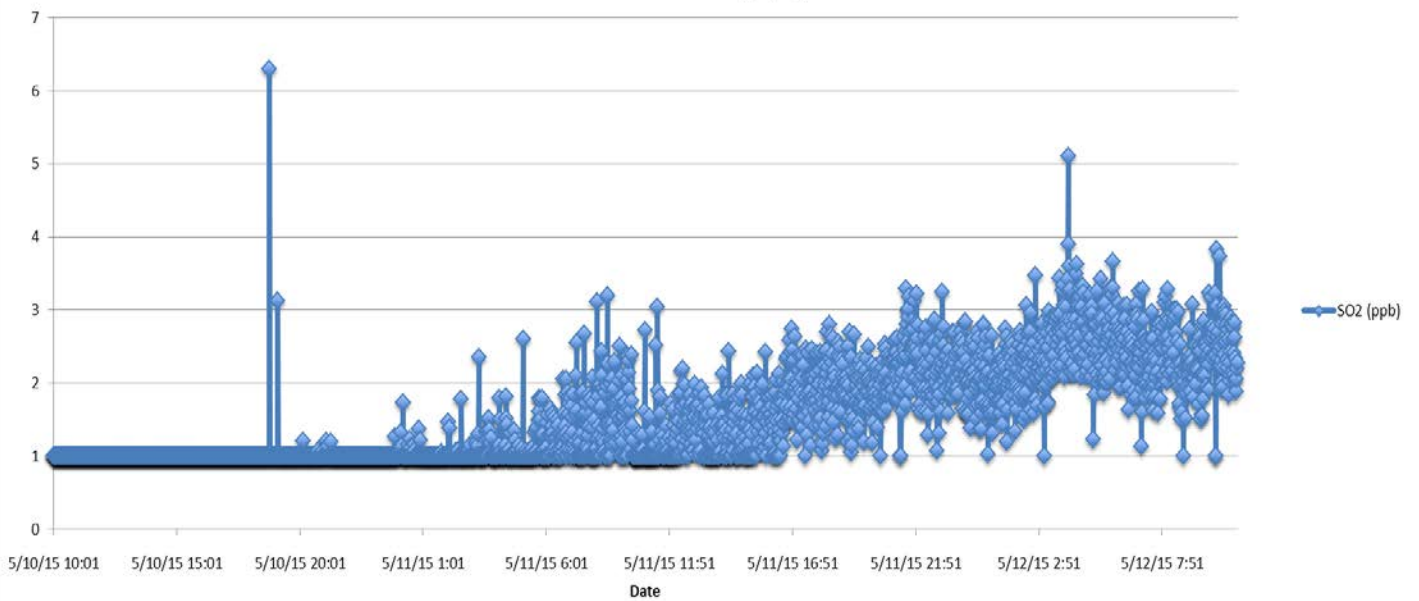
Princeton Elementary School - 1 Minute Averages NOX (ppb)



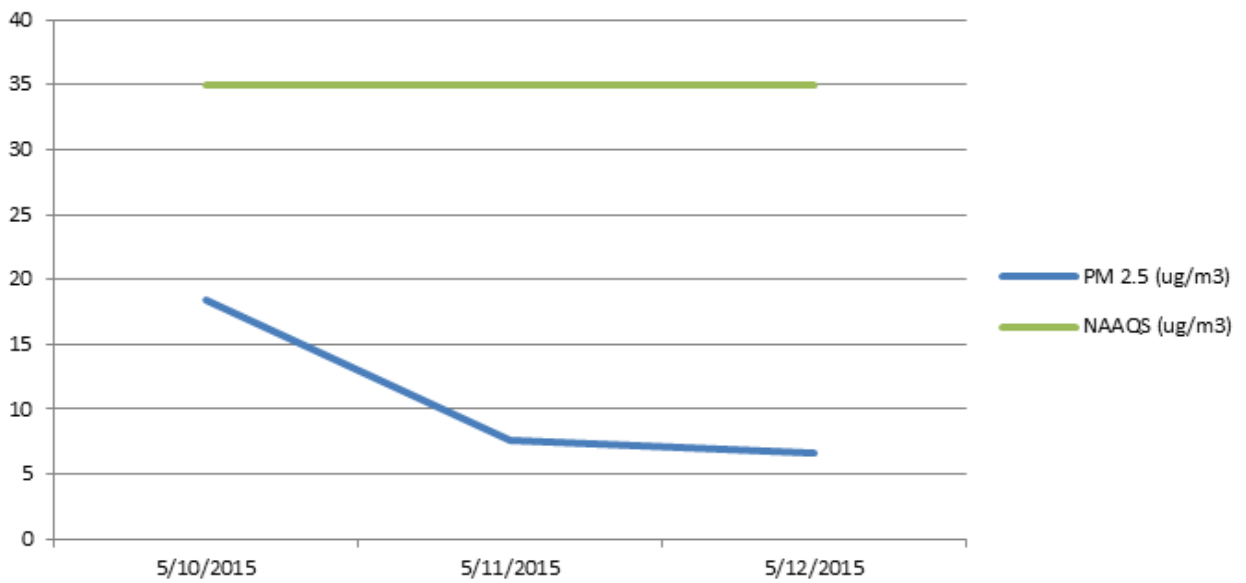
Princeton Elementary School - 3 Hour Averages SO2 (ppb)



Princeton Elementary School - 1 Minute Averages SO2 (ppb)



Princeton Elementary School - 24 Hour Averages PM 2.5 (ug/m3)



Princeton Elementary School - 1 Hour Averages PM 2.5 (ug/m3)

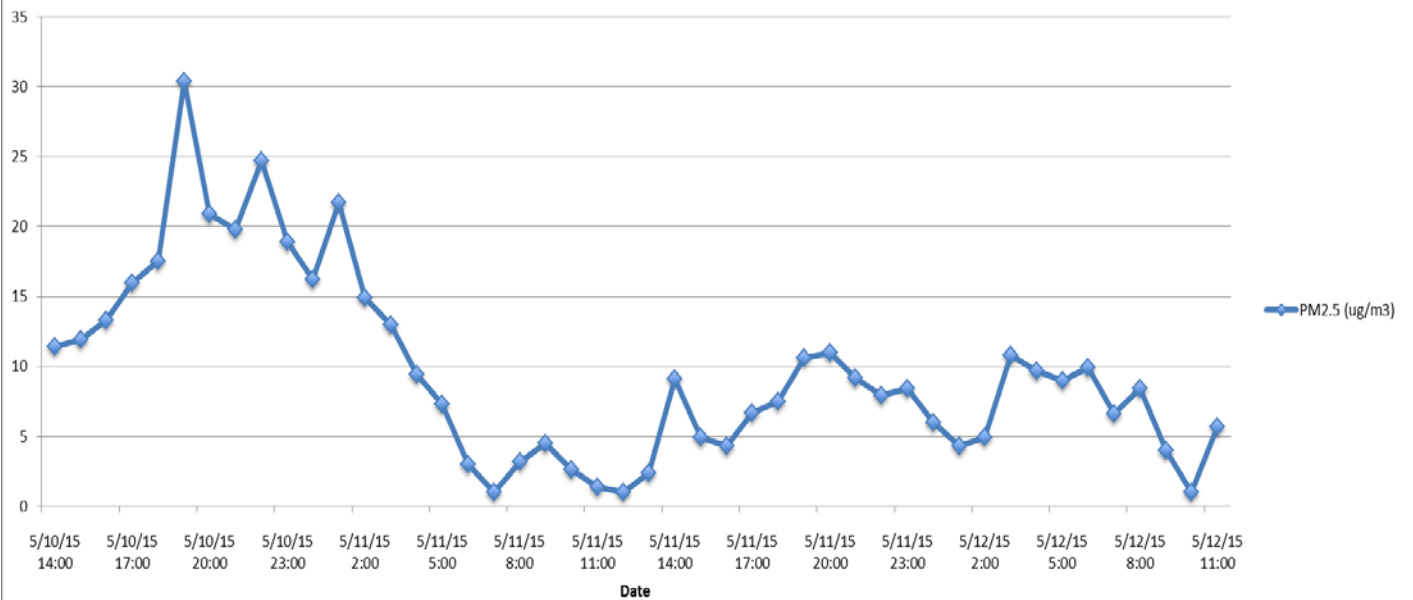


Table 2
Soil Analytical Results
Princeton Elementary School
Camp Minden - Explo Baseline Study

				Property	Princeton Elementary School
				Station	PE01
				Date	5/14/2015
				Type	FS
Analyte	CAS.NO	Units	--	--	--
Dioxin TEQ					
TEQ WHO2005 ND=0	3333-30-0	ng/kg	--	6.9	
TEQ WHO2005 ND=0.5	3333-30-1	ng/kg	--	8.46	
Dioxin/Furans					
1,2,3,4,6,7,8,9-OCDD	3268-87-9	ng/kg	--	14800 J	
1,2,3,4,6,7,8,9-OCDF	39001-02-0	ng/kg	--	9.49 U	
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	--	162	
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	--	4.75 U	
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	--	4.75 U	
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	--	2.39 J	
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	--	4.75 U	
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	--	2.83 J	
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	--	4.75 U	
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	--	3.25 J	
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	--	4.75 U	
1,2,3,7,8-PeCDD	40321-76-4	ng/kg	--	4.75 U	
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	--	4.75 U	
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	--	4.75 U	
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	--	4.75 U	
2,3,7,8-TCDD	1746-01-6	ng/kg	--	0.949 U	
2,3,7,8-TCDF	51207-31-9	ng/kg	--	0.949 U	
Total Heptachlorodibenzofuran	38998-75-3	ng/kg	--	4.75 U	
Total Heptachlorodibenzo-p-dioxin	37871-00-4	ng/kg	--	368	
Total Hexachlorodibenzofuran	55684-94-1	ng/kg	--	4.75 U	
Total Hexachlorodibenzo-p-dioxin	34465-46-8	ng/kg	--	36.3	
Total Pentachlorodibenzofuran	30402-15-4	ng/kg	--	4.75 U	
Total Pentachlorodibenzo-p-dioxin	36088-22-9	ng/kg	--	4.75 U	
Total Tetrachlorodibenzofuran	30402-14-3	ng/kg	--	0.949 U	
Total Tetrachlorodibenzo-p-dioxin	41903-57-5	ng/kg	--	1.11	
pH					
pH	C-006	pH Units	--	7	
SVOCs					
2,4-Dinitrotoluene	121-14-2	µg/Kg	--	208 U	
2,6-Dinitrotoluene	606-20-2	µg/Kg	--	208 U	
2-Methylnaphthalene	91-57-6	µg/Kg	--	208 U	
Acenaphthene	83-32-9	µg/Kg	--	208 U	
Acenaphthylene	208-96-8	µg/Kg	--	208 U	
Anthracene	120-12-7	µg/Kg	--	208 U	
Benzo (a) anthracene	56-55-3	µg/Kg	--	208 U	
Benzo (a) pyrene	50-32-8	µg/Kg	--	208 U	
Benzo (b) fluoranthene	205-99-2	µg/Kg	--	208 U	
Benzo (g,h,i) perylene	191-24-2	µg/Kg	--	208 U	



Table 2
Soil Analytical Results
Princeton Elementary School
Camp Minden - Explo Baseline Study

				Property	Princeton Elementary School
				Station	PE01
				Date	5/14/2015
				Type	FS
Analyte	CAS.NO	Units	--	--	
Benzo (k) fluoranthene	207-08-9	µg/Kg	--		208 U
Chrysene	218-01-9	µg/Kg	--		208 U
Dibenz (a,h) anthracene	53-70-3	µg/Kg	--		208 U
Di-n-butyl phthalate	84-74-2	µg/Kg	--		208 U
Fluoranthene	206-44-0	µg/Kg	--		208 U
Fluorene	86-73-7	µg/Kg	--		208 U
Indeno (1,2,3-cd) pyrene	193-39-5	µg/Kg	--		208 U
Naphthalene	91-20-3	µg/Kg	--		208 U
N-Nitrosodiphenylamine/Diphenylamine	86-30-6/122-39-4	µg/Kg	--		208 U
Phenanthrene	85-01-8	µg/Kg	--		208 U
Pyrene	129-00-0	µg/Kg	--		208 U
VOCs					
1,1,1-Trichloroethane	71-55-6	µg/Kg	--		4.4 U
1,1,2,2-Tetrachloroethane	79-34-5	µg/Kg	--		4.4 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	µg/Kg	--		4.4 U
1,1,2-Trichloroethane	79-00-5	µg/Kg	--		4.4 U
1,1-Dichloroethane	75-34-3	µg/Kg	--		4.4 U
1,1-Dichloroethene	75-35-4	µg/Kg	--		4.4 U
1,2,4-Trichlorobenzene	120-82-1	µg/Kg	--		4.4 U
1,2-Dibromo-3-chloropropane	96-12-8	µg/Kg	--		4.4 U
1,2-Dibromoethane	106-93-4	µg/Kg	--		4.4 U
1,2-Dichlorobenzene	95-50-1	µg/Kg	--		4.4 U
1,2-Dichloroethane	107-06-2	µg/Kg	--		4.4 U
1,2-Dichloropropane	78-87-5	µg/Kg	--		4.4 U
1,3-Dichlorobenzene	541-73-1	µg/Kg	--		4.4 U
1,4-Dichlorobenzene	106-46-7	µg/Kg	--		4.4 U
2-Butanone	78-93-3	µg/Kg	--		4.4 U
2-Hexanone	591-78-6	µg/Kg	--		4.4 U
4-Methyl-2-pentanone	108-10-1	µg/Kg	--		4.4 U
Acetone	67-64-1	µg/Kg	--		13.1 B, J
Benzene	71-43-2	µg/Kg	--		4.4 U
Bromodichloromethane	75-27-4	µg/Kg	--		4.4 U
Bromoform	75-25-2	µg/Kg	--		4.4 U
Bromomethane	74-83-9	µg/Kg	--		4.4 U
Carbon disulfide	75-15-0	µg/Kg	--		4.4 U
Carbon tetrachloride	56-23-5	µg/Kg	--		4.4 U
Chlorobenzene	108-90-7	µg/Kg	--		4.4 U
Chloroethane	75-00-3	µg/Kg	--		4.4 U
Chloroform	67-66-3	µg/Kg	--		4.4 U
Chloromethane	74-87-3	µg/Kg	--		4.4 U
cis-1,2-Dichloroethene	156-59-2	µg/Kg	--		4.4 U
cis-1,3-Dichloropropene	10061-01-5	µg/Kg	--		4.4 U



Table 2
Soil Analytical Results
Princeton Elementary School
Camp Minden - Explo Baseline Study

Property				Princeton Elementary School
Station				PE01
Date				5/14/2015
Type				FS
Analyte	CAS.NO	Units	--	--
Cyclohexane	110-82-7	µg/Kg	--	4.4 U
Dibromochloromethane	124-48-1	µg/Kg	--	4.4 U
Dichlorodifluoromethane	75-71-8	µg/Kg	--	4.4 U
Ethylbenzene	100-41-4	µg/Kg	--	4.4 U
Isopropylbenzene	98-82-8	µg/Kg	--	4.4 U
meta-/para-Xylene	na	µg/Kg	--	8.8 U
Methyl acetate	79-20-9	µg/Kg	--	4.4 U
Methyl tert-butyl ether	1634-04-4	µg/Kg	--	4.4 U
Methylcyclohexane	108-87-2	µg/Kg	--	4.4 U
Methylene chloride	75-09-2	µg/Kg	--	4.4 U
ortho-Xylene	95-47-6	µg/Kg	--	4.4 U
Styrene	100-42-5	µg/Kg	--	4.4 U
Tetrachloroethene	127-18-4	µg/Kg	--	4.4 U
Toluene	108-88-3	µg/Kg	--	4.4 U
trans-1,2-Dichloroethene	156-60-5	µg/Kg	--	4.4 U
trans-1,3-Dichloropropene	10061-02-6	µg/Kg	--	4.4 U
Trichloroethene	79-01-6	µg/Kg	--	4.4 U
Trichlorofluoromethane	75-69-4	µg/Kg	--	4.4 U
Vinyl chloride	75-01-4	µg/Kg	--	4.4 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
Princeton Elementary School
Camp Minden - Explo Baseline Study

				Station	Princeton Elementary School
				Station Code	PE01-Air
				Date	5/12/2015
				Type	FS
Analyte	CAS.NO	Units	--		--
TEQ Calculation 2005					
TEQ (Dioxin) ND = DL	1746-01-6	pg/m3	--		0.0045995247519
TEQ (Dioxin) ND = 0	1746-01-6	pg/m3	--		0.0011239465519
TEQ (Dioxin) ND = DL/2	1746-01-6	pg/m3	--		0.0028617356519
Dioxins/Furans					
1,2,3,4,6,7,8-HpCDD	35822-46-9	pg/m3	--		0.020307281 J
1,2,3,4,6,7,8-HpCDF	67562-39-4	pg/m3	--		0.011529726 J
1,2,3,4,7,8,9-HpCDF	55673-89-7	pg/m3	--		0.001038076 U
1,2,3,4,7,8-HxCDD	39227-28-6	pg/m3	--		0.00261857 U
1,2,3,4,7,8-HxCDF	70648-26-9	pg/m3	--		0.001883768 J
1,2,3,6,7,8-HxCDD	57653-85-7	pg/m3	--		0.002885772 U
1,2,3,6,7,8-HxCDF	57117-44-9	pg/m3	--		0.002324649 J
1,2,3,7,8,9-HxCDD	19408-74-3	pg/m3	--		0.002712091 U
1,2,3,7,8,9-HxCDF	72918-21-9	pg/m3	--		0.000705411 U
1,2,3,7,8-PeCDD	40321-76-4	pg/m3	--		0.001138277 U
1,2,3,7,8-PeCDF	57117-41-6	pg/m3	--		0.002044088 U
2,3,4,6,7,8-HxCDF	60851-34-5	pg/m3	--		0.002244489 J
2,3,4,7,8-PeCDF	57117-31-4	pg/m3	--		0.002070808 U
2,3,7,8-TCDD	1746-01-6	pg/m3	--		0.000752171 U
2,3,7,8-TCDF	51207-31-9	pg/m3	--		0.001307949 J
OCDD	3268-87-9	pg/m3	--		0.090581162 J
OCDF	39001-02-0	pg/m3	--		0.007722111 J
Total HpCDD	37871-00-4	pg/m3	--		0.0499666 J
Total HpCDF	38998-75-3	pg/m3	--		0.017768871 J
Total HxCDD	34465-46-8	pg/m3	--		0.023647295 J
Total HxCDF	55684-94-1	pg/m3	--		0.03259853 J
Total PeCDD	36088-22-9	pg/m3	--		0.011342685 J
Total PeCDF	30402-15-4	pg/m3	--		0.037140949 J
Total TCDD	41903-57-5	pg/m3	--		0.020574482
Total TCDF	55722-27-5	pg/m3	--		0.053440214

Notes:

pg/m3 - picograms 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).

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, Particulates and VOCs
Princeton Elementary/ Middle School
Camp Minden - Explo Baseline Study

				Station	Princeton Elementary School	
				Station Code	PE01-Air	
				Date	5/11/2015	5/12/2015
				Type	FS	FS
Analyte	CAS.NO	Units	--	--	--	--
Semi-volatile Organic Compounds (SVOC)						
2,4-Dinitrotoluene	121-14-2	µg/m3	--	0.014 U	0.014 U	
2,6-Dinitrotoluene	606-20-2	µg/m3	--	0.014 U	0.014 U	
2-Chloronaphthalene	91-58-7	µg/m3	--	0.0028 U	0.0027 U	
2-Methylnaphthalene	91-57-6	µg/m3	--	0.0031	0.0062	
Acenaphthene	83-32-9	µg/m3	--	0.0028 U	0.0032	
Acenaphthylene	208-96-8	µg/m3	--	0.0028 U	0.0027 U	
Anthracene	120-12-7	µg/m3	--	0.0028 U	0.0027 U	
Benzo(a)anthracene	56-55-3	µg/m3	--	0.0028 U	0.0027 U	
Benzo(a)pyrene	50-32-8	µg/m3	--	0.0028 U	0.0027 U	
Benzo(b)fluoranthene	205-99-2	µg/m3	--	0.0028 U	0.0027 U	
Benzo(g,h,i)perylene	191-24-2	µg/m3	--	0.0028 U	0.0027 U	
Benzo(k)fluoranthene	207-08-9	µg/m3	--	0.0028 U	0.0027 U	
Chrysene	218-01-9	µg/m3	--	0.0028 U	0.0027 U	
Dibenz(a,h)anthracene	53-70-3	µg/m3	--	0.0028 U	0.0027 U	
di-n-Butylphthalate	84-74-2	µg/m3	--	0.056 U	0.054 U	
Diphenylamine	122-39-4	µg/m3	--	0.028 U	0.027 U	
Fluoranthene	206-44-0	µg/m3	--	0.0028 U	0.0027 U	
Fluorene	86-73-7	µg/m3	--	0.0028 U	0.0027 U	
Indeno(1,2,3-c,d)pyrene	193-39-5	µg/m3	--	0.0028 U	0.0027 U	
Naphthalene	91-20-3	µg/m3	--	0.0046	0.01	
Phenanthrene	85-01-8	µg/m3	--	0.0044	0.0043	
Pyrene	129-00-0	µg/m3	--	0.0028 U	0.0027 U	
Particulate Size						
PM10	PM10	µg/m3	--	27.4	21.2	
PM2.5	PM2.5	µg/m3	--	13.2	7.04	
VOCs						
1,1,1-Trichloroethane	71-55-6	µg/m3	--	3.9 U	5.2 U	
1,1,2,2-Tetrachloroethane	79-34-5	µg/m3	--	4.9 U	6.5 U	
1,1,2-Trichloroethane	79-00-5	µg/m3	--	3.9 U	5.2 U	
1,1-Dichloroethane	75-34-3	µg/m3	--	2.9 U	3.8 U	
1,1-Dichloroethene	75-35-4	µg/m3	--	2.8 U	3.8 U	
1,2,4-Trichlorobenzene	120-82-1	µg/m3	--	21 U	28 U	
1,2,4-Trimethylbenzene	95-63-6	µg/m3	--	3.5 U	4.7 U	
1,2-Dibromoethane (EDB)	106-93-4	µg/m3	--	5.5 U	7.3 U	
1,2-Dichlorobenzene	95-50-1	µg/m3	--	4.3 U	5.7 U	
1,2-Dichloroethane	107-06-2	µg/m3	--	2.9 U	3.8 U	
1,2-Dichloropropane	78-87-5	µg/m3	--	3.3 U	4.4 U	
1,3,5-Trimethylbenzene	108-67-8	µg/m3	--	3.5 U	4.7 U	
1,3-Butadiene	106-99-0	µg/m3	--	1.6 U	2.1 U	
1,3-Dichlorobenzene	541-73-1	µg/m3	--	4.3 U	5.7 U	
1,4-Dichlorobenzene	106-46-7	µg/m3	--	4.3 U	5.7 U	
1,4-Dioxane	123-91-1	µg/m3	--	10 U	14 U	
2,2,4-Trimethylpentane	540-84-1	µg/m3	--	3.3 U	4.4 U	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	µg/m3	--	8.4 U	11 U	
2-Hexanone	591-78-6	µg/m3	--	12 U	16 U	
2-Propanol	67-63-0	µg/m3	--	7 U	9.3 U	
3-Chloropropene	107-05-1	µg/m3	--	9 U	12 U	



Table 4
Air Analytical Results - SVOCs, Particulates and VOCs
Princeton Elementary/ Middle School
Camp Minden - Explo Baseline Study

			Station	Princeton Elementary School	
			Station Code	PE01-Air	
			Date	5/11/2015	5/12/2015
			Type	FS	FS
Analyte	CAS.NO	Units	--	--	--
4-Ethyltoluene	622-96-8	µg/m3	--	3.5 U	4.7 U
4-Methyl-2-pentanone	108-10-1	µg/m3	--	2.9 U	3.9 U
Acetone	67-64-1	µg/m3	--	17 U	22 U
alpha-Chlorotoluene	100-44-7	µg/m3	--	3.7 U	4.9 U
Benzene	71-43-2	µg/m3	--	2.3 U	3 U
Bromodichloromethane	75-27-4	µg/m3	--	4.8 U	6.4 U
Bromoform	75-25-2	µg/m3	--	7.4 U	9.8 U
Bromomethane	74-83-9	µg/m3	--	28 U	37 U
Carbon Disulfide	75-15-0	µg/m3	--	8.9 U	12 U
Carbon Tetrachloride	56-23-5	µg/m3	--	4.5 U	6 U
Chlorobenzene	108-90-7	µg/m3	--	3.3 U	4.4 U
Chloroethane	75-00-3	µg/m3	--	7.5 U	10 U
Chloroform	67-66-3	µg/m3	--	3.5 U	4.6 U
Chloromethane	74-87-3	µg/m3	--	15 U	20 U
cis-1,2-Dichloroethene	156-59-2	µg/m3	--	2.8 U	3.8 U
cis-1,3-Dichloropropene	10061-01-5	µg/m3	--	3.2 U	4.3 U
Cumene	98-82-8	µg/m3	--	3.5 U	4.7 U
Cyclohexane	110-82-7	µg/m3	--	2.5 U	3.3 U
Dibromochloromethane	124-48-1	µg/m3	--	6.1 U	8.1 U
Ethanol	64-17-5	µg/m3	--	5.4 U	7.2 U
Ethyl Benzene	100-41-4	µg/m3	--	3.1 U	4.1 U
Freon 11	75-69-4	µg/m3	--	4 U	5.3 U
Freon 113	76-13-1	µg/m3	--	5.5 U	7.3 U
Freon 114	76-14-2	µg/m3	--	5 U	6.6 U
Freon 12	75-71-8	µg/m3	--	3.5 U	4.7 U
Heptane	142-82-5	µg/m3	--	2.9 U	3.9 U
Hexachlorobutadiene	87-68-3	µg/m3	--	30 U	40 U
Hexane	110-54-3	µg/m3	--	28	54
m,p-Xylene	108-38-3/106-42-3	µg/m3	--	3.1 U	4.1 U
Methyl tert-butyl ether	1634-04-4	µg/m3	--	2.6 U	3.4 U
Methylene Chloride	75-09-2	µg/m3	--	25 U	33 U
o-Xylene	95-47-6	µg/m3	--	3.1 U	4.1 U
Propylbenzene	103-65-1	µg/m3	--	3.5 U	4.7 U
Styrene	100-42-5	µg/m3	--	3 U	4 U
Tetrachloroethene	127-18-4	µg/m3	--	4.8 U	6.4 U
Tetrahydrofuran	109-99-9	µg/m3	--	2.1 U	2.8 U
Toluene	108-88-3	µg/m3	--	2.7 U	3.6 U
trans-1,2-Dichloroethene	156-60-5	µg/m3	--	2.8 U	3.8 U
trans-1,3-Dichloropropene	10061-02-6	µg/m3	--	3.2 U	4.3 U
Trichloroethene	79-01-6	µg/m3	--	3.8 U	5.1 U
Vinyl Chloride	75-01-4	µg/m3	--	1.8 U	2.4 U

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.



Toxicology Summary – Princeton Elementary

Soil Results

The EPA collected one soil sample from Princeton Elementary. 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 and SVOCs did not exceed the comparison levels for VOCs and SVOCs. The results indicated that dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) Toxicity Equivalence (TEQ)) did not exceed the noncarcinogenic screening level for residential and industrial soil, but did exceed the carcinogenic screening level for both residential and industrial soils. The noncancer RSL for 2,3,7,8-TCDD is a concentration of 50 ng/kg or parts per trillion (PPT) for residential land use and 720 ng/kg for industrial land use, and the carcinogenic RSL for 2,3,7,8-TCDD RSL is 4.9 ng/kg for residential land use and 22 ng/kg for industrial land use. The noncancer RSL for dioxin/furans in soil typically is used as the preliminary remediation goal (PRG) for Superfund site decisions.

PE 5/14/2015 FS Princeton Elementary 8.46 ng/kg (TEQ ND=0.5)

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 Princeton Elementary. Analytical result were compared to the National Ambient Air Quality Standards (NAAQS) air quality standards as well as the Regional Screening Level (RSL).

The 24-hour average PM_{2.5} level did exceed the RSL standard of 12 µg/m³, however it did not exceed the 24-hour NAAQS standard of 35 µg/m³.

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.