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APPROVED WITH COMMENTS
DATE(S) 1/24/12; 1/23/12; 1/20/12; 1/13/12

January 13, 2012

Christopher C. Carey, LG
Chief, Site Restoration Unit
Bureau of Environmental Remediation
Curtis State Office Building
1000 SW Jackson Street, Ste 410
Topeka, KS 66612

Subject: Addendum #1, Vapor Intrusion Assessment Work Plan for the North Industrial Corridor Site, Wichita, Kansas

Dear Mr. Carey:

On behalf of the City of Wichita and at the request of the Kansas Department of Health and Environment (KDHE), CDM Smith has prepared this addendum to the aforementioned work plan to describe in more detail the air sampling strategy and methodology for schools and daycare facilities at the NIC Site. The format of this addendum reflects the general outline of the work plan, but only the pertinent sections that address specific items related to sampling the schools and daycare facilities are included. The sections of the original work plan not included in this addendum remain the same and are supplemented for sampling schools and daycare facilities by the information contained in this addendum.

1.3 Overview of Investigation

CDM Smith proposes a three-phase strategy to evaluate the VI pathway. The methodologies for these phases are described in Section 2. Overviews of the phases are described below:

Phase 1: Building Selection

- Identification and access to schools and daycare facilities that overlie the shallow groundwater contamination for the primary COPCs (PCE, TCE and cDCA).

Phase 2: Screening Evaluation

- For selected schools and daycare facilities from Phase 1, perform a simplified building and product inventory to screen for common products known to contain PCE and TCE.
- For selected schools and daycare facilities from Phase 1, collect indoor air samples using 7-day passive diffusion samplers.

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Addendum #1

Vapor Intrusion Assessment Work Plan for the North Industrial Corridor Site

Page 2

- Compare indoor air results to the KDHE Tier 2 cleanup goals (discussed in Section 1.4). Submit the results and an evaluation of the data to the KDHE with recommendations for no further sampling at this time or verification sampling by building.

Phase 3: Verification Sampling

- Compare verification sampling results to the KDHE Tier 2 cleanup goals (discussed in Section 1.4). Submit the results and an evaluation of the data to the KDHE with recommendations for no further sampling at this time, mitigation, or additional follow up analysis in individual buildings. In addition, based on the results of the three-phased approach, offer recommendations for evaluating VI at other schools and daycare facilities.

1.4 Regulatory Overview

The Tier 2 cleanup goals for the COPCs are:

COPC	Tier 2 Cleanup Goal ($\mu\text{g}/\text{m}^3$)
PCE	4.12
TCE	12.2 \rightarrow 2.09 *
cDCE	36.5
VC	5.53
111TCA	5,210
11DCA	15.2
11DCE	209
CT	4.06
CFM	1.06
BEN	3.12

* The Tier 2 cleanup goal for TCE as published in Appendix A of the current of the *Risk Based Standards for Kansas RSK Manual* (October 2010) is $12.2 \mu\text{g}/\text{m}^3$. Communication from the KDHE indicates that the Tier 2 cleanup goal for TCE will be reduced to $2.09 \mu\text{g}/\text{m}^3$ as calculated based on the U.S. Environmental Protection Agency's September 28, 2011 update to the Integrated Risk Information System (IRIS).

The Tier 2 cleanup goals are subject to change based on revision of the RSK Manual by the KDHE.



Addendum #1

Vapor Intrusion Assessment Work Plan for the North Industrial Corridor Site

Page 3

2.1.1 Phase 1 - Building Selection

Eight schools and 14 daycare/childcare facilities are within or near the boundaries of the NIC Site; however, only the three schools and eight daycare facilities that overlie the shallow groundwater plume of PCE/TCE/cDCE with an estimated concentration of greater than 1 µg/L are included for evaluation at this stage of the investigative process (**Figure 2-4**). The three schools are:

- L'Ouverture Computer Tech Elementary,
- Washington Elementary, and
- Park Elementary

The eight daycare facilities are:

- McAdams Neighborhood Rec Program,
- L'Ouverture School Age Child Care,
- Wichita YMCA Midtown Resource Center,
- Park Elementary School Age Program,
- Via Christi St Francis Child Development Center,
- Envision Child Development Center,
- First United Methodist Church Child Care Center, and
- Little Tykes Day Care Home.

Please note that two of the daycare facilities, L'Ouverture School Age Child Care and Park Elementary School Age Program, are co-located with schools. Therefore, these combination schools/daycare facilities will be investigated under a single assessment for each building.

Sampling of all schools and daycare facilities is dependent on obtaining access from property owners/tenants.



Addendum #1

Vapor Intrusion Assessment Work Plan for the North Industrial Corridor Site

Page 4

2.1.2 Phase 2 – Screening Evaluation

2.1.2.1 Field Activities

The schools and daycare facilities selected in Phase 1 for evaluation will be screened for VI using passive diffusion samplers placed inside the buildings. The samplers will be deployed for seven days to better accommodate fluctuations in building and environmental conditions that have been shown to affect indoor air concentrations related to VI (Johnson, et al 2011).

Before deployment of the passive diffusion samplers, a simplified building and inventory form (**Appendix A** of the original work plan) will be completed with property owners/tenants to identify common products and indoor sources of PCE and TCE. Any identified indoor sources will be removed or minimized with approval from the property owners/tenants and given the feasibility of removal/minimization. The building occupants will be informed of the sampling process and provided instructions for the following week.

For schools and daycare facilities, the samplers will be deployed in locations of frequent use by students and staff. For schools, these types of locations are classrooms, auditoriums, gymnasiums, and lunchrooms. The exact locations will be based on school features and the equal distribution of samples across the school building. For daycare and similar facilities, the samplers will mainly be deployed in rooms where children spend the majority of their day with equal distribution of samples across the facility building.

Given the variety of building size and number of occupants for schools and daycare facilities, the following rationale will guide the number of samples per building:

- For schools, two samples for the first 20,000 square feet of building space, followed by an additional sample for each additional 20,000 square feet of building space;
- For daycare and similar facilities, one sample for the first 50 child capacity, followed by an additional sample for each additional 100 child capacity; and
- For the two buildings that are a combined school and daycare facility, the number of samples will be based on the rationale for schools with at least one of the samples located within the space used for daycare activities.

Based on this rationale and available information concerning the schools and daycare facilities, the following number of samples are anticipated to be deployed in each school or daycare facility. The actual number of samples at each facility may be adjusted as additional information about each facility becomes available.



Location	Square Footage (ft ²)	Student/Child Capacity	Number of Samples
L'Ouverture Computer Tech Elementary and daycare facility	60,000	Not Applicable	4
Washington Elementary	60,000	Not Applicable	4
Park Elementary and daycare facility	40,000	Not Applicable	3
McAdams Neighborhood Rec Program	Not Applicable	100	2
Wichita YMCA Midtown Resource Center	Not Applicable	90	2
Via Christi St Francis Child Development Center	Not Applicable	320	4
Envision Child Development Center	Not Applicable	46	1
First United Methodist Church Child Care Center	Not Applicable	84	2
Little Tykes Day Care Home	Not Applicable	10	1

2.2.3 Indoor Air Canister Sampling

As requested by the KDHE, during Phase 2 sampling, five buildings will have a single sample each collected in a certified clean, 6-liter, stainless steel canister that is co-located with a passive diffusion sampler. These samples will be time-integrated over 24 hours using a calibrated flow controller. Collection of these five samples will help provide an understanding of the correlation between the two sampling and analytical techniques (passive diffusion and stainless steel canister). One or more of these five correlation samples may occur at a school or daycare facility depending on access.

Indoor air sampling during Phase 3 will be conducted using certified clean, 6-liter, stainless steel canisters to collect time-integrated air samples over 24 hours using a calibrated flow controller. For the Phase 3 sampling of schools and daycare facilities, the number of indoor air samples collected will be 10% of the number of samples collected using the passive diffusion samplers in Phase 2.

2.2.4 Sub-Slab Air Canister Sampling

Sub-slab air sampling is a Phase 3 activity that will occur in conjunction with indoor air sampling. Sub-slab sampling will be conducted only for structures with slab on grade or basement slab construction and will only occur if permission is given by the property owner. If performed at a school or daycare facility, one sub-slab sample will be collected for the first 20,000 square feet of building space, followed by an additional sample for each additional



Addendum #1

Vapor Intrusion Assessment Work Plan for the North Industrial Corridor Site

Page 6

20,000 square feet of building space. Based on this rationale and available information concerning the facilities, the following number of samples may be collected in each school or daycare facility. The actual number of samples at each facility may be adjusted as additional information about each facility becomes available and based on results from the Phase 2 sampling.

Location	Square Footage (ft ²)	Number of Samples
L'Ouverture Computer Tech Elementary and daycare facility	60,000	3
Washington Elementary	60,000	3
Park Elementary and daycare facility	40,000	2
McAdams Neighborhood Rec Program	Unknown	1+
Wichita YMCA Midtown Resource Center	Unknown	1+
Via Christi St Francis Child Development Center	Unknown	1+
Envision Child Development Center	Unknown	1+
First United Methodist Church Child Care Center	Unknown	1+
Little Tykes Day Care Home	Unknown	1+

Note: Building size of daycare facilities to be determined.

Please let CDM Smith or the City know if you have any questions or comments.

Very truly yours,

Ben Martich, QEP
Environmental Scientist
CDM Smith

Monica K. Williams, P.G.
Geologist
CDM Smith

cc: Shawn Maloney, City of Wichita
Doris Leslie, City of Wichita

Attachment

Figure 2-4 Schools and Daycare Facilities

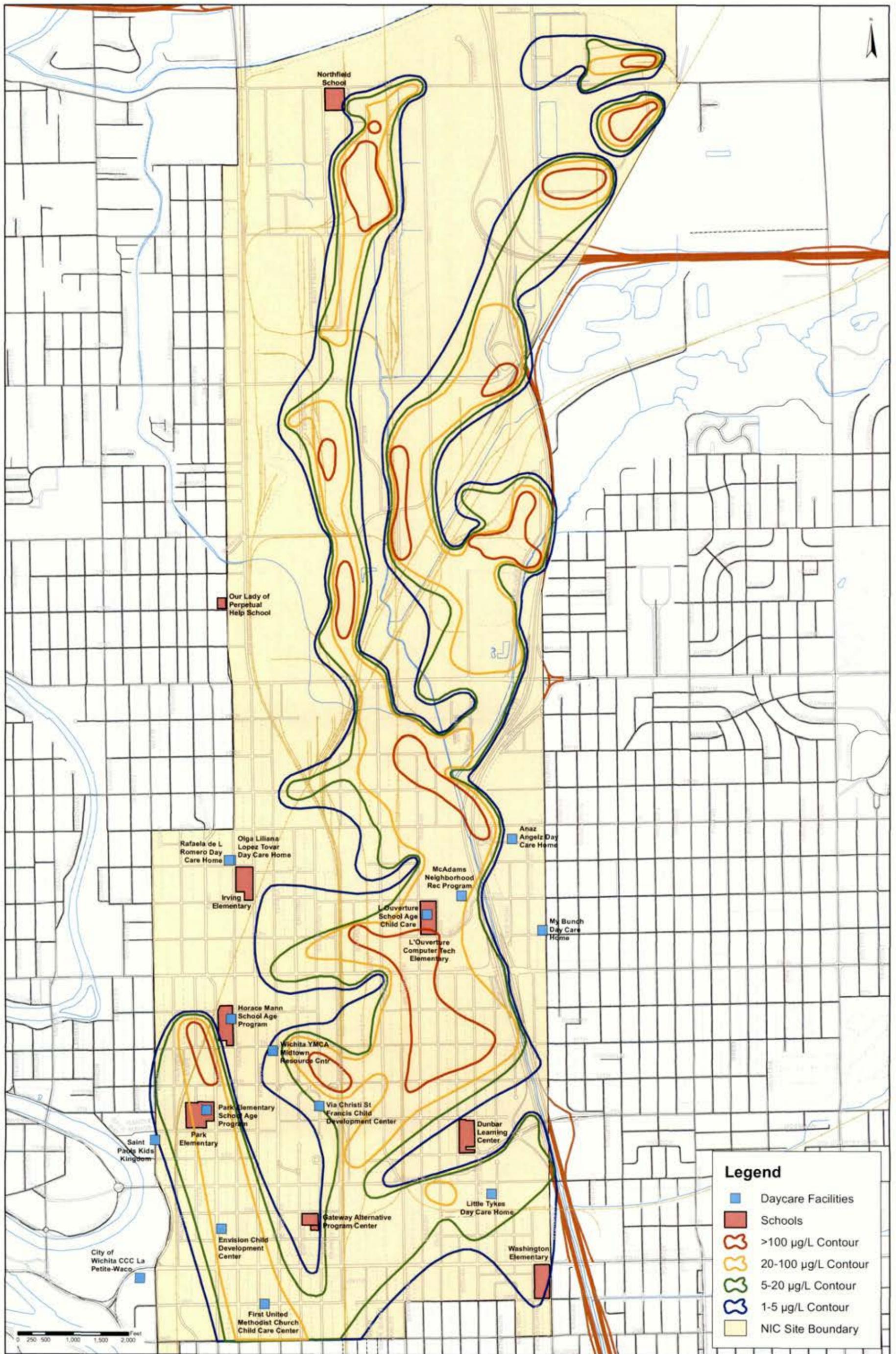


Figure 2-4
North Industrial Corridor (NIC) Site
Schools and Daycare Facilities