Letter Health Consultation

AN EVALUATION OF THE VAPOR INTRUSION PATHWAY AT THE

EDWARD BAIN SCHOOL OF LANGUAGE AND ART,

KENOSHA, WISCONSIN

Prepared by the
Wisconsin Department of State Health Services

OCTOBER 28, 2011

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

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In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

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Wisconsin Department of State Health Services
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

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September 16, 2011

Patrick Finnemore
Director of Facilities
Kenosha Unified School District No. 1
Educational Support Center
3600 52nd Street
Kenosha, Wisconsin 53144

Dear Mr. Finnemore:

The Wisconsin Department of Health Services (DHS) at your request, the request of the United States Environmental Protection Agency (EPA), the Wisconsin Department of Natural Resources (DNR), and the County of Kenosha Department of Human Services (KDHS) has prepared this Health Consultation Letter under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). EPA conducted air sampling in August and October of 2010 at the Edward Bain School of Language and Art (EBSOLA). This letter comprises DHS' review of the analysis of air samples collected by EPA.

Background and Statement of Issues

The EBSOLA was constructed by the Kenosha Unified School District (KUSD) and opened in 2004 on 12 acres of the former Mankowski industrial property (DNR BRRTS No. 0230522702). Because of residual chlorinated solvents in the soil, the EBSOLA, KUSD consulted with DHS which recommended installing a vapor barrier and a passive sub-slab ventilation system. The KUSD implemented these measures and received site closure (no further action required) from the DNR in August 2005 indicating the presence of residual soil contamination consisting of chlorinated solvents remaining beneath an appropriate barrier.

In the 2010-11 academic year, EBSOLA served 807 preschool through grade 5 students with 75 teachers and staff. In 2009-10 the student body was approximately 22% African American, 54% Hispanic and 23% white. Of that population, 17% qualified for Special Education, 28% were listed as English Language Learners, and 82% qualified for free or reduced price lunch.

When Chrysler Motors Corporation went bankrupt and subsequently closed the Kenosha Engine Plant (KEP) three blocks to the south, data suggested the potential for the migration of contaminants from KEP (DNR BRRTS No. 0230108645) towards EBSOLA. To address the potential off site migration from KEP, the EPA conducted sampling around the KEP and other properties to the north in the former industrial corridor, including EBSOLA.

Environmental Investigation
Weston Solutions, under the direction of the EPA, collected a total of 10 air samples on the EBSOLA property on two days in August and October, 2010 (Figures 1 and 2). On August 12, 2010 Weston Solutions collected six air samples for analysis of volatile organic compounds (VOCs) by EPA method TO-15, two samples were collected from the passive vents underneath the EBSOLA, a background outdoor air sample, and three samples from inside EBSOLA. The sampling was conducted during summer break, when no students were present. During the time the samples were collected, school maintenance staff used a chemical floor stripper in the school.

On October 14, 2010 Weston Solutions returned, again under the direction of EPA, and collected four air samples for analysis of VOCs by EPA method TO-15, two samples were collected from the passive vents underneath the EBSOLA and two samples from inside EBSOLA. These samples were collected while school was in session.

Results and Discussion
Two compounds, 1,2-dichloroethane (1,2 DCA) and vinyl chloride, were detected in samples collected in August above Wisconsin's indoor air comparison value (Table 1). Although these chemicals were found indoors, they were not detected in either the passive vents below the school, or in the outdoor air background sample. Furthermore, the data do not indicate that any sub-surface contamination is reaching the indoor air of EBSOLA. After the August samples were taken, it was learned that the school had performed summer floor maintenance in the school. Since 1,2 DCA is found in some floor strippers, the presence of 1,2 DCA in indoor air may be related to the floor work. Vinyl chloride is not expected to be in floor strippers, however, some recent studies suggest that vinyl chloride may be present in and off-gas from some building materials. To further investigate the vinyl chloride and 1,2 DCA detections above comparison values, DHS asked EPA to conduct an additional round of sampling during the school year.

Results from the second sampling date, October 14, 2010 (Table 2), found no detectable levels of vinyl chloride or 1,2 DCA. No other compounds were detected over a comparison value, and again, the data do not indicate any migration of sub-surface contamination into the school. While some exposure to 1,2 DCA and vinyl chloride occurred to school maintenance staff on August 12 above the long term comparison values, this is not expected to harm their health. The comparison values are set to protect people from many years of continuous exposure. Chemical strippers, like floor strippers, used by trained staff with adequate ventilation, who are exposed for a matter of hours or days per year, is not expected to harm people's health.

Table 1: Summary[1] Table of TO-15 Volatile Organic Compounds August 12, 2010
Edward Bain School of Language and Art
City of Kenosha, Wisconsin
(All concentrations in parts per billion by volume, ppbv)

Chemical	Vent SA04 Under School	Vent SA06 Under School	Soil Vapor Screening Value[2]	Outdoor Air Sample SABK		Indoor Air Sample SA02	Indoor Air Sample SA03	WI[2] Value	Federal Value
1,2 Dichloroethane	ND	ND	2.3	ND	**2.1**	**1.7**	**2.2**	0.23	0.01[3]
Tetrachloroethene	ND	ND	60	ND	ND	ND	ND	6	40[4]
Trichloroethene	ND	ND	18	ND	ND	ND	ND	1.8	100[6]
2-Butanone	18	62	17,000	ND	1	ND	1	1,700	2000[5]
Tetrahydrofuran	16	8.2	--	ND	0.8	0.52	ND	--	--
Toluene	7.3	20	14,000	1.4	0.42	0.42	0.59	1,400	80[4]
Vinyl Chloride	ND	ND	6.2	ND	**0.68**	0.52	**0.75**	0.62	0.04[3]

Data from Weston Solutions, Inc. 2011 (TDD S05-0001-1007-024)
[1]The full TO-15 parameter list contains 61 compounds
[2]Wisconsin Department of Natural Resources "Addressing Vapor Intrusion at Remediation and Redevelopement Sites in Wisconsin, PUB-RR-800, December, 2010
[3]ATSDR Cancer Risk Evaluation Guide (CREG), February 2011
[4]ATSDR Chronic Environmental Media Evaluation Guide (Chronic EMEG), February 2011
[5]EPA Reference Concentration
6 ATSDR Intermediate Environmental Media Evaluation Guide, February 2011

Table 2: Summary[1] Table of TO-15 Volatile Organic Compounds October 14, 2010
Edward Bain School of Language and Art
City of Kenosha, Wisconsin
(All concentrations in parts per billion by volume, ppbv)

Chemical	**Vent SA04 Under School**	**Vent SA06 Under School**	**Soil Vapor Screening Value[2]**	**Indoor Air Sample SA01**	**Indoor Air Sample SA03**	**WI[2] Value**	**Federal Value**
1,2 Dichloroethane	ND	ND	2.3	ND	ND	0.23	0.01[3]
Tetrachloroethene	ND	ND	60	ND	ND	6	40[4]
Trichloroethene	ND	ND	18	ND	ND	1.8	100[6]
2-Butanone	54	17	17,000	ND	ND	1,700	2000[5]
Tetrahydrofuran	16	8.2	--	ND	ND	--	--
Toluene	ND	ND	14,000	0.42	0.59	1,400	80[4]
Vinyl Chloride	ND	ND	6.2	ND	ND	0.62	0.04[3]

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[3]ATSDR Cancer Risk Evaluation Guide (CREG), February 2011
[4]ATSDR Chronic Environmental Media Evaluation Guide (Chronic EMEG), February 2011
[5]EPA Reference Concentration
6 ATSDR Intermediate Environmental Media Evaluation Guide, February 2011

Conclusions
DHS has reached three conclusions from this data. First, the data do not indicate any connection between the known residual soil contaminants beneath the school and the indoor air quality of EBSOLA. Second, DHS concludes that the past short-term inhalation exposure of school maintenance staff to vinyl chloride and 1,2 DCA during EBSOLA summer break, is not expected to harm their health. And third, DHS concludes that during the school year, there is no exposure to VOCs at levels that would harm student and staff health.

Recommendations
DHS recommends that KUSD facilities staff maintain the passive sub-slab ventilation system and continue their practice of seeking out "green" cleaning products and using products like the chemical floor stripper when students are not present.

If you have any further questions, please feel free to contact me.

Sincerely,

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David Volkert, DNR
Independent Reviewers: Mark Melotik, Kenosha County Dept. of Human Service
Terry Evanson, DNR

REPORT PREPARATION

This Health Consultation for the Kenosha Chrysler Engine Plant-Bain School of Language and Art Site was prepared by the Wisconsin Department of State Health Services under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved agency methods, policies, procedures existing at the date of publication. Editorial review was completed by the cooperative agreement partner. ATSDR has reviewed this document and concurs with its findings based on the information presented. ATSDR's approval of this document has been captured in an electronic database, and the approving agency reviewers are listed below.

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Division Director, DHAC

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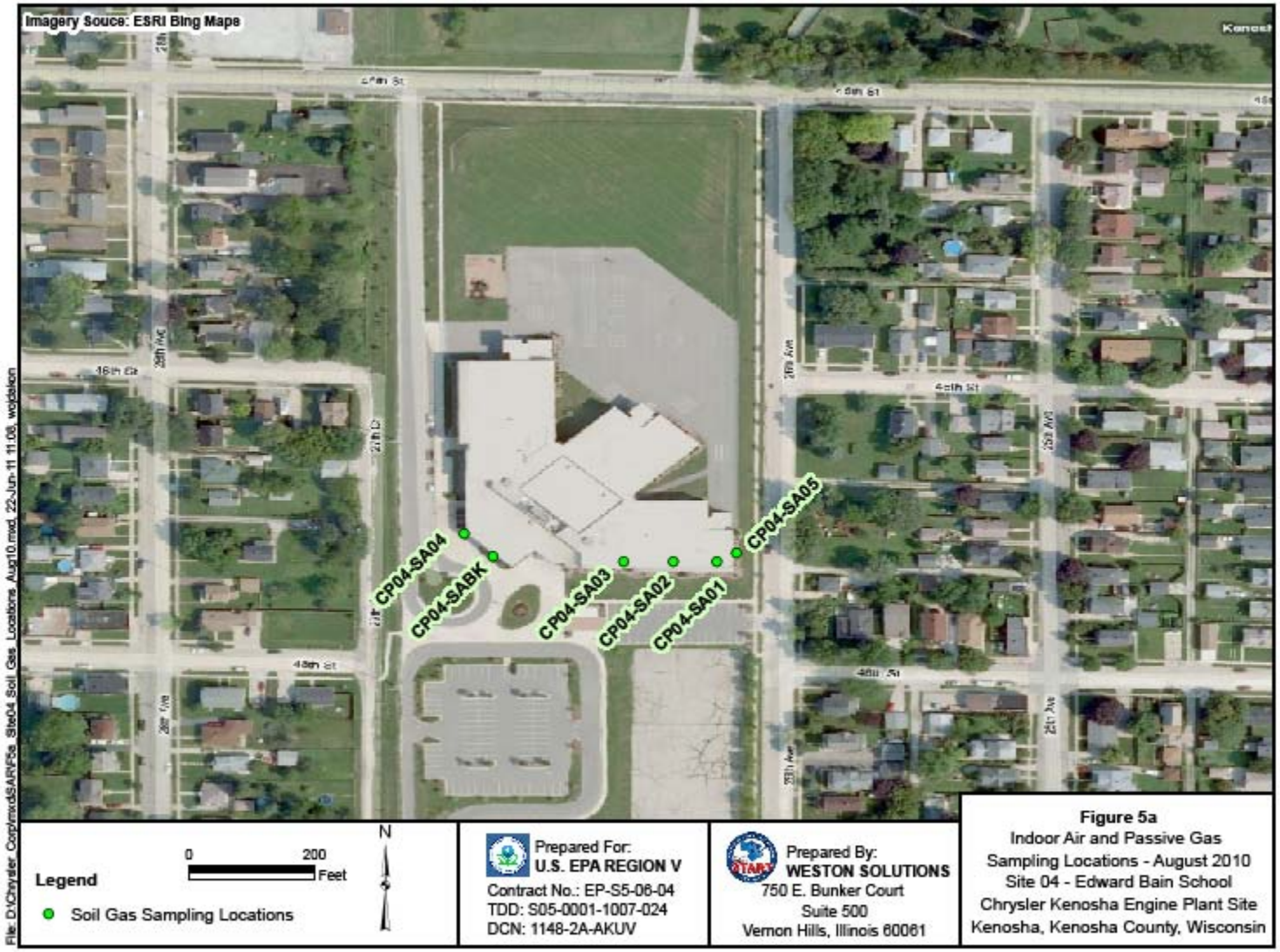
Director for Science

Figure 1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Prepared For:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-1007-024
DCN: 1148-2A-AKUV
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Figure 5a
Indoor Air and Passive Gas
Sampling Locations - August 2010
Site 04 - Edward Bain School
Chrysler Kenosha Engine Plant Site
Kenosha, Kenosha County, Wisconsin

Figure 2

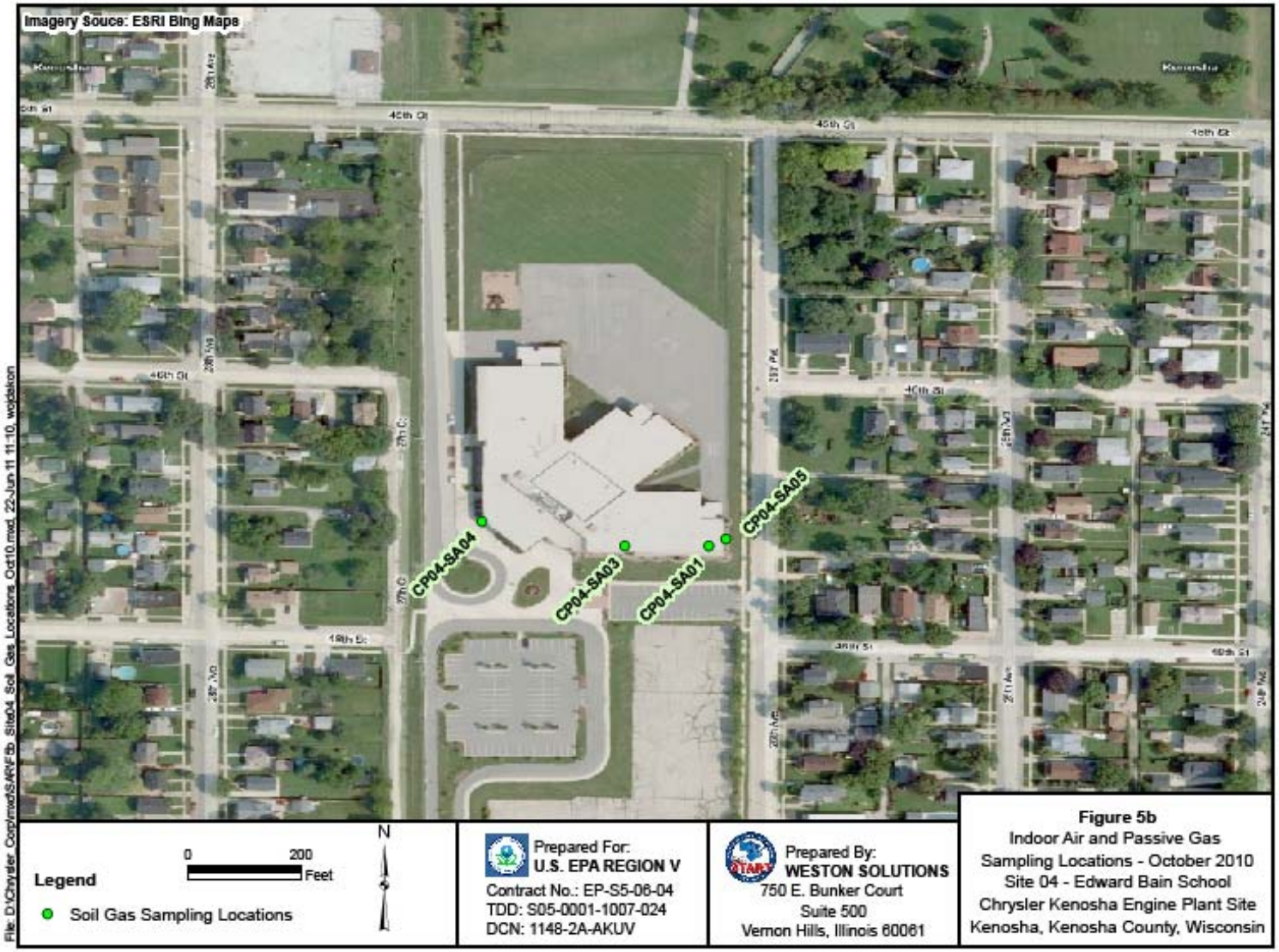
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Figure 5b
Indoor Air and Passive Gas
Sampling Locations - October 2010
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Chrysler Kenosha Engine Plant Site
Kenosha, Kenosha County, Wisconsin
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