Background

In July 2005, Wyle conducted soil gas and indoor air sampling at the three schools near the Wyle site (Norco Elementary, Norco Intermediate, and Norco High School). This sampling was designed to address community concerns and to find out if contaminants are impacting these schools. DTSC considers all three schools safe for students and staff. However, Because of the vinyl chloride detected indoors at the High School, DTSC required Wyle to conduct additional testing of soil gas and indoor air at additional classrooms at the High School.

Norco High School, Additional Sampling Results

In August 2005, additional sampling was conducted at Norco High School. Twenty-three locations were sampled for soil gas, ten locations were sampled for groundwater and twelve classrooms were sampled for indoor air. Twenty-two of twenty-three soil gas sampling locations showed low levels of PCE (up to 0.52 µg/L), twenty of twenty-three soil gas locations showed low levels of TCE (up to 0.029 µg/L) and four of twenty-three soil gas locations showed low levels of vinyl chloride (up to 0.0009 µg/L). Nine of twelve indoor air samples showed low levels of PCE (up to 2.6 $\mu g/m^3$), three of twelve indoor air samples showed low levels of TCE (up to 5.1 $\mu g/m^3$) and two of twelve indoor air samples showed low levels of vinyl chloride (up to 0.28 $\mu g/m^3$). Two of ten groundwater sampled showed detections of PCE (up to 1.2 µg/L) and four of ten groundwater samples showed detections of TCE (up to 23 µg/L).

What do the results mean?

The trace levels of chemicals detected in the additional soil gas samples at the high school were below their respective California Human Health Screening Levels (CHHSLs), with the exception of PCE (0.52 µg/L) detected in Sample ASG-HS-16 which is located adjacent to the Science Building. Soil gas CHHSLs correspond to soil gas concentrations that should not pose a risk to children or adults at a typical residence. The following table summarizes the CHHSLs for TCE, PCE, cis-1,2-DCE and vinyl chloride in soil gas.

Chemical	Soil Gas CHHSL (µg/L)	Maximum Soil Gas at High School (ug/L)
PCE	0.2	0.52
TCE	0.5	.029
Cis-1,2-DCE	16	Not detected
Vinyl chloride	0.013	0.0009

The chemicals found in indoor air at the High School do not pose an immediate or long-term health risk for students but may present a slightly increased risk for faculty. This potential risk estimate for the faculty is based on the assumption that they work in the Science Building for forty years. The total estimated indoor air risk for faculty in the Science Building from vinyl chloride, TCE, and PCE is one in one hundred thousand, which is slightly above the acceptable risk range that DTSC uses. Vinyl chloride was only detected in two indoor air samples in the Science Building and was not detected in the remainder of the school. The levels of TCE and PCE detected in the remainder of the school classrooms were similar to the levels of TCE and PCE measured in outdoor ambient air. Both of these chemicals pose a very low health risk.

Next Steps

Because of the repeated detections of vinyl chloride in the Science Building and the slightly elevated risk to long-term faculty, DTSC is requiring Wyle to implement a plan to reduce potential levels of vinyl chloride, TCE and PCE in the Science Building. This may include measures such as modifications to the heating, ventilation and air conditioning (HVAC) system. In addition, DTSC plans to conduct an more sampling at the High School in the Winter 2006 .

TABLES

TABLE 1
Summary of Detected VOCs in Active Soil Gas - Norco High School
Wyle Laboratories, Norco, California
Results in micrograms per liter (µg/L)

			Compound			
Sample Number	**Date Sampled**	**Sample Depth (ft)**	**cis-1,2-DCE**	**PCE**	**TCE**	**Vinyl Chloride**
ASG-HS1	7/28/05	4.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS2	7/28/05	5.0	<0.0040	**0.0057**	<0.0055	<0.0026
ASG-HS2	7/28/05	10.0	<0.0040	**0.017**	**0.0068**	<0.0026
ASG-HS3	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS4	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS4	7/28/05	10.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS5	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS6	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS7	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS7	7/28/05	10.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS7	7/28/05	15.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS8	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS8	7/28/05	15.0	<0.0040	**0.0057**	**0.065**	<0.0026
ASG-HS9	7/28/05	5.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS9	7/28/05	10.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS9	7/28/05	15.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS10	7/28/05	5.0	<0.0040	<0.0038	**0.014**	**0.016**
ASG-HS10	7/28/05	15.0	**0.008**	**0.03**	**0.49**	**0.0095**
ASG-HS11	7/28/05	5.0	<0.0040	**0.0077**	<0.0055	<0.0026
ASG-HS11	7/28/05	10.0	<0.0040	<0.0038	<0.0055	<0.0026
ASG-HS-13	9/24/05	5.0	NA	**0.0046**	**0.0086**	<0.00064
ASG-HS-13	9/24/05	5.0	NA	***0.0037***	***0.0070***	*<0.00032*
ASG-HS-13	9/24/05	10.0	NA	**0.0042**	**0.019**	**0.00077**
ASG-HS-14	9/24/05	5.0	NA	**0.0052**	**0.015**	**0.00033**
ASG-HS-15	9/24/05	5.0	NA	**0.021**	**0.029**	<0.00020
ASG-HS-15	9/24/05	15.0	NA	**0.030**	**0.016**	<0.0013
ASG-HS-16	9/24/05	5.0	NA	**0.52**	**0.011**	<0.00016
ASG-HS-17	9/24/05	5.0	NA	**0.0056**	**0.0038**	**0.00089**
ASG-HS-18	9/24/05	5.0	NA	**0.0095**	**0.0010**	<0.00027
ASG-HS-18	9/24/05	10.0	NA	**0.0085**	**0.00066**	<0.000091
ASG-HS-19	9/24/05	5.0	NA	**0.0097**	**0.00075**	<0.000094
ASG-HS-19	9/24/05	15.0	NA	**0.0058**	**0.00047**	<0.000081
ASG-HS-20	9/17/05	4.5	NA	**0.00091**	**0.0026**	<0.000070
ASG-HS-20	9/17/05	4.5	NA	***0.0056***	***0.0038***	*<0.00011*
ASG-HS-22	9/17/05	5.0	NA	**0.00095**	<0.00021	<0.000098
ASG-HS-23	9/17/05	5.0	NA	**0.0060**	**0.0072**	<0.000080
ASG-HS-24	9/17/05	5.0	NA	**0.00062**	<0.00031	<0.00015
ASG-HS-26	9/17/05	5.0	NA	**0.0042**	**0.00033**	<0.000084
ASG-HS-27	9/17/05	5.0	NA	**0.0069**	**0.0020**	<0.000093

TABLE 1
Summary of Detected VOCs in Active Soil Gas - Norco High School
Wyle Laboratories, Norco, California
Results in micrograms per liter (μg/L)

			Compound			
Sample Number	**Date Sampled**	**Sample Depth (ft)**	**cis-1,2-DCE**	**PCE**	**TCE**	**Vinyl Chloride**
ASG-HS-28	9/17/05	5.0	NA	<0.0013	<0.0010	<0.00048
ASG-HS-29	9/17/05	5.0	NA	**0.0085**	**0.0018**	<0.00011
ASG-HS-30	9/17/05	5.0	NA	**0.013**	**0.00091**	<0.00027
ASG-HS-31	9/17/05	5.0	NA	**0.0082**	**0.00049**	<0.000098
ASG-HS-32	9/24/05	5.0	NA	**0.0096**	**0.00045**	<0.00012
ASG-HS-33	9/24/05	5.0	NA	**0.0023**	<0.00021	<0.000098
ASG-HS-33	9/24/05	10.0	NA	**0.0026**	**0.0030**	**0.00023**
ASG-HS-35	9/24/05	5.0	NA	**0.0028**	**0.0037**	<0.000081
ASG-HS-36	9/24/05	5.0	NA	**0.0034**	**0.0058**	<0.00010
ASG-HS-37	9/24/05	5.0	NA	**0.0065**	**0.00038**	<0.00012
ASG-HS-38	9/24/05	5.0	NA	**0.0040**	<0.00044	<0.00021
ASG-HS-38	9/24/05	10.0	NA	**0.0054**	**0.00064**	<0.000086

Abbreviations

cis-1,2-DCE = cis-1,2-Dichloroethylene
PCE = Tetrachloroethylene
TCE = Trichloroethylene
ft = feet
Duplicate results are shown in italics.

TABLE 2
Summary of Detected VOCs in Indoor Air - Norco High School
Wyle Laboratories, Norco, California
Results in micrograms per cubic meter (μg/m3)

		Compound		
Sample Number	**Date Sampled**	**PCE**	**TCE**	**Vinyl Chloride**
OUT-HS-1	7/27/05	<1.1	<0.91	<0.43
OUT-HS-2	7/27/05	<68	<54	<26
IAQ-HS-OUT	9/1/05	**0.56**	<0.25	<0.12
IAQ-HS-OUT	9/16/05	**0.70**	**0.17**	<0.075
IAQ-HS-OUT	9/23/05	<0.32	<0.25	<0.12
IAQ-HS-1	7/27/05	**0.28**	<0.13	<0.064
IAQ-HS-2	7/27/05	**0.39**	**0.33**	<0.068
IAQ-HS-3	7/27/05	**0.39**	**1.3**	<0.064
IAQ-HS-4	7/27/05	**0.37**	<0.13	<0.064
IAQ-HS-5	7/27/05	**0.27**	<0.13	<0.064
IAQ-HS-6	7/27/05	**0.29**	**0.25**	**0.17**
IAQ-HS-7	7/27/05	**0.33**	<0.13	<0.064
IAQ-HS-8	7/27/05	**0.34**	<0.13	<0.064
IAQ-HS-9	9/1/05	**1.1**	**5.1**	<0.075
IAQ-HS-9	9/1/05	***2.6***	***0.60***	*<0.11*
IAQ-HS-10	9/1/05	**0.54**	**0.18**	**0.28**
IAQ-HS-11	9/1/05	**0.47**	<0.13	**0.081**
IAQ-HS-12	9/1/05	**0.40**	<0.13	<0.064
IAQ-HS-13	9/23/05	**0.35**	<0.21	<0.098
IAQ-HS-14	9/23/05	<0.62	<0.49	<0.23
IAQ-HS-14	9/23/05	*<0.43*	*<0.34*	*<0.16*
IAQ-HS-15	9/23/05	**0.26**	<0.18	<0.084
IAQ-HS-16	9/16/05	**0.63**	**0.32**	<0.064
IAQ-HS-17	9/16/05	**0.64**	<0.27	<0.13
IAQ-HS-18	9/16/05	<0.54	<0.43	<0.20
IAQ-HS-18	9/16/05	*<0.56*	*<0.44*	*<0.21*
IAQ-HS-19	9/23/05	**1.6**	<0.16	<0.077
IAQ-HS-20	9/23/05	<0.23	<0.18	<0.087

Abbreviations

PCE = Tetrachloroethylene

TCE = Trichloroethylene

ft = feet

Duplicate results are shown in italics.

TABLE 3
Summary of Detected VOCs in Ground Water - Norco High School
Wyle Laboratories, Norco, California
Results in micrograms per liter (µg/L)

			Compound				
Sample Number	**Date Sampled**	**Sample Depth (ft)**	**Chloroform**	**m&p xylenes**	**PCE**	**TCE**	**TCFM**
ASG-HS3	7/28/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS4	7/28/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS5	7/28/05	15	<1.0	**1.6**	**8.3**	**61**	**1.1**
ASG-HS11	7/28/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS-13	9/24/05	13	<1.0	<1.0	**1.2**	**23**	<1.0
ASG-HS-14	9/24/05	12	<1.0	<1.0	**1.1**	**19**	<1.0
ASG-HS-16	9/24/05	8	<1.0	<1.0	<1.0	**4.1**	<1.0
ASG-HS-16	9/24/05	8	*<1.0*	*<1.0*	*<1.0*	***2.8***	*<1.0*
ASG-HS-26	9/17/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS-27	9/17/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS-28	9/17/05	15	**1.2**	<1.0	<1.0	<1.0	<1.0
ASG-HS-29	9/17/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS-30	9/17/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS-30	9/17/05	15	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
ASG-HS-31	9/17/05	15	<1.0	<1.0	<1.0	<1.0	<1.0
ASG-HS-36	9/24/05	10	<1.0	<1.0	<1.0	**14**	<1.0

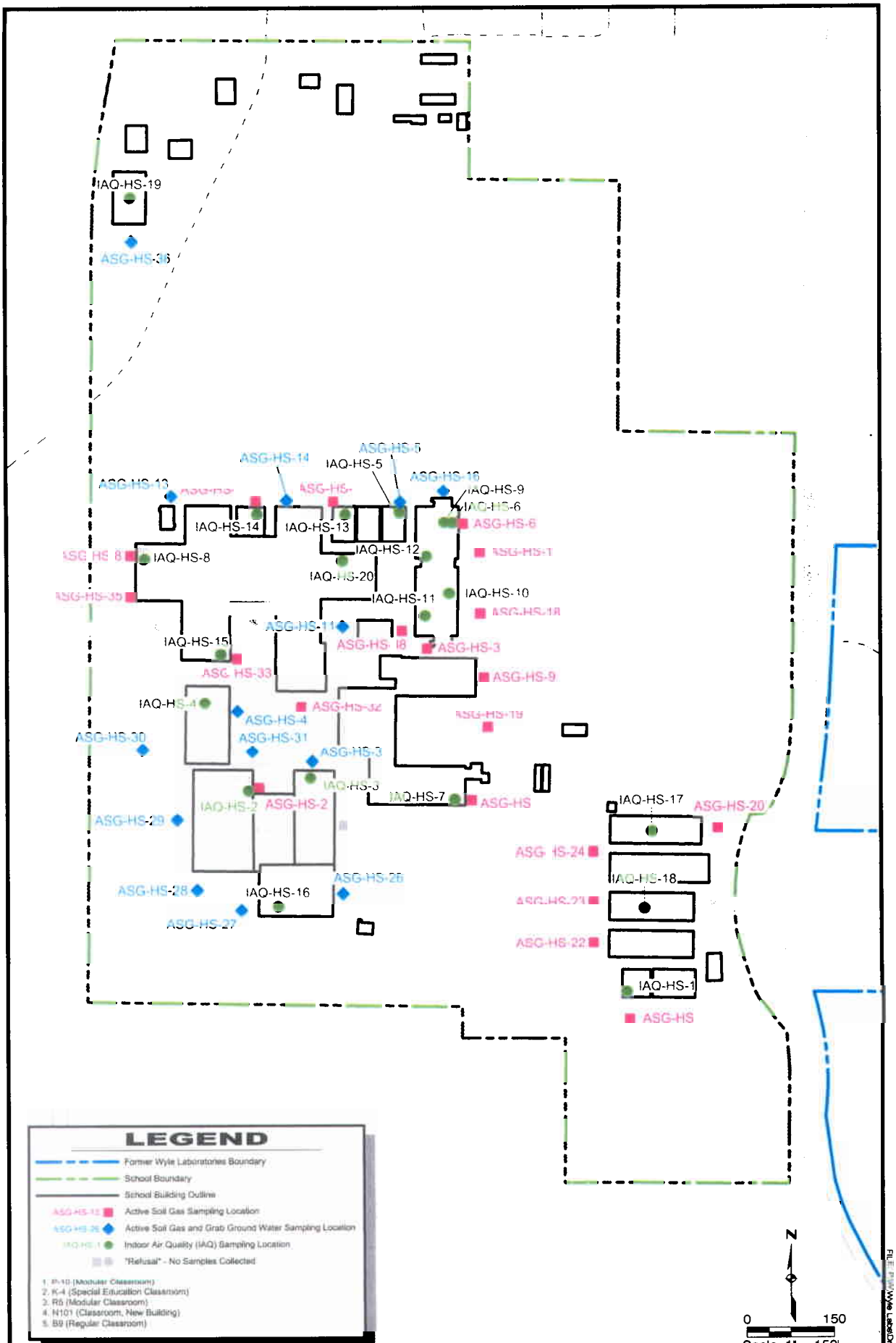
Abbreviations

PCE = Tetrachloroethylene
TCE = Trichloroethylene
TCFM = Trichlorofluoromethane
ft = feet

TABLE 4
Summary of Detected Emergent Compounds in Ground Water - Norco High School
Wyle Laboratories, Norco, California
Results in micrograms per liter (μg/L)

			Compound
Sample Number	**Date Sampled**	**Sample Depth (feet)**	**Perchlorate**
ASG-HS3	7/28/05	15	**12**
ASG-HS4	7/28/05	15	<2.0
ASG-HS5	7/28/05	15	**4.8**
ASG-HS11	7/28/05	15	<2.0

FIGURES



ENVIRON

DRAWN BY: JJC | DATE: 10/20/05 | REVISED:

Active Soil Gas, Grab Ground Water, and Indoor Air Quality Sampling Locations

Norco High School
2065 Temescal Avenue, Norco, California

PROJECT NO. 04-8099P

Figure **1**

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