

**USGBC TSAC PVC Draft Report dated December 17, 2004 (released 12/22/04)  
OFFICIAL COMMENT SUBMISSION FORM**

**Comments submitted by:**

<b>First Name</b>	<b>Last Name</b>	<b>Title</b>	<b>Organization</b>	<b>Phone</b>	<b>E-mail</b>	<b>Web site URL</b>
Wilma	Subra	President	Subra Company	337 367 2216	<a href="mailto:subracom@aol.com">subracom@aol.com</a>	

Comments Submitted by: Wilma Subra  
President  
Subra Company  
P. O. Box 9813  
New Iberia, LA 60562  
337 367 2216  
[subracom@aol.com](mailto:subracom@aol.com)  
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**Critique of the USGBC TSAC PVC Task Group's Ambient Exposure Data Analysis**

**Summary**

Vinyl Chloride is detected in the ambient air in excess of established standards up to 1.5 miles from Vinyl Chloride industrial facilities in Kentucky and Louisiana. Each data set inspected by the Task Group contains evidence of patterns of excessive exposure to highly toxic chemicals. The areas where the Vinyl Chloride is detected in the ambient air consist of residential neighborhoods, schools, churches, health clinics and small businesses. The people living, working, attending school and shopping are exposed to unacceptable levels of Vinyl Chloride in the air they breathe. Yet inexplicably the Task Group dismisses the data as insufficient to affect their evaluation of the hazard of PVC production.

The evaluation of the Ambient Exposure Data by the TSAC PVC Task Group is based on misunderstandings and misinterpretations of the data sets and sampling programs. The Task Group consistently masks evidence of violations of annual exposure standards by averaging multiple years of data together to dilute the effect of the violation. They also discount data as too old to evaluate when it is only five years old and dismiss data as spotty due to not understanding basic data reporting protocols used. Throughout the report, the authors identify and acknowledge significant indicators of risk, then turn around and dismiss them as not sufficient for action.

The Task Group is setting an unreasonable standard of data completeness for action that will never be accomplished. Protection of public health requires identifying and acting upon hazards when clearly identified as they are in this data. In order to give a material like PVC a clean bill of

health as this report does, the burden of proof should be on the industry to prove that they have eliminated the hazards identified, rather than assuming that because a violation was measured 4 or 5 years ago that it is no longer relevant.

The Task Group must perform a second more accurate review of the monitoring programs, associated generated data and all sources of data in order to correctly evaluate the ambient air conditions. Based on accurate data, the Task Group must then evaluate and correctly present the impacts of Vinyl Chloride production on off site related exposures and health impacts on the communities living, working and spending time in the areas surrounding the Vinyl Chloride producing facilities. The necessity for accurate and complete data and associated appropriate evaluations are a necessary initial step in performing the assessment of Technical Basis for PVC-Related Materials Credit.

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### Line by line comments

Page #	Line #	Comment
80	1	The report states (80-15) “the dearth of data make conclusive predictions about ambient air concentrations impossible” but “the data do indicate that EDC concentrations are predominantly low.” Comment: Rather it is more significant that more than a quarter of the measurements exceeded the method quantitation limit with one showing a serious spike more than an order of magnitude over the limit. The relevance is not necessarily to “make conclusive predictions about ambient air concentrations” so much as to identify that a significant pattern of quantified releases of a highly toxic materials are established to be occurring.
80	17	The text indicates that because the data are old, the data cannot be used to determine if significant health risks exist from ambient exposures to ethylene dichloride in neighborhoods adjacent and downwind of vinyl plants in these locations. Comment: Data from just five years ago is “old”? This sets an impossible standard for meaningful data collection. The Task Group also omitted information that three of the six locations are no longer monitored and thus more recent data is not available. The other three locations continue to be monitored on the once every 12 day cycle. The age of the data is not a valid reason for not using the data to determine if significant health risks exist due to the ambient levels of ethylene dichloride.
81	5	Comment: The Vinyl Chloride air concentrations for the selected monitoring stations in West Louisville should have been calculated and presented as annual means in addition to means for the entire sampling period (2000-2003 or 1999-2003). This is the method utilized under the evaluation of ambient monitoring data for the state of Louisiana. The Ambient Air Standard for Vinyl Chloride is based on the annual average value. In order to evaluate the Western Louisville data, the annual mean values for each year for each station should have been calculated. Relatively low values in one year do not compensate for high exposure in another year.

- 81 8 The report states that “data available for individual stations may be very sparse or not comprehensive with that time period” (81-9) and suggests that “the spottiness of the data makes predictions of trends or knowledge of concentration spikes that exceed air quality standards impossible.” (81-16)  
Comment: This represents a lack of understanding by the authors of the data presentation in the database. The air toxics data for West Louisville resulted from sampling the air over a 24 hour period once every 12 days from the following stations: Cane Run Elementary School, Chickasaw Park, Farnsley Middle School, Firearms Training Center and Ralph Avenue. The 5 stations as well as the control location, University of Louisville, were all sampled on the same day on a schedule of once every 12 days that coincided with the national ambient air sampling program. . The data base presents detected value above the quantitation limit and data for chemicals detected but below the quantitation limit. The sampling periods with "none detectable" values for the individual chemicals are not presented in the data base. All months have a least two sampling periods and some months have three sampling periods. Duplicate samples are also analyzed and the duplicate values reported. The data should have been evaluated on the basis of appropriate understanding of the data presentation in the data base and the basis of the sampling and analysis protocols followed.
- 81 21 The report gives a tentative conclusion that the monitoring data did “not indicate exposures at the listed stations are of concern”  
Comment: This conclusion is inappropriate because of the averaging of all readings over a 4 to 5 year period as stated above. Thus the tentative conclusion not only does not represent an appropriate usage of the Ambient Air Standard for Vinyl Chloride (which is based on the annual average value not on a 4-5 year mean) but it also failed to consider the exposures the community members endure during accidental releases, upset conditions and maintenance bypasses.
- 82 1 The Task Group concluded that the monitoring data did not indicate exposures of concern.  
Comment: The sampling data listed in this paragraph (82-1) indicates that Vinyl Chloride has been detected in the air above the ambient standard in every reporting station in the residential communities including the one farthest out at a distance of 1.5 miles from the emitting facilities and yet  
The presented data also points out that “some measured exceedances were observed at more than one station on a particular day” as a result of upset releases. This demonstrates the wide spread aerial impact of the Vinyl Chloride releases from the industrial facilities. However, this data is dismissed (p 82, lines 8-9) because “measurements are not taken from all stations on the same days, thus making firm conclusions not possible”. The monitoring program did take data from all the stations on the same days. Misunderstandings concerning the West Louisville ambient air monitoring program have led to misinterpretation of the data, inappropriate conclusions and overlooked exposures of concern. It is incomprehensible to us why the authors can look at these patterns of releases and not draw conclusions that the residents of these neighborhoods are being put at risk by releases from these plants.

82 10 The text states “when 2004 sampling data are made available...”

Comment: The 2004 data is available. The data is placed on the web site as the samples are analyzed and the data generated.

The air monitoring data for all of 2004 with the exception of the second sampling event in December 2004 is available on the West Jefferson County Community Task Force web site.

Once again, the record shows a continuing pattern of vinyl chloride releases. The Vinyl Chloride values exceeded the ambient standard at the LPFTC monitoring station on August 25, 2004 (1.02 ppbv). Elevated Vinyl Chloride values in the ambient air were detected on September 6, 2004 at all five monitoring stations: Farnsley Middle School 0.2 ppbv, LPFTC 0.17 ppbv, Ralph Avenue 0.13 and 0.11 ppbv, Cane Run Elementary School 0.11 ppbv and Chickasaw Park 0.07 ppbv (below Minimum Quantitation Limit).

The data from 2004 should have been evaluated by the Task Group in preparation of the Assessment.

79- 1 Conclusion: This section of the report is based on misinterpretations of the Kentucky Pollution Prevention Center  
82 ambient air monitoring program and the resulting data as presented on the web site.

Conclusions based on the misinterpretation of the program and data are inappropriate. The Air Monitoring Data-Kentucky section of the report and resulting conclusions must be revised and updated to appropriately reflect the situation as it exist in the West Louisville area. Based on accurate data, conclusions relative to exposure and risk must be revised and used to evaluate the impact of vinyl chloride production, the associated off site related exposures and health impacts to the communities living in the areas surrounding the Vinyl Chloride producing facilities.

82 35 “For the years monitored, 24-hour samples were generally taken every 5-6 days throughout the year.”

Comment: The Louisiana Ambient air monitoring program performs 24-hour sampling events once every 6 days on the same schedule as the national toxics monitoring program. In addition episodic samples are performed triggered by spikes in total hydrocarbon concentrations in the ambient air.

83 4 "The data ...indicate that although the AAS was exceeded on an annual average basis at both monitoring stations for one year, the overall mean VCM concentrations over all monitoring years were below the AAS'

Comment: Once again the authors are hiding serious violations of ambient standards by burying them in long term average values. The Annual Ambient Standard was established for **annual** average concentrations, not for four year averages. During two of the four years studied the annual concentrations of Vinyl Chloride exceeded the Annual Ambient Standard at one of the monitoring stations. Instead of focusing on these years of standard violations and considering what this means for exposures and risk to the neighboring population, the report averaged the values over four years in order to obtain average values that were below the AAS. Such an approach to dilute the data is inappropriate. The ambient average data that exceeded the standard should have been the focus of determinations of what caused the elevated levels and what if anything has been done to correct the situation, reduce exposure, and lessen the risk to the general population. A more appropriate conclusion would be that the data indicates that the Annual Ambient Standard was exceeded for one out of four of the years studied for each station.

83 18 The South Scotlandville Monitoring station "showed much more frequent daily exceedances of the AAS and in general showed an increasing trend in annual average VCM concentrations.

Comment: The causes of the more frequent daily exceedances and general increasing trend should have been reviewed and evaluated. Instead the Task Group once again makes the statistical error of combining years of data to mask the 2002 year's violation of the standard and make a more reassuring statement that "the total data accumulated for the last 4-5 years ... indicate the ambient air VCM concentrations do not present an unacceptable health risk." It is not an acceptable health risk to have multiple exceedances every year and to exceed the Annual Ambient Standard one in four years. The Task Group should have further evaluated the data and associated causes for the increasing trend in order to more appropriately evaluate the health risk.

82 26 Westlake data Vinyl Chloride data is evaluated, but the Ethylene Dichloride data is not. Evaluation of that data would have found a pattern of exceedances and violation of the AAS for Ethylene Dichloride there also. The Westlake Ambient Air Monitoring Station in Calcasieu Parish exceeded the Ethylene Dichloride standard (0.95 ppb) in 1996 1.16 ppb annual mean and 1998 0.96 ppb annual mean. The maximum values for the Westlake station were 17.56 ppb in 1999, 13.74 ppb in 1996, 8.78 ppb in 1997 and 6.82 ppb in 1998.

The Task Group should have reviewed the Louisiana Ambient Air data for Ethylene Dichloride values and determined exposure and risk associated with both the Vinyl Chloride and Ethylene Dichloride air concentrations.

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84 8 The Task Group should have reviewed the Louisiana Ambient Air data for Ethylene Dichloride values and determined exposure and risk associated with both the Vinyl Chloride and Ethylene Dichloride air concentrations. Trace Atmospheric Gas Analyzer (TAGA) Data for Louisiana

“The highest frequency of detects was on Pete Madena Rd. The proximity of this road to neighborhoods is not stated in the TAGA report. These data, however, indicate strong potential for exposure of individuals in these locations .... Consistent exposure of individuals to these concentrations may indeed pose a significant health risk. Ambient air concentrations obtained during several sample times... are needed in order to better assess the potential risk.”

Comment: The area of Pete Madena Rd. that was the area of highest frequency of detects of Vinyl Chloride is a residential area. The authors of the report easily could have obtained this information from me – an expert on this data so identified in the first public comment period - with a simple inquiry. The strong potential for exposure of individuals in the area should have been addressed by the report through the evaluation of impacts to the residential neighborhood. The TAGA data provided an opportunity for the Task Group to evaluate the aerial extent and concentrations of Vinyl Chloride in the ambient air as a result of releases by the industrial facilities. Once again, the authors identify and acknowledge significant indicators of risk, then turn around and dismiss them as not sufficient for action.

84 25 The report states that “The TAGA data provide a glimpse of environmental conditions in 1999, but they cannot be used to accurately predict trends in exposure and any risk estimates developed using them would be associated with a great deal of uncertainty.”

Comment: The toxic ambient air monitoring is performed in the same area that the TAGA data established environmental conditions demonstrates trends in exposure and the TAGA data verified the toxic ambient air monitoring data. Thus there is sufficient and long term data on which to predict trends in exposure and estimate risk. The Task Group should have utilized both sets of data in evaluating trends and estimating risk due to Vinyl Chloride releases from the industrial facilities. The Task Group is setting an unreasonable standard of data completeness for action that will never be accomplished. Protection of public health requires identifying and acting upon hazards when clearly identified as they are in this data. In order to give a material like PVC a clean bill of health as this report does, the burden of proof should be on the industry to prove that they have eliminated the hazards identified, rather than assuming that because a violation was measured 4 or 5 years ago that it is no longer relevant.

86 14 "...parishes with the highest density of vinyl plants do not exhibit the highest incidence rates of liver cancer."

Comment: Cancer incidence/mortality data that are aggregated in geographical regions that are as large as parishes are not useful for identifying increases in incidence in sub-populations that may be disproportionately exposed to environmental agents--if such increases exist. In other words, parish-based data are biased toward false negatives.

87 38 "Current air monitoring data does not indicate a health risk, as mean air concentrations over all sampling years are below the Annual Ambient Standard."

Comment: Once again, the Annual Ambient Standard was established for **annual** average concentrations. The Task Group tends to down play exposure and associated risk by averaging Vinyl Chloride emissions over a number of years rather than looking at the violations in the annual averages for each station. This approach dilutes the data and underestimates the exposure and associated risk.

### **Risk Management Plans**

The Task Group failed to consider the risk associated with the operations of the Vinyl Chloride facilities as presented in the Risk Management Plans. Examples of the risk associated with a few Vinyl Chloride industrial facilities are as follows:

Condea Vista, Calcasieu Parish, Louisiana

Worse Case Scenario

Vinyl Chloride Monomer storage sphere (9.6 million pounds) release total capacity, vapor cloud formed and ignited - Distance to End Point 1.1 miles.

PPG Industries, Calcasieu Parish, Louisiana

Worse Case Scenario

Vinyl Chloride Monomer storage tank (7,000 tons) release total capacity, forms a vapor cloud and explodes - Distance to End Point 1.4 miles.

Planning Case Scenario

Vinyl Chloride Monomer loading hose ruptures and releases 2,099 pounds of VCM instantly, which forms a vapor cloud and explodes - Distance to End Point 0.13 miles (686 Feet).

Certain Teed, Calcasieu Parish, Louisiana

Worse Case Scenario

Vinyl Chloride storage tank sustains a complete rupture of an 8-inch diameter bottom nozzle. 52,000 gallons is lost to the dike surrounding the tank. A source of ignition ignites the flammable vapor and a vapor cloud explosion occurs - Distance to End Point 0.44 miles (2,300 feet).

#### Planning Case Scenario

Vinyl Chloride-A one-inch drain line on the suction line of P-201, the Vinyl Chloride Charge Pump, ruptures. The leak continues for five minutes before plant operators discover the leak and completely close valves to isolate the line segment. After the valves are closed the Vinyl Chloride remaining in the line segment between the valves continues to leak. A vapor cloud explosion occurs - Distance to End Point - 119 feet.

#### Formosa Plastics, Baton Rouge, Louisiana

##### Worse Case Scenario

Vinyl Chloride Monomer failure of the largest vinyl storage vessel, 6,657,433 pounds of vinyl released, vapor cloud forms and explosion occurs - Distance to End Point - 1.13 miles.

##### Planning Case Scenario

Vinyl Chloride released from scrubber, failure of flange gasket releases 10,040 pounds, gas cloud forms and explosion occurs - Distance to End Point - 0.13 miles.

The Task Group should have considered the risk associated with the operations of all the Vinyl Chloride industrial facilities including data provided by each facility in their Risk Management Plans.