



VILLAGE MESSAGE REGARDING RECENT AIR MONITORING

(December 13, 2018)

The Village is committed to communicating with its residents as expeditiously as possible the information we learn. In addition to communicating directly with Village employees regarding the recent testing, we also want to share our overview of the air monitoring results to date and immediate actions we have taken.

BACKGROUND

In December of 2016, the USEPA changed the cancer risk basis for Ethylene Oxide (EtO). This change represents a 60-fold increase in the potency factor of EtO through inhalation exposure. This increase is based on a new USEPA modeling approach,¹ not new studies of EtO's cancer potency. In May of 2018, the USEPA performed outdoor ambient air monitoring within Willowbrook as an initial screening test to determine how much EtO may be present in the atmosphere near the Willowbrook Sterigenics facilities and whether additional testing and analysis were required for regulatory purposes. The results of USEPA's monitoring effort were then forwarded by the USEPA to the federal Agency for Toxic Substances and Disease Registry (ATSDR) for review and analysis. On August 22, 2018, the USEPA published the ATSDR's Consultation Letter on its website. The Village was first notified of the ATSDR's conclusions the morning this report was published.

Specifically, the ATSDR's report concluded that *if* the levels of EtO measured in Willowbrook during the initial monitoring screening tests were indicative of normal levels, there would be an increased health risk *assuming* long-term exposure to those levels. The report also concluded that there were likely no negative short-term effects of exposure, given the levels detected. The report recommended that long-term air monitoring be performed by the USEPA, emissions levels at Sterigenics be reduced, and that the Illinois Department of Public Health (IDPH) perform a cancer incidence study to determine if there are increased numbers of cancer incidents in the area.

In response, the IDPH has begun working on a cancer incidence study which should be completed by February/March 2019. Sterigenics has also reportedly reduced EtO emissions from their facilities by 90%. This reduction occurred in July 2018, before the ATSDR report was even published (but after the USEPA's May 2018 testing). And lastly, the USEPA has begun a 3-month outdoor ambient air monitoring program which will be completed by February, unless the duration of this testing program is ultimately extended.

WILLOWBROOK AIR MONITORING PROGRAM

Possible EtO levels inside structures has been identified by the public as an area of concern. As a result, it was demanded that indoor air testing be performed. Since this is not a form of

¹ The model is used to predict risk at low concentrations, much lower than those from the National Institute of Occupational Safety and Health [NIOSH] study that the EPA's potency factor is based on.

testing that the EPA will perform, in September of 2018 the Village hired the testing consultant GHD Service, Inc. to design and complete an indoor/outdoor air monitoring program which meets the EPA's testing protocols. The design of this program required some coordination with the USEPA and IEPA. The testing program was performed on November 16 & 17, 2018 and included taking thirty-four (34) 24-hour samples at eleven (11) locations using 6-liter SUMMA canisters incorporating the USEPA's TO-15 testing method. We have made available a copy of the Final Testing Report on the Village Website (www.willowbrookil.org).

The sampling program was purposefully designed to include public buildings, private residences, public parks, and schools. All samples were collected within a 1-mile radius of Sterigenics, to evaluate this facility as a potential source of EtO. The EtO levels identified through our monitoring program range from 5 to 10 times lower than those levels identified by the USEPA in May of 2018. We tested at multiple locations within the Village of Willowbrook, including locations that were upwind of Sterigenics during the entire test. The test results from our monitoring confirm the presence of EtO throughout Willowbrook, in samples both upwind and downwind of Sterigenics. The average of the upwind samples was 0.071 ppb EtO. The average downwind outdoor level was 0.201 ppb. The average indoor levels upwind and downwind were 0.137 and 0.264 ppb.

Another important function of our monitoring is to evaluate the amounts of EtO inside buildings relative to the amounts of EtO outside buildings. The measured levels of EtO inside buildings were found to be higher than outside buildings, with the lone exception of the Village Hall, where the outside level was measured at 0.32 ppb, and the inside levels were an average of 0.25 ppb. The fact that EtO is present generally at higher levels inside than outside indicates there may also be sources of EtO inside buildings. There are other possible explanations, including: 1) consumer products inside the buildings may be off-gassing EtO (EtO is contained in many auto products, cleaners, and home maintenance products) as are some of its precursor chemicals and breakdown products; and/or 2) EtO gas which has entered a building has been adsorbed into materials within the building, and will take time to be removed through natural processes. There may be other explanations as well. At this time, we do not know which of these possible explanations is correct, or if there is a completely different explanation for our results, but we plan to recommend further investigation. Unfortunately, research and associated literature in this area is very limited.

It should also be noted that there are reports of significant background levels of EtO present throughout the Chicagoland area, and perhaps within all areas. We understand that in the coming weeks and months, USEPA will be determining what the regulatory standards for EtO should be.

USEPA'S AIR MONITORING PROGRAM

In September, 2018, USEPA announced that the Agency would be performing outdoor air monitoring in Willowbrook. The stated purpose of the monitoring is to "better understand the levels of EtO in the air." (See www.epa.gov/il/outdoor-air-monitoring--willowbrook-community)

The first monitors began collecting air samples on November 13, 2018. EPA placed monitors at eight (8) locations. On December 7, 2018, EPA posted the results for three (3) days of monitoring: November 13, 16 and November 19. It is important to note that EPA's monitoring on November 16, 2018 coincided with one day of the Village's testing and we "co-located" outdoor sampling at the Willowbrook Village Hall. According to USEPA, the following observations were made based upon the first set of results:

- Monitors detected EtO in the air at the two sites closest to the facilities.
- Monitors did not detect EtO at the six community-oriented sites—those at schools and in residential areas.
- It is premature to draw conclusions from the data. EPA plans to continue the monitoring in the Willowbrook area for three months and will continue to post data as it becomes available.
- EPA will conduct a full assessment of risk from EtO in Willowbrook, which is expected to be complete by Spring 2019.
- On November 21, 2018, EPA announced that it had identified an issue with the analytical method used in previous EPA monitoring. EPA has changed the analytical method, so that the issue does not affect the results.

After reviewing EPA's results, we note that EPA's initial results vary from our testing. As we discussed, on November 16, 2018, the Village's testing consultant and EPA obtained 24-hour sampling results from monitors each placed outdoors at the Willowbrook Village Hall. The Village's outside sample result on that day was .576 ug/m³ and USEPA's sample result on that day was .824 ug/m³. On that same day, EPA also reported non-detections at other outdoor locations where the Village had detections. On November 19, 2018, a day that only the USEPA was monitoring, their 24-hour sample result was 6.21 ug/m³ outside the Village Hall.

The reasons for the differences in sampling results is not well understood based on the data collected at this time, but the Village is committed to taking all steps necessary to determine what the results mean.

UNDERSTANDING THE RISK

The EPA does not establish long-term "safe limit" thresholds for compounds like EtO. Instead, low-level exposures to such substances are expressed as estimated lifetime risks. Lifetime risk is the chance that an event (like getting cancer) will happen over a person's lifetime but is not a guarantee that it will. The EPA generally considers lifetime cancer risks between 1-in-1,000,000 and 1-in-10,000 target as the "acceptable" range. In their August 21, 2018 report, the ATSDR concluded that based on the measured and modeled concentrations of EtO and the proximity to residences and other commercial structures, lifetime cancer risks higher than 1 in 10,000 people may exist for some community members and workers, assuming that the short-term EtO concentrations measured over 12 hours represent the average concentration over a lifetime. Even though the Village's sampling results and some of the EPA's sampling results indicate that EtO is present in locations both upwind and downwind of Sterigenics above the risk-based levels established by the USEPA, it is important to recognize that we do not have

enough testing data at this time to know if the concentrations measured by either the Village or EPA accurately represent long-term exposure levels for the Village. If the measured levels (measured over a 24-hour period) are higher than concentrations a person is exposed to in their daily lives over a long-term period, then lifetime cancer risks estimated using these data will be overstated.

The ATSDR's methodology for estimating cancer risk to workers assumes that workers are exposed to the maximum measured concentration for 8.5-hour per day, 250 days a year, for 25 years. For example, if the Village's highest 24-hour indoor measurement of .45 ppb is assumed to represent the average long-term EtO exposure concentration for workers, despite the fact that we do not currently have enough testing data to know what the long-term exposure levels are, the additional cancer risk (above background cancer risk) for workers in nearby facilities is estimated to be $.19 \times 10^{-3}$, or .19 cases of cancer in a population of 1,000 workers. This is *slightly* above the upper limit of EPA's "acceptable" cancer risk range at 1.9 in 10,000.

To put the estimated cancer risk into greater perspective, current statistics indicate that everyone has about a 1 in 3 chance of developing cancer in their lifetime. This is considered a 33% background risk of developing cancer. Environmental factors (e.g., smoking, sun exposure, radon exposure, alcohol consumption, exposure to airborne toxics such as petroleum fumes, vehicle emissions, and EtO, etc.) create additional cancer risks for all of us. This is considered the increased or additional risk of developing cancer. To estimate the total risk of developing cancer from this exposure to EtO (assuming it represents long-term average exposure), the background risk is added to the additional risk: $33\% + .019\% = 33.019\%$ (Note: the 33% is not attributable to EtO exposure). This risk estimate means that the risk of workers in nearby facilities getting cancer is 33.019% by comparison to a cancer risk of 33% for workers not exposed to EtO.

While EtO exposure is a risk factor for developing cancer (it increases a person's chance of getting cancer), it is important to note that most risk factors do not directly cause cancer. Although the Village's EtO testing may mean that workers in nearby facilities could have an increased cancer risk as high as .019%, that doesn't mean that your individual risk is increased by .019% because an individual's risk is based on many different factors, such as age, habits (including eating habits), and family history of cancer. Even then, the combination of risk factors might not apply to you. Some people with several risk factors never develop cancer, while others with no known risk factors do.

We understand that risk statistics like those presented here can be frustrating because they can't tell you *your* specific risk of developing cancer. And although the Village's sampling results for EtO came back relatively low, there are discrepancies when we compare our results with the EPA's initial results. The fact that EtO is being detected at all raises concerns and additional questions. It is also concerning that our monitoring results revealed inside levels of EtO that are generally higher than outside levels. This information seems to counter the USEPA's original assumption that levels inside and outside a structure would be comparable.

IMMEDIATE VILLAGE ACTIONS

The Village is taking this matter very seriously and will continue to seek answers from the various state and federal agencies on behalf of all Village employees, residents, and area workers. As we work on obtaining those answers, we have taken the following immediate actions:

- 1) Shared all of our data and the attached Final Testing Report with the Illinois Attorney General's Office and the DuPage County State's Attorney's Office. The letter sent has been posted on the Village website for review. Now that the Village has moved to intervene in the pending litigation, we will work closely with the state and county to determine whether further action can be taken;
- 2) Shared our data and the attached Final Testing Report with the United States Environmental Protection Agency. As USEPA stated at the recent Community Meeting, the Agency assumes that indoor air concentrations and outdoor air concentrations of EtO are the same. These assumptions are built into the Agency's modeling and, as a result, into its risk assessment. Since our monitoring (albeit limited to a single 24-hour sampling) does not support that assumption, we will be insisting that USEPA follow up on this discrepancy and resolve it. We also will be seeking answers as to why there is differing sampling results taken on the same day;
- 3) After reviewing EPA's December 7, 2018, posting of the first round of monitoring data, the Village intends to perform additional indoor testing in the Village Hall and Police Building as soon as possible. These locations are our closest monitoring sites to the Sterigenics facilities. We plan to perform this testing for a 30-day period and will coordinate with the USEPA as it continues its outdoor testing at the Village Hall location; and
- 4) Insist that immediately both USEPA and IEPA determine with better certainty the nature of operations at the Sterigenics facilities. The Village believes strongly that the Sterigenics facilities should be shut down until we know more about the variation of the operations. The Village employees and residents have a right to know whether operations at the facilities fluctuate at a greater degree than originally expected and whether facility testing was performed when the facility was operating at its fullest or highest production capacity.

Referenced documents available on the Village website (www.willowbrookil.org):

- ATSDR Consultation Letter, August 21, 2018
- Willowbrook Indoor/Outdoor Air Monitoring Final Report, December 11, 2018