SCIENTIFIC STATEMENT SUBMITTED TO ORANGETOWN TOWN BOARD & READ INTO THE RECORD BY JAMES ROSS ON 11.28.17

To the Orangetown Board:

There are two issues of concern for the public: 1) Is there any evidence for the potential for public health issues that need to be investigated further; and 2) can the source of the chemical smell be identified. This statement will speak on both of these issues.

1) Evidence for the need for additional investigations from a public health perspective: In response to documented community complaints of symptoms and smells, canister sampling of ambient air was done by TRC, including both 24-hour and 2-hour community-based sampling. Several exceedances of state and federal guideline criteria were documented in this sampling campaign. Repeated exceedance of such guidelines indicates need for further sampling to determine the extent of pollution and exposure of residents to toxic compounds.

The subset of 2-hour community air samples that were reported in the TRC November report had an average acrolein value of $3.1 \ \mu g/m^3$, which exceeds NYSDEC's Short-term Guideline Concentration (SGC) of $2.5 \ \mu g/m^3$. Altogether, nine of the 22 TRC samples exceeded the SGC for acrolein.

Several of the 24-hr measurements for acrolein and three other VOCs (benzene, carbon tetrachloride, and hexachlorobutadiene) were above the NYSDEC's Annual Guideline Concentration (AGC) value. Specifically, at least 68% of the 22 TRC samples taken from August to October exceeded the AGC for acrolein ($0.35 \ \mu g/m^3$). The other 32% of the samples may well have also exceeded the AGC (we don't know because they were below the detection limit). Given that there are few (if any) other measurements of these compounds in this area, these measurements are our current best estimate of annual levels. Thus the pollution level in Blauvelt is concerning from both the point of view of the AGC and SGC.

Acrolein was on average 20 times higher than the CDC's Agency for Toxic Substances and Disease Registry Minimum Risk Level (ATSDR MRL) at intermediate (15-365 days) exposure duration, which is $0.092 \ \mu g/m^3$.

Acrolein was higher than any site-specific measurements published by NYSDEC in 2016-17 (http://www.dec.ny.gov/chemical/66478.html). A single 24-hour sample also had very high levels of hexachlorobutadiene which measured 13-20 times higher than background levels and within the range found "inside a production facility" (ATSDR Toxicological Profile, 1994). The significance of this is unclear but warrants further investigation.

11/28/17

Given that SGC, AGC, and ATSDR levels are exceeded multiple times in these data, further testing is called for to understand whether these potentially unhealthy levels of air pollutants are typical for this area. Future sampling should consider use of methods with limits of detection below the AGC levels.

2) **Identification of the source of the chemical odor:** The study design of the sampling to date has limited value for identifying the source of the chemical odor. There was no reference site upwind and far from the facilities, and the sampling time periods were not ideal for this purpose, given wind direction and speed and the intermittent appearance of the odor.

Steven Chillrud, Ph.D. (Tappan) James Ross, M.S. (Nyack)