1,3-DICHLOROPROPENE AIR MONITORING AND DEVELOPMENT OF USE LIMITS IN CALIFORNIA

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The Department of Pesticide Regulation (DPR) completed a health risk assessment for 1,3-dichloropropene (1,3-D) in 2015. Consistent with findings by other agencies, DPR's risk assessment concluded that 1,3-D likely causes cancer. Based on the risk assessment, DPR set a cancer risk goal of ?? for a ??-year lifetime exposure, and that this goal should be achieved at least ?? percent of the time. This means that there should be no more than a ?? percent chance that ?? will contract cancer from 1,3-D for every ?? people. This risk goal equates to a regulatory target concentration of no more than ?? ppb as a ??-year average, achieved at least ?? percent of the time. To ensure that this concentration is not exceeded, DPR used 1,3-D air monitoring and use data to develop a regional limit on amount of use (township cap).

During 2006 – 2015, DPR, Air Resources Board, and Dow AgroSciences conducted four studies to measure 1,3-D ambient air concentrations in nine communities of California. Samples were collected at least once per week for at least 52 weeks. The four studies combined had 31 community-year combinations (e.g., Oxnard in 2012), and DPR calculated the average 1,3-D concentration for each combination. The 31 yearly average concentrations ranged from none detected to 0.54 ppb.

The 31 yearly average concentrations were paired with 1,3-D annual use within a 6 x 6 mile (township) sized area around the sampling sites for the analysis on the use-concentration relationship. Because of high concentrations but moderate use reported in December, we analyzed two use scenarios for 1,3-D: factual 12-month use and 11-month use that hypothetically prohibits use in December. Linear regression could not explain the relationship between the average concentration and the annual use in both scenarios. The ratios of the yearly average concentration and the adjusted total pounds (ATP) were then calculated. The ?? percentile of the 31 ratios was used to estimate a township cap of ?? pounds (ATP) for the 11-month use scenario, and ?? pounds (ATP) for the 12-month use scenario. These estimates were designed to ensure that the ??% yearly average concentrations of 1,3-D will not exceed the regulatory target concentration of ?? ppb in a township applying 1,3-D at the amount of the use cap.