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**GROUNDWATER DATA ANALYSIS: MTBE RELATIVE TO OTHER GASOLINE OXYGENATES AT GASOLINE IMPACTED SITES, LOS ANGELES, CALIFORNIA**

Methyl tertiary butyl ether (MTBE) has become a significant groundwater pollution problem since introduced as a gasoline additive to improve air quality. Over the past several years, studies of MTBE fate and transport in the subsurface have increased. In the wake of MTBE studies, we also need to know other gasoline oxygenate additives in the subsurface environment. This presentation describes the results of statistical analyses on MTBE relative to other gasoline oxygenates based on groundwater monitoring data collected in Los Angeles, California. The other gasoline oxygenates in this study include di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA). Correlation coefficients were calculated between MTBE and other oxygenates, and between the gasoline oxygenates and depth to groundwater and geological material type of the aquifer, respectively. The correlation coefficients indicated the poor correlations among all components given above. Based on uncensored data (including all non-detect data), the Chi-square test indicated no clear relationship between MTBE and TBA. Analysis of variance (ANOVA) was used to compare MTBE concentrations detected in coarse material aquifers with in fine-grained material aquifers. The ANOVA result indicated that the difference is not statistically significant between MTBE detected in the two types of aquifer materials. The same result was also reached for TBA. The conclusion is further confirmed by a nonparametric test. The oxygenate concentration distributions were further studied by grouping the data per different gasoline brand. There is not an overall statistically clear trend on whether certain brand of gasoline contains MTBE and TBA consistently higher than other brand, or whether TBA is consistently higher than MTBE among all brands of gasoline. However, TBA shows statistically higher than MTBE in the mean, the median, and the 95 percentile in the overall groundwater data studied. Therefore, further studies on the relationship between MTBE and TBA are warranted.