EPA Estimates of Stack Heights and Exit Gas Velocities for TRI Facilities in OPPT's Risk-Screening Environmental Indicators Model

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Nicolaas W. Bouwes, Sr., Ph.D.
Steven M. Hassur, Ph.D.
Economics, Exposure, and Technology Division
Office of Pollution Prevention and Toxics
United States Environmental Protection Agency

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EXECUTIVE SUMMARY

In July 1997, EPA's Science Advisory Board (SAB) reviewed and commented on the methodology used in the Risk-Screening Environmental Indicators Model developed by EPA's Office of Pollution Prevention and Toxics (OPPT). In response to one of SAB's comments, EPA sought to improve the estimate of facility stack height used in modeling air emissions of Toxics Release Inventory (TRI) chemicals. The sensitivity analysis of the air emission modeling used in the Indicators Model demonstrated that stack height has the greatest impact on predicted concentrations of air pollutants. At the time of SAB's review, all stacks in the Indicators Model were assumed to be 10 meters high. Also at that time, all exit gas velocities, which represent the second most important variable impacting air emissions modeling, were assumed to be 0.01 m/sec. As EPA began improving the accuracy of stack height estimates, it determined that it could also readily improve the estimation of exit gas velocities. This report describes the Agency's improvements to the accuracy of the Indicators Model through two types of changes: 1) the incorporation of facility-specific median stack heights and median exit gas velocities where available; and, 2) the estimation of median values for stack heights and exit gas velocities by Standard Industrial Classification (SIC) codes. These estimates are then assigned to facilities without facility-specific data.

To obtain facility-specific stack heights and exit gas velocities as well as estimates of stack heights and exit gas velocities by SIC code, the Agency relied on the AIRS Facility Subsystem (AFS) database within the Aerometric Information Retrieval System (AIRS); the National Emission Trends Database (NET); and databases from three states (California, New York, and Wisconsin).

From AFS and the three State databases, EPA was able to obtain stack height data specific to facilities which report to TRI. For the 421 California, New York, and Wisconsin facilities which report to TRI and the 1,209 facilities in common to the TRI and AFS databases, a representative stack height for each facility was estimated by calculating the median height for all of a facility's stacks with non-zero height. After identifying facilities in common between TRI and these data sources, EPA began investigating ways of estimating stack heights for TRI facilities *not* in AFS or in the three State databases. In the course of analysis of available data, the Agency noticed substantial variability in stack height across primary SIC codes of facilities, and chose to calculate and analyze a median stack height for each 2-digit, 3-digit, and 4-digit SIC code applicable to TRI reporters, i.e., in the 2-digit SIC code range of 20 to 39. To use the data in AFS and NET, however, EPA had to investigate the possibility that stack height may vary on the basis of whether the stack emitted possible TRI chemicals or not. For the TRI facilities with non-zero stack releases for which facility-specific data were not available, stack heights were estimated from AFS and NET based on facility 3-digit SIC codes and statistical analyses of height differences between stacks emitting TRI chemicals and stacks not emitting TRI chemicals.

For stack height, the estimation approaches used for the 13,204 TRI facilities with non-zero stack air releases reported in 1995 included: 1,209 facilities estimated directly from AFS; 69 facilities estimated from California State data; 192 facilities estimated from New York State data; 37 facilities estimated from Wisconsin State data; and 11,514 estimated based on the facilities' 3-digit SIC code.

The remaining 183 facilities (13,204 facilities minus 13,021 facilities) reported 3-digit SIC codes outside the range of 201 to 399, or reported no SIC code. For these 183 facilities, a stack height was assigned based on either the 2-digit SIC code (if a valid one was available) or on the median stack height for all 108,590 unique stacks in AFS and NET. The median stack height for all 108,590 stacks from AFS and NET is 10.67 m (35.0 ft), virtually the same as the previously used default value of 10 m for TRI facilities.

At the same time that EPA obtained stack height data, it also obtained exit gas velocity data. EPA was able to obtain exit gas velocity data specific to TRI facilities from AFS and two of the three State databases. For a given facility, the exit gas velocity was estimated as the median for all the stacks. This facility-specific analysis could be conducted for 850 facilities from AFS; 192 facilities from New York State data; and 24 facilities from Wisconsin State data. Of the 13,204 TRI facilities with non-zero stack air releases reported in 1995, exit gas velocities were estimated for 11,950 facilities based on the facilities' 3-digit SIC code. The remaining 188 facilities (13,204 facilities minus 13,016 facilities) reported 3-digit SIC codes outside the range of 201 to 399, or reported no SIC code. For these facilities, an exit gas velocity was assigned based on either the 2-digit SIC code (if a valid one was available) or on the median exit gas velocity for all 108,590 unique stacks in AFS and NET. The median exit gas velocity for all 108,590 stacks from AFS and NET is 8.80 m/sec (28.9 ft/sec), considerably larger than the previously used default value of 0.01 m/sec for TRI facilities.

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1. INTRODUCTION

In July 1997, the EPA Science Advisory Board (SAB) reviewed and commented on the methodology used in the Risk-Screening Environmental Indicators Model developed by EPA's Office of Pollution Prevention and Toxics (OPPT). In response to one of SAB's comments, EPA sought to improve the estimate of facility stack height used in modeling air emissions of Toxics Release Inventory (TRI) chemicals. At the time of SAB's review, all stacks in the Indicators Model were assumed to be ten meters (32.8 feet) high. This report describes the Agency's efforts to improve the accuracy of the Indicators Model by incorporating facility-specific stack heights where available, or by estimating stack height by facility characteristics, such as the Standard Industrial Classification (SIC) code.

In response to another SAB comment, the Agency conducted a "ground-truthing" analysis of the air pathway component of the Indicators Model (Bouwes and Hassur, 1998). In the course of this analysis, the Agency determined that the accuracy of the model could be further improved by also incorporating facility-specific exit gas velocities where available, or by estimating exit gas velocity by facility characteristics, such as the SIC code.

There are a number of possible data sources to use for both facility-specific stack heights and exit gas velocities and estimates of stack heights and exit gas velocities by facility characteristics. These data sources include EPA's AIRS Facility Subsystem (AFS) database within the Aerometric Information Retrieval System (AIRS); EPA's National Emission Trends Database (NET); and databases from individual States, such as California, New York, and Wisconsin. This report documents the Agency's effort to analyze the appropriateness of the AFS and NET stack height and exit gas velocity data for use in the Indicators Model and presents the way in which the AFS and NET data and additional data from individual States are used in the model.

In Section 2 of this memo, AFS and the data elements it can provide to estimate stack heights are described. In Section 3, overviews of NET and State data are provided, including a description of how stack height data for facilities present in both NET and AFS are treated to prevent double-counting. Sections 4 and 5 present statistical analyses of the stack height data in AFS and NET, respectively. Section 6 describes the way in which facility-specific data, obtained from both AFS and States, and the results of the statistical analyses of stack heights are implemented in the Indicators Model. Finally, Section 7 presents the analyses of exit gas velocity data and describes the way these results are implemented in the Indicators Model.

2. AFS OVERVIEW

2.1 INTRODUCTION TO AFS

AFS is a component of AIRS, which is administered by EPA's Office of Air Quality Planning and Standards (OAQPS). AIRS, which is a computerized database management system for airborne pollution in the United States, consists of four subsystems. Each subsystem addresses a different (but in many cases related) aspect of the regulatory requirements of the Clean Air Act. AFS contains emissions, compliance, and enforcement data on stationary sources of air pollution. Included sources cover the spectrum from large industrial facilities to relatively small operations such as dry cleaners, although facilities must meet certain threshold requirements to be included in AFS. These threshold requirements vary by pollutant and are discussed below.

In general, facilities collect emissions data in compliance with their permits and send the data to their State environmental agencies. Some emissions data are based on actual measurements; others are based on estimation methods. Sometimes inspectors collect emissions data. Most facilities prepare emissions inventories once every five years. Each year, States consolidate the data received from facilities reporting in that year and send the data to the EPA Regional Offices, which enter the data into AFS. At the time of this analysis, the most recent data for a given facility could be from any year between 1993 to 1997.

2.2 POLLUTANTS INCLUDED IN AFS

AFS includes data on a total of 52 specific pollutants or pollutant classes (not counting fugitive emissions, visible emissions, coke oven emissions, fugitive dust, odors, and other). These data include release estimates for the following five air pollutants:

- particulate matter smaller than ten microns (PM10);
- sulfur oxides, with sulfur dioxide (SO_2) as a marker for all SO_x;
- nitrogen oxides, with nitrogen dioxide (NO_2) as a marker for all NO_x;
- carbon monoxide (CO); and
- lead (Pb).

These are the "criteria" pollutants for which EPA's OAQPS has set National Ambient Air Quality Standards. (Although PM10 is the current particulate criterion pollutant, total particulate mass (PT) was the previous criterion for particulates. Depending upon the vintage of a given facility's data, PT may be listed in place of PM10.)

The thresholds for including emissions data in AFS are 1,000 tons per year of CO; five tons per year of Pb; and 100 tons per year for each of the other pollutants, including PM10, SO_2, and NO_2. Even when a facility exceeds threshold emissions of one pollutant, it might not exceed the threshold and hence not report for another pollutant. For example, if a facility estimates annual releases of 150

tons of SO$_2$ and 500 tons of CO, AFS will list the facility's estimated SO$_2$ emissions but not its CO emissions.

The 39 pollutant and pollutant classes in AFS that are either TRI chemicals or likely to contain TRI chemicals are presented in Table 1.

Table 1 **Pollutant and Pollutant Classes in AFS which are TRI Chemicals or Assumed to Include TRI Chemicals**		
acetylenes	cadmium compounds *	lead compounds *
aldehydes	chlorofluorocarbons	manganese compounds *
ammonia	chlorophenols	mercury
antimony compounds *	chromium compounds *	mercury compounds *
aromatics	cobalt compounds *	nickel compounds *
arsenic	copper compounds	olefins
arsenic compounds *	cyanide compounds *	organic acids
asbestos *	fluorides	polybrominated biphenyls
barium compounds	glycol ethers *	polynuclear aromatics
benzene *	hydrochloric acid *	selenium compounds *
beryllium	hydrofluoric acid *	vinyl chloride *
beryllium compounds *	ketones	VOCs
cadmium	lead	zinc

* indicates that chemical or chemical class is classified as a Hazardous Air Pollutant (HAP).

2.3   EMISSION AND STACK HEIGHT DATA IN AFS

AFS tracks data in a hierarchy with four levels: (1) facilities; (2) stacks, the locations at which emissions are introduced into the atmosphere; (3) points, the processes that produce pollutant emissions; and (4) segments, which are components of the processes. For the criteria pollutants, estimated emissions are available in pounds per year at the facility level. For the HAPs, emissions may be estimated using "emissions factors" for specific production processes at the segment level. These processes are categorized by Source Classification Codes (SCCs), six-character identifications of the specific production processes.

Each facility in AFS has a primary SIC code, recorded at the four-digit level. The primary SIC code reflects the principal product or service generated by the facility. Within a facility, each stack is assigned a stack identification number. For each stack, the rate of emission in mass per time

of each stack pollutant (identified by CAS number or other chemical identification number) is provided, along with the non-zero height of the stack measured in feet.

3. OVERVIEW OF STACK HEIGHT DATA IN NET AND STATE DATABASES

3.1   NATIONAL EMISSION TRENDS DATABASE

EPA's National Emission Trends (NET) database became available to OPPT early in 1998, well after relevant data for the project were obtained from AFS. EPA decided to use stack height data from NET to augment the AFS data because some States not included in AFS were included in NET. The NET database provides information on stack height measured in feet, and the annual emission rates of five criteria pollutants: VOCs, NO_x, CO, SO_2, and PM10. To prevent double-counting of stacks from facilities in both AFS and NET, facilities present in both databases were identified based on the AFS ID. (From NET, EPA took the State Federal Information Processing Standard (FIPS) code, county FIPS code, and plant ID and concatenated them to form an identification number equivalent to an AFS ID.) If stack height data for a given AFS ID were present in both databases, the data in AFS were kept for further analyses, and the data in NET were removed from further consideration. The NET database does not include an EPA ID for facilities, and thus specific facilities in common to TRI and NET cannot be identified, nor can the number of facilities in common be estimated.

3.2   STATE DATA

For three States not included in AFS (California, New York, and Wisconsin), EPA was able to obtain facility-specific data on stack heights. For California, 98 facilities matched TRI facilities; for New York, 279 facilities matched TRI facilities; and for Wisconsin, 44 facilities matched TRI facilities. Not all of these facilities contributed stack height data to the analysis, however, as not all facilities reported non-zero stack air releases for 1995. Again, note that although these facilities may also be present in the NET database, they cannot be identified as TRI facilities in NET because NET does not include an EPA ID for facilities.

4. ANALYSES OF STACK HEIGHT DATA IN AFS

4.1   IDENTIFICATION OF FACILITIES IN COMMON TO BOTH TRI AND AFS

To use facility-specific stack height data in the Indicators Model wherever possible, the Agency attempted to identify TRI facilities in AFS for those States that reported to AFS. The match was performed as follows. For the reporting facilities, the AFS database includes an EPA ID, the only facility identifier common to both the TRI and AFS databases. On a TRI Form R, a facility is asked to report up to four EPA IDs associated with the facility. EPA identified TRI forms with non-zero stack releases, obtained all EPA IDs reported by those facilities on their forms, and matched the TRI facilities with the AFS facilities by EPA ID. For the 1995 TRI reporting year, which, at the onset

of this analysis, was the most recent year with TRI data available, there are 41,528 Forms R with non-zero stack releases, submitted by 13,204 facilities. These 13,204 facilities map to 12,106 EPA IDs. (Some TRI facilities do not have or do not report an EPA ID; others have more than one EPA ID. It is also possible for one EPA ID to match to more than one TRI ID.)

EPA identified 4,813 facilities in AFS that have primary 4-digit SIC codes in the range 2011 through 3999, not including Federal facilities, and that have stacks with non-zero stack height. EPA was able to link the 12,106 TRI EPA IDs to 1,231 AFS EPA IDs, albeit with some overlap, due to some TRI facilities having more than one EPA ID, and other TRI facilities sharing EPA IDs. After completing this analysis, EPA found 1,212 EPA IDs which represent 1,209 unique TRI facilities with non-zero stack heights in common to both AFS and TRI. In other words, about a quarter of the AFS facilities in the SIC code range required to report to TRI and with non-zero stack height can be found in TRI. Only about nine percent of TRI facilities with non-zero stack releases (1,209 of 13,204) are found in AFS with non-zero stack height. The low percent of matches can be explained by the following reasons:

- AFS data are not fully representative of all States;
- AFS reporting thresholds may exceed the threshold for reporting to TRI; and,
- AFS only covers 39 pollutant and pollutant classes that are either TRI chemicals or likely to contain TRI chemicals.

4.2   ANALYSIS OF STACK HEIGHT DATA BY CHEMICALS EMITTED AND SIC CODE

After identifying facilities in common to both AFS and TRI, EPA began investigating ways of estimating stack heights for TRI facilities *not* in AFS or in the three State databases. First, EPA identified 37,390 unique stacks in AFS associated with the 4,813 facilities listing their primary facility SIC code in the range 2011 through 3999, not including Federal facilities. The mean height of these stacks is 46.7 feet (14.2 meters). Based on the pollutants recorded in AFS as being emitted from these stacks, the Agency classified each of the 37,390 stacks as either "emitting a possible TRI chemical" or "not emitting a possible TRI chemical." The set of AFS pollutants that are classified as possible TRI chemicals for the purpose of this analysis are shown in Table 1. (It is important to note that the VOCs and other chemical classes may contain more than just TRI chemicals.) If at least one pollutant emitted from a stack was considered a possible TRI chemical, then the stack was designated as "emitting a possible TRI chemical". If none of the emitted pollutants were considered possible TRI chemicals, then the stack was designated as "not emitting a possible TRI chemical".

EPA then investigated the possibility that stack height varied by whether the stack emitted possible TRI chemicals or not. If stacks that do not emit possible TRI chemicals have different heights than stacks emitting possible TRI chemicals, then to include stacks that do not emit possible TRI chemicals in further analyses could bias the stack height results. Of the 37,390 stacks present, 16,889 (45.2%) emit pollutants considered as possible TRI chemicals. The remaining 20,501 emit only chemicals that are not considered as possible TRI chemicals from the AFS database. The mean

height of those stacks emitting possible TRI chemicals is 46.9 feet (14.3 meters), with a standard deviation of 41.4 feet (12.6 meters). The mean height of the remaining stacks is 46.5 feet (14.2 meters), with a standard deviation of 35.4 feet (10.8 meters). The difference in the mean heights of these two groups of stacks is not statistically significant, as determined by using a Student's t-test to compare the means. (The Agency compared means, rather than medians, because the test of means is a more powerful statistical test than the test of medians. The more powerful test is better able to differentiate dissimilar groups.)

In the course of the above analysis, the Agency noticed substantial variability in stack height across primary SIC codes of facilities in AFS. Thus consideration was given to estimating stack height as a function of the SIC code of the facility. For 2-digit, 3-digit, and 4-digit SIC codes, EPA evaluated the mean stack heights for the two groups of stacks -- those emitting possible TRI chemicals and those that do not -- by testing the equality of the means by using a Student's t-test at the five percent level of significance. (The significance level refers to the probability of rejecting the null hypothesis that the means are equal when actually it should not be rejected; this is the probability of committing a Type I error.) For each SIC group, EPA used an F-test to check whether the variances of the two stack groups were different. If the variances were equal, EPA assumed the two groups were drawn from the same population, and a Student's t-test was used to compare the means. If the variances were not equal, EPA assumed the two groups were from two different populations, and therefore used a modified Student's t-test, accounting for the unequal variances, to compare the means. At the two-digit SIC code level, 14 SIC code groups indicated significant height differences between the two groups of stacks and six did not. At the 3-digit level, 55 SIC code groups indicated significant height differences between the two groups of stacks and 74 did not. At the four-digit level, 109 SIC groups indicated significant height differences between the two groups of stacks and 303 did not.

4.3 ANALYSIS OF OTHER FACILITY CHARACTERISTICS IN TRI USING AFS DATA

The Agency also tried to determine if certain facility characteristics tracked in TRI affect stack height. If stack heights vary in systematic ways with information available in TRI, that information could be used to refine estimates of stack height in the Indicators Model. Specifically, EPA examined the potential impact on stack height of TRI stack air release volumes and number of stacks present at the facility. The key hypothesis being tested was that facilities with larger TRI stack air releases or greater numbers of stacks would have taller stacks.

Eighteen ordinary least squares regressions were run, one for each two-digit SIC code in the range of 20 to 39. Eighteen regressions were estimated, instead of twenty, because there are no facilities with non-zero TRI stack air releases present in both TRI and AFS in SIC codes 21 and 23. The dependent variable was facility stack height, estimated as the median height of all stacks present at AFS facilities that could be linked to TRI facilities. Coefficients for two independent variables (and an intercept term) were estimated. The independent variables were: (a) stack air release volumes summed over all TRI chemicals at the facility; and (b) number of stacks indicated for the facility in

AFS. Of the eighteen regressions estimated, only two (SIC codes 30 and 37) had stack air release coefficients statistically different from zero at the five percent level of significance. Based on the fact that most regressions resulted in no significant differences, the Agency concluded that the volume of TRI stack air releases and the total number of stacks at a facility are not significant determinants of stack height.

5. ANALYSES OF STACK HEIGHT DATA IN NET

As with AFS, EPA evaluated the possibility that stack heights within NET varied by whether the stack emitted possible TRI chemicals. Unlike AFS, NET does not record specific pollutants emitted from each stack. NET does, however, record annual VOC emissions from each stack. EPA identified 90,167 unique stacks in NET associated with 16,682 facilities listing their primary facility SIC code in the range 2011 through 3999, not including Federal facilities. The mean height of these stacks is 49.9 feet (15.2 meters). For the purposes of this analysis, the Agency labeled any stack with non-zero VOC emissions as a stack emitting possible TRI chemicals. Based on this definition, of the 90,167 stacks used in the analysis, 62,245 (69.0%) are classified as emitting possible TRI chemicals. The mean stack height of those stacks emitting possible TRI chemicals is 46.7 feet (14.2 meters), with a standard deviation of 47.8 feet (14.6 meters). The mean height of the remaining stacks is 57.0 feet (17.4 meters), with a standard deviation of 51.0 feet (15.6 meters). The difference in the mean heights of these two groups of stacks is statistically significant, as determined by using a Student's t-test to compare the means. (Recall that for AFS data, the comparable analysis found that the difference in the mean heights of the two groups of stacks was not statistically significant.)

6. IMPLEMENTATION OF RESULTS OF STATISTICAL ANALYSES IN THE INDICATORS MODEL

6.1   FACILITY-SPECIFIC STACK HEIGHTS

For the 421 California, New York, and Wisconsin facilities and the 1,209 facilities in common to the TRI and AFS databases, a representative stack height for each facility was estimated by calculating the *median* height for all of a facility's stacks with non-zero height. The median stack height was chosen rather than the mean because stack heights may not be normally distributed. No matter how the stack heights are distributed, the median is the appropriate measure of central tendency. For a facility with symmetrically-distributed stack heights, the median equals the mean. Therefore, for a given facility, the median of its stack heights was used as that facility's stack height in the Indicators Model.

6.2   ESTIMATED STACK HEIGHTS

For the remaining TRI facilities with non-zero stack releases for which facility-specific data were not available, stack heights were estimated from AFS and NET based on facility SIC codes.

EPA decided that the 3-digit SIC code was the appropriate level at which to analyze and use stack height data. At the 2-digit level, differences between stacks emitting TRI chemicals and stacks not emitting TRI chemicals are often masked because the variance in each population is so large. From a practical standpoint, 2-digit SIC codes represent too gross a level of aggregation for purposes of estimating stack height. At the other extreme, 4-digit SIC codes offer too fine a level of disaggregation; not only might one not expect much difference in stack height between, say, a facility manufacturing creamery butter and a facility manufacturing natural, processed, and imitation cheese, but the number of observations at the 4-digit level are often too few to make a meaningful comparison of the two stack groups. Thus, the remaining TRI facilities were classified into 3-digit SIC code groups by the assigned primary SIC code in the TRI database (i.e., the leading three digits of the first 4-digit SIC code listed). Of the 13,204 TRI facilities reporting non-zero air releases in 1995, 84% reported only one unique 3-digit SIC code; 12% reported two unique 3-digit SIC codes; 3% reported three, 0.8% reported four, and 0.2% reported five.

EPA determined that of the 37,390 stacks being analyzed from AFS and the 90,167 stacks being analyzed from NET, there were 18,967 stacks in common to the two databases. To avoid double-counting these stacks in the analysis, the Agency used the stack height data from AFS for these stacks, and removed the corresponding NET data from further consideration. Augmenting the stacks from AFS with the non-duplicative stacks from NET resulted in a total of 108,590 stacks (37,390 from AFS and 71,200 from NET).

Each TRI facility within a 3-digit SIC code group was assigned the *median* stack height of the AFS and NET stacks within that 3-digit SIC group according to the following hierarchy:

1.   If the combined AFS and NET stack height data for that 3-digit SIC code group indicated no statistically significant difference between the mean height of stacks emitting possible TRI chemicals and the mean height of stacks emitting non-TRI chemicals, then the median was estimated over all stacks in that group, regardless of whether the stack emitted possible TRI chemicals. This median height was then used as the estimated stack height for all TRI facilities in the 3-digit SIC code group that did not have facility-specific data in AFS or in the three State databases.

2.   If the AFS and NET stack height data for that 3-digit SIC code group *did* indicate a statistically significant difference between the mean height of stacks emitting possible TRI chemicals and the mean height of stacks emitting non-TRI chemicals, then the median for *only* those stacks emitting possible TRI chemicals was used as the estimated stack height for all TRI facilities in that 3-digit SIC code group.

In both approaches, the stack heights of facilities that occur in both TRI and AFS (i.e., facility-specific data) are included in the calculation of the median height of their 3-digit SIC code groups. State data are not included in these analyses because of the potential of double-counting with NET data, which includes data from California, New York, and Wisconsin. (Recall that NET facilities cannot be matched to TRI facilities because there is no facility identifier in common.) Table

2 presents the number of 3-digit SIC codes with median stack heights falling in particular stack height ranges for 139 of the 140 unique 3-digit SIC codes in the range 201 to 399. (No estimates of stack heights were available for facilities in SIC code 316, luggage manufacturing.) Note that the majority of SIC codes have median stack heights between 9.0 and 11.9 m; only one SIC code falls into each of the two highest ranges of stack heights.

Table A-1 in Appendix A indicates each 3-digit SIC code group in the range 201 to 399, the median stack height as estimated from the AFS and NET data, the estimation technique used (whether the median was calculated over all stacks or only those emitting possible TRI chemicals), and the number of 1995 TRI facilities using that value. Table A-1 also presents the median stack heights and the estimation technique used for 2-digit and 4-digit SIC codes within the ranges of 20 to 39 and 2011 to 3999, respectively.

Table 2	
Median Stack Heights by SIC Code	
Range of Stack Heights (meters)	**Number of 3-Digit SIC Codes with Median Stack Height in Range**
6.0 to 6.9 m	7
7.0 to 7.9 m	13
8.0 to 8.9 m	13
9.0 to 9.9 m	37
10.0 to 10.9 m	25
11.0 to 11.9 m	11
12.0 to 12.9 m	14
13.0 to 13.9 m	2
14.0 to 14.9 m	2
15.0 to 15.9 m	3
16.0 to 16.9 m	2
17.0 to 17.9 m	0
18.0 to 18.9 m	2
19.0 to 19.9 m	2
20.0 to 24.9 m	4
25.0 to 29.9 m	1
30.0 to 39.9 m	1
TOTAL: 6.0 to 39.9 m	139

6.3   COMPARISON TO PRIOR ASSUMPTION OF 10 m STACK HEIGHT

In contrast to the previously assumed value of ten meters (32.8 feet), this modified approach using AFS, NET, and State data concludes that 6,173 facilities are estimated to have stack heights above ten meters, and 7,031 facilities are estimated to have stack heights below ten meters. The mean stack height for all TRI facilities reporting non-zero stack air releases is estimated to be 11.1 meters (36.5 feet), with a standard deviation of 5.00 meters (16.4 feet), and a median height of 9.14

meters (30.0) feet. Note that these stack heights are not very different than the previously assumed value of ten meters.

6.4 ESTIMATION OF STACK HEIGHTS FOR TRI FACILITIES WITH MISSING OR INVALID 3-DIGIT SIC CODES

Of the 13,204 TRI facilities with non-zero stack air releases reported in 1995, stack heights were estimated as described above for 13,021 facilities. The estimation approaches used included: 1,209 facilities estimated directly from AFS; 69 facilities estimated from California State data; 192 facilities estimated from New York State data; 37 facilities estimated from Wisconsin State data; and 11,514 estimated based on the facilities' 3-digit SIC code. The remaining 183 facilities (13,204 facilities minus 13,021 facilities) reported SIC codes outside the range of 201 to 399, at the 3-digit level, or reported no SIC code. (As noted previously, not all data provided by California, New York and Wisconsin were useable, because not all facilities reported non-zero stack air releases in 1995.) For these 183 facilities, a stack height was assigned based on either the 2-digit SIC code (if a valid one was available) or on the median stack height for all 108,590 stacks from AFS and NET. The median stack height for all 108,590 stacks from AFS and NET is 10.67 m (35.0 ft). This median stack height of 10.67 m for *stacks* should not be confused with the median height of 9.14 m for all TRI *facilities*, which is based on AFS, NET, and State data, as described in Section 6.3. The median stack height at the 2-digit SIC code level was calculated according to the hierarchy used for the 3-digit SIC code analysis, presented in Section 6.2. Stack heights were estimated at the 2-digit SIC code level for 27 facilities. The stack heights for the remaining 156 facilities were estimated using the median stack height of all 108,590 stacks (10.67 m). Two significant figures are used for all stack heights in the Indicators Model.

7. ANALYSES OF EXIT GAS VELOCITIES

7.1 FACILITY-SPECIFIC EXIT GAS VELOCITIES

An analysis similar to that performed for stack heights was conducted for exit gas velocities. Exit gas velocity data were available from AFS, NET, and the New York and Wisconsin databases. (Data from California did not include exit gas velocities.) For the 216 New York and Wisconsin facilities and the 850 facilities in common to the TRI and AFS databases with non-zero exit gas velocities, a representative exit gas velocity for each facility was estimated by calculating the *median* exit gas velocity for all of a facility's stacks with non-zero height and non-zero exit gas velocity. As was done for stack heights, the median exit gas velocity was chosen rather than the mean because exit gas velocities may not be normally distributed. No matter how the exit gas velocities are distributed, the median is the appropriate measure of central tendency. Therefore, for a given facility, the median of its exit gas velocities was used as that facility's exit gas velocity in the Indicators Model. As with the stack height analysis, not all facilities provided by New York and Wisconsin could be matched to TRI facilities with non-zero stack air releases.

7.2   ESTIMATED EXIT GAS VELOCITIES

For the remaining TRI facilities with non-zero stack releases and non-zero stack heights for which facility-specific data were not available, exit gas velocities were estimated from AFS and NET based on facility 3-digit SIC codes. As previously mentioned, EPA determined that of the 37,390 stacks being analyzed from AFS and the 90,167 stacks being analyzed from NET, there were 18,967 stacks in common to the two databases. To avoid double-counting these stacks in the analysis, the Agency used the exit gas velocity data from AFS for these stacks and removed the exit gas velocity data in NET from further consideration. Therefore, augmenting the stacks from AFS with the non-duplicative stacks from NET resulted in 108,590 stacks (37,390 from AFS and 71,200 from NET).

Each TRI facility within a 3-digit SIC code group was assigned the median exit gas velocity of the AFS and NET stacks within that 3-digit SIC group according to the following hierarchy:

1.   If the combined AFS and NET stack height data for that 3-digit SIC code group indicated no statistically significant difference between the mean exit gas velocity of stacks emitting possible TRI chemicals and the mean exit gas velocity of stacks emitting non-TRI chemicals, then the median was estimated over all stacks in that group, regardless of whether the stack emitted possible TRI chemicals. This median exit gas velocity was then used as the estimated exit gas velocity for all TRI facilities in the 3-digit SIC code group that did not have facility-specific data in AFS or in the New York and Wisconsin databases.

2.   If the AFS and NET exit gas velocity data for that 3-digit SIC code group *did* indicate a statistically significant difference between the mean exit gas velocity of stacks emitting possible TRI chemicals and the mean exit gas velocity of stacks emitting non-TRI chemicals, then the median for *only* those stacks emitting possible TRI chemicals was used as the estimated exit gas velocity for all TRI facilities in that 3-digit SIC code group.

In both approaches, the exit gas velocities of facilities that occur in both TRI and AFS (i.e., facility-specific data) are included in the calculation of the median exit gas velocity of their 3-digit SIC code groups. State data are not included in these analyses because of the potential of double-counting with NET data, which includes data from New York and Wisconsin. (Recall that NET facilities cannot be matched to TRI facilities because there is no facility identifier in common.) Table 3 presents the number of 3-digit SIC codes with median exit gas velocities falling in a particular exit gas velocity range for 137 of the 140 unique 3-digit SIC codes reported in TRI. (No estimates of exit gas velocities were available for facilities in SIC codes 236 (girls', children's, and infants' outerwear), 316 (luggage manufacturing), and 317 (handbags and other personal leather goods).) Note that for all 3-digit SIC codes in the range of 201 to 399, the median exit gas velocity is greater than or equal to 4.0 m/sec.

Table 3 Median Exit Gas Velocities by SIC Code	
Range of Exit Gas Velocities (m/sec)	**Number of 3-Digit SIC Codes with Median Exit Gas Velocity in Range**
4.0 to 4.9 m/sec	3
5.0 to 5.9 m/sec	4
6.0 to 6.9 m/sec	4
7.0 to 7.9 m/sec	12
8.0 to 8.9 m/sec	44
9.0 to 9.9 m/sec	26
10.0 to 10.9 m/sec	26
11.0 to 11.9 m/sec	8
12.0 to 12.9 m/sec	7
13.0 to 13.9 m/sec	1
14.0 to 14.9 m/sec	2
TOTAL:	137

7.3   COMPARISON TO PRIOR ASSUMPTION OF 0.01 m/sec EXIT GAS VELOCITY

The mean exit gas velocity for all TRI facilities reporting non-zero stack air releases is estimated to be 9.92 meters per second (32.5 feet per second), with a standard deviation of 11.0 meters per second (36.0 feet per second), and a median exit gas velocity of 8.90 meters per second (29.2 feet per second). Note that these exit gas velocities are quite different than the previously assumed value of 0.01 meters per second. Of the 13,204 TRI facilities with non-zero stack air releases in 1995, 13,192 are estimated to have exit gas velocities above 0.01 meters per second. Only twelve facilities are estimated to have exit gas velocities less than or equal to 0.01 meters per second.

7.4   ESTIMATION OF EXIT GAS VELOCITIES FOR TRI FACILITIES WITH MISSING OR INVALID 3-DIGIT SIC CODES

Of the 13,204 TRI facilities with non-zero stack air releases reported in 1995, exit gas velocities were estimated for 13,016 facilities. The estimation approaches used included: 850 facilities estimated directly from AFS; 192 facilities estimated from New York State data; 24 facilities estimated from Wisconsin State data; and 11,950 estimated based on the facilities' 3-digit SIC code.

The remaining 188 facilities (13,204 facilities minus 13,016 facilities) reported SIC codes outside the range of 201 to 399, at the 3-digit level, or reported no SIC code. For these facilities, an exit gas velocity was assigned based on either the 2-digit SIC code (if a valid one was available) or on the median exit gas velocity for all 108,590 stacks. The median exit gas velocity for all 108,590 stacks from AFS and NET is 8.80 m/sec (28.9 ft/sec). This median exit gas velocity of 8.80 m/sec for *stacks* should not be confused with the median exit gas velocity of 8.90 m/sec for all TRI *facilities*, described in Section 7.3. The median exit gas velocity at the 2-digit SIC code level was calculated according to the hierarchy used for the 3-digit SIC code analysis, presented in Section 7.2. Table A-2 in Appendix A indicates each 3-digit SIC code group present in TRI, the median exit gas velocity as estimated from the AFS and NET data, the estimation technique used (whether the median was calculated over all stacks or only those emitting possible TRI chemicals), and the number of 1995 TRI facilities using that value. Table A-2 also presents the median exit gas velocities and the estimation technique used for 2-digit and 4-digit SIC codes, within the ranges of 20 to 39 and 2011 to 3999, respectively. Two significant figures are used for all exit gas velocities in the Indicators Model.

8. REFERENCES

Bouwes, Sr., N.W., and S.M. Hassur. 1998. Ground-Truthing of the Air Pathway Component of OPPT's Risk-Screening Environmental Indicators Model. U.S. EPA, Office of Pollution Prevention and Toxics, Economics, Exposure, and Technology Division. October. Draft.

APPENDIX A

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 20	2837	13.72	5034	15.54	Unequal	13.72	2837	
SIC 201	307	11.28	67	9.75	Equal	10.97	374	34
SIC 2011	153	11.28	35	9.14	Equal	10.67	188	
SIC 2013	108	12.19	19	10.67	Equal	12.19	127	
SIC 2015	46	9.91	12	11.13	Equal	10.06	58	
SIC 2017			1	9.14	N/A***			
SIC 202	213	14.94	147	13.72	Equal	14.63	360	17
SIC 2021	15	12.19	9	15.24	Equal	12.80	24	
SIC 2022	72	14.33	51	13.72	Equal	14.02	123	
SIC 2023	103	18.29	63	18.29	Equal	18.29	166	
SIC 2024	1	12.19	5	10.06	Unequal	12.19	1	
SIC 2026	22	12.80	19	9.75	Equal	10.36	41	
SIC 203	232	12.19	150	12.19	Equal	12.19	382	18
SIC 2032	6	11.89	3	6.10	Equal	11.58	9	
SIC 2033	142	12.19	67	11.58	Equal	11.89	209	
SIC 2034	2	18.29			N/A***	18.29	2	
SIC 2035	10	7.62	11	12.19	Equal	11.58	21	
SIC 2037	59	16.76	64	12.19	Equal	12.19	123	
SIC 2038	13	8.53	5	11.89	Equal	10.82	18	
SIC 204	501	17.07	2795	18.29	Equal	18.29	3296	86
SIC 2041	58	16.31	480	20.12	Equal	20.12	538	
SIC 2042			5	9.14	N/A***			
SIC 2043	105	22.56	666	23.77	Equal	23.47	771	
SIC 2044			16	22.86	N/A***			
SIC 2045	11	10.67	28	12.19	Equal	12.19	39	
SIC 2046	135	27.43	846	18.29	Equal	18.29	981	
SIC 2047	44	12.19	159	15.24	Unequal	12.19	44	
SIC 2048	148	10.36	595	12.19	Equal	12.19	743	
SIC 205	355	11.58	211	11.89	Unequal	11.58	355	17
SIC 2051	286	10.97	131	10.06	Equal	10.97	417	
SIC 2052	69	11.89	80	15.39	Unequal	11.89	69	
SIC 206	284	19.81	463	17.07	Equal	18.29	747	34
SIC 2061	77	22.86	41	23.16	Unequal	22.86	77	
SIC 2062	50	39.62	83	20.73	Equal	22.86	133	
SIC 2063	67	19.81	81	18.29	Equal	18.90	148	
SIC 2064	16	13.26	86	9.60	Equal	11.13	102	
SIC 2065	1	17.37	1	2.13	Unequal	17.37	1	
SIC 2066	19	14.33	69	13.72	Equal	13.87	88	
SIC 2067	25	13.11	79	18.90	Equal	13.11	104	
SIC 2068	29	8.84	23	9.14	Equal	9.14	52	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 207	209	13.72	570	15.24	Equal	15.24	779	85
SIC 2074	11	12.19	23	12.19	Equal	12.19	34	
SIC 2075	100	15.24	482	15.24	Equal	15.24	582	
SIC 2076	13	18.29	17	12.19	Equal	12.19	30	
SIC 2077	63	12.19	30	11.89	Equal	12.19	93	
SIC 2079	22	14.78	18	17.53	Equal	15.70	40	
SIC 208	437	17.98	273	15.24	Equal	16.46	710	30
SIC 2082	275	21.34	144	15.54	Equal	18.59	419	
SIC 2083	12	24.54	51	18.29	Equal	19.51	63	
SIC 2084	6	11.73	2	15.24	Equal	12.95	8	
SIC 2085	102	17.98	26	35.81	Unequal	17.98	102	
SIC 2086	21	9.14	13	10.67	Equal	9.45	34	
SIC 2087	21	10.36	37	10.06	Equal	10.06	58	
SIC 209	299	12.19	358	12.19	Equal	12.19	657	22
SIC 2091	33	12.80	12	15.85	Equal	13.11	45	
SIC 2092	8	12.19	1	12.19	Unequal	12.19	8	
SIC 2095	55	18.29	105	18.29	Equal	18.29	160	
SIC 2096	19	15.24	17	17.68	Equal	15.24	36	
SIC 2098	6	9.14	11	12.80	Unequal	9.14	6	
SIC 2099	178	11.43	212	10.67	Equal	10.67	390	
SIC 21	160	18.14	48	9.14	Equal	17.98	208	
SIC 211	101	20.73	23	15.85	Equal	19.96	124	20
SIC 2111	101	20.73	23	15.85	Equal	19.96	124	
SIC 212	9	10.97	11	9.14	Equal	9.14	20	1
SIC 2121	9	10.97	11	9.14	Equal	9.14	20	
SIC 213	15	12.19	8	8.99	Equal	10.67	23	1
SIC 2131	15	12.19	8	8.99	Equal	10.67	23	
SIC 214	35	15.24	6	9.75	Equal	15.24	41	4
SIC 2141	35	15.24	6	9.75	Equal	15.24	41	
SIC 22	1049	11.89	247	18.29	Unequal	11.89	1049	
SIC 221	101	15.24	28	20.73	Unequal	15.24	101	20
SIC 2211	101	15.24	28	20.73	Unequal	15.24	101	
SIC 222	74	11.73	15	10.36	Equal	10.67	89	13
SIC 2221	74	11.73	15	10.36	Equal	10.67	89	

See notes at end of table.

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Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 223	38	10.52	12	21.95	Unequal	10.52	38	3
SIC 2231	38	10.52	12	21.95	Unequal	10.52	38	
SIC 224	15	11.89	3	21.03	Unequal	11.89	15	1
SIC 2241	15	11.89	3	21.03	Unequal	11.89	15	
SIC 225	86	9.14	26	12.34	Equal	10.67	112	14
SIC 2251	7	12.19	3	2.74	Equal	10.67	10	
SIC 2252			2	3.81	N/A***			
SIC 2253	46	9.14	7	10.36	Equal	10.36	53	
SIC 2254	2	17.07	1	42.67	Unequal	17.07	2	
SIC 2257	18	5.79			N/A***	5.79	18	
SIC 2258	12	8.69	9	15.24	Unequal	8.69	12	
SIC 2259	1	12.80	4	15.24	Unequal	12.80	1	
SIC 226	323	12.19	59	20.73	Unequal	12.19	323	70
SIC 2261	133	11.58	19	22.86	Unequal	11.58	133	
SIC 2262	137	12.19	25	20.73	Equal	12.80	162	
SIC 2269	53	12.19	15	20.73	Unequal	12.19	53	
SIC 227	18	8.38	23	25.91	Unequal	8.38	18	26
SIC 2273	18	8.38	23	25.91	Unequal	8.38	18	
SIC 228	105	7.62	36	17.53	Unequal	7.62	105	15
SIC 2281	25	12.19	29	15.85	Equal	15.24	54	
SIC 2282	5	15.24	1	13.72	Unequal	15.24	5	
SIC 2284	75	5.49	6	25.30	Unequal	5.49	75	
SIC 229	289	11.58	45	14.63	Unequal	11.58	289	67
SIC 2291	3	10.97	4	7.62	Equal	9.75	7	
SIC 2295	156	11.58	19	14.63	Unequal	11.58	156	
SIC 2296	27	18.59	3	22.56	Equal	18.59	30	
SIC 2298	68	15.70	13	9.75	Equal	12.50	81	
SIC 2297	11	10.36	1	27.13	Unequal	10.36	11	
SIC 2299	24	11.58	5	20.73	Equal	12.80	29	
SIC 23	138	9.75	31	9.14	Equal	9.14	169	
SIC 231	3	8.84			N/A***	8.84	3	0
SIC 2311	3	8.84			N/A***	8.84	3	
SIC 232	28	11.73	7	9.14	Equal	10.67	35	1
SIC 2321	6	12.19	1	15.24	Unequal	12.19	6	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 2322	8	14.63	3	9.14	Equal	10.67	11	
SIC 2325	7	12.19			N/A***	12.19	7	
SIC 2326	2	11.28			N/A***	11.28	2	
SIC 2329	5	10.67	3	9.14	Equal	9.75	8	
SIC 233	19	10.97	3	10.97	Equal	10.97	22	1
SIC 2335	10	10.97			N/A***	10.97	10	
SIC 2337	1	3.66			N/A***	3.66	1	
SIC 2339	8	6.86	3	10.97	Unequal	6.86	8	
SIC 234	8	7.77			N/A***	7.77	8	0
SIC 2341	6	8.99			N/A***	8.99	6	
SIC 2342	2	6.86			N/A***	6.86	2	
SIC 235	21	6.40	3	15.24	Equal	7.16	24	5
SIC 2353	21	6.40	3	15.24	Equal	7.16	24	
SIC 236	3	6.10			N/A***	6.10	3	0
SIC 2369	3	6.10			N/A***	6.10	3	
SIC 237	1	6.10			N/A***	6.10	1	0
SIC 2371	1	6.10			N/A***	6.10	1	
SIC 238	7	7.92	1	5.79	Equal	7.77	8	6
SIC 2384	6	8.08			N/A***	8.08	6	
SIC 2385	1	7.92			N/A***	7.92	1	
SIC 2387			1	5.79	N/A***			
SIC 239	48	10.82	17	9.14	Equal	9.14	65	11
SIC 2391			1	4.88	N/A***			
SIC 2392	13	27.43	11	9.14	Equal	11.58	24	
SIC 2394	2	11.28			N/A***	11.28	2	
SIC 2396	29	8.84	3	9.14	Equal	9.14	32	
SIC 2399	4	6.86	2	6.55	Equal	6.71	6	
SIC 24	1771	10.97	1076	11.89	Equal	10.97	2847	
SIC 241	6	8.08	5	12.19	Equal	10.06	11	0
SIC 2411	6	8.08	5	12.19	Equal	10.06	11	
SIC 242	463	13.72	303	12.19	Equal	13.11	766	17
SIC 2421	342	14.94	233	12.19	Equal	13.72	575	
SIC 2426	115	11.58	62	11.43	Equal	11.58	177	
SIC 2429	6	22.10	8	16.61	Equal	17.68	14	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 243	728	9.45	371	10.67	Equal	10.06	1099	142
SIC 2431	171	9.14	111	10.67	Equal	9.45	282	
SIC 2434	302	8.23	57	9.14	Equal	8.53	359	
SIC 2435	78	13.72	39	9.14	Equal	12.19	117	
SIC 2436	163	14.63	158	12.19	Equal	13.72	321	
SIC 2439	14	14.94	6	19.05	Equal	16.00	20	
SIC 244	24	12.04	18	7.32	Equal	9.14	42	1
SIC 2441	3	23.77	3	7.32	Equal	8.69	6	
SIC 2448	8	11.43	6	6.71	Equal	10.06	14	
SIC 2449	13	12.19	9	8.53	Equal	9.14	22	
SIC 245	22	8.38	9	4.88	Equal	7.01	31	3
SIC 2451	20	7.62	8	4.88	Equal	6.86	28	
SIC 2452	2	10.67	1	0.30	Unequal	10.67	2	
SIC 249	528	11.13	370	12.19	Equal	11.89	898	254
SIC 2491	66	9.30	31	9.75	Equal	9.45	97	
SIC 2493	158	14.94	242	13.72	Equal	14.02	400	
SIC 2499	304	9.14	97	10.67	Equal	9.75	401	
SIC 25	2355	9.14	922	9.45	Equal	9.14	3277	
SIC 251	1454	9.14	375	9.14	Equal	9.14	1829	249
SIC 2511	1087	9.75	285	9.14	Equal	9.14	1372	
SIC 2512	170	9.14	39	10.67	Equal	9.45	209	
SIC 2514	95	8.23	30	8.84	Equal	8.53	125	
SIC 2515	11	6.10	2	11.58	Equal	11.58	13	
SIC 2517	43	7.62	15	4.57	Equal	6.71	58	
SIC 2519	48	6.10	4	19.20	Equal	6.55	52	
SIC 252	364	10.21	255	11.58	Equal	10.97	619	66
SIC 2521	174	10.06	97	12.19	Equal	11.58	271	
SIC 2522	190	10.67	158	10.97	Equal	10.97	348	
SIC 253	157	9.45	106	9.45	Unequal	9.45	157	23
SIC 2531	157	9.45	106	9.45	Unequal	9.45	157	
SIC 254	216	9.14	95	7.62	Equal	8.23	311	43
SIC 2541	99	7.92	34	7.62	Equal	7.92	133	
SIC 2542	117	9.14	61	7.62	Equal	9.14	178	
SIC 259	164	8.53	91	7.62	Equal	8.23	255	32
SIC 2591	40	7.62	17	7.62	Equal	7.62	57	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 2599	124	8.53	74	7.77	Equal	8.53	198	
SIC 26	2858	14.02	1153	18.90	Unequal	14.02	2858	
SIC 261	284	42.98	195	35.05	Equal	38.10	479	86
SIC 2611	284	42.98	195	35.05	Equal	38.10	479	
SIC 262	952	23.77	385	22.86	Equal	23.47	1337	89
SIC 2621	952	23.77	385	22.86	Equal	23.47	1337	
SIC 263	262	28.96	180	27.43	Equal	28.96	442	42
SIC 2631	262	28.96	180	27.43	Equal	28.96	442	
SIC 264	47	13.72	1	10.67	Equal	13.41	48	7
SIC 2641	38	14.02			N/A***	14.02	38	
SIC 2646	4	13.72			N/A***	13.72	4	
SIC 2647	2	27.43			N/A***	27.43	2	
SIC 2649	3	8.23	1	10.67	Unequal	8.23	3	
SIC 265	443	9.75	124	10.52	Equal	10.06	567	25
SIC 2651								
SIC 2652	19	10.97	2	13.87	Equal	11.28	21	
SIC 2653	175	10.67	69	10.67	Equal	10.67	244	
SIC 2655	38	9.14	10	8.08	Equal	9.14	48	
SIC 2656	84	10.06	15	9.75	Equal	10.06	99	
SIC 2657	127	9.14	28	14.94	Unequal	9.14	127	
SIC 267	870	9.14	268	10.67	Unequal	9.14	870	126
SIC 2671	351	9.14	100	10.67	Equal	9.14	451	
SIC 2672	188	10.06	60	9.14	Equal	9.75	248	
SIC 2673	108	7.92	11	7.62	Equal	7.62	119	
SIC 2674	30	7.92	7	9.14	Equal	7.92	37	
SIC 2675	20	15.70	1	5.79	Unequal	15.70	20	
SIC 2676	31	12.80	16	10.67	Equal	12.50	47	
SIC 2677	14	7.92	2	9.14	Equal	9.14	16	
SIC 2678	10	5.79	1	6.40	Unequal	5.79	10	
SIC 2679	118	10.06	70	14.63	Equal	11.89	188	
SIC 27	2348	9.14	364	10.67	Unequal	9.14	2348	
SIC 271	83	14.94	2	18.75	Equal	14.94	85	1
SIC 2711	83	14.94	2	18.75	Equal	14.94	85	
SIC 272	52	10.21	17	12.19	Unequal	10.21	52	0
SIC 2721	52	10.21	17	12.19	Unequal	10.21	52	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 273	248	11.58	81	14.63	Unequal	11.58	248	4
SIC 2731	74	11.58	7	9.14	Equal	10.97	81	
SIC 2732	174	11.58	74	15.24	Unequal	11.58	174	
SIC 274	25	8.84	6	10.36	Equal	8.84	31	0
SIC 2741	25	8.84	6	10.36	Equal	8.84	31	
SIC 275	1796	9.14	231	10.06	Unequal	9.14	1796	139
SIC 2751	30	9.60	6	8.23	Equal	9.14	36	
SIC 2752	841	9.75	111	10.67	Unequal	9.75	841	
SIC 2754	409	9.14	58	11.13	Unequal	9.14	409	
SIC 2759	516	8.84	56	7.62	Equal	8.53	572	
SIC 276	52	10.36	11	7.32	Equal	9.14	63	3
SIC 2761	52	10.36	11	7.32	Equal	9.14	63	
SIC 277	39	7.62			N/A***	7.62	39	1
SIC 2771	39	7.62			N/A***	7.62	39	
SIC 278	26	9.45	3	12.19	Equal	9.75	29	1
SIC 2782	16	10.06	2	9.60	Equal	10.06	18	
SIC 2789	10	9.14	1	18.29	Unequal	9.14	10	
SIC 279	27	7.62	13	7.92	Equal	7.77	40	23
SIC 2791	3	7.92	10	7.92	Equal	7.92	13	
SIC 2796	24	7.32	3	7.32	Equal	7.32	27	
SIC 28	20449	9.14	6914	13.72	Unequal	9.14	20449	
SIC 281	1306	13.11	1544	16.46	Unequal	13.11	1306	366
SIC 2812	187	15.24	116	14.63	Equal	14.63	303	
SIC 2813	190	9.14	61	13.41	Unequal	9.14	190	
SIC 2816	71	21.34	301	18.29	Equal	18.29	372	
SIC 2819	858	13.72	1066	16.76	Unequal	13.72	858	
SIC 282	3553	11.89	877	14.63	Unequal	11.89	3553	389
SIC 2821	2450	12.19	735	13.72	Unequal	12.19	2450	
SIC 2822	732	8.69	40	14.94	Unequal	8.69	732	
SIC 2823	38	12.19	12	12.50	Equal	12.19	50	
SIC 2824	333	18.29	90	18.14	Equal	18.29	423	
SIC 283	1029	13.11	584	11.28	Equal	12.19	1613	145
SIC 2831			3	12.19	N/A***			
SIC 2833	361	15.24	164	10.67	Equal	13.72	525	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 2834	664	12.19	414	11.73	Equal	12.19	1078	
SIC 2835	3	10.67	1	9.45	Unequal	10.67	3	
SIC 2836	1	5.18	2	12.50	Unequal	5.18	1	
SIC 284	502	7.92	417	16.46	Unequal	7.92	502	180
SIC 2841	184	13.11	317	19.81	Equal	17.98	501	
SIC 2842	45	9.14	29	10.36	Equal	9.14	74	
SIC 2843	205	4.88	48	4.72	Equal	4.88	253	
SIC 2844	68	9.14	23	11.28	Unequal	9.14	68	
SIC 285	702	8.84	257	9.14	Unequal	8.84	702	400
SIC 2851	702	8.84	257	9.14	Unequal	8.84	702	
SIC 286	11353	7.62	1815	12.19	Unequal	7.62	11353	428
SIC 2861	122	14.02	35	14.63	Equal	14.02	157	
SIC 2865	462	12.19	202	13.11	Equal	12.19	664	
SIC 2869	10769	7.62	1578	12.19	Unequal	7.62	10769	
SIC 287	736	12.19	625	21.34	Unequal	12.19	736	205
SIC 2873	249	18.29	237	23.47	Unequal	18.29	249	
SIC 2874	104	11.89	222	26.67	Unequal	11.89	104	
SIC 2875	9	10.67	17	6.10	Equal	9.60	26	
SIC 2879	374	9.14	149	11.89	Equal	9.45	523	
SIC 289	1268	7.62	795	12.50	Unequal	7.62	1268	397
SIC 2891	227	10.06	142	10.97	Equal	10.67	369	
SIC 2892	172	15.24	130	14.78	Equal	15.24	302	
SIC 2893	77	7.92	21	10.67	Unequal	7.92	77	
SIC 2895	106	24.99	222	21.34	Equal	24.08	328	
SIC 2899	686	6.10	280	10.82	Unequal	6.10	686	
SIC 29	8960	12.19	2247	13.72	Unequal	12.19	8960	
SIC 291	7373	12.19	1320	30.18	Unequal	12.19	7373	146
SIC 2911	7373	12.19	1320	30.18	Unequal	12.19	7373	
SIC 295	1423	9.14	846	9.14	Unequal	9.14	1423	30
SIC 2951	1078	9.14	699	9.14	Equal	9.14	1777	
SIC 2952	345	7.62	147	10.67	Unequal	7.62	345	
SIC 299	164	10.67	81	13.41	Unequal	10.67	164	64
SIC 2992	71	7.62	20	9.75	Equal	8.84	91	
SIC 2999	93	13.11	61	14.63	Unequal	13.11	93	
SIC 30	2738	9.14	1251	9.75	Unequal	9.14	2738	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 301	228	9.75	187	10.67	Unequal	9.75	228	55
SIC 3011	228	9.75	187	10.67	Unequal	9.75	228	
SIC 302	10	8.08			N/A***	8.08	10	4
SIC 3021	10	8.08			N/A***	8.08	10	
SIC 304	8	7.62			N/A***	7.62	8	3
SIC 3041	8	7.62			N/A***	7.62	8	
SIC 305	142	8.23	61	9.75	Unequal	8.23	142	60
SIC 3052	45	6.40	13	9.75	Equal	7.32	58	
SIC 3053	97	9.14	48	9.75	Equal	9.14	145	
SIC 306	546	9.14	283	9.14	Equal	9.14	829	178
SIC 3061	21	9.14	27	10.97	Equal	10.67	48	
SIC 3069	525	9.14	256	9.14	Equal	9.14	781	
SIC 307	106	7.92	69	9.14	Equal	8.23	175	53
SIC 3079	106	7.92	69	9.14	Equal	8.23	175	
SIC 308	1698	9.14	651	9.14	Equal	9.14	2349	765
SIC 3081	204	10.36	33	7.62	Equal	9.14	237	
SIC 3082	26	8.53	2	7.47	Equal	8.53	28	
SIC 3083	80	9.14	13	9.14	Equal	9.14	93	
SIC 3084	8	5.33	8	9.14	Equal	6.10	16	
SIC 3085	235	10.36	46	17.83	Unequal	10.36	235	
SIC 3086	209	9.14	83	8.84	Equal	8.84	292	
SIC 3087	125	9.45	134	9.75	Equal	9.45	259	
SIC 3088	46	7.62	5	7.62	Equal	7.62	51	
SIC 3089	765	9.14	327	9.14	Equal	9.14	1092	
SIC 31	272	10.06	116	8.38	Equal	9.75	388	
SIC 311	158	12.19	49	16.46	Unequal	12.19	158	23
SIC 3111	158	12.19	49	16.46	Unequal	12.19	158	
SIC 313	16	6.10	1	7.32	Equal	6.10	17	1
SIC 3131	16	6.10	1	7.32	Unequal	6.10	16	
SIC 314	90	6.40	64	7.32	Equal	7.16	154	17
SIC 3143	65	7.32	46	7.32	Equal	7.32	111	
SIC 3144	7	6.10			N/A***	6.10	7	
SIC 3149	18	4.88	18	7.01	Equal	6.86	36	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 315	1	6.71	2	12.19	Equal	6.71	3	0
SIC 3151	1	6.71	2	12.19	Unequal	6.71	1	
SIC 317	1	19.51			N/A***	19.51	1	1
SIC 3172	1	19.51			N/A***	19.51	1	
SIC 319	6	6.40			N/A***	6.40	6	0
SIC 3199	6	6.40			N/A***	6.40	6	
SIC 32	2006	12.19	4639	12.19	Equal	12.19	6645	
SIC 321	60	20.57	68	9.91	Equal	12.80	128	7
SIC 3211	60	20.57	68	9.91	Equal	12.80	128	
SIC 322	300	22.86	190	17.22	Equal	20.42	490	57
SIC 3221	154	23.32	107	15.24	Equal	20.12	261	
SIC 3229	146	19.66	83	21.34	Equal	21.34	229	
SIC 323	95	9.14	37	10.36	Equal	9.91	132	23
SIC 3231	95	9.14	37	10.36	Equal	9.91	132	
SIC 324	117	32.00	1198	19.81	Equal	21.34	1315	48
SIC 3241	117	32.00	1198	19.81	Equal	21.34	1315	
SIC 325	261	9.75	380	9.14	Equal	9.14	641	70
SIC 3251	111	9.14	70	9.14	Equal	9.14	181	
SIC 3253	55	12.50	93	10.06	Equal	10.67	148	
SIC 3255	92	10.67	196	9.14	Equal	9.14	288	
SIC 3259	3	11.58	21	2.13	Equal	4.88	24	
SIC 326	119	10.67	94	9.14	Equal	9.45	213	27
SIC 3261	16	8.08	19	9.14	Equal	8.23	35	
SIC 3262			1	9.14	N/A***			
SIC 3263	1	4.88			N/A***	4.88	1	
SIC 3264	82	12.50	27	13.41	Unequal	12.50	82	
SIC 3269	20	8.38	47	7.32	Equal	7.62	67	
SIC 327	420	12.04	1416	11.13	Equal	11.58	1836	12
SIC 3271	26	7.16	44	7.16	Equal	7.16	70	
SIC 3272	75	6.10	184	11.58	Unequal	6.10	75	
SIC 3273	103	9.14	556	9.45	Equal	9.45	659	
SIC 3274	65	21.95	307	12.50	Equal	15.24	372	
SIC 3275	151	15.24	325	15.85	Equal	15.85	476	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 328	19	6.71	26	6.10	Equal	6.10	45	8
SIC 3281	19	6.71	26	6.10	Equal	6.10	45	
SIC 329	615	12.19	1230	12.19	Equal	12.19	1845	123
SIC 3291	88	10.52	107	9.14	Equal	9.45	195	
SIC 3292	36	11.73	53	18.29	Unequal	11.73	36	
SIC 3293	6	10.67	2	12.80	Equal	10.67	8	
SIC 3295	179	12.19	780	12.19	Equal	12.19	959	
SIC 3296	193	13.72	153	14.02	Equal	13.72	346	
SIC 3297	70	12.19	104	9.14	Equal	10.67	174	
SIC 3299	43	7.62	31	21.95	Unequal	7.62	43	
SIC 33	3909	13.11	5112	12.19	Equal	12.50	9021	
SIC 331	1152	24.38	1377	22.25	Equal	22.86	2529	228
SIC 3312	912	30.48	1128	24.99	Equal	26.82	2040	
SIC 3313	13	23.47	43	12.19	Equal	12.19	56	
SIC 3315	57	11.58	59	10.67	Equal	10.97	116	
SIC 3316	59	17.07	89	11.28	Equal	13.72	148	
SIC 3317	111	7.62	58	9.75	Equal	9.14	169	
SIC 332	925	11.58	1778	10.67	Equal	10.97	2703	222
SIC 3321	733	11.89	1352	10.97	Equal	11.58	2085	
SIC 3322	18	10.97	157	12.19	Unequal	10.97	18	
SIC 3324	12	8.23	54	7.92	Equal	7.92	66	
SIC 3325	162	10.67	215	9.14	Equal	9.75	377	
SIC 333	414	16.15	570	16.46	Equal	16.31	984	55
SIC 3331	43	12.19	72	14.48	Equal	13.72	115	
SIC 3334	307	17.68	404	17.68	Equal	17.68	711	
SIC 3339	64	10.97	94	15.09	Equal	12.34	158	
SIC 334	305	12.19	380	11.28	Equal	12.19	685	138
SIC 3341	305	12.19	380	11.28	Equal	12.19	685	
SIC 335	624	12.50	384	12.19	Equal	12.19	1008	220
SIC 3351	74	12.50	80	10.67	Equal	11.13	154	
SIC 3353	227	14.33	84	14.63	Equal	14.63	311	
SIC 3354	99	11.89	44	8.53	Equal	10.67	143	
SIC 3355	23	14.33	16	16.31	Unequal	14.33	23	
SIC 3356	16	11.89	70	14.17	Unequal	11.89	16	
SIC 3357	185	10.97	90	10.67	Equal	10.97	275	
SIC 336	305	9.14	355	8.53	Equal	9.14	660	213
SIC 3361	5	9.14	17	7.32	Equal	7.32	22	
SIC 3362	6	9.60	16	7.77	Equal	8.08	22	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 3363	114	9.30	99	12.19	Unequal	9.30	114	
SIC 3364	8	9.60	10	8.53	Equal	8.84	18	
SIC 3365	111	10.67	112	7.62	Equal	8.53	223	
SIC 3366	18	7.92	57	7.62	Equal	7.92	75	
SIC 3369	43	6.10	44	11.28	Equal	7.62	87	
SIC 339	184	9.45	268	9.14	Equal	9.14	452	111
SIC 3398	86	9.14	112	8.84	Equal	8.84	198	
SIC 3399	98	9.45	156	9.14	Equal	9.14	254	
SIC 34	4406	9.45	2209	9.14	Equal	9.14	6615	
SIC 341	776	12.19	168	11.58	Equal	11.89	944	185
SIC 3411	609	12.80	131	11.58	Equal	12.19	740	
SIC 3412	167	9.14	37	9.14	Equal	9.14	204	
SIC 342	266	8.99	227	7.62	Equal	7.92	493	70
SIC 3421	19	11.89			N/A***	11.89	19	
SIC 3423	77	7.92	73	6.10	Equal	7.62	150	
SIC 3425	7	10.67	2	21.64	Unequal	10.67	7	
SIC 3429	163	9.14	152	7.92	Equal	7.92	315	
SIC 343	70	9.14	91	9.14	Equal	9.14	161	36
SIC 3431	4	18.44	29	10.67	Equal	10.67	33	
SIC 3432	19	9.14	46	9.14	Equal	9.14	65	
SIC 3433	47	8.84	16	11.58	Equal	9.14	63	
SIC 344	615	9.14	251	9.14	Equal	9.14	866	181
SIC 3441	96	11.28	53	7.92	Equal	9.14	149	
SIC 3442	139	9.14	38	8.99	Unequal	9.14	139	
SIC 3443	89	7.62	59	8.23	Equal	7.92	148	
SIC 3444	148	9.60	67	10.36	Equal	10.06	215	
SIC 3446	36	10.06	8	7.62	Equal	9.75	44	
SIC 3448	52	9.60	18	10.67	Equal	10.36	70	
SIC 3449	55	9.45	8	5.94	Equal	9.14	63	
SIC 345	97	9.14	97	9.14	Equal	9.14	194	45
SIC 3451	26	7.92	14	9.91	Equal	8.69	40	
SIC 3452	71	9.14	83	8.84	Equal	9.14	154	
SIC 346	422	10.36	288	12.19	Unequal	10.36	422	150
SIC 3462	54	10.67	133	12.19	Equal	12.19	187	
SIC 3463	10	8.08	6	9.14	Equal	8.69	16	
SIC 3465	79	10.97	40	12.19	Equal	11.28	119	
SIC 3466	39	10.06	19	9.75	Equal	9.75	58	
SIC 3469	240	9.91	90	10.67	Unequal	9.91	240	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 347	1275	9.14	711	7.92	Equal	8.53	1986	479
SIC 3471	411	9.14	437	7.92	Equal	8.53	848	
SIC 3479	864	9.14	274	7.92	Equal	8.84	1138	
SIC 348	222	10.52	43	9.14	Equal	10.06	265	26
SIC 3482	13	10.06	2	3.66	Equal	8.53	15	
SIC 3483	100	9.14	19	11.89	Unequal	9.14	100	
SIC 3484	18	10.21	1	8.23	Unequal	10.21	18	
SIC 3489	91	12.19	21	8.23	Equal	10.67	112	
SIC 349	663	9.14	333	8.23	Equal	9.14	996	305
SIC 3491	33	9.14	14	9.14	Equal	9.14	47	
SIC 3492	14	9.14	12	9.14	Equal	9.14	26	
SIC 3493	26	7.01	35	6.40	Equal	6.40	61	
SIC 3494	46	7.62	16	8.23	Equal	8.08	62	
SIC 3495	14	10.67	16	6.71	Equal	7.47	30	
SIC 3496	59	9.14	44	10.36	Equal	9.14	103	
SIC 3497	15	15.24	2	16.92	Equal	15.24	17	
SIC 3498	42	6.10	18	6.55	Equal	6.10	60	
SIC 3499	414	9.45	176	8.23	Equal	9.14	590	
SIC 35	2250	9.75	1393	9.14	Equal	9.14	3643	
SIC 351	269	11.28	131	10.67	Equal	10.97	400	30
SIC 3511	48	11.58	13	11.89	Unequal	11.58	48	
SIC 3519	221	10.97	118	10.36	Equal	10.67	339	
SIC 352	258	10.36	135	9.14	Equal	10.06	393	74
SIC 3523	217	10.67	104	9.14	Equal	10.36	321	
SIC 3524	41	9.14	31	9.14	Equal	9.14	72	
SIC 353	401	10.06	195	9.75	Equal	10.06	596	86
SIC 3531	156	12.95	114	10.36	Equal	12.19	270	
SIC 3532	34	9.30	14	9.45	Equal	9.45	48	
SIC 3533	63	6.10	31	6.10	Equal	6.10	94	
SIC 3534	43	10.36	7	11.58	Equal	11.13	50	
SIC 3535	48	7.77	8	9.30	Equal	8.53	56	
SIC 3536	30	9.30	11	7.32	Equal	9.14	41	
SIC 3537	27	12.50	10	11.28	Equal	12.19	37	
SIC 354	176	9.14	316	9.14	Equal	9.14	492	60
SIC 3541	55	10.97	62	9.14	Equal	9.14	117	
SIC 3542	20	10.36	17	10.67	Equal	10.67	37	
SIC 3543	5	7.32	11	10.06	Equal	8.69	16	
SIC 3544	18	8.38	29	8.53	Equal	8.53	47	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 3545	33	10.06	130	9.75	Equal	9.75	163	
SIC 3546	22	9.14	44	9.14	Equal	9.14	66	
SIC 3547	3	13.72	9	5.49	Equal	8.84	12	
SIC 3548	11	8.84	5	17.07	Unequal	8.84	11	
SIC 3549	9	9.75	9	9.14	Equal	9.14	18	
SIC 355	178	9.75	148	8.23	Equal	9.14	326	42
SIC 3552	24	11.43	61	7.32	Equal	8.53	85	
SIC 3553	3	9.14	13	9.14	Equal	9.14	16	
SIC 3554	17	10.97	6	7.16	Equal	10.67	23	
SIC 3555	44	8.53	15	8.53	Equal	8.53	59	
SIC 3556	19	9.14	23	9.14	Unequal	9.14	19	
SIC 3559	71	10.67	30	7.92	Equal	9.14	101	
SIC 356	324	9.14	191	7.92	Equal	8.84	515	90
SIC 3561	64	7.92	55	7.92	Equal	7.92	119	
SIC 3562	53	10.06	33	10.67	Equal	10.36	86	
SIC 3563	29	9.45	2	9.30	Equal	9.45	31	
SIC 3564	28	10.21	16	9.14	Equal	9.75	44	
SIC 3565	2	7.32			N/A***	7.32	2	
SIC 3566	15	7.62	1	3.35	Unequal	7.62	15	
SIC 3567	23	10.06	20	7.47	Equal	9.14	43	
SIC 3568	46	8.53	39	7.32	Equal	7.32	85	
SIC 3469	64	9.60	25	7.01	Equal	9.14	89	
SIC 357	227	10.67	94	9.30	Equal	10.36	321	21
SIC 3571	73	10.36	18	10.36	Equal	10.36	91	
SIC 3572	16	13.87			N/A***	13.87	16	
SIC 3573	2	7.62	1	12.80	Unequal	7.62	2	
SIC 3575	25	14.94	8	10.06	Equal	14.94	33	
SIC 3577	41	9.14	9	6.71	Equal	7.92	50	
SIC 3579	70	10.21	58	9.30	Equal	9.75	128	
SIC 358	303	9.14	83	9.14	Equal	9.14	386	91
SIC 3581	7	12.19			N/A***	12.19	7	
SIC 3582	5	7.92	5	12.19	Equal	11.43	10	
SIC 3585	237	9.14	60	9.14	Equal	9.14	297	
SIC 3586	30	8.53	3	12.19	Equal	8.53	33	
SIC 3589	24	9.14	15	12.50	Equal	10.67	39	
SIC 359	114	7.92	100	6.10	Equal	7.32	214	35
SIC 3592	36	8.23	56	1.68	Equal	4.57	92	
SIC 3593	4	5.94			N/A***	5.94	4	
SIC 3594	4	7.47	2	11.28	Equal	7.47	6	
SIC 3596	6	7.77	1	6.10	Unequal	7.77	6	
SIC 3599	64	7.92	41	7.62	Equal	7.62	105	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 36	3004	9.60	1330	9.14	Equal	9.14	4334	
SIC 361	244	11.43	135	9.14	Equal	10.36	379	45
SIC 3612	209	12.19	80	9.91	Equal	11.89	289	
SIC 3613	35	9.14	55	7.62	Equal	7.77	90	
SIC 362	494	8.99	213	8.53	Equal	8.84	707	96
SIC 3621	312	8.53	81	7.92	Equal	8.53	393	
SIC 3622	1	7.62	6	7.16	Unequal	7.62	1	
SIC 3624	54	15.85	58	12.65	Equal	15.24	112	
SIC 3625	93	9.14	38	9.91	Equal	9.14	131	
SIC 3629	34	10.06	30	8.23	Equal	9.14	64	
SIC 363	257	10.36	153	9.14	Equal	10.06	410	45
SIC 3631	55	10.97	70	7.62	Equal	9.14	125	
SIC 3632	68	12.19	36	10.82	Equal	12.04	104	
SIC 3633	19	11.28	14	10.82	Equal	10.97	33	
SIC 3634	61	8.23	13	9.75	Equal	8.23	74	
SIC 3635	2	10.06	3	5.49	Equal	8.53	5	
SIC 3639	52	10.21	17	12.19	Equal	10.67	69	
SIC 364	275	11.58	126	7.92	Equal	10.97	401	86
SIC 3641	59	12.19	21	10.67	Equal	12.19	80	
SIC 3643	48	10.67	23	7.92	Equal	8.53	71	
SIC 3644	31	11.58	17	6.10	Equal	10.06	48	
SIC 3645	50	9.14	19	14.02	Unequal	9.14	50	
SIC 3646	38	11.89	7	12.80	Equal	12.19	45	
SIC 3647	26	10.67	32	6.10	Equal	6.40	58	
SIC 3648	23	12.19	7	20.73	Unequal	12.19	23	
SIC 365	65	9.75	14	12.19	Equal	10.67	79	10
SIC 3651	52	9.75	12	13.72	Equal	9.75	64	
SIC 3652	13	11.58	2	11.43	Equal	11.58	15	
SIC 366	289	9.14	75	10.67	Unequal	9.14	289	21
SIC 3661	180	9.60	48	10.67	Equal	9.75	228	
SIC 3662	1	6.40	2	9.91	Unequal	6.40	1	
SIC 3663	63	9.75	16	15.24	Unequal	9.75	63	
SIC 3669	45	7.01	9	10.97	Unequal	7.01	45	
SIC 367	1208	9.14	405	8.53	Equal	9.14	1613	365
SIC 3671	123	7.62	37	6.71	Equal	7.62	160	
SIC 3672	84	8.69	102	9.75	Equal	9.14	186	
SIC 3674	422	10.06	127	8.23	Equal	9.75	549	
SIC 3675	32	9.14	2	4.88	Equal	8.84	34	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 3676	16	5.79	12	6.86	Equal	6.10	28	
SIC 3677	6	6.55	4	6.25	Equal	6.25	10	
SIC 3678	8	12.34			N/A***	12.34	8	
SIC 3679	517	9.14	121	8.84	Equal	9.14	638	
SIC 369	172	9.14	209	9.75	Equal	9.14	381	138
SIC 3691	26	7.01	109	9.14	Equal	9.14	135	
SIC 3692	17	8.53	8	11.58	Equal	9.14	25	
SIC 3694	93	9.14	71	11.89	Unequal	9.14	93	
SIC 3695	4	10.67	5	33.53	Unequal	10.67	4	
SIC 3699	32	7.47	16	6.10	Equal	6.71	48	
SIC 37	4500	11.28	4944	12.80	Unequal	11.28	4500	
SIC 371	2586	11.89	4391	13.41	Unequal	11.89	2586	449
SIC 3711	910	18.59	1584	23.77	Unequal	18.59	910	
SIC 3713	192	9.14	83	12.19	Equal	10.06	275	
SIC 3714	1353	10.67	2702	11.28	Equal	10.97	4055	
SIC 3715	89	9.14	3	6.10	Equal	9.14	92	
SIC 3716	42	8.84	19	9.14	Equal	9.14	61	
SIC 372	1094	11.28	229	9.75	Equal	11.28	1323	151
SIC 3721	532	10.97	59	11.89	Unequal	10.97	532	
SIC 3724	320	12.19	99	13.72	Equal	12.80	419	
SIC 3728	242	9.14	71	7.62	Equal	8.53	313	
SIC 373	395	9.14	131	9.14	Equal	9.14	526	125
SIC 3731	210	9.14	24	9.14	Equal	9.14	234	
SIC 3732	185	9.45	107	9.14	Equal	9.14	292	
SIC 374	157	11.89	67	11.58	Equal	11.89	224	28
SIC 3743	157	11.89	67	11.58	Equal	11.89	224	
SIC 375	47	10.67	39	10.67	Equal	10.67	86	6
SIC 3751	47	10.67	39	10.67	Equal	10.67	86	
SIC 376	100	12.19	36	10.67	Equal	12.04	136	22
SIC 3761	69	12.19	24	14.78	Equal	12.19	93	
SIC 3764	28	7.32	12	8.38	Equal	7.47	40	
SIC 3769	3	9.14			N/A***	9.14	3	
SIC 379	121	8.23	51	10.67	Unequal	8.23	121	40
SIC 3792	62	7.16	10	6.55	Equal	7.16	72	
SIC 3795	24	9.14	9	15.24	Unequal	9.14	24	
SIC 3799	35	9.14	32	11.58	Unequal	9.14	35	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 38	955	10.06	273	8.23	Equal	9.14	1228	
SIC 381	258	10.06	47	7.62	Equal	9.75	305	12
SIC 3811	2	5.18	29	6.10	Equal	6.10	31	
SIC 3812	256	10.06	18	7.62	Equal	10.06	274	
SIC 382	198	6.55	82	6.55	Equal	6.55	280	59
SIC 3821	10	7.32	3	8.23	Equal	7.62	13	
SIC 3822	37	10.06	12	9.75	Equal	10.06	49	
SIC 3823	30	6.55	19	6.10	Equal	6.40	49	
SIC 3824	7	5.49	1	7.62	Unequal	5.49	7	
SIC 3825	33	6.10	1	8.53	Unequal	6.10	33	
SIC 3826	47	6.40	31	6.10	Equal	6.10	78	
SIC 3827	17	9.14	8	6.71	Equal	7.92	25	
SIC 3829	17	9.14	7	4.88	Equal	9.14	24	
SIC 384	190	9.14	76	9.14	Equal	9.14	266	80
SIC 3841	110	9.75	43	8.84	Equal	9.75	153	
SIC 3842	43	9.14	8	9.91	Equal	9.14	51	
SIC 3843	7	6.71	16	6.10	Equal	6.10	23	
SIC 3844	22	9.75	8	12.19	Equal	10.36	30	
SIC 3845	8	6.10	1	9.14	Unequal	6.10	8	
SIC 385	14	7.92	9	9.14	Equal	9.14	23	11
SIC 3851	14	7.92	9	9.14	Equal	9.14	23	
SIC 386	292	12.19	52	13.11	Equal	12.19	344	33
SIC 3861	292	12.19	52	13.11	Equal	12.19	344	
SIC 387	3	24.38	7	8.23	Equal	8.38	10	2
SIC 3873	3	24.38	7	8.23	Equal	8.38	10	
SIC 39	1870	9.75	452	9.30	Equal	9.75	2322	
SIC 391	22	12.80	1	10.97	Equal	12.50	23	14
SIC 3911	4	14.78			N/A***	14.78	4	
SIC 3914	17	10.97	1	10.97	Unequal	10.97	17	
SIC 3915	1	17.07			N/A***	17.07	1	
SIC 393	56	9.14	13	8.84	Equal	9.14	69	12
SIC 3931	56	9.14	13	8.84	Equal	9.14	69	
SIC 394	158	9.14	53	11.28	Equal	9.14	211	43
SIC 3942	3	15.85	1	4.88	Unequal	15.85	3	
SIC 3944	57	10.97	43	11.28	Unequal	10.97	57	

See notes at end of table.

Table A-1
Summary of Median Stack Height by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (meters)	Non-TRI Chemicals Number of Stacks	Median (meters)	Equal Stack Pop. Means? *	Median Height for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Height of their SIC code**
SIC 3949	98	9.14	9	9.14	Equal	9.14	107	
SIC 395	59	9.14	30	9.45	Equal	9.14	89	14
SIC 3951	12	12.65	4	10.06	Equal	12.19	16	
SIC 3952	29	7.92	20	9.14	Equal	9.14	49	
SIC 3955	18	9.14	6	9.45	Equal	9.14	24	
SIC 396	20	9.14	5	21.34	Unequal	9.14	20	18
SIC 3961	8	9.91	2	22.71	Equal	11.13	10	
SIC 3965	12	7.01	3	21.34	Unequal	7.01	12	
SIC 399	1555	9.75	350	9.14	Equal	9.75	1905	116
SIC 3991	8	9.14	6	4.88	Equal	8.38	14	
SIC 3993	119	7.92	21	8.23	Equal	7.92	140	
SIC 3995	98	9.45	28	9.14	Equal	9.14	126	
SIC 3996	16	13.72	20	15.24	Equal	15.24	36	
SIC 3999	1314	10.06	275	9.45	Equal	10.06	1589	

*Is mean height of TRI chemical emitting stacks equal to mean height of non-TRI chemical emitting stacks? If unequal, use data from stacks emitting TRI chemicals.
**Approximately 87% of TRI facilities use heights based on their 3-digit SIC codes.
***Stack height data unavailable for one or both stack categories (emitting TRI chemicals and emitting only non-TRI chemicals).

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 20	2175	7.92	4099	11.94	Unequal	7.92	2175	
SIC 201	223	7.00	60	8.17	Equal	7.28	283	34
SIC 2011	128	6.21	32	9.44	Equal	6.64	160	
SIC 2013	62	8.96	17	4.57	Equal	7.59	79	
SIC 2015	33	7.00	11	8.31	Equal	7.68	44	
SIC 202	70	10.01	103	8.31	Equal	9.18	173	17
SIC 2021	1	6.46	5	6.46	Unequal	6.46	1	
SIC 2022	16	10.84	33	8.94	Equal	9.47	49	
SIC 2023	40	10.06	51	8.62	Equal	9.18	91	
SIC 2024	1	3.60	5	4.91	Unequal	3.60	1	
SIC 2026	12	7.50	9	13.01	Equal	12.44	21	
SIC 203	150	6.80	80	4.04	Equal	5.97	230	19
SIC 2032	4	13.43	3	0.06	Equal	13.26	7	
SIC 2033	77	8.41	43	7.16	Equal	8.31	120	
SIC 2035	5	5.97	11	15.09	Unequal	5.97	5	
SIC 2037	57	0.43	22	0.21	Equal	0.31	79	
SIC 2038	7	9.08	1	10.12	Unequal	9.08	7	
SIC 204	414	9.32	2320	12.53	Equal	11.94	2734	88
SIC 2041	48	8.31	401	13.42	Equal	13.42	449	
SIC 2043	96	11.45	587	12.80	Equal	12.80	683	
SIC 2044			16	6.74	N/A***			
SIC 2045	7	6.18	26	14.74	Unequal	6.18	7	
SIC 2046	106	11.22	659	14.66	Equal	13.98	765	
SIC 2047	40	8.04	133	12.62	Unequal	8.04	40	
SIC 2048	117	7.95	498	11.73	Equal	10.89	615	
SIC 205	298	7.93	174	7.19	Equal	7.65	472	18
SIC 2051	234	7.93	111	7.18	Equal	7.83	345	
SIC 2052	64	7.62	63	8.38	Equal	7.62	127	
SIC 206	238	8.75	404	9.11	Unequal	8.75	238	34
SIC 2061	65	0.84	32	8.28	Unequal	0.84	65	
SIC 2062	47	10.67	64	9.57	Equal	10.67	111	
SIC 2063	66	9.75	72	12.94	Equal	10.12	138	
SIC 2064	14	6.31	82	13.14	Unequal	6.31	14	
SIC 2065	1	274.32	1	188.37	Unequal	274.32	1	
SIC 2066	7	6.07	59	6.95	Equal	6.95	66	
SIC 2067	25	12.97	79	9.69	Equal	9.97	104	
SIC 2068	13	6.00	15	7.92	Equal	7.62	28	
SIC 207	178	10.79	466	13.61	Unequal	10.79	178	91
SIC 2074	11	8.31	9	15.24	Equal	15.24	20	
SIC 2075	85	11.26	397	14.81	Equal	13.98	482	
SIC 2076	9	10.85	13	8.34	Equal	9.60	22	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 2077	51	10.95	30	6.73	Equal	9.00	81	
SIC 2079	22	8.17	17	8.90	Unequal	8.17	22	
SIC 208	364	6.55	182	11.43	Unequal	6.55	364	31
SIC 2082	246	6.19	104	11.71	Equal	6.55	350	
SIC 2083	1	67.51	19	11.13	Unequal	67.51	1	
SIC 2084	6	12.41			N/A***	12.41	6	
SIC 2085	87	7.88	12	13.42	Equal	7.88	99	
SIC 2086	11	4.00	11	7.62	Equal	4.37	22	
SIC 2087	13	3.11	36	12.80	Equal	9.51	49	
SIC 209	240	7.29	310	8.63	Equal	8.26	550	23
SIC 2091	23	6.10	11	9.18	Equal	6.61	34	
SIC 2092	4	7.77	1	15.24	Unequal	7.77	4	
SIC 2095	48	12.19	84	7.92	Equal	8.38	132	
SIC 2096	9	3.73	13	10.91	Equal	9.38	22	
SIC 2098	6	8.31	11	4.27	Equal	6.58	17	
SIC 2099	150	6.92	190	10.15	Unequal	6.92	150	
SIC 21	141	12.41	29	7.44	Equal	12.41	170	
SIC 211	88	12.41	8	10.30	Equal	12.41	96	20
SIC 2111	88	12.41	8	10.30	Equal	12.41	96	
SIC 212	3	219.46	7	2.04	Equal	7.50	10	1
SIC 2121	3	219.46	7	2.04	Equal	7.50	10	
SIC 213	15	11.73	8	5.75	Equal	8.31	23	1
SIC 2131	15	11.73	8	5.75	Equal	8.31	23	
SIC 214	35	12.95	6	9.14	Equal	12.77	41	4
SIC 2141	35	12.95	6	9.14	Equal	12.77	41	
SIC 22	849	10.44	189	9.08	Equal	10.15	1038	
SIC 221	97	11.98	23	9.08	Equal	11.26	120	20
SIC 2211	97	11.98	23	9.08	Equal	11.26	120	
SIC 222	64	11.11	6	8.45	Equal	10.72	70	13
SIC 2221	64	11.11	6	8.45	Equal	10.72	70	
SIC 223	26	9.18	9	9.18	Equal	9.18	35	3
SIC 2231	26	9.18	9	9.18	Equal	9.18	35	
SIC 224	15	9.14	3	8.00	Equal	9.13	18	1
SIC 2241	15	9.14	3	8.00	Equal	9.13	18	
SIC 225	62	10.47	21	8.31	Equal	9.18	83	14
SIC 2251	6	5.42			N/A***	5.42	6	
SIC 2253	38	10.33	7	9.08	Equal	9.14	45	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 2254	2	138.16	1	9.18	Unequal	138.16	2	
SIC 2257	6	10.48			N/A***	10.48	6	
SIC 2258	9	14.01	9	6.83	Equal	9.13	18	
SIC 2259	1	11.13	4	10.18	Unequal	11.13	1	
SIC 226	266	10.66	57	9.18	Equal	10.43	323	70
SIC 2261	117	10.65	19	9.18	Equal	10.43	136	
SIC 2262	97	12.01	23	10.21	Equal	10.72	120	
SIC 2269	52	9.18	15	8.31	Equal	8.49	67	
SIC 227	18	9.04	21	9.18	Equal	9.18	39	26
SIC 2273	18	9.04	21	9.18	Equal	9.18	39	
SIC 228	62	10.66	8	10.72	Equal	10.72	70	16
SIC 2281	24	9.18	3	10.72	Equal	9.18	27	
SIC 2282	5	10.67	1	3.72	Unequal	10.67	5	
SIC 2284	33	11.26	4	10.72	Equal	10.76	37	
SIC 229	239	10.43	41	7.59	Equal	9.57	280	74
SIC 2291	3	5.73	4	5.11	Equal	5.73	7	
SIC 2295	116	10.43	16	6.70	Equal	10.43	132	
SIC 2296	26	10.52	2	8.12	Equal	10.52	28	
SIC 2298	61	9.57	13	7.59	Equal	9.57	74	
SIC 2297	11	10.52	1	1.00	Unequal	10.52	11	
SIC 2299	22	10.34	5	8.31	Equal	9.18	27	
SIC 23	120	10.58	28	10.97	Equal	10.97	148	
SIC 231	2	13.72			N/A***	13.72	2	0
SIC 2311	2	13.72			N/A***	13.72	2	
SIC 232	23	11.22	6	10.74	Equal	10.97	29	1
SIC 2321	4	44.07	1	1.22	Unequal	44.07	4	
SIC 2322	8	14.54	2	11.00	Equal	14.54	10	
SIC 2325	5	6.71			N/A***	6.71	5	
SIC 2326	2	13.25			N/A***	13.25	2	
SIC 2329	4	9.82	3	10.97	Equal	10.97	7	
SIC 233	17	8.00	3	6.00	Equal	6.95	20	1
SIC 2335	9	28.75			N/A***	28.75	9	
SIC 2337	1	3.05			N/A***	3.05	1	
SIC 2339	7	6.10	3	6.00	Equal	6.10	10	
SIC 234	6	12.97			N/A***	12.97	6	0
SIC 2341	5	12.97			N/A***	12.97	5	
SIC 2342	1	9.14			N/A***	9.14	1	
SIC 235	19	9.14	3	13.00	Equal	9.14	22	5
SIC 2353	19	9.14	3	13.00	Equal	9.14	22	

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 237	1	4.00			N/A***	4.00	1	
SIC 2371	1	4.00			N/A***	4.00	1	
SIC 238	7	7.26	1	12.25	Equal	7.76	8	6
SIC 2384	6	7.36			N/A***	7.36	6	
SIC 2385	1	7.26			N/A***	7.26	1	
SIC 2387			1	12.25	N/A***			
SIC 239	45	11.49	15	11.09	Equal	11.49	60	11
SIC 2392	13	6.10	11	11.09	Unequal	6.10	13	
SIC 2394	2	11.39			N/A***	11.39	2	
SIC 2396	26	16.96	3	10.97	Equal	15.91	29	
SIC 2399	4	11.86	1	14.90	Unequal	11.86	4	
SIC 24	1271	10.53	607	9.14	Equal	10.53	1878	
SIC 241	3	1.51	4	10.85	Equal	7.16	7	0
SIC 2411	3	1.51	4	10.85	Equal	7.16	7	
SIC 242	348	10.53	163	10.53	Unequal	10.53	348	18
SIC 2421	259	10.53	123	10.53	Unequal	10.53	259	
SIC 2426	87	10.53	35	10.53	Equal	10.53	122	
SIC 2429	2	5.29	5	3.05	Equal	3.05	7	
SIC 243	511	10.53	202	7.91	Equal	10.00	713	151
SIC 2431	101	9.93	43	11.00	Equal	9.98	144	
SIC 2434	223	10.53	40	6.87	Equal	10.18	263	
SIC 2435	42	10.53	14	7.80	Equal	9.91	56	
SIC 2436	135	10.91	100	5.18	Equal	9.14	235	
SIC 2439	10	13.71	5	25.30	Equal	14.01	15	
SIC 244	10	8.91	12	11.90	Equal	10.26	22	1
SIC 2441	1	7.50	3	16.95	Unequal	7.50	1	
SIC 2448	4	10.53	4	15.35	Equal	10.53	8	
SIC 2449	5	8.37	5	4.63	Equal	8.19	10	
SIC 245	11	10.03	3	15.12	Unequal	10.03	11	3
SIC 2451	9	10.09	3	15.12	Equal	10.09	12	
SIC 2452	2	6.02			N/A***	6.02	2	
SIC 249	388	10.91	223	8.56	Equal	10.53	611	258
SIC 2491	48	10.18	29	6.10	Equal	7.84	77	
SIC 2493	135	12.80	151	9.60	Equal	12.04	286	
SIC 2499	205	10.44	43	8.60	Equal	9.89	248	
SIC 25	1855	10.45	611	10.21	Equal	10.42	2466	
SIC 251	1170	10.67	216	11.37	Equal	10.72	1386	262
SIC 2511	900	10.72	155	12.62	Unequal	10.72	900	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 2512	114	12.34	20	7.78	Equal	11.49	134	
SIC 2514	92	10.12	26	7.83	Equal	9.75	118	
SIC 2515	5	4.57			N/A***	4.57	5	
SIC 2517	33	10.15	13	11.80	Equal	10.60	46	
SIC 2519	26	13.47	2	5.73	Equal	13.47	28	
SIC 252	272	10.18	202	9.65	Equal	10.16	474	72
SIC 2521	127	10.76	75	8.29	Equal	10.26	202	
SIC 2522	145	10.00	127	10.18	Equal	10.15	272	
SIC 253	129	8.55	49	9.69	Equal	9.60	178	23
SIC 2531	129	8.55	49	9.69	Equal	9.60	178	
SIC 254	181	8.83	82	9.24	Unequal	8.83	181	45
SIC 2541	73	9.00	27	8.37	Equal	8.87	100	
SIC 2542	108	8.43	55	9.39	Unequal	8.43	108	
SIC 259	103	8.55	62	11.06	Unequal	8.55	103	34
SIC 2591	30	9.69	17	9.91	Equal	9.69	47	
SIC 2599	73	8.55	45	13.69	Unequal	8.55	73	
SIC 26	2128	10.44	840	9.18	Equal	10.09	2968	
SIC 261	232	10.63	144	12.47	Unequal	10.63	232	88
SIC 2611	232	10.63	144	12.47	Unequal	10.63	232	
SIC 262	708	10.00	257	9.41	Equal	10.00	965	92
SIC 2621	708	10.00	257	9.41	Equal	10.00	965	
SIC 263	222	11.15	118	10.15	Equal	10.74	340	43
SIC 2631	222	11.15	118	10.15	Equal	10.74	340	
SIC 264	4	24.51	1	80.01	Unequal	24.51	4	7
SIC 2647	1	5.18			N/A***	5.18	1	
SIC 2649	3	35.17	1	80.01	Unequal	35.17	3	
SIC 265	341	8.41	104	6.16	Equal	8.10	445	27
SIC 2652	19	11.87	2	6.26	Equal	11.01	21	
SIC 2653	107	8.60	57	5.36	Equal	7.98	164	
SIC 2655	31	9.04	10	7.23	Equal	8.03	41	
SIC 2656	80	6.19	10	2.15	Equal	6.10	90	
SIC 2657	104	9.75	25	8.31	Equal	9.18	129	
SIC 267	621	10.76	216	8.30	Equal	10.15	837	135
SIC 2671	257	11.00	87	9.08	Equal	10.44	344	
SIC 2672	139	10.67	49	11.26	Equal	11.01	188	
SIC 2673	60	12.36	1	10.79	Unequal	12.36	60	
SIC 2674	30	11.28	4	3.55	Equal	11.26	34	
SIC 2675	18	7.10	1	12.68	Unequal	7.10	18	

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 2676	18	8.37	14	2.07	Equal	8.05	32	
SIC 2677	8	11.08	2	13.21	Equal	11.08	10	
SIC 2678	10	11.18	1	3.23	Unequal	11.18	10	
SIC 2679	81	8.03	57	6.40	Equal	7.01	138	
SIC 27	1769	10.97	264	7.54	Equal	10.18	2033	
SIC 271	75	6.71	1	2.74	Equal	6.71	76	1
SIC 2711	75	6.71	1	2.74	Unequal	6.71	75	
SIC 272	41	12.01	17	22.43	Unequal	12.01	41	0
SIC 2721	41	12.01	17	22.43	Unequal	12.01	41	
SIC 273	132	11.13	21	6.00	Equal	9.85	153	5
SIC 2731	41	7.53	7	5.00	Equal	6.26	48	
SIC 2732	91	11.87	14	7.97	Equal	10.76	105	
SIC 274	14	10.47	1	5.46	Equal	9.08	15	0
SIC 2741	14	10.47	1	5.46	Unequal	10.47	14	
SIC 275	1398	11.20	202	7.13	Equal	10.44	1600	149
SIC 2751	20	3.20	5	5.06	Equal	3.66	25	
SIC 2752	646	10.47	102	7.13	Equal	9.75	748	
SIC 2754	346	11.67	51	6.00	Equal	11.28	397	
SIC 2759	386	11.36	44	8.93	Equal	11.25	430	
SIC 276	47	8.03	8	3.52	Equal	8.03	55	3
SIC 2761	47	8.03	8	3.52	Equal	8.03	55	
SIC 277	21	11.21			N/A***	11.21	21	1
SIC 2771	21	11.21			N/A***	11.21	21	
SIC 278	18	8.61	1	8.37	Equal	8.37	19	1
SIC 2782	14	9.83	1	8.37	Unequal	9.83	14	
SIC 2789	4	6.16			N/A***	6.16	4	
SIC 279	23	8.10	13	10.12	Unequal	8.10	23	23
SIC 2791	3	12.19	10	10.12	Equal	10.12	13	
SIC 2796	20	6.61	3	5.12	Equal	5.12	23	
SIC 28	10267	7.03	5076	10.09	Unequal	7.03	10267	
SIC 281	889	9.08	1209	11.28	Unequal	9.08	889	378
SIC 2812	98	8.44	104	14.36	Equal	10.09	202	
SIC 2813	131	9.14	36	14.97	Unequal	9.14	131	
SIC 2816	66	9.99	241	11.19	Unequal	9.99	66	
SIC 2819	594	8.96	828	11.28	Unequal	8.96	594	
SIC 282	2290	8.31	675	9.02	Equal	8.35	2965	402
SIC 2821	1641	8.03	600	9.13	Equal	8.31	2241	

See notes at end of table.   24

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 2822	343	7.01	33	9.18	Equal	7.04	376	
SIC 2823	38	13.50	11	8.29	Equal	12.41	49	
SIC 2824	268	9.14	31	4.00	Equal	9.09	299	
SIC 283	732	7.03	453	9.70	Unequal	7.03	732	150
SIC 2831			3	256.03	N/A***			
SIC 2833	220	7.03	134	7.03	Unequal	7.03	220	
SIC 2834	509	7.25	313	11.89	Unequal	7.25	509	
SIC 2835	2	11.98	1	5.49	Unequal	11.98	2	
SIC 2836	1	10.37	2	9.62	Unequal	10.37	1	
SIC 284	259	6.34	241	9.70	Equal	8.03	500	183
SIC 2841	126	7.03	185	11.28	Equal	9.42	311	
SIC 2842	43	8.65	27	5.79	Equal	8.03	70	
SIC 2843	28	3.81	9	10.33	Unequal	3.81	28	
SIC 2844	62	5.74	20	9.18	Equal	5.74	82	
SIC 285	512	5.56	169	6.71	Unequal	5.56	512	414
SIC 2851	512	5.56	169	6.71	Unequal	5.56	512	
SIC 286	4354	5.61	1289	8.72	Unequal	5.61	4354	434
SIC 2861	94	9.00	15	9.06	Equal	9.00	109	
SIC 2865	377	6.55	174	10.24	Unequal	6.55	377	
SIC 2869	3883	5.46	1100	8.52	Unequal	5.46	3883	
SIC 287	512	8.90	405	12.47	Equal	10.43	917	209
SIC 2873	213	14.23	208	15.24	Equal	14.65	421	
SIC 2874	80	0.97	70	9.01	Unequal	0.97	80	
SIC 2875	6	2.01	16	13.41	Equal	11.67	22	
SIC 2879	213	7.62	111	10.36	Unequal	7.62	213	
SIC 289	719	8.00	635	10.45	Unequal	8.00	719	407
SIC 2891	205	7.44	75	6.47	Equal	7.22	280	
SIC 2892	49	7.03	127	16.15	Unequal	7.03	49	
SIC 2893	67	5.15	17	7.10	Equal	5.53	84	
SIC 2895	92	13.87	201	11.28	Equal	12.62	293	
SIC 2899	306	7.14	215	10.42	Unequal	7.14	306	
SIC 29	4399	5.49	1797	7.83	Unequal	5.49	4399	
SIC 291	3265	4.51	1057	5.73	Equal	4.94	4322	157
SIC 2911	3265	4.51	1057	5.73	Equal	4.94	4322	
SIC 295	1015	14.14	670	13.78	Equal	14.02	1685	30
SIC 2951	775	15.46	558	15.46	Equal	15.46	1333	
SIC 2952	240	6.82	112	6.40	Equal	6.82	352	
SIC 299	119	3.35	70	12.97	Equal	8.31	189	65
SIC 2992	45	5.74	18	7.54	Equal	6.43	63	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 2999	74	3.18	52	13.91	Equal	10.70	126	
SIC 30	1859	10.09	865	9.60	Equal	10.01	2724	
SIC 301	186	10.62	171	13.66	Unequal	10.62	186	57
SIC 3011	186	10.62	171	13.66	Unequal	10.62	186	
SIC 302	8	9.77			N/A***	9.77	8	4
SIC 3021	8	9.77			N/A***	9.77	8	
SIC 305	118	8.27	49	4.91	Equal	7.84	167	63
SIC 3052	37	10.45	12	9.13	Equal	10.01	49	
SIC 3053	81	7.10	37	3.00	Equal	5.24	118	
SIC 306	339	9.18	172	7.71	Equal	8.90	511	186
SIC 3061	15	8.14	2	12.19	Unequal	8.14	15	
SIC 3069	324	9.27	170	7.71	Equal	9.07	494	
SIC 307	24	10.09	50	10.09	Equal	10.09	74	53
SIC 3079	24	10.09	50	10.09	Equal	10.09	74	
SIC 308	1184	10.52	423	9.08	Equal	10.01	1607	801
SIC 3081	149	10.67	30	9.91	Unequal	10.67	149	
SIC 3082	22	11.39	1	5.33	Unequal	11.39	22	
SIC 3083	64	6.85	11	9.08	Equal	7.01	75	
SIC 3084	6	11.25	7	36.09	Equal	13.87	13	
SIC 3085	178	11.40	30	13.70	Unequal	11.40	178	
SIC 3086	166	9.13	69	8.08	Equal	8.31	235	
SIC 3087	52	11.30	51	15.09	Unequal	11.30	52	
SIC 3088	36	11.81	4	15.74	Equal	11.81	40	
SIC 3089	511	10.43	220	8.53	Equal	9.48	731	
SIC 31	222	9.08	100	8.45	Equal	8.80	322	
SIC 311	129	9.12	43	9.08	Equal	9.12	172	26
SIC 3111	129	9.12	43	9.08	Equal	9.12	172	
SIC 313	10	6.59	1	8.31	Equal	7.18	11	1
SIC 3131	10	6.59	1	8.31	Unequal	6.59	10	
SIC 314	81	8.10	54	7.48	Equal	7.84	135	17
SIC 3143	62	8.37	41	5.88	Equal	7.50	103	
SIC 3144	6	8.55			N/A***	8.55	6	
SIC 3149	13	2.62	13	9.28	Unequal	2.62	13	
SIC 315	1	4.70	2	0.91	Unequal	4.70	1	0
SIC 3151	1	4.70	2	0.91	Unequal	4.70	1	
SIC 319	1	12.01			N/A***	12.01	1	0
SIC 3199	1	12.01			N/A***	12.01	1	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 32	1593	10.76	3298	12.01	Unequal	10.76	1593	
SIC 321	46	11.53	56	11.11	Equal	11.17	102	7
SIC 3211	46	11.53	56	11.11	Equal	11.17	102	
SIC 322	237	11.26	157	9.18	Equal	10.87	394	58
SIC 3221	122	10.01	79	8.26	Equal	10.00	201	
SIC 3229	115	13.01	78	9.31	Equal	11.83	193	
SIC 323	64	8.37	36	13.35	Equal	10.53	100	23
SIC 3231	64	8.37	36	13.35	Equal	10.53	100	
SIC 324	90	12.19	942	15.42	Unequal	12.19	90	50
SIC 3241	90	12.19	942	15.42	Unequal	12.19	90	
SIC 325	214	9.33	308	12.94	Unequal	9.33	214	70
SIC 3251	83	12.94	59	15.24	Equal	12.94	142	
SIC 3253	52	4.15	74	5.07	Equal	4.95	126	
SIC 3255	76	9.05	162	12.94	Unequal	9.05	76	
SIC 3259	3	11.16	13	14.89	Equal	14.89	16	
SIC 326	109	9.28	84	9.80	Equal	9.28	193	27
SIC 3261	14	9.61	15	15.51	Equal	9.92	29	
SIC 3262			1	14.36	N/A***			
SIC 3263	1	14.30			N/A***	14.30	1	
SIC 3264	80	8.75	25	12.95	Unequal	8.75	80	
SIC 3269	14	4.02	43	6.31	Equal	6.31	57	
SIC 327	287	8.31	1060	7.65	Equal	7.65	1347	13
SIC 3271	21	8.31	32	4.00	Equal	4.60	53	
SIC 3272	45	5.13	150	6.00	Unequal	5.13	45	
SIC 3273	59	8.31	457	7.65	Equal	7.65	516	
SIC 3274	60	12.39	246	12.76	Equal	12.68	306	
SIC 3275	102	7.90	175	13.66	Unequal	7.90	102	
SIC 328	17	11.49	13	8.87	Equal	9.69	30	8
SIC 3281	17	11.49	13	8.87	Equal	9.69	30	
SIC 329	529	12.13	642	12.80	Unequal	12.13	529	123
SIC 3291	84	8.83	90	8.31	Unequal	8.83	84	
SIC 3292	34	10.24	52	12.77	Equal	11.26	86	
SIC 3293	1	53.34	2	11.87	Unequal	53.34	1	
SIC 3295	152	16.43	305	14.39	Unequal	16.43	152	
SIC 3296	165	14.16	96	13.01	Equal	13.44	261	
SIC 3297	58	11.71	68	12.94	Unequal	11.71	58	
SIC 3299	35	10.33	29	11.49	Equal	10.74	64	
SIC 33	2641	9.30	3707	10.45	Equal	10.03	6348	
SIC 331	912	8.90	1049	8.31	Unequal	8.90	912	238

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 3312	751	8.37	837	7.77	Equal	8.09	1588	
SIC 3313	13	27.60	42	20.95	Equal	21.01	55	
SIC 3315	46	10.13	52	8.53	Equal	9.81	98	
SIC 3316	37	7.37	67	9.57	Unequal	7.37	37	
SIC 3317	65	9.14	51	8.23	Equal	9.10	116	
SIC 332	451	11.49	1205	14.30	Unequal	11.49	451	233
SIC 3321	361	11.61	883	14.57	Unequal	11.61	361	
SIC 3322	7	24.23	148	11.16	Equal	11.40	155	
SIC 3324	9	10.17	35	13.23	Unequal	10.17	9	
SIC 3325	74	10.50	139	13.44	Unequal	10.50	74	
SIC 333	305	11.28	397	11.26	Equal	11.27	702	57
SIC 3331	36	10.21	49	13.75	Equal	11.28	85	
SIC 3334	230	13.46	281	10.61	Equal	11.50	511	
SIC 3339	39	10.06	67	11.37	Unequal	10.06	39	
SIC 334	213	9.30	315	9.91	Equal	9.30	528	142
SIC 3341	213	9.30	315	9.91	Equal	9.30	528	
SIC 335	499	9.14	309	8.39	Equal	9.00	808	233
SIC 3351	47	11.22	59	13.38	Unequal	11.22	47	
SIC 3353	196	9.22	81	5.03	Equal	8.37	277	
SIC 3354	84	9.00	41	6.31	Equal	9.00	125	
SIC 3355	20	7.04	16	5.03	Equal	5.55	36	
SIC 3356	15	13.78	64	3.41	Equal	5.27	79	
SIC 3357	137	9.08	48	13.58	Equal	9.92	185	
SIC 336	132	8.12	239	8.26	Equal	8.19	371	221
SIC 3361	3	7.25	6	3.89	Equal	5.64	9	
SIC 3362	5	5.97	16	13.14	Unequal	5.97	5	
SIC 3363	53	4.15	68	5.15	Equal	4.85	121	
SIC 3364	1	8.87	7	2.44	Unequal	8.87	1	
SIC 3365	46	10.80	59	9.30	Equal	10.38	105	
SIC 3366	4	10.55	48	14.36	Equal	14.36	52	
SIC 3369	20	8.98	35	5.49	Equal	5.74	55	
SIC 339	129	7.83	193	9.51	Equal	8.69	322	115
SIC 3398	40	10.18	67	9.36	Equal	9.36	107	
SIC 3399	89	7.83	126	10.04	Unequal	7.83	89	
SIC 34	3304	8.90	1679	8.93	Unequal	8.90	3304	
SIC 341	716	8.31	148	4.60	Unequal	8.31	716	198
SIC 3411	558	8.31	112	4.11	Unequal	8.31	558	
SIC 3412	158	8.31	36	7.03	Equal	8.14	194	
SIC 342	187	8.40	174	9.69	Unequal	8.40	187	72
SIC 3421	14	8.38			N/A***	8.38	14	

See notes at end of table.

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Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 3423	47	8.40	58	11.43	Unequal	8.40	47	
SIC 3425	7	10.76	2	13.07	Unequal	10.76	7	
SIC 3429	119	8.31	114	9.54	Equal	8.90	233	
SIC 343	47	8.59	83	12.41	Unequal	8.59	47	37
SIC 3431	4	0.33	25	12.41	Unequal	0.33	4	
SIC 3432	11	8.90	44	15.64	Unequal	8.90	11	
SIC 3433	32	8.75	14	5.11	Equal	7.99	46	
SIC 344	438	9.14	191	7.28	Equal	8.63	629	183
SIC 3441	71	11.10	29	8.32	Equal	10.98	100	
SIC 3442	107	9.60	32	5.46	Equal	8.60	139	
SIC 3443	59	9.00	42	9.53	Equal	9.14	101	
SIC 3444	99	7.95	60	6.64	Equal	7.95	159	
SIC 3446	25	6.10	8	5.00	Equal	6.10	33	
SIC 3448	40	10.44	16	14.75	Unequal	10.44	40	
SIC 3449	37	10.00	4	6.46	Equal	10.00	41	
SIC 345	53	6.40	82	8.60	Equal	8.17	135	45
SIC 3451	21	3.78	11	7.30	Equal	3.89	32	
SIC 3452	32	8.47	71	8.93	Equal	8.93	103	
SIC 346	308	8.96	177	8.31	Equal	8.37	485	156
SIC 3462	33	8.10	68	6.94	Equal	7.86	101	
SIC 3463	4	12.42	1	8.11	Unequal	12.42	4	
SIC 3465	59	10.06	27	9.27	Equal	9.27	86	
SIC 3466	37	9.14	6	10.65	Equal	9.69	43	
SIC 3469	175	8.90	75	8.08	Equal	8.36	250	
SIC 347	960	8.90	586	9.89	Unequal	8.90	960	493
SIC 3471	322	8.40	360	9.71	Unequal	8.40	322	
SIC 3479	638	9.02	226	10.06	Equal	9.17	864	
SIC 348	135	10.58	29	9.18	Equal	10.12	164	26
SIC 3482	5	9.84	2	11.23	Equal	9.84	7	
SIC 3483	36	8.90	16	8.11	Equal	8.65	52	
SIC 3484	11	9.18			N/A***	9.18	11	
SIC 3489	83	14.63	11	13.01	Equal	14.32	94	
SIC 349	460	8.90	209	8.69	Equal	8.90	669	317
SIC 3491	26	7.95	4	6.27	Equal	7.95	30	
SIC 3492	11	5.76	11	10.06	Unequal	5.76	11	
SIC 3493	22	9.86	21	17.86	Equal	13.38	43	
SIC 3494	27	8.96	11	9.08	Equal	9.02	38	
SIC 3495	11	7.37	9	17.22	Unequal	7.37	11	
SIC 3496	45	10.76	39	7.10	Equal	8.95	84	
SIC 3497	10	5.00	1	7.32	Unequal	5.00	10	
SIC 3498	22	5.46	10	13.47	Equal	7.74	32	

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 3499	286	9.04	103	7.80	Equal	8.80	389	
SIC 35	1500	9.11	1095	8.60	Equal	9.00	2595	
SIC 351	141	9.14	105	9.11	Equal	9.11	246	34
SIC 3511	38	9.04	13	12.01	Equal	9.18	51	
SIC 3519	103	9.14	92	8.66	Equal	9.11	195	
SIC 352	131	11.10	114	8.19	Equal	9.60	245	74
SIC 3523	116	11.10	94	7.92	Equal	9.49	210	
SIC 3524	15	10.42	20	9.51	Equal	10.42	35	
SIC 353	297	10.03	162	10.73	Equal	10.15	459	88
SIC 3531	128	11.05	106	11.61	Equal	11.20	234	
SIC 3532	22	10.77	10	9.39	Equal	10.77	32	
SIC 3533	37	9.14	20	8.84	Equal	9.14	57	
SIC 3534	26	9.33	3	10.52	Equal	9.66	29	
SIC 3535	42	9.01	7	13.05	Unequal	9.01	42	
SIC 3536	26	9.11	11	10.67	Equal	9.33	37	
SIC 3537	16	11.49	5	9.18	Equal	11.10	21	
SIC 354	124	8.53	285	5.73	Equal	7.25	409	61
SIC 3541	39	7.95	53	7.25	Unequal	7.95	39	
SIC 3542	16	8.85	15	3.51	Equal	6.04	31	
SIC 3543	3	8.84	8	0.94	Equal	5.36	11	
SIC 3544	18	12.16	28	9.69	Equal	10.42	46	
SIC 3545	32	8.10	119	8.11	Equal	8.10	151	
SIC 3546	5	10.00	44	2.47	Equal	2.87	49	
SIC 3547	3	6.22	9	2.07	Equal	2.48	12	
SIC 3548	1	10.76	3	3.32	Unequal	10.76	1	
SIC 3549	7	8.69	6	15.76	Equal	9.45	13	
SIC 355	131	7.89	131	9.69	Equal	8.37	262	43
SIC 3552	20	9.85	61	12.25	Unequal	9.85	20	
SIC 3553	3	11.10	13	6.40	Equal	6.40	16	
SIC 3554	7	8.29	3	11.80	Equal	10.04	10	
SIC 3555	41	8.37	15	12.10	Equal	9.60	56	
SIC 3556	4	8.15	12	5.20	Equal	6.16	16	
SIC 3559	56	7.01	27	3.00	Equal	5.74	83	
SIC 356	182	8.37	118	9.57	Unequal	8.37	182	93
SIC 3561	41	8.44	50	9.81	Unequal	8.44	41	
SIC 3562	24	8.85	13	5.15	Equal	8.80	37	
SIC 3563	22	1.67			N/A***	1.67	22	
SIC 3564	24	7.89	12	8.61	Equal	7.89	36	
SIC 3565	2	10.90			N/A***	10.90	2	
SIC 3566	11	8.37	1	11.03	Unequal	8.37	11	
SIC 3567	18	7.85	20	13.20	Unequal	7.85	18	
SIC 3568	8	8.86	8	5.99	Equal	8.82	16	

See notes at end of table.

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 3469	32	10.84	14	6.87	Equal	10.45	46	
SIC 357	180	9.18	83	9.02	Equal	9.12	263	22
SIC 3571	58	8.25	11	7.30	Equal	8.10	69	
SIC 3572	15	4.21			N/A***	4.21	15	
SIC 3573			1	6.31	N/A***			
SIC 3575	25	10.18	8	8.70	Equal	10.18	33	
SIC 3577	38	9.10	9	2.07	Equal	8.56	47	
SIC 3579	44	10.01	54	9.21	Equal	9.28	98	
SIC 358	221	8.59	49	8.60	Equal	8.59	270	95
SIC 3581	4	11.73			N/A***	11.73	4	
SIC 3582	3	7.95	5	8.84	Equal	8.11	8	
SIC 3585	179	8.70	30	6.80	Equal	8.55	209	
SIC 3586	14	7.99			N/A***	7.99	14	
SIC 3589	21	8.59	14	12.88	Unequal	8.59	21	
SIC 359	93	10.18	48	8.14	Equal	9.18	141	36
SIC 3592	27	9.45	9	10.42	Equal	9.80	36	
SIC 3593					N/A***			
SIC 3594	3	24.23	2	27.52	Equal	24.23	5	
SIC 3596	6	8.55	1	5.09	Unequal	8.55	6	
SIC 3599	57	11.26	36	7.42	Equal	9.00	93	
SIC 36	2324	8.90	1033	7.89	Unequal	8.90	2324	
SIC 361	192	9.64	121	8.00	Equal	9.18	313	45
SIC 3612	163	10.06	71	7.23	Equal	9.18	234	
SIC 3613	29	7.35	50	10.18	Unequal	7.35	29	
SIC 362	355	9.00	150	9.08	Unequal	9.00	355	103
SIC 3621	208	8.49	54	8.31	Unequal	8.49	208	
SIC 3622	1	7.68	6	43.83	Unequal	7.68	1	
SIC 3624	54	9.45	28	8.00	Equal	9.45	82	
SIC 3625	63	8.80	34	11.06	Equal	8.91	97	
SIC 3629	29	8.90	28	9.18	Equal	8.90	57	
SIC 363	183	8.80	133	10.58	Unequal	8.80	183	48
SIC 3631	53	8.80	58	10.59	Equal	9.05	111	
SIC 3632	40	8.58	34	11.00	Unequal	8.58	40	
SIC 3633	11	10.03	12	17.82	Unequal	10.03	11	
SIC 3634	40	8.24	10	11.17	Equal	8.34	50	
SIC 3635	2	9.38	2	5.39	Equal	8.17	4	
SIC 3639	37	10.54	17	5.67	Equal	10.53	54	
SIC 364	217	9.00	77	8.23	Equal	8.90	294	88
SIC 3641	55	9.59	18	10.48	Equal	9.69	73	
SIC 3643	41	9.08	21	9.08	Equal	9.08	62	
SIC 3644	21	10.76	5	8.31	Equal	10.76	26	

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 3645	43	7.84	19	5.55	Equal	7.84	62	
SIC 3646	23	7.95	7	7.71	Equal	7.95	30	
SIC 3647	11	7.95			N/A***	7.95	11	
SIC 3648	23	9.17	7	5.00	Equal	8.31	30	
SIC 365	42	8.80	7	8.05	Equal	8.80	49	10
SIC 3651	38	8.80	7	8.05	Equal	8.80	45	
SIC 3652	4	8.87			N/A***	8.87	4	
SIC 366	271	8.90	69	6.00	Equal	8.34	340	21
SIC 3661	173	9.75	45	5.73	Equal	8.93	218	
SIC 3662	1	7.25			N/A***	7.25	1	
SIC 3663	59	10.06	15	8.08	Equal	9.04	74	
SIC 3669	38	4.65	9	6.00	Equal	5.00	47	
SIC 367	972	8.44	341	6.18	Unequal	8.44	972	387
SIC 3671	101	7.84	30	3.00	Equal	7.62	131	
SIC 3672	53	7.89	90	6.72	Equal	7.65	143	
SIC 3674	375	8.90	100	7.28	Equal	8.84	475	
SIC 3675	26	8.90	1	1.98	Unequal	8.90	26	
SIC 3676	13	5.06			N/A***	5.06	13	
SIC 3677	4	10.47	4	11.17	Equal	10.47	8	
SIC 3678	8	4.83			N/A***	4.83	8	
SIC 3679	392	8.17	116	5.32	Unequal	8.17	392	
SIC 369	92	8.85	135	8.47	Equal	8.75	227	144
SIC 3691	17	9.09	92	8.21	Equal	8.47	109	
SIC 3692	3	22.30	4	0.98	Equal	15.01	7	
SIC 3694	58	8.80	19	9.00	Equal	8.87	77	
SIC 3695	4	11.49	5	8.09	Equal	9.31	9	
SIC 3699	10	5.58	15	9.08	Unequal	5.58	10	
SIC 37	3368	9.17	3589	11.05	Unequal	9.17	3368	
SIC 371	2108	9.85	3243	11.43	Equal	10.76	5351	481
SIC 3711	800	11.08	1375	12.19	Equal	11.89	2175	
SIC 3713	130	10.52	51	12.92	Equal	11.10	181	
SIC 3714	1103	9.05	1817	10.06	Equal	9.72	2920	
SIC 3715	66	9.75			N/A***	9.75	66	
SIC 3716	9	11.49			N/A***	11.49	9	
SIC 372	651	7.74	127	6.10	Equal	7.62	778	159
SIC 3721	407	7.74	54	2.26	Equal	7.62	461	
SIC 3724	94	8.10	26	5.97	Equal	7.90	120	
SIC 3728	150	7.92	47	7.62	Equal	7.62	197	
SIC 373	281	8.55	67	7.89	Equal	8.10	348	127
SIC 3731	134	7.95	17	10.33	Equal	7.95	151	
SIC 3732	147	10.76	50	7.89	Equal	8.31	197	

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 374	140	9.81	59	10.97	Equal	10.00	199	28
SIC 3743	140	9.81	59	10.97	Equal	10.00	199	
SIC 375	31	8.31	20	8.05	Equal	8.26	51	7
SIC 3751	31	8.31	20	8.05	Equal	8.26	51	
SIC 376	95	10.44	34	4.00	Equal	8.90	129	23
SIC 3761	65	11.49	23	4.00	Equal	9.40	88	
SIC 3764	27	3.66	11	8.31	Equal	5.47	38	
SIC 3769	3	8.90			N/A***	8.90	3	
SIC 379	62	11.10	39	16.15	Equal	11.49	101	46
SIC 3792	20	11.49	1	36.27	Unequal	11.49	20	
SIC 3795	23	9.00	8	10.00	Equal	9.66	31	
SIC 3799	19	13.32	30	16.15	Equal	16.15	49	
SIC 38	851	8.00	203	8.00	Equal	8.00	1054	
SIC 381	251	6.71	16	7.03	Equal	6.74	267	13
SIC 3811			1	15.67	N/A***	15.67	1	
SIC 3812	251	6.71	15	6.89	Equal	6.72	266	
SIC 382	153	6.22	58	3.00	Equal	5.64	211	62
SIC 3821	10	7.53	3	3.00	Equal	5.74	13	
SIC 3822	27	7.95	11	5.96	Equal	7.61	38	
SIC 3823	26	4.42	4	3.60	Equal	4.26	30	
SIC 3824	7	6.00			N/A***	6.00	7	
SIC 3825	25	7.10	1	6.61	Unequal	7.10	25	
SIC 3826	34	6.68	27	0.61	Equal	3.08	61	
SIC 3827	7	4.00	8	13.31	Unequal	4.00	7	
SIC 3829	17	5.07	4	4.00	Equal	5.00	21	
SIC 384	147	8.03	66	8.31	Equal	8.10	213	81
SIC 3841	94	8.07	35	8.31	Equal	8.31	129	
SIC 3842	28	5.78	8	11.54	Equal	7.12	36	
SIC 3843	7	5.74	16	8.58	Equal	8.26	23	
SIC 3844	13	6.71	6	4.21	Equal	5.21	19	
SIC 3845	5	10.67	1	11.89	Unequal	10.67	5	
SIC 385	14	6.92	9	8.00	Equal	8.00	23	11
SIC 3851	14	6.92	9	8.00	Equal	8.00	23	
SIC 386	283	9.30	47	9.18	Equal	9.18	330	34
SIC 3861	283	9.30	47	9.18	Equal	9.18	330	
SIC 387	3	14.54	7	135.33	Unequal	14.54	3	2
SIC 3873	3	14.54	7	135.33	Unequal	14.54	3	

See notes at end of table.

Table A-2
Summary of Exit Gas Velocity by SIC Code

SIC Code	TRI Chemicals Number of Stacks	Median (m/s)	Non-TRI Chemicals Number of Stacks	Median (m/s)	Equal Stack Pop. Means? *	Median Exit Gas Velocity for SIC code	Number of Stacks for SIC code	Number of TRI Facilities Using Median Exit Gas Velocity of their SIC code**
SIC 39	537	9.20	181	8.00	Equal	8.90	718	
SIC 391	22	8.50	1	11.26	Equal	8.90	23	14
SIC 3911	4	7.51			N/A***	7.51	4	
SIC 3914	17	8.90	1	11.26	Unequal	8.90	17	
SIC 3915	1	8.10			N/A***	8.10	1	
SIC 393	35	7.77	8	9.18	Equal	8.08	43	13
SIC 3931	35	7.77	8	9.18	Equal	8.08	43	
SIC 394	109	9.18	49	8.31	Equal	8.60	158	46
SIC 3942	3	10.76	1	5.61	Unequal	10.76	3	
SIC 3944	46	10.30	43	8.60	Equal	8.60	89	
SIC 3949	60	9.13	5	2.19	Equal	8.10	65	
SIC 395	48	8.63	15	9.08	Equal	8.66	63	14
SIC 3951	7	8.27	3	8.31	Equal	8.31	10	
SIC 3952	29	8.00	7	9.08	Equal	8.54	36	
SIC 3955	12	9.79	5	9.18	Equal	9.18	17	
SIC 396	18	9.21	5	2.41	Equal	8.90	23	18
SIC 3961	8	10.74	2	4.75	Equal	9.95	10	
SIC 3965	10	8.90	3	2.41	Equal	8.90	13	
SIC 399	305	10.18	103	6.43	Equal	9.04	408	123
SIC 3991	8	9.31	6	7.25	Equal	8.08	14	
SIC 3993	82	11.04	17	3.00	Equal	9.72	99	
SIC 3995	65	10.78	4	1.80	Equal	10.18	69	
SIC 3996	16	11.00	20	7.50	Equal	8.00	36	
SIC 3999	134	8.50	56	7.65	Equal	8.34	190	

*Is mean exit gas velocity of TRI chemical emitting stacks equal to mean exit gas velocity of non-TRI chemical emitting stacks? If unequal, use data from stacks emitting TRI chemicals.

**Approximately 91% of TRI facilities use exit gas velocities based on their 3-digit SIC codes.

***Stack exit gas velocity data unavailable for one or both both stack categories (emitting TRI chemicals and emitting only non-TRI chemicals).

See notes at end of table.