Industrial Air Emissions and Their Toxicity in Texas Counties: An Analysis of the Toxics Release Inventory, 1988 to 1998

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Executive Summary

Texas is one of the perennial leaders in the total volume of on- and off-site releases of industrial toxic wastes reported to the Environmental Protection Agency's Toxic Release Inventory. It consistently led the nation in the volume of industrial toxic air emissions during the period of 1988 to 1998 and currently remains in the top three states for total releases and air emissions. This report overviews the Toxic Release Inventory (TRI), which was authorized by the Emergency Planning and Community Right to Know Act to monitor and reduce industrial releases of toxic chemicals in the United States. The report also provides annual data on toxic air emissions in individual Texas counties and identifies demographic groups in the state who may be potentially vulnerable to health impacts caused by exposure to these emissions. Finally, it provides estimates of the toxicities of individual TRI chemicals present in the emissions at the county level and presents a calculated aggregate toxicity score for each county.

Manufacturers in 155 Texas counties reported to the TRI for the period from 1988 to 2000. Among these counties, 111 counties had emissions during 10 or more years; 26 counties had emissions 5 to 9 years; and 18 counties had emissions fewer than 5 years. Ninety-nine counties had no air emissions reported to the TRI during the thirteen-year period. Ten counties with toxic air emissions accounted for 82.4 percent of 5.5 billion pounds of releases and 34.9 percent of the 1.9 billion pounds of air emissions in the state; most of these counties are located in South Texas along the Gulf Coast.

Industries have made significant headway to reduce their waste releases overall and their toxic air emissions. Although the volume of off-site transfers of chemical wastes has increased in Texas, the volume of all toxic on- and off-site releases has sharply declined from 920.5 million pounds in 1988 to 304.9 million pounds in 2000. The volume of air emissions in 2000

(103.2 million pounds) was approximately 45 percent of the level in 1988 (228.2 million pounds).

Infants, women in their childbearing years (15 to 49 years of age), and elderly men and women may be more vulnerable and susceptible to exposure related illnesses than other demographic groups in Texas because of their bodies' inabilities to tolerate exposure to air pollution. Approximately 1.6 percent of Texas population was under one year of age in 2000. Close to one fourth of the state's population was women in their child-bearing years. Nearly six percent of the population were women 65 years of age and older, compared to 4.1 percent for elderly men. These proportions were similar to the respective percentages for the nation in both the 1990 and 2000 census periods.

Toxicity weights were derived in this study from the Chronic Human Health Indicator (CHHI) methodology developed by the EPA's Office of Pollution and Prevention (OPPT). Calculation of weighted average toxicity scores (WATs) was based on procedures applied by Scott and Cutter (1997). This procedure included the proportion of each toxic chemical in the total volume of air emissions and its toxicity weight for each year during the period of 1988 to 1998. The sum of each county's series of WAT scores was divided by the number of years in which air emissions occurred to determine the average annual toxicity of air emissions. Counties with the most severe toxicities are located predominately in heavily populated metropolitan statistical areas.

Finally, cumulative volumes of air emissions and cumulative toxicities scores were compared. TRI counties were divided arbitrarily into four groups: (1) high emission volume and high toxicity ($n_1 = 6$); (2) low emission volume and high toxicity ($n_2 = 87$); (3) high emission volume and low toxicity ($n_3 = 16$); and (4) low emission volume and low toxicity ($n_4 = 41$); 104

counties were excluded because they either had no emissions (n = 99) or had incomplete toxicity data (n = 6). High emission volume was defined as equal to or greater than the average of the cumulative volumes of emissions (mean = 1,099,042 pounds); high toxicity was measured as equal to or lower than the average of the cumulative toxicity scores (mean = 1.7622; cumulative scores closest to 0 indicated greater toxicity). Counties that were ranked with high emissions and high toxicity were Angelina, Cass, Gray, Jasper, Milam, and Wichita. None of these were listed in the top group of counties that had the largest volumes of toxic air emissions and only Milam County was in the top quartile of counties according to its average toxicity score. Moreover, only Angelina, Gray, and Milam Counties had large shares (> 10%) of potentially vulnerable subgroup populations, particularly elderly women.

Correlation coefficients were calculated among toxicity scores, pounds of air emissions and total releases, and selected demographics characteristics of Texas counties. Toxicity scores were poorly associated with the volumes of emissions and total releases and positively correlated with only the numbers of elderly men and women in county populations. Level of air emissions was positively related to overall volume of releases for the eleven-year period. Both variables and their ratio were positively associated with all the demographic variables, except the proportions of elderly men and women who lived in Texas counties. These results indicated that levels of emissions and total releases were most associated with urbanized counties where large sizes of particular subgroup population reside but represent smaller segment of their total populations.

Because of this report's focus on toxic air emissions by manufacturers who report to the TRI, it does not present a complete account of all toxic wastes in the environments of local Texas counties or in the immediate vicinities of plants and other facilities that produce or handle toxic

wastes. As a result, the levels of danger and potential harm due to human exposure to toxic chemicals in the environment and workplace were conservatively addressed at best. Human health risks depend on many factors: geography of an area; toxicity level and biological persistence of a chemical; dosage and duration of exposure; and socioeconomic characteristics and health histories of residents who reside around release facilities. Because of these unmeasured factors, identification of causal relationships between toxic air emissions and human health is extremely difficult in ecologic studies such as this one. Nevertheless, this county-level analysis and its findings may be important as a first step for identifying where more comprehensive studies are needed in Texas.

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Industrial Air Emissions and Their Toxicity in Texas Counties: An Analysis of the Toxics Release Inventory, 1988 to 1998

Introduction

Air pollution is an undesirable product of two interdependent processes: urbanization and industrialization. Since 1900, the US urban population has doubled to 80.3 percent of the total population and population densities have increased from 25.6 to 79.6 people per square mile (U.S. Department of Commerce 1999). Cities now consume larger shares of the natural landscape. Firestone (2001) recently estimated that more than 17,000 square miles of once-rural land in 1990 became suburban or reached urban densities by 2000. Urban growth has resulted not only in a new vernacular of terms such as "edge cities", "exurbia", and "gentrification" but also has accompanied increased human demand for and consumption of natural resources, manufactured goods, housing, and institutional services (Audirac 1999). As a major influence on the development of larger and more urban centers, industrialization has created greater numbers of manufacturing jobs, caused large shifts of the labor force from rural to urban areas, introduced greater prosperity, and produced an historically unprecedented era of innovation and technological development (Schnaiberg and Gould 1994; Wenner 1997). In the past 70 years, the gross domestic product (GDP) in America has grown almost tenfold to 7.5 trillion dollars (in adjusted 1992-chained dollars) (U.S. Department of Commerce 2001a). In real dollars, it is 82 times larger today than in the 1920s. Nonagricultural industrial employment has increased 340 percent to 128.1 million in the same period (U.S. Department of Commerce 1999).

This demographic and economic expansion has also caused more air and water pollution, among other equally serious problems such as soil erosion, deforestation, ozone depletion, species extinctions (Wenner 1997). Manufacturing companies in the United States annually

produce an estimated 1.4 billion tons of regulated hazardous chemical wastes and 430 million tons of unregulated industrial wastes containing heavy metal and organic compounds (Gerrard 1994). Only a few hundred of the more than 80,000 commercial chemicals are actively regulated by state and federal legislation for human health and environmental hazards (Wagner 1994). An important part of this legislation deals with the quality and safety of the air people breathe.

This report focuses on industrial toxic air pollution and Texas for several reasons. A large majority (> 80%) of the American public considers air and water pollution to be serious problems (Dunlap 1992; Woodruff et al. 1998). Texas industries are regional contributors to these problems. The state has one of the fastest growing populations in the nation. Its percent change in size of population has been greater than that for the U.S. from one decade to the next since 1850 (Murdock et al. 1997). Development of one of the largest manufacturing economies has paralleled this growth in population size. Since 1992, Texas has ranked third to California and New York in the number of manufacturing establishments (n = 22,458) and second to California in the value of manufactured shipments ($302 billion) (U.S. Department of Commerce 2002a). Finally, although Texas has reduced its toxic air emissions from 228.2 million pounds in 1988 to 103.2 million pounds in 2000, it ranked nationally first in the volume of toxic air emissions from 1988 to 1998, and third more recently (Environmental Protection Agency 2002).

The objectives of this report are several fold. First, the report briefly overviews the Toxic Release Inventory (TRI) that is administered by the Environmental Protection Agency to monitor and reduce industrial releases of toxic chemicals in the United States. Second, it provides annual data on toxic air emissions in individual Texas counties. Next, it identifies demographic groups in these counties that are the most potentially vulnerable to health impacts caused by exposure to these emissions. Finally, toxicities of individual TRI chemicals present in such emissions are

identified and used to calculate an aggregate toxicity score for each county for the period of 1988 to 1998. Comparisons are made regarding where the highest proportions of especially vulnerable groups are in the state to where the greatest volumes of toxic air emissions have occurred since 1988 and to where these emissions are the most toxic. These comparisons may provide elected officials, health experts, and other professionals interested air quality issues in Texas counties with important information about possibly critically unsafe areas for particular demographic groups of residents.

Toxics Release Inventory

The U.S. Congress passed in 1986 the Emergency Agency Planning and Community Right-to-Know Act (EPCRA) and established under Title III section 313 the Toxics Release Inventory. TRI objectives are to provide information to the public about the presence and release of toxic and hazardous chemicals in local communities and neighborhoods and to promote planning for chemical emergencies. Subsequent legislation expanded the TRI in 1998 to include reporting of additional waste management and pollution prevention activities by manufacturing facilities.

The Toxics Release Inventory (TRI) is a database of releases and transfers of toxic chemical wastes annually reported by manufacturing facilities to the U.S. Environmental Protection Agency (EPA). A chemical or chemical category is toxic if it produces significant chronic and acute health effects at concentration levels that are reasonably likely to exist beyond facility boundaries as a result of continuous, or frequently recurring, releases. In humans, these effects may include: carcinogenic, teratogenic, and mutagenic effects; serious, irreversible reproductive dysfunctions; neurological disorders; and other chronic health effects. A chemical may also be listed in the TRI if it produces sufficiently serious adverse environmental effects

because of its toxicity, or a combination of its toxicity and a tendency either to persist or bio-accumulate in the environment (U.S. Environmental Protection Agency 1998).

Since its inception, the TRI has undergone changes regarding which chemicals are considered to be hazardous to the environment and human health, who must report releases of toxic wastes, and how releases are to be reported. These changes and limitations of the TRI are discussed in more detail elsewhere (U.S. Environmental Protection Agency 1998; Thomas and Qin 2001). Briefly, the EPA has periodically added some chemicals to the TRI list because of public and interest groups' petitions and because recent research found the chemicals to be toxic. It removed other chemicals because manufacturers produced insignificant quantities (i.e., less than 500 pounds) and because scientific studies no longer indicated the chemicals to be dangerous. Starting with a list of 331 chemicals, the EPA has delisted 17 individual chemicals and 3 compounds from chemical categories. It added 9 chemicals in 1990, 7 chemicals in 1991, and 34 chemicals in 1994. The largest increase occurred in 1995 when 245 chemicals (plus another 41 chemicals that were members of compound categories) were added to the list. Since 1998, the TRI monitors 643 chemicals. As in the past, the list includes chemicals that were classified as carcinogens (number of chemicals = 188) under the requirements of the Occupational Safety and Health Administration (OSHA). Many of these chemicals are monitored also by the Clean Air Act; the Clean Water Act; the Safe Drinking Water Act; the Federal Insecticide, Fungicide, and Rodenticide Act; and the Resource Conservation and Recovery Act (Center for Environmental Information and Statistics 1999).

Because of these and other changes to the TRI list, year-to-year comparisons are adjusted to involve a consistent or core set of chemicals. A core set of chemicals excludes differences due to the addition, deletion, or change in definition of reportable chemicals. Three core sets of

chemicals were reported in the 1998 TRI databases. The 1988 core chemicals (n = 319) includes TRI chemicals (except for aluminum oxide, ammonia, and sulfuric acid which have had several definitional changes) that were actively monitored from 1988 to 1998. The 1991 core list has 338 chemicals active from 1991 to 1998. Finally, the 1995 core list includes 615 chemicals listed in the TRI that were constant from 1995 to 1998. Although the most currently reported data are for 2000, the toxicity analysis in this study is based on the total number of chemicals in emissions from 1988 to 1998. The data are the most reliable for this period because most manufacturers would have completed any revisions of reported levels of emissions and releases. Consequently, it is important to note the 'freeze date' of the data. This date indicates when revisions were last submitted by facilities and included in the TRI database. Different freeze dates in TRI databases may result in different data for the same reporting period (e.g., 1998). The study data were obtained from EPA by way of the *TRI Explorer*, which is an interactive database that is accessible on the Internet (http://www.epa.gov/triexplorer). The TRI Explorer is currently using January 23, 2002 as the freeze date for the years 1988 to 2000.

Additional changes involve the types of facilities that have to report to the TRI. Originally, any facility that conducts manufacturing operations within Standard Industrial Classification (SIC) codes 20 through 39 and has 10 or more full-time employees must report to the TRI if it meets "manufacture, process, or otherwise use" thresholds for a particular chemical. The EPA refers to this group as the "original industries" monitored since inception of the program. The EPA required these industries in 1987 to report if they manufactured or processed 75,000 pounds of any listed chemical during the previous calendar year. It reduced the level to 50,000 pounds for 1988 and subsequently to 25,000 pounds for 1989 and hence. The threshold level for "otherwise use" has remained at 10,000 pounds (Center for Environmental Information

and Statistics 1999). In 1993, the President issued an Executive Order that required Federal facilities, including military facilities which met TRI reporting requirements, to submit annual reports. Further, the EPA added several other industry classification codes in 1998. These "new" industries are: metal mining (SIC 10, except for SIC 1011, 1081, and 1094); coal mining (SIC 12, except for 1241 and extraction activities); electrical utilities that combust coal and/or oil (SIC 4911, 4931, and 4939); hazardous waste treatment and disposal facilities regulated under Resource Conservation and Recovery Act - Subtitle C (SIC 4953); chemicals and allied products wholesale distributors (SIC 5169); petroleum bulk plants and terminals (SIC 5171); and solvent recovery services (SIC 7389).

Finally, Congress passed in 1990 the Pollution Prevention Act that mandated the TRI to expand by increasing the information on toxic chemicals in industrial waste and on methods of source reduction. Prior to 1991, the EPA required facilities to report only off-site transfers to public owned treatment works (POTWs) and other off-site locations for treatment and disposal. Starting in 1991, it required covered facilities to report information about the amounts of TRI chemicals they manage as on- and off-site waste. The EPA established a waste management hierarchy of preferred methods by promoting *source reduction* (i.e., a facility's effort and activities to prevent, reduce, and eliminate the generation of waste quantities) followed by recycling, energy recovery, treatment, and disposal as a last resort.

Toxic Air Emissions in Texas

TRI release and transfer data are reported in three sections of Form R. *Section 5* of Form R deals with on-site releases of toxic wastes. A release is an on-site discharge of a toxic chemical to the environment. Releases include emissions to the air, discharges to bodies of water, releases at the facility to land, as well as injection into contained wells. *Section 6*

addresses off-site releases and transfers to disposal facilities. *Section 8* concerns both on-site and off-site management of toxic chemicals that result from routine production and non-production related operations (see U.S. Environmental Protection Agency 1998 or Thomas and Qin 2001 for definitions of each type of release and transfer). Facilities report the amount of each listed chemical as wastes and in wastes that they ship to off-site locations for disposal in Sections 6.1 and 6.2 of Form R. Waste transfers off-site for disposal by treatment, storage, and disposal facilities (TSDFs) and transfers of metals and metal compounds for stabilization and solidification are reported under Section 6.2. Transfers to publicly owned treatment works (POTWs) for wastewater treatment are reported under Section 6.1. Both of these types of transfers for disposal are included in the EPA's report as *off-site releases*. Facilities must report also in Section 6 of Form R and as required by the Pollution Prevention Act waste chemicals that are transferred to off-site facilities for other waste management purposes such as recycling, energy recovery, and treatment. These transfers do not necessarily result in a particular chemical's entry into the environment.

This study reports only the volume of wastes released in air emissions and their toxicity weights for Texas counties. Although releases can also occur to land impoundments, surface water, and underground wells, air emissions are the focus of this report because they are a readily present vector of potential human exposure to industrial toxic wastes and because inhalation-based toxicity values have been determined for many of the chemicals in this waste stream. Manufacturers in 155 counties reported toxic air emissions at least one year during the period of 1988 to 2000. Figure 1 shows the annual total volumes of air emissions relative to all on- and off-site releases in this period. Clearly, industries have made significant headway to reduce their waste releases overall and their toxic air emissions. The volume of all toxic releases has sharply

declined almost two-thirds from 920.5 million pounds in 1988 to 304.9 million pounds in 2000. The volume of air emissions in 2000 (103.2 million pounds) was approximately 45 percent of the level in 1988 (228.2 million pounds).

The top ten counties that had the largest volumes of toxic on and off-site releases and air emissions for the thirteen-year TRI monitoring period are listed in Table 1. These ten counties accounted for 82.4 percent of 5.5 billion pounds of releases and 34.9 percent of the 1.9 billion pounds of air emissions in the state. A large majority of these counties are located in South Texas along the Gulf Coast. Volumes of annual air releases and their percentage of total releases are presented for these and other Texas counties in Appendix A. Among the 155 counties listed, 54 counties are located in the 27 metropolitan statistical areas (MSA) across Texas. Three MSA counties (i.e., Archer, Foard, and Hood) had no on- or off-site releases reported to the TRI from 1988 to 2000. Toxic air emissions occurred in 111 counties during ten or more years; they occurred in 26 counties five to nine years and in 18 counties fewer than five years. Although MSA counties varied greatly regarding the volumes of reported air emissions, all but one of these counties had TRI air emissions reported ten or more years. Nine of the top 10 counties (except for Calhoun County) that are listed for total on and off-site releases and for air emissions were MSAs.

The number of counties that had air emissions of specific toxic chemicals is reported in Appendix B and the volume (in pounds) of each chemical released is given by year in Appendix C. As shown in the appendices, 13 chemicals (e.g., brucine and sodium dimethyldi-carbamate) listed in the TRI as having been emitted in Texas had no reported volumes. Chemicals that were annually emitted *among the most counties* from 1988 to 1998 were in descending order: toluene, xylene, ammonia, methanol, methyl ethyl ketone, sulfuric acid, zinc compounds, styrene,

Figure 1
Total Volume of Air Emissions Relative to All Releases by Texas Manufacturers Who Reported to the TRI, 1988 - 2000

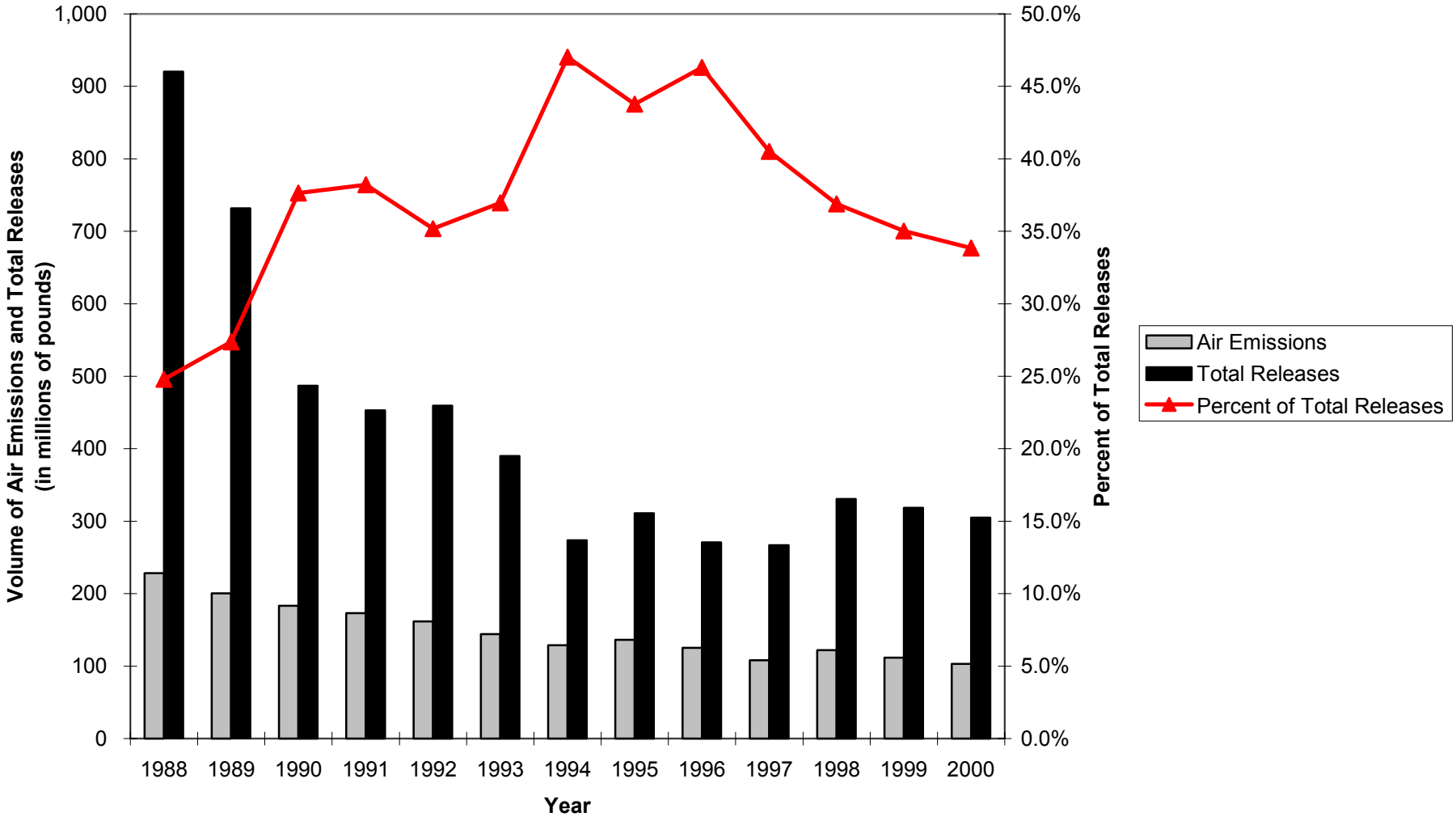


Table 1
Top Ten Counties in Texas Regarding Volumes (millions of pounds) of Total On- and Off-Site TRI Releases and Air Emissions, 1988 to 2000

	Total On and Off-Site Releases			Air Releases		
	County	**Volume**	**Percent[a]**	**County**	**Volume**	**Percent[b]**
1.	Brazoria	996.5	18.1	Harris	498.4	52.0
2.	Harris	957.7	17.4	Jefferson	222.4	31.6
3.	Jefferson	703.8	12.8	Brazoria	166.6	16.7
4.	Galveston	500.1	9.1	Orange	104.4	60.4
5.	Calhoun	395.6	7.1	Galveston	97.5	19.5
6.	Victoria	330.5	6.0	Harrison	77.0	82.8
7.	Nueces	261.3	4.7	Nueces	51.6	19.8
8.	Orange	172.7	3.1	Dallas	50.1	81.7
9.	Harrison	93.0	2.7	Tarrant	45.8	85.5
10.	Hutchinson	75.5	1.4	Hutchinson	41.5	55.0
	STATE	5,516.7	82.4	STATE	1,925.3	34.9

a. Percent of all on and off-site releases for period of 1988 to 2000 in Texas.

b. Percent of all on and off-site releases for period of 1988 to 2000 in the county

hydrochloric acid, and certain glycol ethers. Chemicals that were emitted *in the largest volume*s (over the total 11-year period) were in descending order: ethylene, propylene, methanol, ammonia, toluene, xylene, methyl ethyl ketone, acetone (no emissions after 1993, however), cyclohexane, and benzene. As will be discussed later in this report, these and other TRI chemicals do not share the same level of toxicity or potential health human hazard.

Understanding Exposure and Exposure Risks

Because of this report's focus on only toxic air emissions by manufacturers who report to the TRI, it does not present a complete account of all toxic wastes in the environments of local Texas counties or in the immediate vicinities of plants and other facilities that produce or handle toxic wastes. Consequently, the levels of danger and potential harm due to human exposure to toxic chemicals in the environment and workplace are conservatively addressed at best. This county-level analysis of the toxic air emissions may be important, nevertheless, for identifying areas where health risks posed by the omnipresence of such pollutants in the atmosphere are great for particular subgroups of the Texas population.

In this part of the report, what is meant by exposure and exposure risk is discussed first and related to other terms important to understanding risk and its assessment. That discussion is followed by an identification of whom these subgroups are and why they are highly vulnerable. EPA and the scientific community generally define human *exposure* as contact with a chemical (Daugherty 1998). Exposure can occur in several ways: from inhalation of toxic dusts or fumes dispersed from these facilities, by ingestion of toxic chemicals that have entered the water supply or the food chain, or by skin contact and absorption (Marsh and Caplan 1987). *Acute exposure* is exposure to a high concentration of a toxin within a short time period (< 24 hours), as compared to *subacute exposure* where exposure to lesser concentration is repeated over an extended period

of time (a month or less). *Chronic exposure* occurs at one-hundredth to one-thousandth of the level of an acute dose and is repeated over a time period greater than three months. *Subchronic exposure* is repeated during a period of one to three months and at levels lower than those for subacute exposure (Daugherty 1998).

It is also important to distinguish other terms such as dose and dosage because of the variety of definitions that have been proffered and confused with the term exposure (Burmaster and Appling 1995). *Dose* is the amount of a toxic chemical that actually enters the human body by way of inhalation, ingestion, or dermal contact. *Dosage* is more complicated as it involves dose amounts relative to the frequency and duration of exposure (Daughtery 1998). No quantifiable determinations of exposure, dose, and dosage were made among individuals for this study. *Potential exposure* by county populations to toxic chemical in air emissions was approximated as the annual volumes of emissions that occurred in a county from 1988 to 1998. Populations that resided in counties that had more years (and larger volumes) of emissions were assumed to have greater chances of exposure, or contact with toxins in air emissions.

The consequences of acute and chronic exposure involving highly toxic chemicals are serious. In addition to causing various forms of cancer (Geschwind et al. 1992; Andelman and Underhill 1987), these toxins may cause teratogenic effects (i.e., abnormal development), irreversible reproductive dysfunctions, neurological disorders, inheritable genetic mutations, or other chronic health effects (National Research Council 2000). Epidemiologists (Geschwind et al. 1992; Gots 1993) report that risks of these effects depend on several factors: integrity of waste containment, underlying hydrogeology and geography of an area; toxicity level and biological persistence of a chemical; dosage and duration of exposure; and socioeconomic characteristics and health histories of residents who reside around release facilities and of

industry employees who handle toxic chemicals in the production process. Because of these and other factors, identification of causal relationships between toxic chemicals and human illnesses and deaths is extremely difficult and undetermined in ecologic studies such as the one presented in this report (Morgenstern 1995; Wagener et al. 1995).

Vulnerable Populations

There are, however, particular groups in the state population that may be more vulnerable and susceptible to exposure related illnesses than other groups because of their age and sex characteristics. They include infants, women in their childbearing years, and elderly men and women. For example, an adult averages breathing in about 13,000 liters of air daily and children breathe in 50 percent more air per pound of body weight than do adults (Browner 2001). When this liter-to-body ratio is considered relative to the fragile development of their immunological and other physiological systems, infants have much lower exposure tolerances to industrial and other environmental toxins than adults.

Evidence that indicates a causal link between toxins in the air and infant morbidity and mortality is scarce, however. The National Research Council (2000) estimates roughly three percent of all developmental defects detected in embryos, fetuses, neonates, infants, and children could be attributable to toxic exposures and only a small proportion of these defects might have resulted from exposure to industrial toxic wastes. The NRC did not distinguish exposure vectors (i.e., inhalation, skin absorption, ingestion) and had little evidence regarding the toxicokinetic (i.e., activity and behavior) properties of industrial toxins in infants or adults. Elsewhere, researchers have determined that the leading defects related to infant deaths are heart defects (31.4%), respiratory defects (14.5%), nervous system defects (13.1%) multiple anomalies associated with chromosomal aberrations (13.4%) and musculoskeletal anomalies (7.2%) (Petrini

et al. 1997; see also Shepard 1998). Other scientists have reported that the age of peak cancer incidence among children (15 years of age and younger) occurs during the first year of life and the survival prognosis for this group is generally worse than that for older children (Gurney et al. 1999). These scientists found that male and female infants have essentially the same overall cancer incidence rates nationally (233 cases per million population for the periods of 1976 to 1984 and 1986 to 1996). Still, very little evidence exists that directly connects infant illnesses and deaths to toxic pollutants in the atmosphere. Governmental recognition of this deficiency prompted passage of the Children's Health Act in 2000. The Act authorized the National Institute of Child Health and Human Development to conduct a national longitudinal study of physical, chemical, biological, and psychological influences on children's health and development (Skedsvold 2002). Expected to begin in 2004, the national study will involve monitoring a cross section of 100,000 children (and their families) from birth through to 21 years of age (see http://www.nchd.gov/despr.cohort/).

Research findings regarding women and the health effects of toxic chemical exposure are likewise unconfirmatory and incongruous. Much of this research has addressed various forms of cancer with some attention increasingly directed toward developmental issues involving pregnancy (National Research Council 2000). Although scientists have identified several risk factors (e.g., age, family history of the disease, and hormonal replacement therapy) related to cancers among young and middle-aged women, they know little about the etiologies of breast, cervical, uterine, and ovarian cancers (Adami et al. 1998). They have rigorously pursued during the past decade identification of chemicals and other environmental factors in efforts to provide clues to these cancers. Some evidence exists that shows a positive relationship between these cancers' mortality rates and levels of toxic chemical wastes (Bradlow et al. 1995; Thomas et al.

2001, 2002). In his national study, Goldman (1991) found that number of toxic storage waste facilities, tons of hazardous chemical emissions, and lead concentration in the air were among the best discriminators of counties with the highest death rates due to female breast cancer.

Other research has shown the presence of high levels of chemicals in women's bloodstreams that affect their hormones. For example, polycyclic aromatic hydrocarbons have properties similar to steroid hormones that may affect estrogen metabolism or bind to estrogen receptors to produce cancers (Ambrosone and Shields 1997; see also Li 1999). More recent research showed that, although DDT was banned in the 1970s, its metabolite 'dichorodiphenly-dichloroethylene' (DDE) was found in the amniotic fluid taken of one-third of a sample of 51 non-smoking women who underwent routine amnioscentesis in Los Angeles (Foster et al. 2000). The Centers for Disease Control's National Health and Nutrition Examination Survey found phthalates (DEHP and DBP are development toxicants that affect the testes and mimic estrogen) at higher levels in a national sample women of reproductive ages than previously thought (Blount et al. 2000). Still, a few scientists caution that reported associations between exposure to these toxins and female related cancers and other diseases are tenuous at best because researchers are unable to adequately characterize exposure (e.g., time, duration, amount, etc.) and to produce results consistent with animal-based experimental findings (Wolff and Weston 1997).

Finally, elderly men and women may be also vulnerable to the effects of toxic chemical exposure. Elderly adults have lower immunities and experience general declines in health because of physiological changes due to aging (Verbrugge 1989). Compared to younger adults, they are more likely to have cardio-pulmonary problems and have more difficulty clearing pollution particles from their lungs. Elderly women who are post-menopausic and require hormonal replacement therapy are also at greater risk because of chemical toxins that mimic and

block the effects of this therapy. Although elderly adults are more likely than other groups to have been exposed longer to air and other pollution because of their longer lifetimes, effects of the aging process and personal health histories confound the determination of the health effects due to pollution exposure. Consequently, exposure effects are rarely addressed in the scientific literature (Peters and Pope 2002).[1]

Demographics of Special Groups in Texas

The number and percent distribution of infants, women between the ages of 15 to 49, and elderly men and women in 1990 and 2000 are summarized for the nation and Texas in Table 2. Approximately 1.6 percent of Texas population was under one year of age in 2000. Close to one-fourth were women 15 to 49 years of age. Nearly six percent of the population were women 65 years of age and older, compared to 4.1 percent for elderly men. These percentages were similar to those for the nation in both census periods.

Sizes and percentages of these population subgroups are reported for Texas counties in Appendices D and E, respectively. As expected, metropolitan counties tended the have the largest numbers of these subgroups populations (e.g., Bexar, Dallas, El Paso, Harris, and Tarrant Counties). However, when compared to the percentages of subgroup populations in the state during the year 2000, 26 counties had infant populations greater than 1.6 percent; 5 of these counties had 2 percent or larger. Forty-seven counties had subgroups of women 15 to 49 years of age that comprised 25 percent or greater shares of their population. Fourteen and 65 counties had elderly male and female populations, respectively, equal to or larger than 10 percent of their total populations.

Counties were divided into two categories (those with and those without air emissions) and their demographic characteristics were compared to determine if there was a demographic

Table 2
Summary of Population Subgroups Who are Potentially Most Vulnerable to Toxic Air Emissions in Texas: 1990 and 2000.

Population Subgroups	1990 Number	1990 Percent	2000 Number	2000 Percent
U.S. Population				
Total	248,709,873	100.0	281,421,906	100.0
Under one year of age	3,217,312	1.3	3,805,648	1.4
Women 15 – 49 years of age	65,645,748	26.4	71,779,895	25.5
Women 65 and older	18,676,658	7.5	20,582,128	7.3
Men 65 and older	12,565,173	5.1	14,409,625	5.1
Texas Population				
Total	16,986,510	100.0	20,851,820	100.0
Under one year of age	239,831	1.4	330,770	1.6
Women 15 – 49 years of age	4,526,494	26.6	5,454,198	26.2
Women 65 and older	1,021,105	6.0	1,210,351	5.8
Men 65 and older	695,471	4.1	862,181	4.1

Source: U.S. Department of Commerce (1991, 2002b); see the Internet address http://factfinder.census.gov.

bias regarding where emissions occurred. The average sizes of the four vulnerable sub-populations and their average proportionate shares of the total county populations were tested respectively for the two categories using the Student's t-test. The results appear in Table 3. Counties that had no toxic air emissions during the period from 1988 to 1998 had fewer *numbers* of infants under the age of one, women who were 15 to 49 years of age, and elderly men and women than counties with these emissions. Similar results were observed when the *proportions* of infants and of young adult women to the total county populations were examined. However, no-emission counties had statistically significant larger shares of elderly men and women relative to total population than did counties with emissions. These results are understandable when the highly urbanized locations of most of the emission facilities are considered.

Defining and Measuring Toxicity

A chemical hazard is the likelihood that a given chemical will cause damage or harm under particular conditions (Daugherty 1998). Harm depends on several factors such as how a chemical is absorbed, metabolized, and excreted from an organism's body, rate of reaction with tissue or other chemicals in the body, warning properties of the chemical (e.g., smell and sensation), and ability to catch on fire or cause an explosion. It also depends on toxicity. Toxicity may be either acute or chronic depending on when an effect is produced after exposure. Acute toxicity is the capacity of a chemical to produce an adverse effect within a short period of time, usually 24 to 96 hours. Chronic toxicity is the capacity of a chemical to cause adverse health effects as a result of multiple exposures occurring over an extended period of time, or during a significant proportion of an organism's lifetime (U.S. Environmental Protection Agency 2001).

Table 3
Student's t-Tests of Statistically Significant Demographic Differences between Texas Counties with and without Toxic Air Emissions and Total Releases, 1988 to 1998.*

Demographic Characteristics	Counties with No Air Emissions (n = 99)	Counties with Air Emissions (n = 155)	Student's t-Value*	Probability
Mean Sizes of Subgroup Populations				
Total Population	7,675	104,688	-3.970	.0001
Infants < 1 year	100	1,483	-3.825	.0002
Women 15-49 year of age	1,738	28,092	-3.847	.0002
Men 65+	506	4,164	-4.878	<.0001
Women 65+	690	6,150	-4.761	<.0001
Mean Percentage of Total County Population				
Infants < 1 year	1.2	1.3	-2.388	.0181
Women 15-49 year of age	21.8	23.8	-6.327	<.0001
Men 65+	7.1	6.0	4.064	<.0001
Women 65+	9.8	8.5	2.876	.0045

* Student's t-test based on unequal sample sizes and the assumption of unequal sample variances for the two groups of counties.

Assessments of chemicals' toxicities are complex and their results are often controversial, particularly when extrapolations are made from animal-base laboratory evidence to effects on human health and when scientific evidence is inconclusive about the hazard it poses to humans and the environment (Colborn et al. 1997 versus Safe 1995; Wolff and Weston 1997). Unfortunately, no set of toxicity measures is universally accepted nor covers the large range of commercially manufactured chemicals. Moreover, national databases (e.g., the Biennial Reporting System and the National Priority List) of particular chemicals for which toxicological evidence is available do not report specific amounts of chemicals generated and treated as wastes. The TRI was used in this study to calculate the levels of toxicity associated with industrial air emissions. The EPA has monitored industrial wastes since 1987 by collecting data on the composition (chemical name and Chemical Abstract Service number), facility or source of toxic wastes, and methods of release, transfer, and waste management.[2] Therefore, the TRI is the most comprehensive source of information on industrial toxic wastes in the United States that is available to the public.

Chemical toxicity values are available for a small number of chemicals from several sources. The Occupational Safety and Health Administration (OSHA) estimates "permissible exposure limits" (PELs) for approximately 500 substances according to an eight-hour work day, 240 working days, and 40 working years (National Archives and Records Administration 2002; Federal Register 1989, 1993). The National Institute for Occupational Safety and Health (NIOSH) reports "recommended exposure limits' (RELs) based on a ten-hour work day. PELs and RELs are legal standards and thus compliance with their safety laws and policies is mandatory. At one time, OSHA was allowed to adopt temporarily existing standards recommended by The American Conference of Governmental Industrial Hygienists (ACGHI).

The ACGHI (2001) annually reports in its Guide to Occupational Exposure Values chemical threshold limit values (TLVs). Each value is based on the maximum amount of a chemical that can be inhaled and is weighted according to exposure during an eight-hour work day in a forty-hour week (i.e., time-weighted average or TWA). Although some researchers have used TLV-TWAs in studies of environmental risks (e.g., Scott and Cutter 1997; Ying 2001), others claim that determination of the values has been influenced by corporate representatives serving on ACGIH committees and are not based on the best available scientific evidence as claimed by the ACGIH (Zeim and Castleman 2000). Furthermore, although use of TLVs is popular among researchers and professional groups, the values are recommended safety limits rather than permanent, legal standards. The ACGIH's Guide compares its time-weighted toxicity values with those values estimated by OSHA and NIOSH, as well as the Federal Republic of Germany's maximum concentration values in the workplace (MAKs). NIOSH's RELs are often more conservative than TLVs.

Toxicity values in these databases are expressed in milligrams per cubic meter (mg/m^3) and parts per million (ppm) for inhalation exposure. Texas facilities reported air emissions involving 366 chemicals listed in the TRI during the period 1988 to 2000. Time-weighted inhalation toxicity values based on occupational exposure to TRI listed chemicals were available for 118 chemicals from OSHA (PELs), 151 chemicals from NIOSH (RELs), and 271 chemicals from the ACGIH (TLVs). These toxicity values are listed in Appendix E.

Toxicity weights were derived for this report from the Chronic Human Health Indicator (CHHI) methodology developed by the EPA's Office of Pollution and Prevention (OPPT) (Bouwes and Hassur 1997).[3] This indicator has three components: the quantity of chemicals released and transferred by reporting facilities; adjustments for chemical-specific toxicities; and

adjustments for pathway-specific exposure potential (primarily oral and inhalation). The CHHI is based on the EPA's Hazard Ranking System (HRS) which weights chemicals' toxicities relative to one another using a proportional system of continuous numerical scores based on upper-bound estimates (i.e., 95% confidence interval) of cancer inhalation unit risk and oral slope factors for carcinogens, and reference doses (RfDs) or reference concentrations (RfCs) for noncancer effects.[4] The HRS is a multipathway (i.e., dermal, oral, and inhalation) scoring system in which a score indicates whether or not a waste site will be included on the National Priorities List. Inhalation related chemical toxicity weights were selected from the CHHI and used here. Neither the boarder measure of the CHHI nor its toxicity weights satisfy the statutory criteria used by the EPA for its listing and delisting chemicals in the TRI. The CHHI is only a screening tool that differentiates and ranks the toxicities of chemicals relative to one another.

As shown in Table 4, proportional weights were assigned to five toxicity categories of cancer and noncancer causing TRI chemicals. According to Bouwes and Hassur (1997), categorical weights have four advantages over unique numerical toxicity values. First, significant uncertainties are associated with the assessment of unique toxicity values in scientific evidence. Weighting a chemical emission based on its assignment within board categories of toxicity avoids a mistaken impression that its unique value is more precise than is actually the case. Second, chemicals are more likely to have their toxicities remain classified in broad categories over time in the face of accumulating new scientific evidence and thus such classifications would be more stable than unique toxicity values. Third, categorical weights can be easily adapted to incorporate in the future new methods of evaluating chemical toxicities based on specific health effects (in addition to cancer/noncancer effects). Finally, they allow EPA professionals to use both qualitative and quantitative toxicity information to make

Table 4
Relative Toxicity Weights of Chemicals with Cancer and Noncancer Health Effects

Range of Inhalation Unit Risk for Cancer Causing Chemical (risk per mg/m^3)	RfC Range for Noncancer Causing Chemicals[a] (risk per mg/m^3)	Weight of Evidence		
		Known/ Probable Effect	Possible Effect	Noncancer Causing Effect
Unit Risk (UR) < .0014	RfC < 1.8	10	1	1
.0014 < UR < .014	.18 < RfC < 1.8	100	10	10
.014 < UR < .14	.018 < RfC < .18	1000	100	100
.14 < UR < 1.4	.0018 < RfC < .018	10,000	1,000	1,000
1.4 < UR < 14.0	.00018 < RfC < .0018	100,000	10,000	10,000
UR > 14.0	RfC < .000018	1,000,000	100,000	100,000

Source: Bouwes and Hassur 1997.

a. Based on EPA's determination of the highest "no observed adverse effects level" (NOEAL) or "lowest observed adverse effects level" (LOAEL) reported in toxicological studies of animals and humans or epidemiological studies of humans. Reference concentrations were converted to risk per mg/kg-day to determine toxicity weightings using assumptions of inhalation of $20m^3$/day of air and a body weight of 70kg (or 154.3 pounds).

appropriate judgments regarding the relative level of concern for chemical toxicity when specific information or data have yet to be developed by the Agency. With proportional values assigned to the categories, the toxicity weights as unitless measures are able to reflect magnitudes of difference between effects associated with particular chemical releases. These values increase (by a multiplicative factor of 10) as the toxicological potential to cause chronic human health effects increases (Bouwes and Hassur 1997). Except for the cancer/noncancer distinction, the CHHI methodology does not distinguish chemicals according to their type of effect (e.g., developmental toxicity) on a target organ, nor does it address multiple harmful effects which a chemical might produce (Stockwell et al. 1993). The CHHI based toxicity weights are reported in Appendix F for each TRI chemical in air emissions during the period 1988 to 1998.

Preferred sources of chemical toxicity and other relevant data on chronic human health effects of TRI chemicals are (in descending order of preference) the EPA's Integrated Risk Information System (IRIS), the Health Effects Assessment Summary Tables (HEAST) prepared for both the Superfund program and the RCRA program, the OPPT's Reference Dose Tracking Report and List of Chemical Evaluated for Carcinogenic Potential. When toxicity values are unavailable in these files, secondary data bases such as the Hazardous Substances Data Base and on-line sources such as TOXNET, TOXLINE, RTECS, GENE-TOX and MEDLINE are used. Bouwes and Hassur (1999) discuss in more detail the weighting methodology and its algorithms for cancer and noncancer toxins.

Based on counties rather than facilities, calculation of weighted average toxicity values (WATs) applied procedures used by Scott and Cutter (1997) and the toxicity weights (TWs) estimated by Bouwes and Hassur (1997). First, the pounds of air releases (C_t) were summed among all facilities that were located in a given county and reported to the TRI for a particular

year. Second, the number of chemicals (n) was determined, followed by identification of the number of pounds of each chemical (C_i) in these emissions and their proportions to the total number of pound of air releases (C_i / C_t). Each chemical's proportion was then multiplied by the reciprocal of its relative toxicity weight ($1/TW_i$). Next, the products were added to produce a county's annual WAT. The calculation is mathematically expressed as:

$$WAT_{co} = \sum_{i}^{n} [\ C_i / C_t\ ] \times [\ 1/TW_i\ ]$$

Finally, the WAT_{co} was divided by the number of years in which air emissions occurred to determine the average annual toxicity in a county. Unlike WAT values produced in other studies, the scores closest to zero to indicate the most toxicity in this report. This pattern resulted from the EPA weights, which increase in magnitude as toxicity increases (0 to 1,000,000). In contrast, PEL, REL, and TLV values indicate greater toxicity as they decline in the number of milligrams per cubic meter (30 mg/m^3 to 3 mg/m^3). This contrasting directionality affected the determination of $1/TW_i$ in the formula above and subsequently its interpretation. Overall, 85.6 percent of the cumulative volume of air emissions (1,710,549,067 pounds) from 1988 to 1998 had chemicals with known EPA toxicity weights. In other words, the aggregated and average toxicity scores calculated for Texas counties represented almost 86 percent of the total volume of toxic air emissions.

The geographic distribution of the average toxicity scores (n = 155) is indicated in Figure 2. These scores were lumped into three groups based on their magnitudes and statistical distances (standard deviation = .2145) from the state mean (.1949). Counties with the most severe toxicities are predominately located adjacent or close to heavily populated metropolitan statistical areas. Appendix G lists the annual relative toxicities of air emissions and the

cumulative and average toxicity scores during the period from 1988 to 1998 for individual Texas counties. Cumulative and average toxicity scores are presented in Table 5 for counties having the highest (i.e., less toxic) and lowest (i.e., most toxic) scores. Figure 3 is a refinement of Figure 2 and shows the quartile distribution for average toxicity scores of counties with toxic air emissions. Counties (n = 33) that had the highest average toxicities produced scores closest to 0. It should be noted that many of the average scores were based on small numbers of toxic chemicals in the annual air emissions and/or on very few years in which emissions were reported to the TRI (e.g., Bee, Floyd, McCulloch, and Tyler Counties).

Cumulative volumes of air emissions and cumulative toxicities scores are compared in Figure 4. Counties (n = 155) that had TRI reported toxic air emissions were divided arbitrarily into four groups: (1) high emission volume and high toxicity ($n_1 = 6$); (2) low emission volume and high toxicity ($n_2 = 87$); (3) high emission volume and low toxicity ($n_3 = 16$); and (4) low emission volume and low toxicity ($n_4 = 41$); 104 were excluded because they either had no emissions (n = 99) or had incomplete toxicity data (n = 6). High emission volume was defined as equal to or greater than the average of the cumulative volumes of emissions (mean = 1,099,042 pounds); high toxicity was measured as equal to or lower than the average of the cumulative toxicity scores (mean = 1.7622, cumulative scores closest to 0 indicate greater toxicity). The latter mean should not to be confused with the previously reported mean of .1915, which is the state mean of the counties' average annual toxicity scores. Counties that were ranked with high emissions and high toxicity (shown in black in Figure 4) were Angelina, Cass, Gray, Jasper, Milam, and Wichita. Ironically, none of these were listed in the top counties, which had the largest volumes of toxic air emissions (see Table 1) and only Milam County was shown in Figure 3 as being in the top quartile based on its average toxicity score. Moreover,

only Angelina, Gray, and Milam Counties had large shares (> 10%) of potentially vulnerable subgroup populations (i.e., elderly women as shown in Appendix E).

Correlational Analysis

Bivariate Pearson correlation coefficients were calculated for the toxicity scores, pounds of air emissions and total releases, and the selected demographic variables to determine the degree and direction to which they were associated during the study period. The reciprocals of total toxicity and average toxicity scores were calculated first to facilitate interpretation of the coefficients - a larger reciprocal value indicates greater toxicity. The correlation coefficients are presented in Table 6. A positive coefficient signifies that both variables change in the same direction; a negative sign means that as one variable increases in value, the other variable declines in value. The relationships which are most relevant are discussed below: (1) between toxicity variables and pounds of emissions and releases, (2) between toxicity variables and demographics variables, and (3) between pounds of emissions and releases and demographic variables.

Neither toxicity variable was related to the total pounds of air emissions or total volume of toxic releases that occurred in Texas counties. The fact that 99 of Texas' 254 counties had no reported emissions and releases (thus toxicity scores of zero) might have produced this and other correlational findings. The statistically significant high, positive association between pounds of air emissions and total releases occurred as expected and indicated that counties with high volumes of total toxic releases were also likely to have high volumes of air emissions.

Total toxicity of air emissions had three statistically significant associations with the selected demographic variables: a negative relationship with the proportion of women who were 15 to 49 years of age in the total county population and positive relationships with the

proportions of elderly men and women in the total county population. Average annual toxicity of air emissions had a significant negative correlation with only the percentage of young adult women. Thus, counties with higher total toxicity scores and average annual toxicity scores had lower ratios of women 15 to 49 years of age in their overall populations. Moreover, counties with higher toxicity scores were also likely to have higher percentages of elderly men and women.

Finally, most of the correlation coefficients for pounds of emissions and total releases and their associations with the demographics variables were statistically significant in Table 6. Exceptions were that neither variable was correlated with the proportions of infants in county populations, and the ratio of pounds of air emissions to total releases was not correlated with size of counties' total populations, numbers of infants and young adult women, and proportions of elderly women in total county populations. Other results suggest that the volume of air emissions and total releases were positively related to the sizes and proportions of the subgroup populations (particularly young adult women). Emission and release volumes were greater, however, in counties that had smaller proportions of elderly populations. The negative direction of the coefficients may be best explained by patterns observed among the demographic variables. The negative coefficients of proportion of elderly men and women were attributable to the sizes of counties' total populations and elderly men and women subpopulations. Less urbanized counties with small total populations appear to have had higher proportions of elderly people. These counties might have had no and smaller volumes air emissions and total toxic releases because of less industrialization.

Figure 2
Geographic Distribution of Average Weighted Scores for Air-released Industrial Wastes in Texas Counties, 1988 to 1998

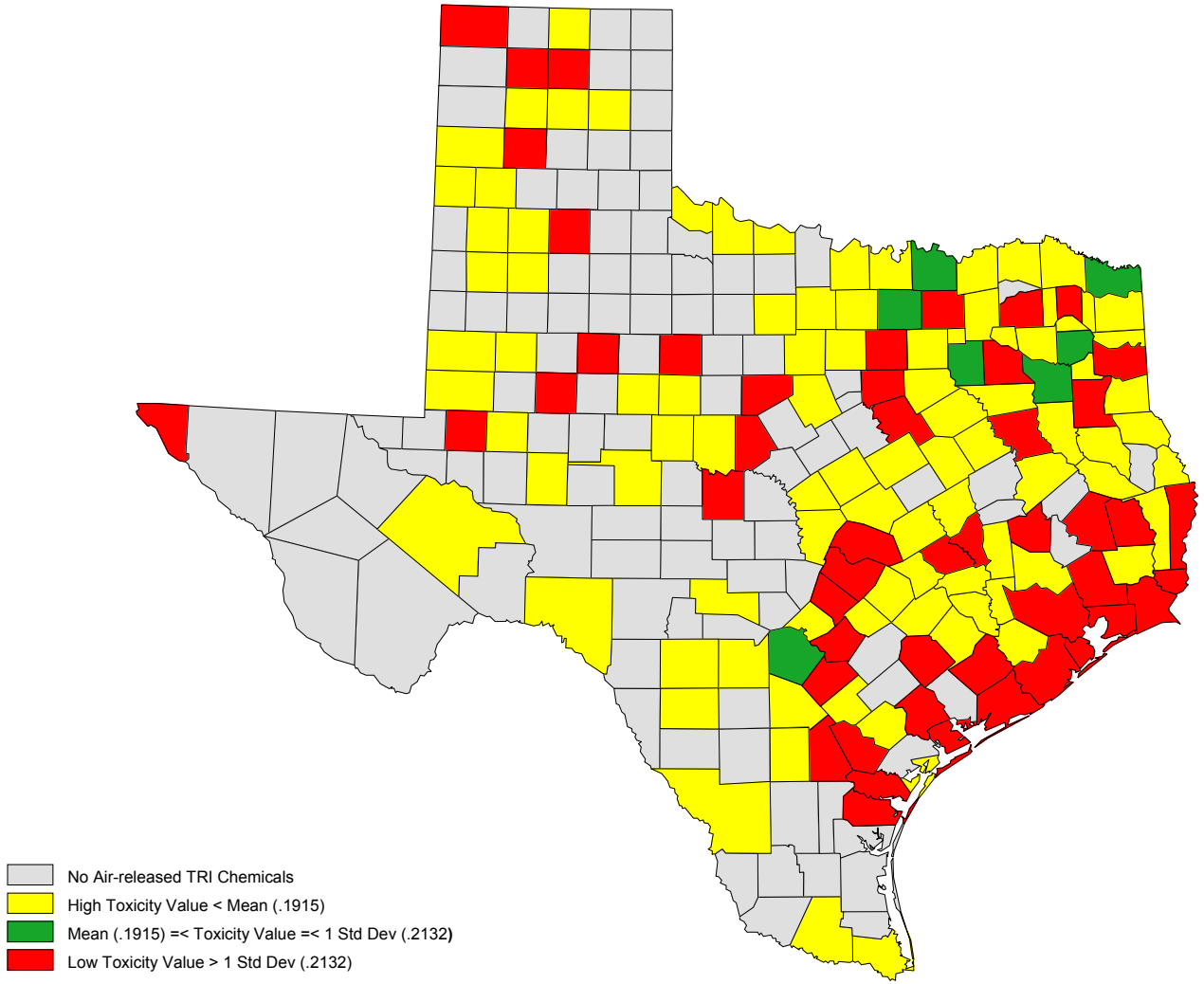


Table 5
Less and Most Toxic Counties in Texas Based on Cumulative Toxicity Values for TRI Air Emissions, 1988 to 1998

County	Cumulative Toxicity[a]	Years Reported	Average Toxicity[a]	Volume[b]
Less Toxic Counties[c]				
1. Floyd	9.0000	9	1.0000	454,225
2. Ector	8.4578	11	.7689	37,594,774
3. Harrison	7.8985	11	.7180	77,021,954
4. Eastland	7.4725	10	.7689	1,478,185
5. Calhoun	6.7875	11	.6170	46,259,536
6. Orange	6.3682	11	.5789	104,409,434
7. Hill	6.1795	11	.5618	1,362,101
8. Brazos	5.4262	11	.4933	2,243,902
9. Titus	5.4174	11	.4925	3,796,330
10. Lavaca	5.3732	10	.5373	1,843,153
11. Anderson	5.0298	8	.6287	1,018,720
12. Victoria	5.0258	11	.4569	14,812,751
Most Toxic Counties[c]				
1. Milam	.0394	11	.0036	20,176,237
2. Montgomery	.0816	11	.0116	7,115,690
3. Potter	.1364	11	.0124	4,116,404
4. Jasper	.6872	11	.0625	21,534,990
5. Gray	.7287	11	.0662	15,539,530
6. Ellis	.7817	11	.0711	11,265,025
7. Cass	.8339	11	.0758	25,450,752
8. Fort Bend	.9007	11	.0819	6,653,156
9. Angelina	.9456	11	.0860	7,752,200

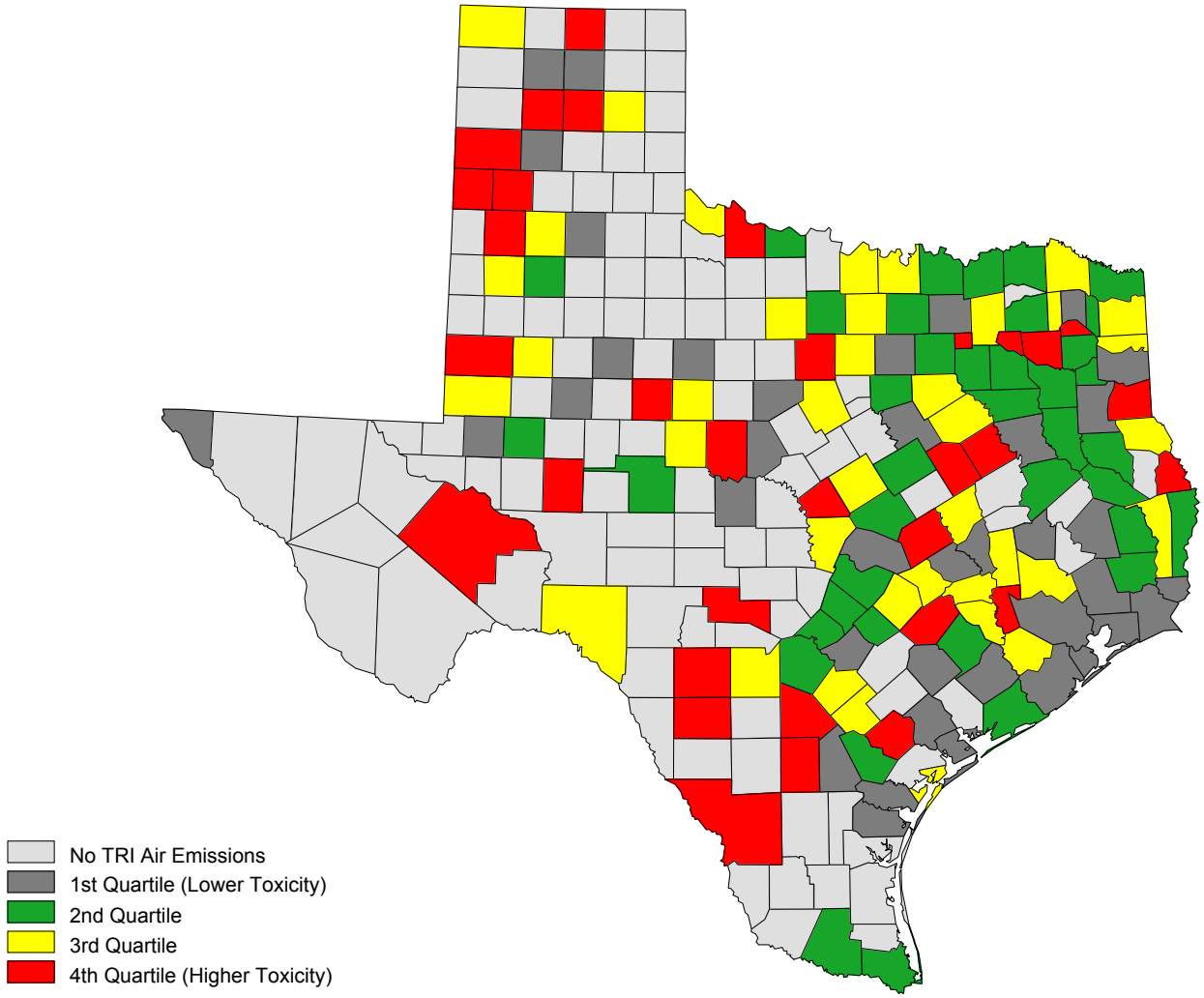
a. Accumulated toxicities scores and averages were based of chemicals in air emissions for the period of 1988 to 1998.

b. Accumulated volume of air emissions were reported to the TRI from 1988 to 2000. Maximum number of different toxic chemicals in all air releases was 327.

c. Counties having accumulated values that were greater than 5.0000 for 8 or more years were judged to be the less toxic. Counties having more than 9 years of air emissions, more than 10 chemicals in their air emissions and average toxicity scores < .1000 were judged to be the most toxic; 72 counties had average toxicities scores < .1000 but did not satisfy the other selection criteria

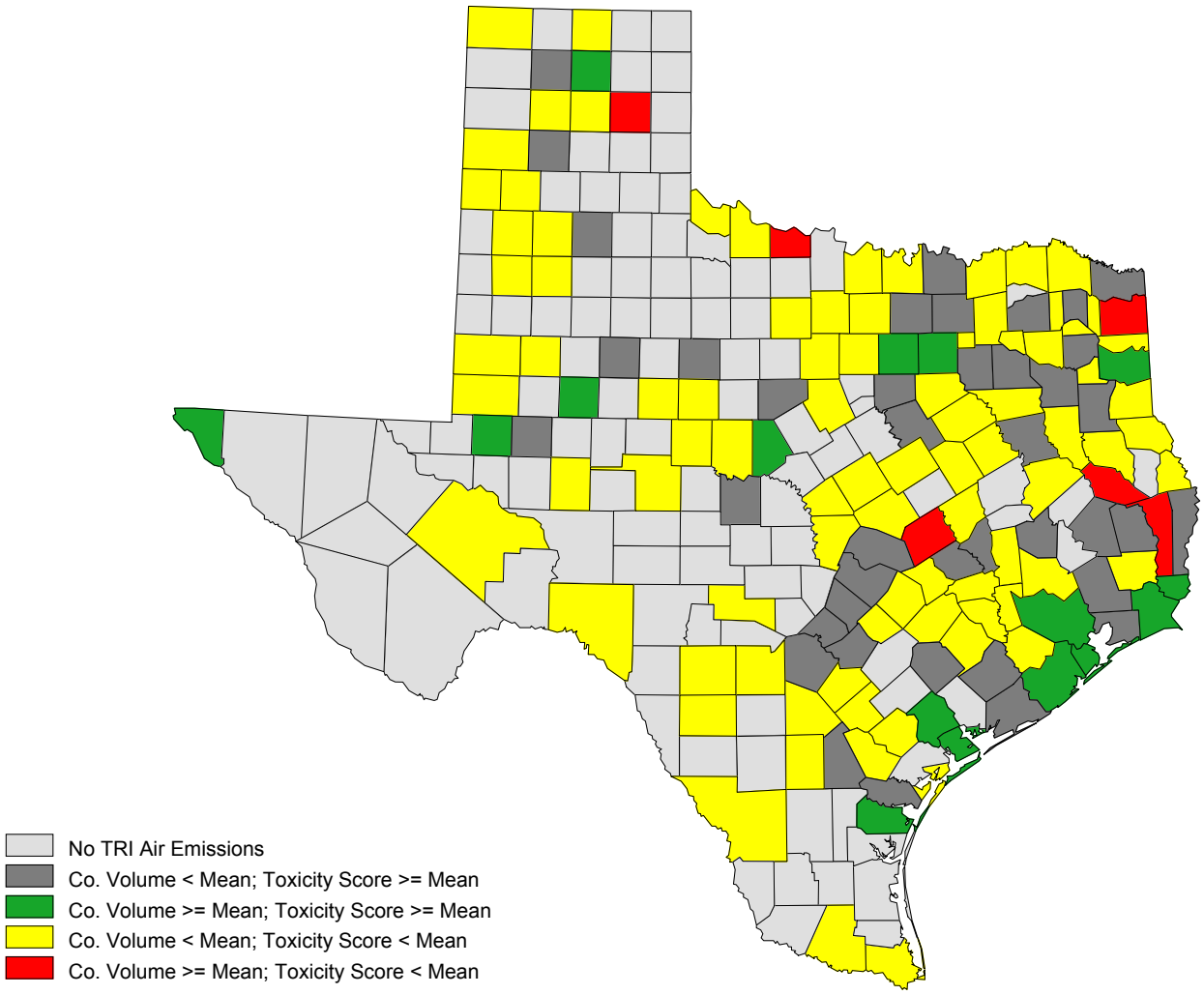
.

Figure 3
Quartile Distribution of Average Toxicity Scores for TRI Reported Air Emissions in Texas Counties, 1988 to 1998



Based on weights calculated by EPA's Chronic Human Health Indicator Methodology as applied to 155 Texas Counties.

Figure 4
Cumulative Volume of TRI Reported Air Emissions and Average Toxicity Scores for Texas Counties, 1988 to 1998



Mean of cumulative volume of air emissions = 11,035,800.43; Mean of cumulative toxicity scores=1.7622.
No. of counties =155

Table 6
Bivariate Correlation Coefficients for Total and Average Toxicities, Pounds of Air Emissions and Total Releases, and Selected Demographic Characteristics of Texas Counties*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000													
2	0.871[c]	1.000												
3	-0.032	-0.039	1.000											
4	-0.031	-0.038	0.867[c]	1.000										
5	0.029	0.076	0.046	-0.035	1.000									
6	-0.036	-0.042	0.706[c]	0.480[c]	0.119	1.000								
7	-0.036	-0.041	0.704[c]	0.485[c]	0.112	0.999[c]	1.000							
8	-0.037	-0.042	0.702[c]	0.484[c]	0.114	0.999[c]	0.999[c]	1.000						
9	-0.037	-0.046	0.672[c]	0.477[c]	0.156[a]	0.986[c]	0.984[c]	0.982[c]	1.000					
10	-0.037	-0.046	0.664[c]	0.468[c]	0.153[a]	0.987[c]	0.984[c]	0.984[c]	0.998[c]	1.000				
11	-0.095	-0.068	0.083	0.084	0.071	0.168[b]	0.181[b]	0.167[b]	0.162[b]	0.157[a]	1.000			
12	-0.173[b]	-0.153[a]	0.209[b]	0.210[b]	0.260[c]	0.372[c]	0.369[c]	0.376[c]	0.368[c]	0.364[c]	0.438[c]	1.000		
13	0.158[a]	0.106	-0.192[b]	-0.197[b]	-0.149[a]	-0.292[c]	-0.295[c]	-0.295[c]	-0.277[c]	-0.275[c]	-0.588[c]	-0.880[c]	1.000	
14	0.133[a]	0.086	-0.171[b]	-0.183[a]	-0.101	-0.262[c]	-0.266[c]	-0.265[c]	-0.245[c]	-0.238[c]	-0.547[c]	-0.836[c]	0.955[c]	1.000

*Variables: (1) reciprocal of total toxicity score; (2) reciprocal of average toxicity score; (3) pounds of total air emissions; (4) pounds of total industrial releases; (5) percentage of pounds of air emissions to total releases; (6) total population in 1990; (7) number of infants younger than one year; (8) number of women 15 to 49 years of age; (9) number of men 65 and older; (10) number of women 65 and older; (11) percentage of total county population younger than one year; (12) percentage of total county population who are women 15 to 49 years of age; (13) percentage of total county population who are men 65 and older; and (14) percentage of total county population who are women 65 and older.

a. $p < .05$ b. $p < .01$ c. $p < .0001$

Conclusion

Texas is one of the perennial leaders in the total volume of on- and off-site releases of industrial toxic wastes reported to the Environmental Protection Agency's Toxic Release Inventory. The TRI has monitored industrial releases of toxic chemicals in the United States since 1987. One objective of this report was to provide annual data on toxic air emissions in individual Texas counties for the period of 1988 to 2000. Manufacturers in 155 Texas counties provided to the TRI data on toxic air emissions. A large majority of these counties (72%; 44% of all counties in Texas) had emissions during 10 or more years. Ninety-nine counties had no air emissions reported to the TRI during the thirteen-year period. Industries have made significant headway to reduce their waste releases overall and particularly their toxic air emissions. The volume of all toxic on- and off-site releases in 2000 was approximately one-third of its level in 1988 while the latest reported volume of air emissions was approximately 45 percent of the level in 1988. Ten counties with toxic air emissions accounted for 82.4 percent of 5.5 billion pounds of releases and 34.9 percent of the 1.9 billion pounds of air emissions in the state; most of these counties are located in South Texas along the Gulf Coast and in heavily industrialized metropolitan counties.

The second objective of the report was to identify demographic groups in the state that would be the most potentially vulnerable to health impacts caused by exposure to these emissions. Infants, women in their childbearing years, and elderly men and women are generally considered to be more vulnerable and susceptible to exposure related illnesses than others because of their bodies' inabilities to tolerate exposure to air pollution. Approximately 1.6 percent of Texas population was under one year of age in 2000. Close to one-forth were women in their child-bearing years. Nearly six percent of the population were women 65 years of age

and older, compared to 4.1 percent for elderly men. These proportions were similar to the respective percentages for the nation in both the 1990 and 2000 census periods. Metropolitan counties had the largest absolute numbers of these subgroup populations (e.g., Bexar, Dallas, El Paso, Harris, and Tarrant Counties). Twenty-six counties had infant populations greater than 1.6 percent when measured as a proportion of total county population; 5 of these counties had 2 percent or larger. Forty-seven counties had subgroups of women 15 to 49 years of age that comprised 25 percent or greater shares of their population. Fourteen and 65 counties had elderly male and female populations equal to or larger than 10 percent of their total populations.

The last objective of the report was to convey the toxicities of individual TRI chemicals present in industrial air emissions and to calculate an average toxicity score for each county for the period of 1988 to 1998. Toxicity values were obtained from the Chronic Human Health Indicator methodology developed by the EPA's Office of Pollution and Prevention. Comparisons were made involving where the highest proportions of especially vulnerable groups are in the state to where the greatest volumes of toxic air emissions have occurred since 1988 and to where these emissions are the most toxic. Although widely dispersed across the state, counties with the most severe toxicities are located near heavily populated metropolitan statistical areas. Although Angelina, Cass, Gray, Jasper, Milam, and Wichita Counties were the top ranked counties, none of these were listed in the top group of counties that had the largest volumes of toxic air emissions and only Milam County was in the top quartile of counties according to its average toxicity score. Moreover, only Angelina, Gray, and Milam Counties had large shares of potentially vulnerable subgroup populations, particularly elderly women.

Finally, calculated correlation coefficients for toxicity scores, pounds of air emissions, pounds of total releases, and selected demographics characteristics of Texas counties supported

previous observations that levels of emissions and total releases were most associated with urbanized counties where large sizes of particular subgroup population reside but represent smaller segments of their total populations. The poor association between toxicity scores and volumes of air emissions and total releases was interesting and deserves closer attention in future research. This finding suggests that highly toxic air emissions have widely occurred in counties with TRI-monitored industries. More specifically, these emissions were just as likely to have occurred in counties with low levels of emissions and small nonmetropolitan populations as elsewhere.

This report presented only a partial account toxic wastes and pollution in the environments of local Texas counties. It focused on toxic air emissions by manufacturers who report to the TRI and did not include, for example, vehicular and natural sources of environmental pollutants. Consequently, the levels of danger and potential harm due to human exposure to toxic chemicals in the environment and workplace were conservatively addressed at best. Furthermore, human health risks posed to special population groups in local counties depend on many factors: geography of an area; toxicity level and biological persistence of a chemical; dosage and duration of exposure; and socioeconomic characteristics and health histories of residents who reside around release facilities. Because of these unmeasured factors, identification of causal relationships between toxic air emissions and human health is extremely difficult in ecologic studies such as this one. Nevertheless, this county-level analysis and its findings may be important as a first step for identifying where more comprehensive studies are needed in Texas.

Endnotes

1. A key-word search of the U.S. National Library of Medicine and Science Directory (a database of 1,700 journals) produced few studies that specifically addressed the health effects of

toxic air pollution on elderly adults. The large majority of the listed/published studies regarded selected concentrations of air particulates, involved foreign populations, and did not distinguished elderly cohorts and their mortality and morbidity due to exposure.

2. The Chemical Abstract Service (CAS) is a division of the American Chemical Society. The CAS Registry has unique numbers (that are up to 9 digits) assigned to 40 million chemical substances that have been identified in the scientific literature. It adds approximately 4,000 new substances daily. The CAS Registry is located at http://www.cas.org/regsys.html.

3. The Chronic Human Health Indicator is part of the EPA's effort to develop a group of Relative Risk-Based Environmental Indicators. Depending on the availability and quality of scientific evidence, this group may eventually include (1) acute human health indicators, (2) chronic ecological indicators, and (3) acute ecological indicators.

4. RfDs are estimated to be the maximum lifetime daily levels of exposure to non-carcinogens found in drinking water at which no effect is expected to occur. RfCs apply to airborne pollutants. RfDs and RfCs are expressed in milligrams of intake per kilogram of body weight per day. Unit risk is the risk per microgram per cubic meter of air. A slope factor is the estimate of oral risk per milligram per kilogram per day.

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Appendices

Appendix A
Pounds of Air Released Wastes and Their Percentages of Total On- and Off-site Releases Reported for Texas Counties by Manufacturers to the TRI from 1988 to 2000.

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Anderson	Air	170.0	87.0	43.0	48.0	43.0	0.0	0.0	0.0	88.8	108.0	150.8	169.7	110.4	1,018.7
	Total	170.8	87.0	43.0	48.0	43.0	0.0	0.0	0.0	89.8	131.0	180.1	174.9	130.1	1,097.7
	Pct.	99.6%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	98.9%	82.4%	83.7%	97.0%	84.9%	92.8%
Andrews	Air	0.0	234.5	236.0	261.2	270.5	419.1	311.9	0.0	25.0	250.0	208.0	120.7	121.6	2,458.5
	Total	0.0	234.5	236.0	261.2	270.5	419.1	311.9	0.0	25.0	250.0	4,650.7	6,076.3	6,152.5	18,887.8
	Pct.	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	100.0%	100.0%	4.5%	2.0%	2.0%	13.0%
Angelina	Air	1,080.4	1,081.1	1,376.1	1,357.5	992.7	1,038.1	1,608.6	1,677.2	1,880.5	2,018.9	1,926.8	1,950.3	1,764.0	19,752.2
	Total	1,978.7	3,924.0	5,484.5	2,948.3	2,168.4	1,602.3	1,873.0	1,934.1	2,080.3	2,358.5	2,259.2	2,224.4	2,145.7	32,981.6
	Pct.	54.6%	27.6%	25.1%	46.0%	45.8%	64.8%	85.9%	86.7%	90.4%	85.6%	85.3%	87.7%	82.2%	59.9%
Aransas	Air	208.0	208.0	226.0	201.0	252.0	243.0	256.5	252.1	527.4	476.7	441.2	1,175.1	39.6	4,506.6
	Total	208.0	208.0	226.0	201.0	252.0	243.0	256.5	252.1	527.4	476.7	441.2	1,175.1	39.6	4,506.6
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Archer	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(MSA)	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Armstrong	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Atascosa	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8	13.5	1.4	34.7
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,809.9	716.1	387.2	4,913.2
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5%	1.9%	0.4%	0.7%
Austin	Air	0.3	0.3	0.5	0.3	0.2	0.3	0.3	0.3	38.2	0.0	94.9	21.2	23.2	179.7
	Total	0.5	0.5	1.3	0.3	0.2	0.3	0.3	0.3	38.2	0.0	94.9	21.2	23.2	180.9
	Pct.	50.0%	50.0%	40.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	100.0%	100.0%	100.0%	99.3%
Bailey	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bandera	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bastrop	Air	1.3	1.5	1.5	1.8	1.4	1.0	1.0	0.8	54.2	0.0	30.4	124.3	90.7	309.7
(MSA)	Total	140.3	24.8	42.1	9.1	13.7	2.0	1.3	0.8	54.2	0.0	30.4	124.3	90.7	533.6
	Pct.	0.9%	6.0%	3.6%	19.3%	10.5%	50.0%	75.8%	100.0%	100.0%	N/A	100.0%	100.0%	100.0%	58.0%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Baylor	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bee	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	155.4	129.7	102.0	0.0	387.1
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	162.1	129.7	102.0	0.0	393.7
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95.9%	100.0%	100.0%	N/A	98.3%
Bell	Air	1,493.6	1,302.6	1,103.4	1,354.0	591.5	550.2	447.2	575.9	396.4	633.7	628.9	649.9	505.1	10,232.2
(MSA)	Total	1,532.8	1,311.8	1,112.8	1,370.3	596.0	557.8	451.8	588.0	417.5	639.8	632.6	653.6	506.2	10,370.9
	Pct.	97.4%	99.3%	99.2%	98.8%	99.2%	98.6%	99.0%	97.9%	94.9%	99.0%	99.4%	99.4%	99.8%	98.7%
Bexar	Air	881.5	954.2	1,001.9	794.6	859.4	966.0	1,218.7	1,027.5	867.8	951.0	973.2	953.5	1,151.1	12,600.4
(MSA)	Total	2,387.0	2,827.8	3,013.6	1,263.9	996.0	1,111.0	1,356.8	1,169.8	989.8	1,092.6	1,989.1	2,167.7	1,908.9	22,274.1
	Pct.	36.9%	33.7%	33.2%	62.9%	86.3%	86.9%	89.8%	87.8%	87.7%	87.0%	48.9%	44.0%	60.3%	56.6%
Blanco	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Borden	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bosque	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bowie	Air	454.9	293.3	560.6	284.8	245.5	133.4	205.6	169.9	127.4	58.0	43.6	48.1	65.1	2,690.1
(MSA)	Total	640.9	373.9	852.1	288.7	255.7	144.4	847.1	276.2	129.5	106.4	83.4	460.6	74.6	4,533.8
	Pct.	71.0%	78.4%	65.8%	98.7%	96.0%	92.4%	24.3%	61.5%	98.3%	54.6%	52.2%	10.4%	87.2%	56.6%
Brazoria	Air	23,215.4	19,486.4	17,809.4	16,660.6	15,662.3	12,770.9	11,213.1	10,690.9	9,390.1	8,393.3	9,283.8	5,895.3	6,156.8	166,628.3
(MSA)	Total	226,678.9	227,013.6	83,413.5	71,775.7	72,181.5	53,580.6	21,118.9	41,103.3	35,987.3	36,838.3	40,032.1	41,704.9	45,049.1	996,477.7
	Pct.	10.2%	8.6%	21.4%	23.2%	21.7%	23.8%	53.1%	26.0%	26.1%	22.8%	23.2%	14.1%	13.7%	56.6%
Brazos	Air	174.3	267.0	278.9	260.6	193.7	193.2	137.1	146.4	188.3	62.8	95.3	119.6	126.8	2,243.9
	Total	227.9	343.6	339.6	327.6	455.8	696.5	220.7	179.7	213.6	213.9	320.8	128.7	204.7	3,873.1
	Pct.	76.5%	77.7%	82.1%	79.5%	42.5%	27.7%	62.1%	81.5%	88.2%	29.4%	29.7%	92.9%	61.9%	56.6%
Brewster	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Briscoe	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brooks	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brown	Air	8,446.4	6,733.5	7,249.4	2,618.6	1,320.8	1,085.8	946.4	910.4	983.7	991.2	1,157.8	1,545.9	561.5	34,551.5
	Total	8,494.0	6,774.6	7,379.9	2,661.4	1,352.9	1,155.2	1,184.1	939.3	1,012.4	1,083.6	1,230.7	1,594.3	617.1	35,479.5
	Pct.	99.4%	99.4%	98.2%	98.4%	97.6%	94.0%	79.9%	96.9%	97.2%	91.5%	94.1%	97.0%	91.0%	56.6%
Burleson	Air	22.6	18.6	32.2	26.6	32.6	33.5	19.1	12.9	28.1	30.5	23.7	16.4	6.9	303.6
	Total	22.8	18.6	38.1	491.0	40.2	56.7	287.7	422.2	404.3	1,753.5	605.4	20.7	14.5	4,175.7
	Pct.	99.4%	99.8%	84.3%	5.4%	81.0%	59.0%	6.6%	3.1%	6.9%	1.7%	3.9%	79.4%	47.2%	56.6%
Burnet	Air	0.0	0.0	21.9	3.1	3.2	2.7	3.3	2.7	0.0	0.0	0.0	0.0	0.0	36.9
	Total	0.0	0.0	23.1	3.1	3.9	3.5	4.5	3.5	0.8	1.0	1.0	0.8	1.0	46.1
	Pct.	N/A	N/A	94.7%	100.0%	81.0%	78.5%	72.4%	78.4%	0.0%	0.0%	0.0%	0.0%	0.0%	56.6%
Caldwell (MSA)	Air	0.0	44.9	44.9	62.6	63.4	73.1	100.1	566.8	27.1	5.4	5.3	5.9	5.6	1,005.0
	Total	0.0	45.2	44.9	62.6	63.4	73.1	100.1	566.8	27.1	5.4	5.3	5.9	5.6	1,005.3
	Pct.	N/A	99.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	56.6%
Calhoun	Air	9,881.4	3,588.6	3,051.8	2,879.1	2,347.1	2,788.2	2,769.5	2,817.8	3,525.2	3,387.1	2,902.3	3,335.5	2,986.0	46,259.5
	Total	92,485.8	68,967.1	35,569.3	31,921.4	29,263.5	23,397.8	14,183.3	15,888.9	14,224.9	17,100.5	15,312.0	17,430.2	19,845.4	395,590.2
	Pct.	10.7%	5.2%	8.6%	9.0%	8.0%	11.9%	19.5%	17.7%	24.8%	19.8%	19.0%	19.1%	15.0%	56.6%
Callahan	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cameron	Air	201.6	335.2	340.3	255.9	186.4	226.6	68.6	1,017.8	1,130.7	820.5	538.3	778.4	1,001.6	6,901.8
	Total	1,254.0	1,453.7	766.6	259.7	188.7	231.0	77.7	1,051.8	1,161.5	826.4	546.7	797.4	1,008.0	9,623.2
	Pct.	16.1%	23.1%	44.4%	98.5%	98.8%	98.1%	88.3%	96.8%	97.3%	99.3%	98.5%	97.6%	99.4%	56.6%
Camp	Air	33.7	33.7	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,167.0	439.0	343.4	2,021.6
	Total	58.5	76.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,846.2	2,508.0	850.5	6,345.9
	Pct.	57.6%	44.3%	72.9%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	41.0%	17.5%	40.4%	56.6%
Carson	Air	20.5	49.9	30.1	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.9
	Total	20.8	77.6	30.1	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	132.2
	Pct.	98.8%	64.2%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0%	56.6%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Cass	Air	1,233.8	1,409.2	1,879.1	1,504.5	1,409.2	2,278.3	2,293.8	2,337.9	2,038.0	2,432.9	2,327.0	2,258.8	2,048.4	25,450.8
	Total	1,367.8	1,438.5	1,994.5	1,603.3	1,476.9	2,339.9	2,301.0	2,342.1	2,045.3	2,903.4	2,558.2	2,543.8	2,277.3	27,191.9
	Pct.	90.2%	98.0%	94.2%	93.8%	95.4%	97.4%	99.7%	99.8%	99.6%	83.8%	91.0%	88.8%	89.9%	56.6%
Castro	Air	1.8	1.3	1.3	40.0	29.0	31.2	31.7	31.7	32.2	22.6	31.2	31.2	31.2	316.2
	Total	1.8	1.3	1.3	1,254.0	1,345.0	1,435.2	130.6	112.7	106.8	108.1	106.3	87.4	77.7	4,768.2
	Pct.	100.0%	100.0%	100.0%	3.2%	2.2%	2.2%	24.3%	28.1%	30.2%	20.9%	29.3%	35.6%	40.1%	56.6%
Chambers	Air	1,045.1	878.5	845.0	832.0	595.9	537.6	471.2	337.5	337.7	279.1	310.7	315.2	356.8	7,142.3
(MSA)	Total	1,181.5	917.9	933.0	929.0	691.7	630.8	502.1	3,372.2	2,569.1	3,451.8	3,974.7	1,029.5	647.2	20,830.6
	Pct.	88.5%	95.7%	90.6%	89.6%	86.1%	85.2%	93.8%	10.0%	13.1%	8.1%	7.8%	30.6%	55.1%	56.6%
Cherokee	Air	264.9	188.6	127.4	53.2	27.6	34.4	15.5	15.7	15.4	15.4	15.4	36.3	36.2	845.9
	Total	265.4	190.4	133.7	55.7	29.4	36.2	17.5	16.7	15.4	15.4	15.4	37.7	36.9	865.6
	Pct.	99.8%	99.1%	95.3%	95.5%	94.0%	95.1%	88.5%	93.8%	100.0%	100.0%	100.0%	96.4%	98.1%	97.7%
Childress	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clay	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cochran	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coke	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coleman	Air	0.0	0.0	0.5	0.0	0.0	0.5	0.5	2.4	0.3	0.3	0.0	0.0	0.0	4.4
	Total	0.0	0.0	4.2	0.0	0.0	2.6	9.3	6.1	3.8	1.3	0.0	0.0	0.0	27.2
	Pct.	N/A	N/A	11.9%	N/A	N/A	19.5%	5.5%	39.4%	6.8%	20.3%	N/A	N/A	N/A	16.3%
Collin	Air	331.2	409.4	417.8	431.4	350.1	267.4	224.7	231.9	260.7	252.2	243.3	221.1	195.9	3,837.3
(MSA)	Total	1,671.5	1,676.2	1,230.0	941.5	858.5	816.4	747.0	823.7	789.0	840.0	766.9	540.5	430.9	12,132.1
	Pct.	19.8%	24.4%	34.0%	45.8%	40.8%	32.8%	30.1%	28.2%	33.0%	30.0%	31.7%	40.9%	45.5%	31.6%
Collingsworth	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Colorado	Air	150.0	187.6	301.4	252.5	192.6	269.0	259.6	292.1	270.3	234.2	190.9	163.6	239.2	3,002.8
	Total	150.0	187.6	301.4	252.5	192.6	269.0	259.6	292.1	270.3	234.2	190.9	163.6	239.2	3,002.8
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Comal	Air	174.1	282.1	249.2	49.8	52.1	36.4	79.3	53.6	153.1	192.3	155.5	118.7	118.1	1,714.2
	Total	174.6	282.6	252.3	54.2	52.8	41.5	80.3	54.1	161.8	201.7	166.5	130.6	132.2	1,785.2
	Pct.	99.7%	99.8%	98.8%	91.8%	98.6%	87.7%	98.8%	99.1%	94.6%	95.3%	93.4%	90.9%	89.4%	96.0%
Comanche	Air	0.5	0.5	<0.1	0.8	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.8
	Total	0.5	0.5	<0.1	0.8	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.8
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Concho	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cooke	Air	230.6	182.9	162.8	127.8	80.8	103.0	51.1	42.6	41.8	41.5	72.8	51.5	46.5	1,235.6
	Total	236.5	185.9	162.8	183.5	125.8	104.5	51.1	125.2	124.2	161.5	142.1	56.4	51.1	1,710.6
	Pct.	97.5%	98.4%	100.0%	69.6%	64.2%	98.5%	100.0%	34.0%	33.6%	25.7%	51.3%	91.4%	90.9%	72.2%
Coryell (MSA)	Air	22.0	23.7	35.7	0.0	33.2	24.1	26.8	27.7	25.3	15.9	42.6	68.7	64.9	410.5
	Total	22.0	23.7	35.7	0.0	33.2	24.1	26.8	27.7	25.3	15.9	52.1	83.4	84.1	453.9
	Pct.	100.0%	100.0%	100.0%	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	81.7%	82.3%	77.2%	90.4%
Cottle	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crockett	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crosby	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Culberson	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Dallam	Air	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4	17.1	7.0	54.0
	Total	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4	17.1	13.0	60.7
	Pct.	N/A	N/A	39.8%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	53.8%	88.9%
Dallas (MSA)	Air	7,759.9	6,334.2	5,422.6	5,306.1	5,038.0	4,031.9	3,348.8	2,054.5	1,909.4	2,248.7	2,351.4	2,146.8	2,099.4	50,051.8
	Total	9,300.5	7,046.7	6,266.6	6,096.6	5,645.1	4,932.4	4,009.8	2,645.7	2,560.8	3,087.2	3,028.9	3,737.1	2,909.7	61,266.9
	Pct.	83.4%	89.9%	86.5%	87.0%	89.2%	81.7%	83.5%	77.7%	74.6%	72.8%	77.6%	57.4%	72.2%	81.7%
Dawson	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	377.6	166.7	222.3	323.3	494.6	759.1	2,343.6
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	377.6	166.7	222.3	323.3	494.6	759.1	2,343.6
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Deaf Smith	Air	1.5	3.3	464.7	384.7	393.7	396.7	2.4	265.6	0.0	239.6	58.1	0.0	58.1	2,268.2
	Total	1.5	3.3	472.7	392.7	401.7	406.9	2.9	294.6	0.0	248.6	58.1	0.0	58.1	2,341.0
	Pct.	100.0%	100.0%	98.3%	98.0%	98.0%	97.5%	82.8%	90.2%	N/A	96.4%	100.0%	N/A	100.0%	96.9%
Delta	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Denton (MSA)	Air	601.9	567.8	716.0	556.9	522.7	525.2	353.3	311.7	433.2	197.3	354.9	312.4	240.3	5,693.7
	Total	862.0	673.0	756.1	569.4	571.7	529.3	355.7	312.2	433.7	197.7	410.5	3,012.9	625.5	9,309.8
	Pct.	69.8%	84.4%	94.7%	97.8%	91.4%	99.2%	99.3%	99.8%	99.9%	99.8%	86.5%	10.4%	38.4%	61.2%
DeWitt	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dickens	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dimmit	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Donley	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Duval	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Eastland	Air	1,186.8	23.8	22.2	0.0	13.6	22.9	11.1	14.8	20.2	14.2	60.0	45.6	43.0	1,478.2
	Total	1,219.8	24.1	22.5	0.0	13.6	22.9	11.1	14.8	20.2	14.2	60.0	45.6	43.0	1,511.7
	Pct.	97.3%	99.0%	98.9%	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	97.8%
Ector	Air	4,860.4	3,474.7	3,318.4	3,086.9	3,330.6	2,911.3	2,833.6	2,858.5	2,840.9	1,667.2	3,222.8	1,709.1	1,480.6	37,594.8
(MSA)	Total	7,833.0	4,460.7	3,787.6	3,232.3	3,518.4	3,160.2	2,980.0	3,113.8	3,059.6	2,110.0	3,366.2	1,751.3	1,573.1	43,946.2
	Pct.	62.1%	77.9%	87.6%	95.5%	94.7%	92.1%	95.1%	91.8%	92.9%	79.0%	95.7%	97.6%	94.1%	85.5%
Edwards	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ellis	Air	741.8	728.8	376.5	755.2	553.0	598.3	711.3	736.6	779.8	772.9	1,007.1	1,227.7	2,276.0	11,265.0
(MSA)	Total	7,589.9	2,080.9	460.1	937.6	611.8	687.5	788.5	882.4	984.4	1,750.2	1,851.0	2,440.9	3,611.6	24,676.8
	Pct.	9.8%	35.0%	81.8%	80.5%	90.4%	87.0%	90.2%	83.5%	79.2%	44.2%	54.4%	50.3%	63.0%	45.7%
El Paso	Air	1,527.3	1,718.3	1,292.2	1,405.4	1,477.5	1,132.2	434.0	473.4	603.3	442.7	642.6	588.7	549.6	12,287.2
(MSA)	Total	1,991.0	1,822.7	5,136.4	14,185.8	13,119.7	13,814.4	520.6	1,008.1	873.1	567.2	1,460.3	880.5	779.4	56,159.3
	Pct.	76.7%	94.3%	25.2%	9.9%	11.3%	8.2%	83.4%	47.0%	69.1%	78.1%	44.0%	66.9%	70.5%	21.9%
Erath	Air	181.3	151.9	134.0	132.1	122.6	128.3	158.4	159.2	119.4	117.0	87.2	93.6	64.0	1,649.0
	Total	529.5	379.9	134.0	170.8	153.2	165.8	195.5	430.3	342.5	331.7	125.8	94.5	64.0	3,117.5
	Pct.	34.2%	40.0%	100.0%	77.3%	80.1%	77.4%	81.0%	37.0%	34.9%	35.3%	69.3%	99.1%	100.0%	52.9%
Falls	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fannin	Air	0.0	0.0	0.5	4.2	9.8	11.0	5.2	11.5	12.6	17.7	4.8	<0.1	<0.1	77.4
	Total	0.3	0.3	0.5	4.9	11.5	12.1	5.2	11.5	12.6	17.8	4.8	1.6	<0.1	83.0
	Pct.	0.0%	0.0%	100.0%	86.3%	85.3%	91.2%	100.0%	100.0%	100.0%	99.4%	100.0%	2.8%	87.5%	93.3%
Fayette	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,020.8	2,424.6	605.6	4,051.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,463.2	2,924.2	1,421.5	5,808.9
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	69.8%	82.9%	42.6%	69.7%
Fisher	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Floyd	Air	0.0	0.0	36.0	38.0	37.0	51.0	49.0	46.0	40.5	56.5	53.7	46.5	0.0	454.2
	Total	0.0	0.0	36.0	38.0	37.0	51.0	49.0	46.0	40.5	56.5	53.7	46.5	0.0	454.2
	Pct.	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	100.0%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Foard	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(MSA)	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fort Bend	Air	649.5	694.6	715.9	611.5	546.0	504.3	380.0	351.4	129.9	97.3	690.8	729.6	652.5	6,753.2
	Total	1,055.1	964.8	998.1	743.9	814.5	889.0	663.7	524.4	325.2	239.8	2,028.5	2,675.6	2,558.5	14,481.0
	Pct.	61.6%	72.0%	71.7%	82.2%	67.0%	56.7%	57.2%	67.0%	39.9%	40.6%	34.1%	27.3%	25.5%	46.6%
Franklin	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	20.6	10.6	11.3	14.1	6.9	76.3
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
Freestone	Air	0.3	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	141.1	147.3	528.8	817.5
	Total	45.3	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,359.8	2,312.6	3,160.3	7,877.9
	Pct.	0.6%	N/A	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0%	6.4%	16.7%	10.4%
Frio	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gaines	Air	0.5	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3
	Total	0.5	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3
	Pct.	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Galveston	Air	9,047.6	12,631.1	11,081.2	8,374.5	7,491.7	6,977.3	4,678.8	4,471.0	6,435.1	5,852.7	7,357.1	6,308.4	6,830.2	97,536.6
(MSA)	Total	69,606.2	48,189.7	59,304.4	55,710.8	64,621.1	47,713.9	16,235.1	25,118.9	21,791.8	21,172.6	21,966.9	21,135.9	27,568.8	500,136.1
	Pct.	13.0%	26.2%	18.7%	15.0%	11.6%	14.6%	28.8%	17.8%	29.5%	27.6%	33.5%	29.8%	24.8%	19.5%
Garza	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gillespie	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Glasscock	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Goliad	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	765.0	467.6	98.5	1,331.1
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,981.9	1,757.5	973.0	4,712.3
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	38.6%	26.6%	10.1%	28.2%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Gonzales	Air	0.0	0.0	0.8	1.3	0.5	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	4.1
	Total	0.0	0.3	0.8	2.3	1.0	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	6.9
	Pct.	N/A	0.0%	96.8%	55.9%	50.7%	60.4%	60.4%	N/A	N/A	N/A	N/A	N/A	N/A	59.5%
Gray	Air	1,222.9	1,331.0	1,507.6	1,567.8	1,492.7	1,409.9	995.9	848.2	634.1	610.1	1,327.8	1,233.0	1,358.5	15,539.5
	Total	1,311.4	1,399.1	1,533.4	1,654.5	1,567.3	1,723.1	1,099.4	1,192.0	806.1	742.8	1,835.3	1,674.4	1,879.1	18,418.0
	Pct.	93.3%	95.1%	98.3%	94.8%	95.2%	81.8%	90.6%	71.2%	78.7%	82.1%	72.3%	73.6%	72.3%	84.4%
Grayson (MSA)	Air	279.0	264.1	178.3	129.5	157.0	125.6	159.9	342.8	72.6	88.3	56.4	30.8	27.6	1,911.9
	Total	758.3	446.2	293.9	133.9	179.1	197.5	260.0	357.9	74.5	107.4	77.1	134.2	65.4	3,085.4
	Pct.	36.8%	59.2%	60.7%	96.7%	87.6%	63.6%	61.5%	95.8%	97.5%	82.2%	73.1%	22.9%	42.3%	62.0%
Gregg (MSA)	Air	1,322.0	1,407.6	1,145.6	826.9	993.5	912.9	902.6	850.9	845.4	548.5	523.9	264.6	507.8	11,052.1
	Total	1,514.6	1,576.0	1,216.8	925.6	1,033.4	953.5	968.5	897.4	909.4	693.4	598.4	294.6	558.7	12,140.1
	Pct.	87.3%	89.3%	94.1%	89.3%	96.1%	95.7%	93.2%	94.8%	93.0%	79.1%	87.5%	89.8%	90.9%	91.0%
Grimes	Air	0.8	0.8	0.8	0.1	0.1	0.2	13.6	16.7	14.1	16.5	247.5	312.8	265.0	888.9
	Total	0.8	0.8	0.8	18.1	19.6	0.2	13.6	16.7	14.1	16.5	500.1	524.5	482.0	1,607.7
	Pct.	100.0%	100.0%	100.0%	0.7%	0.6%	100.0%	100.0%	100.0%	100.0%	100.0%	49.5%	59.6%	55.0%	55.3%
Guadalupe (MSA)	Air	705.3	478.5	431.3	263.1	255.5	195.0	229.7	167.5	181.3	139.8	214.1	235.2	230.0	3,726.3
	Total	8,481.8	2,926.5	1,000.2	370.5	436.6	283.9	603.6	200.5	189.0	1,160.4	1,012.1	1,101.7	1,120.6	18,887.3
	Pct.	8.3%	16.4%	43.1%	71.0%	58.5%	68.7%	38.0%	83.6%	95.9%	12.0%	21.2%	21.4%	20.5%	19.7%
Hale	Air	12.7	4.1	7.5	166.1	84.0	44.8	36.5	133.0	286.2	265.7	354.7	336.0	328.5	2,059.7
	Total	98.6	4.1	972.6	810.5	378.1	167.0	155.0	608.0	588.3	652.7	689.4	712.9	950.8	6,788.1
	Pct.	12.9%	100.0%	0.8%	20.5%	22.2%	26.8%	23.5%	21.9%	48.7%	40.7%	51.4%	47.1%	34.6%	30.3%
Hall	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hamilton	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hansford	Air	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
	Total	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Hardeman	Air	0.0	0.0	21.0	21.0	28.0	0.0	0.0	195.2	157.1	84.0	39.0	0.0	0.0	545.3
	Total	0.0	0.0	21.0	21.0	28.0	0.0	0.0	195.2	157.1	84.0	39.0	0.0	0.0	545.3
	Pct.	N/A	N/A	100.0%	100.0%	100.0%	N/A	N/A	100.0%	100.0%	100.0%	100.0%	N/A	N/A	100.0%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Hardin	Air	58.5	47.3	63.0	46.6	90.3	62.8	62.2	39.8	109.8	283.0	238.9	152.1	124.4	1,378.6
(MSA)	Total	60.5	47.3	63.8	47.7	91.2	63.6	62.8	39.8	109.8	283.0	238.9	152.1	124.9	1,385.2
	Pct.	96.7%	100.0%	98.8%	97.8%	98.9%	98.8%	99.1%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.5%
Harris	Air	57,197.1	54,336.3	46,921.1	46,271.5	45,237.4	43,693.5	38,405.1	31,821.4	28,657.6	27,324.3	27,730.4	26,847.3	23,987.4	498,430.4
(MSA)	Total	141,768.7	88,120.6	75,219.8	77,196.8	88,002.4	71,118.6	68,518.5	65,265.2	55,240.0	53,118.6	61,240.9	59,443.6	53,399.5	957,652.9
	Pct.	40.3%	61.7%	62.4%	59.9%	51.4%	61.4%	56.1%	48.8%	51.9%	51.4%	45.3%	45.2%	44.9%	52.0%
Harrison	Air	11,780.1	10,249.6	8,403.0	6,859.0	4,689.9	5,081.6	4,441.5	4,391.5	4,399.3	4,051.6	3,699.9	4,477.1	4,498.0	77,022.0
(MSA)	Total	15,500.6	10,891.0	9,005.4	7,295.0	5,115.0	5,597.7	4,984.3	4,919.0	4,868.4	4,481.7	5,778.9	6,878.6	7,703.0	93,018.6
	Pct.	76.0%	94.1%	93.3%	94.0%	91.7%	90.8%	89.1%	89.3%	90.4%	90.4%	64.0%	65.1%	58.4%	82.8%
Hartley	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Haskell	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hays	Air	10.3	0.5	1.0	42.6	55.3	47.5	65.3	66.5	78.5	70.0	53.6	45.3	46.1	582.3
(MSA)	Total	10.5	0.5	1.0	42.6	55.3	47.5	65.5	66.5	78.5	70.0	53.6	45.3	46.1	582.9
	Pct.	97.6%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%
Hemphill	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Henderson	Air	313.0	491.7	177.8	117.8	120.4	121.0	64.7	57.9	37.1	31.3	74.7	69.8	86.1	1,763.2
(MSA)	Total	320.3	492.8	178.8	117.8	120.4	121.0	65.1	58.4	37.7	31.7	74.7	69.9	86.1	1,774.6
	Pct.	97.7%	99.8%	99.5%	100.0%	100.0%	100.0%	99.4%	99.1%	98.4%	98.5%	100.0%	99.9%	100.0%	99.4%
Hidalgo	Air	127.3	153.4	115.5	210.1	188.7	125.1	71.9	120.8	60.3	48.6	89.9	169.0	68.0	1,548.5
(MSA)	Total	276.0	169.8	120.2	214.2	193.6	141.9	84.1	121.8	61.1	49.8	92.1	182.9	82.6	1,790.1
	Pct.	46.1%	90.4%	96.1%	98.1%	97.5%	88.2%	85.5%	99.2%	98.7%	97.6%	97.6%	92.4%	82.3%	86.5%
Hill	Air	118.6	92.4	28.1	173.5	153.8	158.1	134.8	157.5	142.0	74.8	88.0	16.1	24.2	1,362.1
	Total	119.6	93.4	28.1	173.5	153.8	158.1	134.8	157.5	142.0	74.8	88.0	16.1	24.2	1,364.1
	Pct.	99.2%	98.9%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%
Hockley	Air	87.0	0.0	0.0	0.0	0.0	0.0	0.0	210.0	56.6	98.9	43.7	65.6	26.7	588.5
	Total	87.0	0.0	0.0	0.0	0.0	0.0	0.0	210.0	56.6	98.9	43.7	65.6	26.7	588.5
	Pct.	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Hood	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(MSA)	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hopkins	Air	83.9	19.5	11.9	10.4	0.3	15.3	11.5	28.8	31.6	15.0	18.2	12.7	8.9	267.7
	Total	133.6	19.5	12.1	10.4	0.3	15.3	11.5	35.5	37.4	23.1	23.0	12.7	8.9	343.0
	Pct.	62.8%	100.0%	97.9%	100.0%	100.0%	100.0%	100.0%	81.3%	84.3%	64.9%	79.4%	100.0%	100.0%	78.0%
Houston	Air	30.0	15.0	12.5	12.8	12.8	2.8	17.9	3.8	19.8	4.6	3.5	23.7	24.9	183.9
	Total	59.2	31.6	20.3	16.5	15.6	3.3	20.7	7.1	23.3	7.7	5.7	26.0	26.5	263.5
	Pct.	50.6%	47.5%	61.6%	77.3%	81.7%	84.3%	86.6%	53.4%	84.9%	59.4%	61.4%	91.0%	93.9%	69.8%
Howard	Air	1,470.2	1,662.8	1,686.4	3,781.2	4,491.4	1,239.3	1,880.8	2,759.8	810.5	473.4	553.0	269.1	261.9	21,339.7
	Total	1,498.6	1,676.6	1,712.7	3,794.7	4,512.0	1,247.5	1,942.4	2,779.7	838.8	498.4	573.4	302.8	293.1	21,670.8
	Pct.	98.1%	99.2%	98.5%	99.6%	99.5%	99.3%	96.8%	99.3%	96.6%	95.0%	96.4%	88.9%	89.3%	98.5%
Hudspeth	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hunt	Air	730.0	671.3	612.8	493.5	292.7	283.9	150.9	161.8	168.6	19.4	37.2	29.1	34.4	3,685.7
(MSA)	Total	732.1	684.4	640.9	511.8	323.7	287.5	154.6	167.2	170.7	25.8	43.1	30.8	39.7	3,812.4
	Pct.	99.7%	98.1%	95.6%	96.4%	90.4%	98.7%	97.6%	96.8%	98.8%	75.3%	86.4%	94.5%	86.6%	96.7%
Hutchinson	Air	5,118.6	4,510.3	3,944.2	5,320.6	3,345.3	2,752.3	2,687.4	2,815.0	2,634.3	2,813.3	2,503.3	1,715.0	1,356.8	41,516.5
	Total	12,377.6	6,641.2	5,036.5	5,833.9	3,806.6	3,643.8	3,449.0	3,608.7	5,560.1	6,527.6	6,277.4	7,021.0	5,740.8	75,524.2
	Pct.	41.4%	67.9%	78.3%	91.2%	87.9%	75.5%	77.9%	78.0%	47.4%	43.1%	39.9%	24.4%	23.6%	55.0%
Irion	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jack	Air	0.0	0.0	0.0	0.0	38.2	38.8	46.5	55.8	60.4	61.2	0.0	78.1	83.3	462.4
	Total	0.0	0.0	0.0	0.0	38.2	38.8	46.5	55.8	60.4	61.2	0.0	78.1	83.3	462.4
	Pct.	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	100.0%	100.0%	100.0%
Jackson	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jasper	Air	4,550.9	2,181.9	2,532.9	1,592.7	1,765.0	1,435.3	1,086.2	946.2	1,002.6	1,128.0	1,156.6	1,170.5	986.3	21,535.0
	Total	4,552.8	2,193.1	2,600.5	1,607.7	1,822.9	2,080.5	1,644.9	1,373.9	1,439.7	1,879.9	1,637.7	1,494.7	1,270.5	25,598.7
	Pct.	100.0%	99.5%	97.4%	99.1%	96.8%	69.0%	66.0%	68.9%	69.6%	60.0%	70.6%	78.3%	77.6%	84.1%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Jeff Davis	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jefferson (MSA)	Air	23,229.3	19,983.9	18,913.9	17,738.0	19,315.0	15,031.5	13,966.2	24,020.2	23,474.9	13,282.2	12,779.9	9,464.9	11,190.2	222,389.9
	Total	149,210.0	106,897.5	55,690.6	52,760.7	58,471.7	52,446.6	47,326.5	46,094.3	35,307.6	23,754.4	24,781.1	20,316.3	30,740.6	703,798.0
	Pct.	15.6%	18.7%	34.0%	33.6%	33.0%	28.7%	29.5%	52.1%	66.5%	55.9%	51.6%	46.6%	36.4%	31.6%
Jim Hogg	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jim Wells	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Johnson (MSA)	Air	675.5	797.0	194.3	377.5	356.5	429.3	632.7	249.3	276.9	253.4	210.1	192.5	182.6	4,827.6
	Total	686.0	806.8	205.2	387.4	460.2	463.0	641.0	259.4	321.5	266.4	222.6	193.5	191.3	5,104.2
	Pct.	98.5%	98.8%	94.7%	97.4%	77.5%	92.7%	98.7%	96.1%	86.1%	95.1%	94.4%	99.5%	95.4%	94.6%
Jones	Air	19.8	33.7	89.2	96.4	110.7	121.9	136.8	160.1	179.9	190.0	117.5	86.9	42.4	1,385.4
	Total	19.8	33.7	89.2	96.4	110.7	121.9	136.8	160.1	180.2	190.3	117.8	87.4	42.4	1,386.6
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	99.9%	99.8%	99.5%	100.0%	99.9%
Karnes	Air	182.3	143.2	228.1	119.5	62.5	68.1	58.9	100.5	76.9	92.9	64.9	70.2	82.4	1,350.5
	Total	182.3	143.2	228.1	119.5	62.5	68.1	58.9	100.5	76.9	92.9	64.9	70.2	82.4	1,350.5
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Kaufman (MSA)	Air	172.1	48.8	348.3	393.2	887.9	627.1	732.0	448.9	389.8	232.8	243.4	194.3	194.5	4,912.9
	Total	238.6	103.9	387.8	462.9	912.5	647.7	780.6	500.5	433.7	290.6	400.0	240.3	242.8	5,641.8
	Pct.	72.2%	46.9%	89.8%	84.9%	97.3%	96.8%	93.8%	89.7%	89.9%	80.1%	60.8%	80.9%	80.1%	87.1%
Kendall	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kenedy	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kent	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Kerr	Air	35.0	37.0	48.1	30.0	47.6	47.8	53.7	41.0	0.0	0.0	0.0	0.0	15.8	356.1
	Total	35.0	37.0	48.1	30.0	47.6	47.8	53.7	41.0	0.0	0.0	0.0	0.0	15.8	356.1
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	100.0%	100.0%
Kimble	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
King	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kinney	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kleberg	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Knox	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lamar	Air	498.0	341.5	655.8	306.6	233.7	290.2	226.6	296.7	172.7	108.5	129.1	177.2	216.6	3,653.2
	Total	563.6	418.3	721.4	364.4	290.2	342.0	232.4	301.4	178.7	113.8	142.7	340.0	216.7	4,225.9
	Pct.	88.4%	81.6%	90.9%	84.1%	80.5%	84.9%	97.5%	98.4%	96.6%	95.3%	90.5%	52.1%	99.9%	86.4%
Lamb	Air	0.3	0.3	<0.1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	270.8	277.9	278.0	828.3
	Total	0.3	0.3	<0.1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1,654.2	1,841.5	1,645.3	5,142.5
	Pct.	100.0%	100.0%	100.0%	N/A	N/A	100.0%	100.0%	N/A	N/A	N/A	16.4%	15.1%	16.9%	16.1%
Lampasas	Air	0.0	0.0	0.0	0.0	0.0	2.0	0.0	<0.1	12.2	13.3	6.5	4.6	0.0	38.6
	Total	0.0	0.0	0.0	0.0	0.0	2.0	0.0	1.0	13.4	14.5	7.8	5.5	1.2	45.5
	Pct.	N/A	N/A	N/A	N/A	N/A	100.0%	N/A	0.4%	91.4%	91.4%	82.5%	83.9%	0.0%	84.9%
La Salle	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lavaca	Air	305.5	269.8	315.0	179.2	145.0	133.0	135.6	109.1	104.4	0.0	72.3	38.7	35.7	1,843.2
	Total	324.3	281.4	336.7	179.2	146.3	147.1	181.4	121.5	104.4	0.0	72.3	38.7	35.7	1,968.9
	Pct.	94.2%	95.8%	93.6%	100.0%	99.1%	90.5%	74.8%	89.8%	100.0%	N/A	100.0%	100.0%	99.9%	93.6%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Lee	Air	0.0	0.0	0.0	0.5	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	8.8
	Total	0.0	0.0	0.0	0.5	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	8.8
	Pct.	N/A	N/A	N/A	100.0%	N/A	N/A	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Leon	Air	2.3	31.8	31.9	33.5	34.1	38.5	41.2	22.4	58.6	36.3	423.6	0.0	31.4	785.8
	Total	631.1	31.8	117.8	35.0	510.7	359.1	437.2	1,127.5	491.5	223.3	656.0	0.0	31.4	4,652.5
	Pct.	0.4%	100.0%	27.1%	95.7%	6.7%	10.7%	9.4%	2.0%	11.9%	16.3%	64.6%	N/A	100.0%	16.9%
Liberty (MSA)	Air	20.9	24.8	87.7	102.4	96.2	125.4	41.8	59.3	12.8	5.7	107.5	116.4	81.3	882.3
	Total	22.7	32.5	137.3	152.9	316.1	125.9	43.7	67.1	34.2	5.7	107.5	117.5	81.9	1,245.0
	Pct.	92.3%	76.3%	63.9%	67.0%	30.4%	99.6%	95.6%	88.4%	37.5%	100.0%	100.0%	99.1%	99.2%	70.9%
Limestone	Air	0.0	0.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	312.5	275.3	330.4	933.8
	Total	0.0	0.0	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,494.5	5,112.3	5,490.2	16,119.0
	Pct.	N/A	N/A	71.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.7%	5.4%	6.0%	5.8%
Lipscomb	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Live Oak	Air	80.5	68.4	93.7	74.9	103.2	121.3	199.1	217.7	230.1	147.8	147.4	146.8	164.1	1,794.9
	Total	260.5	87.0	114.4	89.2	133.2	188.2	291.1	236.4	1,165.9	1,349.7	150.2	147.5	164.3	4,377.7
	Pct.	30.9%	78.6%	81.9%	84.0%	77.5%	64.5%	68.4%	92.1%	19.7%	10.9%	98.1%	99.5%	99.9%	41.0%
Llano	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Loving	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lubbock (MSA)	Air	193.3	237.4	127.8	87.6	83.3	67.9	15.3	1,151.5	1,256.7	950.4	781.2	734.7	499.4	6,186.4
	Total	333.5	367.0	178.6	94.0	98.6	73.7	17.8	1,152.8	1,259.7	962.3	789.9	735.7	500.0	6,563.5
	Pct.	58.0%	64.7%	71.6%	93.2%	84.5%	92.2%	85.8%	99.9%	99.8%	98.8%	98.9%	99.9%	99.9%	94.3%
Lynn	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
McCulloch	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0	208.8	237.3	2.5	3.3	5.4	488.3
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0	208.8	237.7	2.8	31.0	64.5	575.7
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	99.8%	91.0%	10.5%	8.4%	84.8%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
McLennan	Air	594.9	772.8	415.8	435.4	300.6	383.7	293.6	295.4	143.5	107.6	55.8	77.9	32.8	3,909.8
(MSA)	Total	2,298.0	1,810.1	643.9	551.7	419.0	446.6	439.0	351.8	303.4	351.1	161.1	429.3	271.0	8,475.8
	Pct.	25.9%	42.7%	64.6%	78.9%	71.7%	85.9%	66.9%	84.0%	47.3%	30.6%	34.6%	18.2%	12.1%	46.1%
McMullen	Air	0.5	0.5	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
	Total	0.5	0.5	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Madison	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Marion	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	22.7	25.7	34.6	25.7	128.8
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	24.2	25.7	34.6	25.7	130.3
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%	93.9%	100.0%	100.0%	100.0%	98.9%
Martin	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mason	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matagorda	Air	1,654.6	1,286.0	783.9	923.1	1,409.0	1,257.6	1,136.0	1,078.6	629.2	298.7	204.2	256.8	252.0	11,169.7
	Total	3,494.6	2,963.3	2,452.2	3,720.9	3,794.6	3,491.8	2,030.8	2,135.6	1,308.9	547.8	207.8	407.2	252.7	26,808.2
	Pct.	47.3%	43.4%	32.0%	24.8%	37.1%	36.0%	55.9%	50.5%	48.1%	54.5%	98.3%	63.1%	99.7%	41.7%
Maverick	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Medina	Air	0.0	0.0	0.0	0.0	0.0	70.0	62.0	7.8	0.0	0.0	0.0	0.0	0.0	139.8
	Total	0.0	0.0	0.0	0.0	0.0	70.0	62.0	7.8	0.0	0.0	0.0	0.0	0.0	139.8
	Pct.	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	100.0%
Menard	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Midland	Air	155.9	151.0	113.9	76.6	56.5	54.9	59.6	51.3	71.6	62.3	91.7	3.2	61.5	1,009.8
(MSA)	Total	168.9	156.4	114.6	77.8	67.9	55.3	70.2	51.3	71.6	62.3	91.7	3.4	61.8	1,053.0
	Pct.	92.3%	96.6%	99.3%	98.4%	83.3%	99.3%	84.9%	100.0%	100.0%	100.0%	100.0%	96.1%	99.6%	95.9%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Milam	Air	4,513.2	1,448.2	1,440.8	1,210.1	974.4	776.5	1,174.3	906.5	1,903.9	1,172.1	1,397.6	1,574.9	1,683.7	20,176.2
	Total	4,683.2	1,448.2	1,440.8	1,214.5	978.8	780.9	1,177.3	914.0	1,908.9	2,235.0	3,753.4	4,267.8	4,025.3	28,828.1
	Pct.	96.4%	100.0%	100.0%	99.6%	99.6%	99.4%	99.7%	99.2%	99.7%	52.4%	37.2%	36.9%	41.8%	70.0%
Mills	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mitchell	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Montague	Air	0.0	12.0	11.0	39.8	34.1	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	123.0
	Total	0.0	12.0	11.0	39.8	34.1	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	123.0
	Pct.	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Montgomery (MSA)	Air	483.6	459.1	569.0	563.5	636.5	608.0	565.2	400.4	349.2	613.4	663.6	575.1	629.3	7,115.7
	Total	671.0	467.4	582.4	577.6	654.5	639.7	583.3	416.1	376.2	637.4	715.8	608.6	679.3	7,609.3
	Pct.	72.1%	98.2%	97.7%	97.6%	97.3%	95.0%	96.9%	96.2%	92.8%	96.2%	92.7%	94.5%	92.6%	93.5%
Moore	Air	879.5	654.0	541.4	395.4	719.2	1,167.7	1,584.6	965.4	565.1	474.9	394.6	392.4	282.8	9,017.0
	Total	1,232.6	1,947.2	1,562.0	1,020.4	1,345.7	1,450.3	1,691.0	1,260.7	802.0	869.9	1,012.8	744.5	444.1	15,383.0
	Pct.	71.3%	33.6%	34.7%	38.8%	53.4%	80.5%	93.7%	76.6%	70.5%	54.6%	39.0%	52.7%	63.7%	58.6%
Morris	Air	827.5	601.1	345.6	235.7	273.8	209.6	153.5	231.5	149.3	48.6	39.8	20.8	19.4	3,156.1
	Total	3,437.2	2,713.8	1,832.1	1,786.3	381.0	299.1	216.3	341.1	239.7	134.0	128.8	73.9	73.2	11,656.4
	Pct.	24.1%	22.1%	18.9%	13.2%	71.9%	70.1%	70.9%	67.9%	62.3%	36.2%	30.9%	28.1%	26.5%	27.1%
Motley	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nacogdoches	Air	475.9	463.5	400.1	287.8	362.0	893.0	706.9	595.4	650.3	648.2	677.7	694.1	390.6	7,245.6
	Total	869.0	512.5	708.2	832.3	481.7	1,245.6	726.4	602.3	681.0	655.9	683.1	704.6	395.2	9,097.9
	Pct.	54.8%	90.5%	56.5%	34.6%	75.2%	71.7%	97.3%	98.9%	95.5%	98.8%	99.2%	98.5%	98.8%	79.6%
Navarro	Air	95.7	78.6	43.5	102.4	76.4	33.3	26.6	17.8	22.2	14.3	32.1	35.7	57.4	635.8
	Total	2,784.9	2,077.8	3,086.1	3,023.6	3,094.3	1,378.8	343.2	17.8	65.3	30.0	68.9	76.0	145.4	16,191.9
	Pct.	3.4%	3.8%	1.4%	3.4%	2.5%	2.4%	7.8%	100.0%	33.9%	47.7%	46.6%	46.9%	39.5%	3.9%
Newton	Air	7.0	6.9	6.8	10.4	15.2	0.0	0.0	0.0	0.0	0.0	59.8	72.7	74.8	253.6
	Total	7.5	7.4	7.3	10.9	15.2	0.0	0.0	0.0	0.0	0.0	59.8	72.7	74.8	255.5
	Pct.	93.3%	93.2%	93.1%	96.1%	100.0%	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	99.2%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Nolan	Air	0.3	1.9	30.9	12.3	5.0	5.6	5.1	4.8	3.6	3.6	3.6	3.6	3.6	84.0
	Total	6.5	5.7	30.9	12.3	5.0	5.6	5.1	9.0	3.9	3.9	3.9	3.9	3.9	99.5
	Pct.	3.8%	32.9%	100.0%	100.0%	100.0%	100.0%	100.0%	54.0%	93.6%	93.5%	93.6%	93.6%	93.5%	84.5%
Nueces (MSA)	Air	4,086.2	4,403.4	5,344.1	4,541.4	4,983.7	4,483.0	2,767.9	4,788.6	2,922.6	3,059.2	3,764.7	3,863.5	2,640.6	51,649.0
	Total	39,307.3	24,349.9	17,492.1	17,493.6	17,161.9	19,201.1	16,911.5	17,522.5	16,439.2	21,549.5	25,528.2	19,748.9	8,634.5	261,340.4
	Pct.	10.4%	18.1%	30.6%	26.0%	29.0%	23.3%	16.4%	27.3%	17.8%	14.2%	14.7%	19.6%	30.6%	19.8%
Ochiltree	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oldham	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orange (MSA)	Air	10,154.7	10,568.3	9,468.8	11,490.9	8,852.3	7,725.7	7,398.5	8,972.3	6,604.3	6,273.4	6,918.5	5,595.8	4,385.8	104,409.4
	Total	18,808.7	28,192.6	19,826.8	17,250.4	14,222.3	15,465.4	10,041.9	10,537.8	9,218.0	7,663.3	8,253.6	7,313.8	5,948.0	172,742.4
	Pct.	54.0%	37.5%	47.8%	66.6%	62.2%	50.0%	73.7%	85.1%	71.6%	81.9%	83.8%	76.5%	73.7%	60.4%
Palo Pinto	Air	296.5	198.8	136.6	30.0	34.8	71.2	2.3	5.7	0.0	0.0	<0.1	<0.1	<0.1	776.0
	Total	296.5	198.8	136.6	30.0	34.8	71.2	2.3	5.7	0.0	0.0	0.5	0.5	0.5	777.5
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	1.0%	1.9%	1.0%	99.8%
Panola	Air	0.0	2.0	9.8	10.3	0.0	18.3	9.0	6.0	0.0	0.0	50.8	69.0	67.8	242.9
	Total	0.0	2.0	9.8	10.3	0.0	18.3	9.0	6.0	0.0	0.0	50.8	69.0	67.8	242.9
	Pct.	N/A	100.0%	100.0%	100.0%	N/A	100.0%	100.0%	100.0%	N/A	N/A	100.0%	100.0%	100.0%	100.0%
Parker	Air	95.4	122.7	92.3	371.5	112.2	115.7	111.7	45.7	139.8	87.2	227.2	126.2	99.7	1,747.3
	Total	195.1	124.7	113.7	415.1	118.2	143.7	171.7	124.1	148.0	88.5	230.1	176.6	104.4	2,153.9
	Pct.	48.9%	98.4%	81.2%	89.5%	94.9%	80.5%	65.0%	36.8%	94.5%	98.5%	98.7%	71.5%	95.5%	81.1%
Parmer	Air	20.0	14.0	17.7	112.3	138.2	48.0	117.1	133.8	137.4	208.5	152.0	253.6	184.0	1,536.6
	Total	137.0	19.2	667.2	462.9	451.3	549.2	621.2	624.8	177.6	269.6	209.2	300.6	264.6	4,754.4
	Pct.	14.6%	73.1%	2.7%	24.3%	30.6%	8.7%	18.9%	21.4%	77.3%	77.3%	72.6%	84.4%	69.5%	32.3%
Pecos	Air	1.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
	Total	84.6	1.3	49.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	135.0
	Pct.	1.2%	57.9%	1.5%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.9%
Polk	Air	7.9	13.8	12.7	23.9	26.2	23.7	15.9	13.6	49.5	88.8	227.4	218.3	206.3	928.1
	Total	8.4	18.1	13.6	24.3	27.5	25.7	17.9	16.8	52.5	91.6	263.2	219.3	208.1	987.0
	Pct.	94.1%	76.3%	93.3%	98.3%	95.4%	92.2%	89.0%	81.0%	94.2%	97.0%	86.4%	99.5%	99.2%	94.0%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Potter	Air	126.7	175.0	201.1	169.3	154.0	165.3	190.5	295.8	277.0	330.1	692.5	639.2	699.9	4,116.4
	Total	5,289.1	4,143.6	6,210.3	6,082.3	6,015.6	6,132.6	646.3	809.9	1,245.2	1,534.1	4,005.5	3,445.8	3,402.0	48,962.2
	Pct.	2.4%	4.2%	3.2%	2.8%	2.6%	2.7%	29.5%	36.5%	22.2%	21.5%	17.3%	18.5%	20.6%	8.4%
Presidio	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rains	Air	18.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
	Total	18.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7
	Pct.	98.3%	16.7%	N/A	N/A	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	98.2%
Randall (MSA)	Air	903.1	691.3	387.5	205.8	335.6	555.4	676.0	604.9	568.8	458.2	509.9	496.4	556.0	6,948.9
	Total	910.8	698.9	392.4	215.5	339.9	560.5	678.7	614.5	570.6	464.3	526.1	506.9	576.9	7,056.0
	Pct.	99.2%	98.9%	98.8%	95.5%	98.7%	99.1%	99.6%	98.4%	99.7%	98.7%	96.9%	97.9%	96.4%	98.5%
Reagan	Air	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
	Total	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
	Pct.	50.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	75.0%
Real	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Red River	Air	0.0	0.0	46.7	25.2	16.8	0.0	16.3	0.0	0.0	0.0	0.0	0.0	0.0	105.0
	Total	0.0	0.0	46.7	25.2	16.8	0.0	16.3	0.0	0.0	0.0	0.0	0.0	0.0	105.0
	Pct.	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Reeves	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Refugio	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roberts	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Robertson	Air	5.0	3.7	0.8	2.1	1.4	24.9	19.1	15.8	1.1	1.1	67.9	72.6	138.9	354.4
	Total	35.4	43.1	49.3	20.3	19.3	44.2	39.4	16.9	1.1	1.1	400.9	347.4	549.7	1,568.0
	Pct.	14.1%	8.6%	1.6%	10.2%	7.1%	56.4%	48.6%	93.4%	100.0%	100.0%	16.9%	20.9%	25.3%	22.6%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Rockwall	Air	19.0	17.1	10.3	6.2	2.6	2.3	0.5	0.8	0.3	0.3	0.3	0.3	0.3	59.9
(MSA)	Total	19.0	17.1	10.3	6.2	2.6	2.3	0.5	0.8	0.3	0.3	0.3	0.3	0.3	59.9
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Runnels	Air	71.1	73.6	77.6	26.0	29.0	35.4	27.4	20.6	0.0	0.0	0.0	0.0	0.0	360.7
	Total	71.1	73.6	77.6	26.0	29.0	35.4	27.4	20.6	0.0	0.0	0.0	0.0	0.0	360.7
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	N/A	N/A	N/A	N/A	N/A	100.0%
Rusk	Air	301.0	177.2	251.5	239.8	246.7	161.8	68.0	58.7	87.2	89.1	434.7	433.4	342.2	2,891.1
	Total	303.5	179.7	254.5	251.3	247.7	162.8	68.2	59.7	87.2	89.1	5,444.8	6,007.2	5,838.0	18,993.6
	Pct.	99.2%	98.6%	98.8%	95.4%	99.6%	99.4%	99.6%	98.3%	100.0%	100.0%	8.0%	7.2%	5.9%	15.2%
Sabine	Air	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.0	0.0	0.0	71.8	62.0	54.1	190.1
	Total	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.0	0.0	0.0	71.8	62.0	54.1	190.1
	Pct.	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	N/A	N/A	N/A	100.0%	100.0%	100.0%	100.0%
San Augustine	Air	0.8	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
	Total	0.8	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.8	0.8	2.3
	Pct.	100.0%	N/A	N/A	100.0%	N/A	N/A	N/A	N/A	N/A	0.0%	0.0%	0.0%	0.0%	33.8%
San Jacinto	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
San Patricio	Air	1,613.0	246.9	222.5	522.2	359.4	323.4	246.1	115.2	112.5	113.0	121.1	218.0	119.9	4,333.4
(MSA)	Total	3,701.9	289.1	231.9	523.8	360.6	326.2	247.6	118.5	116.1	113.3	125.5	394.5	270.1	6,819.2
	Pct.	43.6%	85.4%	96.0%	99.7%	99.7%	99.2%	99.4%	97.2%	96.9%	99.7%	96.5%	55.3%	44.4%	63.5%
San Saba	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Schleicher	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scurry	Air	0.0	0.0	1.8	2.0	2.1	2.7	2.7	1.9	2.3	5.6	3.0	0.8	0.4	25.4
	Total	0.0	0.0	1.8	2.0	2.1	2.7	2.7	1.9	2.3	5.6	3.0	0.8	0.4	25.4
	Pct.	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Shackelford	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Shelby	Air	8.9	15.0	20.7	17.8	17.8	125.3	45.9	30.5	51.2	53.6	27.4	30.5	42.9	487.5
	Total	9.1	15.0	23.7	17.8	17.8	125.3	45.9	30.5	51.2	53.6	27.4	30.5	42.9	490.8
	Pct.	97.3%	100.0%	87.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.3%
Sherman	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Smith	Air	600.7	700.5	626.1	806.1	772.9	733.6	753.5	662.9	662.7	547.8	525.2	313.3	610.2	8,315.6
(MSA)	Total	1,844.8	1,899.9	1,128.1	979.8	948.4	912.3	1,008.1	787.4	808.3	668.2	745.2	506.0	833.1	13,069.7
	Pct.	32.6%	36.9%	55.5%	82.3%	81.5%	80.4%	74.7%	84.2%	82.0%	82.0%	70.5%	61.9%	73.2%	63.6%
Somervell	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Starr	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stephens	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sterling	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stonewall	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sutton	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Swisher	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tarrant	Air	7,315.0	6,523.9	5,478.8	5,043.1	4,273.6	2,805.3	2,499.9	2,548.3	1,948.0	1,488.5	2,399.1	2,129.8	1,382.9	45,836.2
(MSA)	Total	8,390.9	7,092.4	5,966.8	5,621.1	4,815.0	3,507.6	3,264.7	3,132.6	2,494.8	1,958.9	2,706.3	2,566.7	2,067.0	53,584.8
	Pct.	87.2%	92.0%	91.8%	89.7%	88.8%	80.0%	76.6%	81.3%	78.1%	76.0%	88.6%	83.0%	66.9%	85.5%

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Taylor	Air	280.6	218.7	619.5	767.0	447.5	418.5	447.7	653.2	512.6	502.5	446.1	491.5	486.5	6,291.7
(MSA)	Total	349.7	234.5	630.4	768.0	456.3	425.8	454.2	656.4	520.0	506.5	449.7	518.2	492.5	6,462.3
	Pct.	80.2%	93.3%	98.3%	99.9%	98.1%	98.3%	98.6%	99.5%	98.6%	99.2%	99.2%	94.9%	98.8%	97.4%
Terrell	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Terry	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Throckmorton	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Titus	Air	98.9	203.7	274.5	196.0	105.5	146.6	69.8	44.8	28.7	22.2	803.2	1,017.8	784.6	3,796.3
	Total	356.2	205.2	280.3	201.8	110.5	160.5	86.3	55.8	31.8	25.2	5,380.4	7,225.5	6,467.2	20,586.6
	Pct.	27.8%	99.3%	97.9%	97.1%	95.5%	91.3%	80.9%	80.2%	90.3%	88.1%	14.9%	14.1%	12.1%	18.4%
Tom Green	Air	85.3	75.0	55.1	207.8	224.2	233.8	233.8	210.8	176.1	147.0	135.4	130.6	40.9	1,955.6
(MSA)	Total	130.0	75.0	55.1	207.8	265.5	233.8	233.8	210.8	176.1	150.4	135.4	130.6	40.9	2,044.9
	Pct.	65.6%	100.0%	100.0%	100.0%	84.4%	100.0%	100.0%	100.0%	100.0%	97.7%	100.0%	100.0%	100.0%	95.6%
Travis	Air	1,015.0	1,086.3	879.3	784.4	704.8	428.1	319.3	365.7	409.5	242.9	312.3	395.0	332.3	7,274.9
	Total	2,984.4	3,379.8	3,465.8	2,026.1	3,468.1	1,529.3	752.6	442.3	446.5	274.1	426.4	519.1	863.2	20,577.7
	Pct.	34.0%	32.1%	25.4%	38.7%	20.3%	28.0%	42.4%	82.7%	91.7%	88.6%	73.3%	76.1%	38.5%	35.4%
Trinity	Air	0.3	0.3	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
	Total	1.5	0.3	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
	Pct.	17.2%	100.0%	100.0%	100.0%	66.7%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30.9%
Tyler	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	63.9	42.4	0.0	130.2
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	63.9	42.4	0.0	130.2
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	N/A	100.0%
Upshur	Air	145.3	110.4	129.7	126.5	141.4	136.8	107.8	113.0	70.1	49.0	50.9	50.5	101.2	1,332.4
(MSA)	Total	148.4	113.1	129.9	127.5	157.0	166.4	266.1	179.7	71.4	53.4	51.4	50.5	101.2	1,616.1
	Pct.	97.9%	97.6%	99.8%	99.2%	90.1%	82.2%	40.5%	62.9%	98.2%	91.7%	99.0%	100.0%	100.0%	82.4%
Upton	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Uvalde	Air	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	Total	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	12.0	0.0	20.0	0.0	0.0	32.3
	Pct.	N/A	N/A	N/A	N/A	100.0%	N/A	N/A	N/A	0.0%	N/A	0.0%	N/A	N/A	0.8%
Val Verde	Air	0.0	0.0	20.8	97.4	110.3	225.1	166.5	129.9	125.4	68.1	52.4	55.0	50.8	1,101.8
	Total	0.0	0.0	20.8	97.4	110.3	225.1	166.5	129.9	127.2	68.1	52.4	55.0	50.8	1,103.6
	Pct.	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.6%	100.0%	100.0%	100.0%	100.0%	99.8%
Van Zandt	Air	0.0	65.3	24.2	13.5	11.6	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0	126.2
	Total	0.0	65.3	24.2	13.5	11.6	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0	126.2
	Pct.	N/A	100.0%	100.0%	100.0%	100.0%	N/A	100.0%	N/A	N/A	N/A	N/A	N/A	N/A	100.0%
Victoria (MSA)	Air	2,517.8	1,666.2	1,567.6	1,695.0	1,207.6	624.5	710.0	769.5	719.0	753.9	732.5	1,057.4	791.7	14,812.8
	Total	31,218.8	32,595.4	35,166.7	27,313.0	23,314.0	22,670.2	21,269.1	27,305.2	24,119.3	23,818.0	25,127.7	21,446.5	15,114.5	330,478.6
	Pct.	8.1%	5.1%	4.5%	6.2%	5.2%	2.8%	3.3%	2.8%	3.0%	3.2%	2.9%	4.9%	5.2%	4.5%
Walker	Air	23.7	25.8	21.6	26.8	27.6	23.4	21.3	0.1	0.1	0.0	102.1	72.0	64.9	409.3
	Total	29.3	29.3	23.4	30.1	31.5	25.8	24.0	0.1	0.1	0.0	102.1	79.4	64.9	439.8
	Pct.	80.9%	87.9%	92.5%	89.3%	87.7%	90.6%	88.6%	100.0%	100.0%	N/A	100.0%	90.7%	100.0%	93.1%
Waller	Air	17.2	3.8	10.7	15.1	19.2	9.9	0.5	0.6	0.3	0.3	19.3	0.3	4.7	101.7
	Total	17.2	3.8	10.9	15.1	19.2	9.9	0.5	0.6	4.0	5.5	21.5	0.4	7.9	116.3
	Pct.	100.0%	100.0%	97.4%	100.0%	100.0%	100.0%	100.0%	100.0%	6.3%	4.6%	89.9%	80.3%	59.4%	87.4%
Ward	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Washington	Air	593.5	324.3	712.2	769.8	679.6	560.2	525.4	493.6	168.9	167.2	164.1	62.6	56.3	5,277.6
	Total	593.5	324.3	725.8	777.8	690.1	570.9	539.2	507.0	214.6	213.6	177.4	87.6	79.9	5,501.8
	Pct.	100.0%	100.0%	98.1%	99.0%	98.5%	98.1%	97.4%	97.4%	78.7%	78.2%	92.5%	71.5%	70.4%	95.9%
Webb (MSA)	Air	0.0	18.5	15.5	12.5	12.4	12.4	13.8	6.2	5.2	4.9	7.9	8.2	3.3	120.9
	Total	0.0	19.5	16.3	12.5	14.6	29.6	30.7	15.9	28.2	32.6	32.3	80.2	3.3	315.6
	Pct.	N/A	94.9%	95.4%	99.8%	84.8%	42.0%	45.0%	39.2%	18.3%	15.2%	24.4%	10.3%	100.0%	38.3%
Wharton	Air	10.1	8.9	8.9	7.3	7.3	7.3	27.2	48.3	70.1	281.2	164.8	110.9	108.9	861.2
	Total	17.4	17.2	20.7	17.2	12.2	15.8	45.7	69.4	86.0	289.9	175.6	120.9	125.6	1,013.5
	Pct.	58.1%	51.6%	43.2%	42.5%	60.1%	46.2%	59.5%	69.6%	81.6%	97.0%	93.8%	91.8%	86.7%	85.0%
Wheeler	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Wichita	Air	547.4	1,452.7	1,159.7	1,374.2	1,660.3	1,527.9	1,649.0	1,812.8	1,761.1	1,815.2	1,822.5	2,315.3	2,657.1	21,555.3
	Total	1,342.1	1,630.5	1,228.9	1,506.7	1,739.5	1,612.3	1,664.7	1,866.1	1,807.2	1,860.3	1,862.3	2,332.1	2,693.5	23,146.2
	Pct.	40.8%	89.1%	94.4%	91.2%	95.4%	94.8%	99.1%	97.1%	97.4%	97.6%	97.9%	99.3%	98.6%	93.1%
Wilbarger	Air	43.0	37.1	46.1	23.5	26.5	37.6	27.7	24.1	26.5	28.9	637.4	68.0	73.6	1,100.1
	Total	43.0	37.1	46.1	23.5	26.5	37.6	27.7	24.1	26.5	28.9	1,064.7	556.0	285.0	2,226.7
	Pct.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	59.9%	12.2%	25.8%	49.4%
Willacy	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Williamson	Air	126.3	93.1	146.5	125.4	124.5	104.8	66.0	54.0	98.4	32.5	43.1	79.5	77.2	1,171.3
(MSA)	Total	151.7	110.0	160.6	131.2	142.6	127.3	78.4	55.9	101.9	35.0	43.4	79.6	77.6	1,295.3
	Pct.	83.3%	84.7%	91.2%	95.6%	87.3%	82.3%	84.2%	96.6%	96.6%	92.9%	99.1%	99.8%	99.5%	90.4%
Wilson	Air	0.0	1.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
(MSA)	Total	0.0	1.0	1.5	0.5	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	6.3
	Pct.	N/A	100.0%	98.0%	100.0%	N/A	N/A	N/A	N/A	0.0%	N/A	N/A	N/A	N/A	47.8%
Winkler	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wise	Air	7.6	0.0	1.2	10.0	10.0	71.6	39.8	48.0	98.5	19.1	105.0	122.7	74.7	608.1
	Total	7.6	5.1	7.3	14.1	10.0	71.6	39.8	48.0	98.5	19.1	105.0	122.7	74.7	623.5
	Pct.	100.0%	0.0%	15.7%	70.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	97.5%
Wood	Air	0.0	0.0	<0.1	<0.1	3.9	9.9	9.9	0.0	0.0	10.8	8.0	11.9	5.3	59.8
	Total	0.0	0.0	<0.1	2.3	141.7	12.2	11.4	0.3	0.2	11.6	8.0	11.9	40.1	239.6
	Pct.	N/A	N/A	100.0%	0.1%	2.8%	81.4%	86.6%	0.0%	0.0%	93.4%	100.0%	100.0%	13.3%	25.0%
Yoakum	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Young	Air	445.7	455.9	425.8	397.6	422.4	291.2	68.4	27.0	89.4	54.3	353.9	403.6	268.4	3,703.5
	Total	455.2	466.5	460.1	397.6	424.2	292.6	68.4	27.0	89.4	54.3	369.4	418.1	271.3	3,793.9
	Pct.	97.9%	97.7%	92.6%	100.0%	99.6%	99.5%	100.0%	100.0%	100.0%	100.0%	95.8%	96.5%	98.9%	97.6%
Zapata	Air	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pct.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A. Continued

County Name[a]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Zavala	Air	8.3	11.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
	Total	8.8	11.3	8.2	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.3
	Pct.	94.0%	97.5%	99.9%	0.0%	0.0%	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	97.1%
Total	**Air**	**228,229.8**	**200,320.5**	**183,233.4**	**173,056.9**	**161,510.5**	**144,025.5**	**128,693.0**	**136,150.0**	**125,291.1**	**108,070.3**	**121,968.0**	**111,585.7**	**103,203.5**	**1,925,338.2**
	Total	**920,518.9**	**731,804.3**	**486,690.3**	**452,834.5**	**459,173.9**	**389,678.1**	**273,651.4**	**311,003.3**	**270,522.7**	**266,763.3**	**330,519.1**	**318,643.0**	**304,886.2**	**5,516,689.1**
	Pct.	**24.8%**	**27.4%**	**37.6%**	**38.2%**	**35.2%**	**37.0%**	**47.0%**	**43.8%**	**46.3%**	**40.5%**	**36.9%**	**35.0%**	**33.8%**	**34.9%**

a. MSA denotes metropolitan statistical area according to the 1992 definition given by the U.S. Census Bureau.

b. After elimination of double counting, the volumes of total releases were 324,409,338 pounds in 1997, 315,299,220 pounds in 1998, and 301,518,708 pounds in 1999.

Appendix B
Number of Counties That Reported TRI Listed Chemicals, 1988 to 1998

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
1,1,1,2-tetrachloroethane	--	--	--	--	--	--	3	2	2	2	2	11
1,1,1-trichloroethane	47	45	49	49	42	37	30	18	11	4	5	337
1,1,2,2-tetrachloroethane	2	2	3	4	4	4	4	3	4	4	4	38
1,1,2-trichloroethane	4	4	5	6	6	6	4	4	5	4	4	52
1,1-dichloro-1-fluoroethane	--	--	--	--	--	--	11	11	9	9	9	49
1,2,3-trichloropropane	--	--	--	--	--	--	--	2	2	2	2	8
1,2,4-trichlorobenzene	4	4	5	5	3	3	4	3	4	4	4	43
1,2,4-trimethylbenzene	18	19	21	21	23	23	26	25	25	23	26	250
1,2-butylene oxide	2	3	4	4	4	4	3	3	4	3	3	37
1,2-dibromoethane	6	6	4	3	2	4	2	3	2	2	2	36
1,2-dichlorobenzene	4	4	5	6	7	6	6	5	4	3	6	56
1,2-dichloroethane	10	10	11	12	12	11	9	6	7	6	7	101
1,2-dichloroethylene	2	2	3	4	4	4	4	4	4	5	6	42
1,2-dichloropropane	2	2	2	1	1	1	2	2	2	2	3	20
1,3-butadiene	13	14	13	14	15	15	15	14	14	13	13	153
1,3-dichloro-1,1,2,2,3-pentafluoropropane	--	--	--	--	--	--	--	1	--	--	--	1
1,3-dichlorobenzene	--	--	1	1	1	1	--	--	--	--	--	4
1,3-dichloropropylene	1	1	1	1	1	1	1	1	1	1	1	11
1,3-phenylenediamine	--	--	--	--	--	--	--	1	2	2	3	8
1,4-dichloro-2-butene	--	--	--	--	--	--	1	1	1	1	2	6
1,4-dichlorobenzene	1	1	2	2	1	1	2	1	1	1	1	14
1,4-dioxane	1	3	4	4	3	4	2	4	4	4	5	38
1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	--	--	--	--	--	--	--	1	1	2	2	6
1-chloro-1,1,2,2-tetrafluoroethane	--	--	--	--	--	--	1	1	--	--	--	2
1-chloro-1,1-difluoroethane	--	--	--	--	--	--	1	1	2	2	2	8
2,2-dichloro-1,1,1-trifluoroethane	--	--	--	--	--	--	--	2	2	--	1	5

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
2,3-dichloropropene	--	--	2	2	2	2	2	2	1	1	2	16
2,4,5-trichlorophenol*	--	--	--	1	--	--	--	--	--	--	-	1
2,4-d	2	2	1	1	1	1	1	1	--	1	1	12
2,4-diaminotoluene	--	--	--	--	1	1	1	1	1	1	1	7
2,4-dichlorophenol	2	2	1	2	1	1	1	1	1	1	1	14
2,4-dimethylphenol	1	1	2	2	1	1	1	1	1	2	2	15
2,4-dinitrophenol	2	2	3	2	--	--	--	--	--	--	--	9
2,4-dinitrotoluene	2	2	1	1	--	--	--	--	--	--	--	6
2,6-dimethylphenol	--	--	--	--	--	--	--	1	1	--	--	2
2,6-dinitrotoluene	2	2	1	1	--	--	--	--	--	--	--	6
2-chloro-1,1,1,2-tetrafluoroethane	--	--	--	--	--	--	1	1	2	2	1	7
2-chloro-1,1,1-trifluoroethane	--	--	--	--	--	--	--	1	--	--	1	2
2-chloroacetophenone	--	--	--	1	--	--	--	--	--	--	--	1
2-ethoxyethanol	10	10	8	8	6	7	5	4	4	5	6	73
2-methoxyethanol	6	11	10	9	10	9	6	4	3	3	3	74
2-methyllactonitrile	--	--	--	--	--	--	--	1	1	1	1	4
2-methylpyridine	--	--	--	--	--	--	1	1	1	1	1	5
2-nitrophenol	--	--	--	--	--	--	--	1	1	1	1	4
2-nitropropane*	1	1	1	1	2	1	--	--	1	1	1	10
3,3-dichloro-1,1,1,2,2-pentafluoropropane	--	--	--	--	--	--	--	1	--	--	--	1
3-iodo-2-propynyl butylcarbamate	--	--	--	--	--	--	--	1	1	1	1	4
4,4'-diaminodiphenyl ether	--	--	--	1	1	1	1	--	--	--	--	4
4,4'-isopropylidenediphenol	3	3	4	6	6	6	6	5	5	5	5	54
4,4'-methylenebis(2-chloroaniline)	--	--	--	--	--	1	--	1	--	--	--	2
4,4'-methylenebis(n,n-dimethyl)benzenamine	--	--	--	--	--	--	--	1	1	1	--	3
4,4'-methylenedianiline	4	4	4	4	4	3	3	3	3	3	3	38
4,6-dinitro-o-cresol	2	2	1	1	1	1	2	2	2	2	1	17
acephate	--	--	--	--	--	--	--	1	1	1	1	4
acetaldehyde	8	11	10	9	9	11	14	14	15	15	17	133
acetamide	--	--	1	1	1	2	2	2	2	2	3	16

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
acetone	49	57	58	50	48	47	--	--	--	--	--	309
acetonitrile	7	7	9	9	7	7	8	8	8	8	9	87
acetophenone	--	--	--	--	--	--	3	2	2	2	2	11
acifluorfen, sodium salt*	--	--	--	--	--	--	--	--	--	1	1	2
acrolein	6	7	6	6	6	6	6	7	7	7	7	71
acrylamide	2	3	5	3	2	3	3	4	3	3	2	33
acrylic acid	11	11	10	9	9	9	9	9	9	8	8	102
acrylonitrile	11	11	11	11	11	11	9	8	9	9	9	110
aldicarb	--	--	--	--	--	--	--	--	--	--	1	1
aldrin	--	--	--	--	--	--	--	--	--	--	1	1
allyl alcohol	--	--	4	4	5	5	5	6	5	4	5	43
allyl chloride	3	3	3	3	3	2	2	2	2	2	2	27
aluminum (fume or dust)	8	6	9	6	6	5	5	4	5	7	6	67
aluminum oxide (fibrous forms)	37	11	3	2	2	2	1	1	3	1	1	64
ammonia	56	61	59	58	56	58	54	51	48	47	49	597
ammonium nitrate (solution)	3	6	5	8	9	6	4	--	--	--	--	41
ammonium sulfate (solution)	9	6	7	6	4	4	--	--	--	--	--	36
aniline	5	5	6	5	6	5	5	4	4	4	5	54
anthracene	6	9	7	7	6	6	7	7	7	7	6	75
antimony	10	9	8	6	7	5	5	5	4	3	3	65
antimony compounds	10	12	13	12	12	13	13	11	14	12	13	135
arsenic	3	7	5	7	3	9	7	4	6	3	3	57
arsenic compounds	10	11	13	15	13	11	10	4	5	5	6	103
asbestos (friable)	6	6	4	4	4	5	5	6	4	3	3	50
atrazine	--	--	--	--	--	--	--	--	--	--	1	1
barium	5	8	2	5	5	5	4	6	5	5	5	55
barium compounds	21	24	27	26	24	24	17	13	14	14	15	219
bendiocarb	--	--	--	--	--	--	--	--	--	--	1	1
benomyl	--	--	--	--	--	--	--	--	--	--	1	1
benzene	26	27	26	26	25	24	25	23	22	22	27	273

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
benzidine	--	--	--	--	--	1	1	--	--	--	--	2
benzoyl chloride	2	3	3	3	3	3	3	2	2	3	2	29
benzoyl peroxide	1	2	2	1	2	2	2	3	3	2	2	22
benzyl chloride	7	7	7	7	6	6	6	5	5	3	3	62
beryllium	--	--	--	1	--	1	--	--	--	1	--	3
beryllium compounds	--	--	--	--	--	1	--	--	--	--	1	2
bifenthrin	--	--	--	--	--	--	--	--	--	--	1	1
biphenyl	9	10	8	9	9	9	7	8	8	7	8	92
bis(2-chloro-1-methylethyl) ether	1	1	1	1	1	1	1	1	1	1	1	11
bis(2-chloroethyl) ether	1	2	3	3	3	3	2	3	2	2	2	26
bis(2-ethylhexyl) adipate	--	1	--	2	1	2	--	--	--	--	--	6
boron trifluoride	--	--	--	--	--	--	--	3	4	4	4	15
bromocil												
bromine	--	--	--	--	--	--	--	2	3	4	3	12
bromochlorodifluoromethane	--	--	--	2	2	1	--	1	1	1	--	8
bromomethane	1	1	--	1	1	1	2	1	1	1	1	11
bromotrifluoromethane	--	--	--	1	1	--	--	--	--	--	--	2
brucine*	--	--	--	--	--	--	--	1	1	1	1	4
butyl acrylate	6	6	6	7	6	6	6	6	6	6	6	67
butyl benzyl phthalate	4	7	8	4	4	4	--	--	--	--	--	31
butyraldehyde	7	7	7	6	8	8	7	7	7	6	8	78
cadmium	--	1	--	--	--	2	1	1	1	1	2	9
cadmium compounds	4	2	4	2	4	4	3	2	3	2	2	32
captan	1	1	--	--	--	--	--	--	--	--	--	2
carbaryl	2	4	3	2	2	2	2	2	2	1	--	22
carbon disulfide	9	11	11	10	10	9	9	9	9	9	10	106
carbon tetrachloride	6	6	6	7	10	8	8	5	6	6	5	73
carbonyl sulfide	7	8	8	8	8	8	8	9	9	10	11	94
catechol	2	2	2	4	3	4	4	3	4	5	6	39
certain glycol ethers	35	36	37	39	40	41	41	34	31	32	33	399

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
Chlordane	--	--	--	--	--	--	--	--	--	--	1	1
chlorine	33	34	38	36	32	31	32	29	29	28	28	350
chlorine dioxide	4	4	3	4	4	5	4	3	4	4	4	43
chloroacetic acid	2	2	2	2	2	2	3	2	1	1	1	20
chlorobenzene	5	4	4	5	6	9	9	7	8	7	7	71
chlorodifluoromethane	--	--	--	--	--	--	13	12	17	16	16	74
chloroethane	7	7	8	9	10	10	11	9	9	8	9	97
chloroform	8	11	12	12	12	12	13	10	9	9	10	118
chloromethane	10	12	11	11	10	10	11	11	10	10	8	114
chlorophenols	1	1	1	1	1	1	1	1	1	1	1	11
chloroprene	2	2	2	4	4	4	4	4	4	4	6	40
chlorothalonil	2	3	3	3	2	3	3	2	2	2	2	27
chlorotrifluoromethane	--	--	--	--	--	--	--	1	--	--	--	1
chromium	24	24	23	21	23	26	25	22	23	20	21	252
chromium compounds	34	33	38	39	37	34	34	30	32	27	27	365
cobalt	4	5	3	5	3	7	7	6	7	4	5	56
cobalt compounds	9	8	10	11	11	11	10	10	9	7	8	104
copper	28	27	26	26	24	24	21	23	24	25	25	273
copper compounds	22	26	34	36	32	32	31	24	24	27	25	313
creosote	--	--	8	7	7	7	6	6	5	4	3	53
cresol (mixed isomers)	6	8	11	10	8	9	11	10	9	9	10	101
crotonaldehyde	--	--	--	--	--	--	--	3	3	3	3	12
cumene	9	13	17	16	18	19	18	15	16	16	17	174
cumene hydroperoxide	3	4	3	3	3	3	3	3	3	3	3	34
cupferron	1	--	--	--	--	--	--	--	--	--	--	1
cyanazine	--	--	--	--	--	--	--	--	--	--	1	1
cyanide compounds	8	7	8	5	7	7	7	7	6	7	11	80
cyclohexane	20	22	23	24	26	23	23	23	22	23	26	255
cyclohexanol	--	--	--	--	--	--	--	4	4	4	4	16
decabromodiphenyl oxide	--	1	4	4	4	3	3	3	2	3	4	31

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
di(2-ethylhexyl) phthalate	6	7	7	9	8	8	7	6	5	5	7	75
diaminotoluene (mixed isomers)	3	3	3	3	3	3	3	3	3	3	3	33
diazinon	--	--	--	--	--	--	--	--	1	1	--	2
dibenzofuran	4	6	2	2	2	2	2	1	1	1	1	24
dibutyl phthalate	4	4	5	5	4	2	3	3	2	2	2	36
dicamba	--	--	--	--	--	--	--	1	1	1	1	4
dichlorobenzene (mixed isomers)	1	2	2	2	2	1	1	--	--	--	--	11
dichlorodifluoromethane	--	--	1	18	20	17	12	9	7	4	6	94
dichloromethane	27	26	24	21	18	20	17	18	18	13	14	216
dichlorotetrafluoroethane (cfc-114)	--	--	--	2	1	1	1	1	1	1	1	9
dichlorvos	--	1	1	1	1	1	1	--	--	--	--	6
dicofol	1	1	--	--	1	1	--	--	--	1	1	6
dicyclopentadiene	--	--	--	--	--	--	1	7	8	8	8	32
diepoxybutane*	--	--	--	1	--	--	--	--	--	--	--	1
diethanolamine	19	19	16	17	16	15	15	14	12	11	13	167
diethyl phthalate	3	3	3	2	2	2	2	--	--	--	--	17
diethyl sulfate	2	2	2	2	3	3	3	3	2	2	1	25
dihydrosafrole	--	--	--	--	--	--	--	1	2	2	1	6
diisocyanates	--	--	--	--	--	--	--	17	19	15	18	69
dimethoate	--	--	--	--	--	--	--	--	--	--	1	1
dimethyl chlorothiophosphate	--	--	--	--	--	--	--	--	--	--	1	1
dimethyl phthalate	4	4	4	4	5	4	5	4	5	5	5	49
dimethylamine	--	--	--	--	--	--	--	4	5	4	4	17
dinitrobutyl phenol	--	--	--	--	--	--	--	2	3	2	2	9
dinitrotoluene (mixed isomers)	--	--	1	1	2	2	2	2	2	2	2	16
dinocap	--	--	--	--	--	--	--	--	--	--	1	1
diphenylamine	--	--	--	--	--	--	--	1	1	1	1	4
dipotassium endothall	--	--	--	--	--	--	--	--	--	--	1	1
epichlorohydrin	4	4	5	4	5	5	5	5	4	4	4	49
ethyl acrylate	6	7	5	5	6	6	6	5	5	5	6	62

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
ethyl chloroformate	1	1	1	1	1	1	1	1	1	1	1	11
ethylbenzene	24	24	29	28	28	29	30	31	31	33	34	321
ethylene	18	19	19	19	19	19	19	19	19	19	19	208
ethylene glycol	31	33	33	32	36	29	31	29	28	29	30	341
ethylene oxide	21	19	16	17	17	16	15	14	14	14	15	178
ethyleneimine	--	--	--	--	--	1	--	1	1	1	1	5
ethylidene dichloride	--	--	--	--	--	--	--	--	1	1	2	4
famphur*	--	--	--	--	--	--	--	--	--	--	1	1
fenvalerate	--	--	--	--	--	--	--	--	1	1	--	2
formaldehyde	27	31	32	28	30	28	28	25	26	27	28	310
formic acid	--	--	--	--	--	--	9	8	7	9	10	43
freon 113	24	26	24	22	19	17	12	8	6	3	4	165
hexachloro-1,3-butadiene	2	2	1	3	2	2	2	2	2	2	2	22
hexachlorobenzene	3	2	2	2	2	2	2	2	1	1	2	21
hexachlorocyclopentadiene	1	1	1	1	1	1	1	1	1	1	1	11
hexachloroethane	3	3	2	4	3	4	3	2	2	2	3	31
hexazinone	--	--	--	--	--	--	--	--	--	--	1	1
hydrazine	5	5	4	4	4	3	2	2	2	2	2	35
hydrochloric acid	45	48	51	46	49	47	46	34	34	26	29	455
hydrogen cyanide	7	7	7	8	8	8	9	9	9	9	10	91
hydrogen fluoride	23	25	24	23	24	24	24	24	34	28	34	287
hydroquinone	4	3	5	6	5	5	5	6	5	5	5	54
iron pentacarbonyl	--	--	--	--	--	--	--	1	1	1	1	4
isobutyraldehyde	6	6	6	7	8	8	7	7	7	6	7	75
isopropyl alcohol	5	15	6	9	4	5	3	1	3	3	3	57
lead	16	16	21	20	22	21	18	18	18	16	18	204
lead compounds	19	24	26	28	22	24	24	24	22	20	22	255
lindane	--	1	--	1	--	--	--	--	--	--	--	2
lithium carbonate	--	--	--	--	--	--	--	--	1	1	2	4
m-cresol	--	--	--	3	2	2	2	3	2	2	3	19

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
m-dinitrobenzene*	--	--	--	1	--	--	--	1	1	1	1	5
m-xylene	7	9	9	10	9	7	9	6	7	7	9	89
malathion	--	--	--	--	--	--	--	2	2	2	1	7
maleic anhydride	8	10	10	10	9	8	10	10	9	9	9	102
maneb	1	1	1	1	1	1	1	--	--	--	--	7
manganese	17	20	16	15	20	24	25	25	25	21	21	229
manganese compounds	24	27	32	27	25	29	24	18	21	21	21	269
mercury	1	1	--	--	--	1	--	--	--	--	--	3
mercury compounds	--	--	--	1	1	2	1	1	1	1	1	9
methacrylonitrile	--	--	--	--	--	--	--	1	1	1	1	4
methanol	52	51	51	46	47	43	46	42	42	43	49	512
methoxychlor	1	1	--	--	--	--	--	--	--	--	--	2
methyl acrylate	5	5	5	5	6	6	6	4	4	4	4	54
methyl chlorocarbonate	--	--	--	--	--	--	1	1	1	1	1	5
methyl ethyl ketone	45	45	45	39	40	43	47	49	48	49	45	495
methyl iodide	2	2	2	2	2	2	2	2	2	2	2	22
methyl isobutyl ketone	22	25	26	28	26	27	26	25	24	17	18	264
methyl isocyanate	1	2	2	2		1	1	1	1	1	1	13
methyl methacrylate	4	7	7	6	6	7	8	7	6	6	5	69
methyl tert-butyl ether	9	12	13	12	12	13	15	14	14	13	14	141
methylene bromide	--	--	1	--	--	--	--	--	--	--	--	1
methylenebis(phenylisocyanate)	14	13	14	16	20	18	19	--	--	--	--	114
molybdenum trioxide	4	7	6	6	8	7	7	7	7	7	7	73
monochloropentafluoroethane	--	--	--	1	2	2	1	1	1	1	1	10
myclobutanil	--	--	--	--	--	--	--	--	--	1	1	2
n,n-dimethylaniline	1	--	--	--	--	--	--	--	--	--	--	1
n,n-dimethylformamide	--	--	--	--	--	--	--	2	3	3	3	11
n-butyl alcohol	29	31	32	35	31	30	30	28	28	24	28	326
n-dioctyl phthalate	3	4	2	3	2	--	--	--	--	--	--	14
n-hexane	--	--	--	--	--	--	1	31	37	35	36	140

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
n-methyl-2-pyrrolidone	--	--	--	--	--	--	--	12	14	14	16	56
n-methylolacrylamide	--	--	--	--	--	--	--	2	2	1	1	6
n-nitrosodi-n-propylamine	--	--	--	--	--	--	--	--	--	--	1	1
n-nitrosodiphenylamine	--	--	--	--	--	--	--	1	1	1	2	5
naphthalene	26	30	25	25	24	23	20	20	22	19	24	258
nickel	20	20	20	20	19	22	22	20	23	21	20	227
nickel compounds	14	19	22	22	21	21	20	21	22	23	29	234
nitrate compounds	--	--	--	--	--	--	--	10	12	13	14	49
nitric acid	27	24	22	23	22	22	22	22	24	19	21	248
nitrilotriacetic acid	2	1	1	1	1	2	2	1	1	1	1	14
nitrobenzene	2	1	2	4	2	1	1	1	1	1	4	20
norflurazon	--	--	--	--	--	--	--	--	--	--	1	1
o-anisidine	1	1	1	1	1	1	1	1	1	1	1	11
o-cresol	5	3	4	3	2	3	2	2	2	2	2	30
o-dinitrobenzene*	--	--	--	--	--	1	--	1	1	1	1	5
o-toluidine	2	2	2	2	2	2	2	1	1	1	1	18
o-xylene	8	9	10	10	9	7	7	5	6	7	7	85
oxyfluorfen	--	--	--	--	--	--	--	--	--	--	1	1
ozone	--	--	--	--	--	--	--	--	1	1	2	4
p-cresol	2	2	1	3	2	2	2	2	2	3	2	23
p-phenylenediamine	1	1	1	1	1	1	1	1	1	1	2	12
p-xylene	7	6	8	8	7	6	6	5	5	7	8	73
paraldehyde	--	--	--	--	--	--	1	1	1	1	1	5
parathion*	--	--	--	--	--	1	--	--	--	--	--	1
pentachloroethane	--	--	--	--	--	--	1	1	2	2	3	9
pentachlorophenol	1	1	2	1	1	1	--	1	--	--	--	8
permethrin	--	--	--	--	--	--	--	--	1	1	2	4
phenanthrene	--	--	--	--	--	--	--	5	5	5	5	20
phenol	27	26	29	28	28	26	27	28	28	23	24	294
phosgene	4	3	3	3	3	3	3	3	3	3	3	34

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
phosphoric acid	33	33	32	28	30	29	28	26	26	24	25	314
phosphorus (yellow or white)	1	2	2	1	--	1	--	--	--	--	--	7
phthalic anhydride	6	6	6	6	6	6	6	6	6	6	5	65
picloram	--	--	--	--	--	--	--	1	1	1	1	4
piperonyl butoxide	--	--	--	--	--	--	--	1	1	1	1	4
polychlorinated alkanes	--	--	--	--	--	--	--	1	2	1	1	5
polychlorinated biphenyls	3	1	--	--	--	--	--	--	--	--	1	5
polycyclic aromatic compounds	--	--	--	--	--	--	--	9	9	9	8	35
potassium dimethyldithiocarbamate*	--	--	--	--	--	--	--	--	1	--	--	1
propargyl alcohol	--	--	--	--	--	--	--	3	2	3	3	11
propetamphos	--	--	--	--	--	--	--	1	1	1	1	4
propionaldehyde	6	6	6	7	7	7	6	7	7	6	6	71
propoxur	1	--	--	--	--	--	--	--	--	--	--	1
propylene	17	19	22	23	23	23	20	21	21	23	24	236
propylene oxide	12	12	13	12	11	11	12	11	11	12	12	129
propyleneimine	--	1	1	1	1	2	2	2	2	1	1	14
pyridine	1	2	2	2	3	3	4	5	4	4	5	35
quinoline	1	3	1	1	1	1	1	1	2	1	1	14
quinone	1	1	2	2	2	1	1	1	1	1	1	14
quintozene	1	2	1	1	--	1	1	--	--	--	--	7
resmethrin	--	--	--	--	--	--	--	--	1	1	--	2
safrole	1	--	--	--	--	--	--	1	2	2	1	7
sec-butyl alcohol	7	9	9	9	10	7	8	6	6	7	7	85
selenium	2	1	--	2	1	1	1	--	--	--	--	8
selenium compounds	1	2	4	3	4	3	3	3	3	3	4	33
sethoxydim	--	--	--	--	--	--	--	--	--	--	1	1
silver	3	3	1	--	--	--	--	1	1	--	1	10
silver compounds	3	2	3	3	3	2	2	2	2	2	2	26
sodium dicamba	--	--	--	--	--	--	--	1	--	1	1	3
sodium dimethyldithiocarbamate*	--	--	--	--	--	--	--	2	1	1	1	5

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
sodium hydroxide (solution)	47	--	--	--	--	--	--	--	--	--	--	47
sodium nitrite	--	--	--	--	--	--	--	3	4	3	3	13
styrene	34	39	44	41	44	40	43	45	47	48	47	472
styrene oxide	--	--	1	1	1	1	2	2	2	2	2	14
sulfuric acid	52	54	54	56	53	54	41	34	30	27	27	482
tebuthiuron	--	--	--	--	--	--	--	1	1	1	1	4
terephthalic acid	1	1	--	--	--	--	--	--	--	--	--	2
tert-butyl alcohol	5	7	9	9	11	11	11	10	10	10	9	102
tetrachloroethylene	12	10	9	9	9	13	14	14	14	14	17	135
thallium	--	1	1	1	--	1	1	1	--	--	--	6
thallium compounds	--	--	1	1	1	--	--	--	--	--	2	5
thiabendazole	--	--	--	--	--	--	--	1	--	--	--	1
thiourea	2	2	2	2	2	2	2	2	1	1	1	19
thiram	--	--	--	--	--	--	--	--	1	1	1	3
thorium dioxide*	--	--	--	--	--	--	--	--	--	--	1	1
titanium tetrachloride	4	3	3	3	3	5	5	3	4	3	3	39
toluene	59	65	65	62	58	60	59	57	54	52	55	646
toluene diisocyanate (mixed isomers)	--	--	9	9	11	10	11	9	8	8	7	82
toluene-2,4-diisocyanate	11	11	3	2	1	1	1	2	2	2	2	38
toluene-2,6-diisocyanate	10	9	2	2	1	1	1	1	1	1	1	30
trans-1,4-dichloro-2-butene	--	--	--	--	--	--	--	--	--	--	1	1
tributyltin methacrylate	--	--	--	--	--	--	--	1	1	1	1	4
trichloroacetyl chloride	--	--	--	--	--	--	--	1	1	1	1	4
trichloroethylene	17	18	19	18	18	19	17	18	16	15	18	193
trichlorofluoromethane	--	--	1	14	18	16	10	5	3	1	1	69
triethylamine	--	--	--	--	--	--	--	3	5	5	5	18
trifluralin	--	1	1	--	--	--	--	--	--	--	--	2
urethane	1	1	1	--	--	--	--	--	--	--	--	3
vanadium (fume or dust)	2	1	2	2	1	1	1	2	2	2	1	17
vinclozolin	--	--	--	--	--	--	--	--	--	--	1	1

Appendix B. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
vinyl acetate	12	13	14	14	13	13	13	11	13	15	14	145
vinyl chloride	5	5	6	6	6	6	5	5	5	5	5	59
vinylidene chloride	2	2	2	3	3	3	3	3	3	3	3	30
xylene (mixed isomers)	61	61	60	60	56	57	59	54	55	58	60	641
zinc (fume or dust)	14	12	6	8	13	9	10	14	13	9	10	118
zinc compounds	32	40	48	45	46	46	45	44	43	44	47	480
Total	**2,064**	**2,139**	**2,177**	**2,193**	**2,146**	**2,136**	**2,049**	**2,025**	**2,044**	**1,947**	**2,090**	**23,010**

* No pounds of this chemical were reported released, however.

Appendix C
Volumes (Dry Pounds) of Chemicals in Air Emissions Reported to the TRI by Texas Industries, 1988 to 1998

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
1,1,1,2-tetrachloroethane	--	--	--	--	--	--	7,468	990	1,158	913	462	10,991
1,1,1-trichloroethane	6,653,836	6,282,622	5,770,921	5,283,810	4,936,914	3,196,325	1,903,441	1,420,677	608,286	270,023	16,701	36,343,556
1,1,2,2-tetrachloroethane	2,970	2,149	12,052	4,342	7,081	13,690	9,540	3,146	9,228	8,163	3,697	76,058
1,1,2-trichloroethane	62,269	87,687	29,059	31,758	26,225	21,257	23,643	25,842	9,765	6,364	5,743	329,612
1,1-dichloro-1-fluoroethane	--	--	--	--	--	--	287,917	299,398	385,468	268,022	308,029	1,548,834
1,2,3-trichloropropane	--	--	--	--	--	--	--	10,100	1,560	5,930	12,981	30,571
1,2,4-trichlorobenzene	1,750	1,750	4,307	8,143	8,991	5,122	27,645	24,435	28,526	28,760	24,786	164,215
1,2,4-trimethylbenzene	305,306	339,150	522,605	499,095	494,412	593,511	540,710	455,306	342,744	387,559	369,131	4,849,529
1,2-butylene oxide	8,130	14,005	8,277	8,619	13,246	9,594	4,694	5,461	5,899	8,790	3,298	90,013
1,2-dibromoethane	2,903	1,504	1,001	151	5,751	3,733	2,090	6,045	3,987	3,510	3,766	34,441
1,2-dichlorobenzene	18,143	7,338	9,084	13,881	18,320	18,841	15,936	16,199	12,992	4,560	17,071	152,365
1,2-dichloroethane	476,846	472,435	339,926	414,297	423,778	463,125	504,937	382,803	274,342	208,414	122,060	4,082,963
1,2-dichloroethylene	5,750	4,290	4,458	2,699	5,206	8,547	7,879	3,695	2,475	3,831	2,648	51,478
1,2-dichloropropane	470,219	161,259	150,230	104,000	55,000	93,000	73,379	45,143	18,797	16,043	19,312	1,206,382
1,3-butadiene	3,861,675	3,423,796	3,019,912	2,254,905	2,315,388	2,186,673	1,658,062	1,974,723	1,785,168	1,403,938	1,809,035	25,693,275
1,3-dichloro-1,1,2,2, 3-pentafluoropropane	--	--	--	--	--	--	--	255	--	--	1,000	1,255
1,3-dichlorobenzene	--	--	--	--	10	10	--	--	--	--	--	20
1,3-dichloropropylene	44,000	35,300	45,500	13,900	24,420	22,200	11,700	26,700	1,500	3,300	5,390	233,910
1,3-phenylenediamine	--	--	--	--	--	--	--	--	13	69	104	186
1,4-dichloro-2-butene	--	--	--	--	--	--	2,200	700	160	200	733	3,993
1,4-dichlorobenzene	37,000	8,750	6,600	39,000	31,300	34,300	40,005	40,000	13,900	12,700	16,680	280,235
1,4-dioxane	2,400	6,596	20,443	17,282	17,257	16,578	16,325	15,136	5,071	9,226	7,743	134,057
1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane choloride	--	--	--	--	--	--	--	22	10	179	61	272
1-chloro-1,1,2,2-tetrafluoroethane	--	--	--	--	--	--	3	3	--	--	--	6
1-chloro-1,1-difluoroethane	--	--	--	--	--	--	--	14,000	16,750	14,750	6,750	52,250
2,2-dichloro-1,1,1-trifluoroethane	--	--	--	--	--	--	--	2,665	3,660	--	1,100	7,425
2,3-dichloropropene	--	--	89,890	5,080	160,320	170,330	46,363	4,200	660	630	358	477,831
2,4-d	500	250	255	255	255	255	255	255	--	255	255	2,790
2,4-diaminotoluene	--	--	--	--	1,000	1,777	2,017	500	1,575	1,958	1,573	10,400
2,4-dichlorophenol	250	446	255	250	255	255	3,250	3,350	2,880	3,100	261	14,552
2,4-dimethylphenol	500	500	502	6,280	5,730	3,560	3,940	1,240	970	2,711	1,244	27,177
2,4-dinitrophenol	3,850	1,250	103	255	--	--	--	--	--	--	191	5,649
2,4-dinitrotoluene	8,550	6,265	3,503	3,550	--	--	--	--	--	--	14	21,882

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
2,6-dimethylphenol	--	--	--	--	--	--	--	300	240	--	--	540
2,6-dinitrotoluene	4,400	1,470	1,000	1,500	--	--	--	--	--	--	--	8,370
2-chloro-1,1,1,2-tetrafluoroethane	--	--	--	--	--	--	9,000	8,961	186,274	157,546	12,186	373,967
2-chloro-1,1,1-trifluoroethane	--	--	--	--	--	--	--	2,608	--	--	134,200	136,808
2-chloroacetophenone	--	--	--	4	--	--	--	--	--	--	--	4
2-ethoxyethanol	85,805	41,095	54,789	84,330	35,088	40,735	24,987	25,628	6,906	9,972	11,335	420,670
2-methoxyethanol	33,220	32,722	43,466	34,938	30,235	27,886	14,498	10,126	1,019	766	618	229,494
2-methyllactonitrile	--	--	--	--	--	--	--	430	360	2,437	1,822	5,049
2-methylpyridine	--	--	--	--	--	--	50	1	19	--	--	70
2-nitropropane	7,000	7,460	5,380	10,990	5,513	10	--	--	132	--	--	36,485
3,3-dichloro-1,1,1,2,2-pentafluoropropane	--	--	--	--	--	--	--	255	--	--	1,000	1,255
3-iodo-2-propynyl butylcarbamate	--	--	--	--	--	--	--	204	10	13	5	232
4,4'-diaminodiphenyl ether	--	--	--	5	5	3	5	--	--	--	--	18
4,4'-isopropylidenediphenol	107,960	87,425	81,130	117,039	77,858	101,090	81,702	15,907	61,150	5,703	60,231	797,195
4,4'-methylenebis(2-chloroaniline)	--	--	--	--	--	14,167	--	--	--	--	--	14,167
4,4'-methylenebis(n,n-dimethyl) benzenamine	--	--	--	--	--	--	--	5	1	--	--	6
4,4'-methylene dianiline	6,914	5,733	4,985	4,077	1,700	1,782	1,720	1,805	1,387	474	415	30,992
4,6-dinitro-o-cresol	260	250	35	40	30	28	44	71	58	52	42	910
acephate	--	--	--	--	--	--	--	255	255	255	255	1,020
acetaldehyde	1,518,860	2,036,422	1,485,401	1,418,276	1,537,074	1,802,260	1,296,857	882,887	602,149	535,532	705,818	13,821,536
acetamide	--	--	35	32	20	10	22	3	14	--	1	137
acetone	8,005,537	13,262,850	12,307,761	8,050,215	6,489,358	6,326,055	--	--	--	--	--	54,441,776
acetonitrile	468,337	412,180	467,442	383,127	347,772	329,717	335,355	228,446	200,045	151,549	167,141	3,491,111
acetophenone	--	--	--				38,681	47,379	37,612	39,141	50,381	213,194
acrolein	13,792	4,475	7,600	13,668	11,561	10,356	9,411	4,931	45,278	43,920	15,660	180,652
acrylamide	--	441	942	378	591	558	2,753	673	180	138	69	6,723
acrylic acid	541,727	103,222	140,437	130,581	244,635	279,966	236,287	199,065	146,011	150,779	99,749	2,272,459
acrylonitrile	456,954	338,836	279,399	163,551	134,214	162,740	203,554	136,701	167,433	157,486	140,756	2,341,624
alachlor	--	--	--	--	--	--	--	--	--	--	8	8
aldicarb	--	--	--	--	--	--	--	--	--	--	1	1
aldrin	--	--	--	--	--	--	--	--	--	--	7	7
allyl alcohol	--	--	5,350	23,093	25,987	16,828	14,374	15,917	11,087	5,475	13,848	131,959
allyl chloride	7,966	10,475	12,461	19,795	23,260	24,837	21,897	10,940	7,770	4,932	5,469	149,802
aluminum (fume or dust)	69,240	114,840	80,016	94,574	85,833	68,054	58,484	56,094	58,758	64,044	67,525	817,462
aluminum oxide (fibrous forms)	11,795,995	58,648	5,918	33	64	61	538	1,155	16,520	1,404	10	11,880,346
ammonia	12,364,586	12,326,891	11,973,026	12,196,064	10,626,029	9,721,897	8,788,989	8,078,531	6,398,676	7,925,779	8,873,447	109,273,915

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
ammonium nitrate (solution)	3,250	9,500	5,078	3,871	3,499	5,437	6,809	--	--	--	--	37,444
ammonium sulfate (solution)	78,119	33,636	185,448	10,769	510	511	--	--	--	--	--	308,993
aniline	36,075	32,141	29,327	46,544	51,459	108,817	39,955	43,425	54,582	69,388	43,796	555,509
anthracene	86,143	3,761	2,204	3,225	4,400	1,910	3,169	5,866	6,090	2,582	1,431	120,781
antimony	2,573	19,814	16,240	12,510	12,030	11,867	13,004	4,883	4,993	728	596	99,238
antimony compounds	12,400	15,317	9,013	4,452	5,533	7,116	8,950	13,970	12,449	15,192	15,097	119,489
arsenic	750	50,879	894	771	302	28,586	5,730	2,790	4,306	1,352	733	97,093
arsenic compounds	50,406	7,641	48,085	48,226	58,956	3,370	3,237	9,196	8,986	9,116	9,442	256,661
asbestos (friable)	1,307	1,809	326	557	567	290	287	283	273	251	252	6,202
atrazine	--	--	--	--	--	--	--	--	--	--	12	12
barium	19,419	15,709	3,559	60	102,488	102,311	73,831	79,998	73,047	698	1,518	472,638
barium compounds	475,414	133,797	523,499	320,597	121,146	154,785	125,925	8,812	8,340	21,800	121,409	2,015,524
bendiocarb	--	--	--	--	--	--	--	--	--	--	2	2
benomyl	--	--	--	--	--	--	--	--	--	--	1	1
benzene	7,300,389	5,376,754	4,793,338	4,847,212	4,789,876	4,143,108	3,661,010	3,435,377	2,658,724	2,382,764	2,257,776	45,646,328
benzidine	--	--	--	--	--	16	250	--	--	--	31	297
benzoyl chloride	2,500	2,510	6,920	7,377	2,139	2,105	4,988	4,668	4,607	5,057	4,724	47,595
benzoyl peroxide	--	--	15	--	273	250	250	255	193	195	44	1,475
benzyl chloride	2,830	5,249	7,299	5,187	5,263	3,708	2,389	1,055	2,130	2,421	1,757	39,288
beryllium	--	--	--	--	--	2	--	--	--	19	--	21
beryllium compounds	--	--	--	--	--	2	--	--	--	--	5,200	5,202
bifenthrin	--	--	--	--	--	--	--	--	--	--	500	500
biphenyl	29,014	55,927	91,445	13,323	20,531	15,956	10,700	16,585	7,454	11,964	13,232	286,131
bis(2-chloro-1-methylethyl) ether	50	9	1,830	1,820	2,130	2,186	2,090	3,230	1,740	1,460	1,140	17,685
bis(2-chloroethyl) ether	650	643	914	1,068	681	689	318	256	364	285	250	6,118
bis(2-ethylhexyl) adipate	--	500	--	12	250	667	--	--	--	--	--	1,429
boron trifluoride	--	--	--	--	--	--	--	18,985	23,338	14,842	28,055	85,220
bromacil	--	--	--	--	--	--	--	--	--	--	25	25
bromine	--	--	--	--	--	--	--	828	8,180	42,941	812	52,761
bromochlorodifluoromethane	--	--	--	38	38	--	--	1	1	1	--	79
bromoform	--	--	--	--	--	--	--	--	--	--	2	2
bromomethane	16,000	14,270	--	13,300	17,900	20,550	32,914	11,600	8,900	7,800	9,200	152,434
bromotrifluoromethane	--	--	--	143	140	--	--	--	--	--	--	283
butyl acrylate	60,698	45,996	54,439	74,514	123,421	107,043	96,344	90,114	74,598	80,604	69,574	877,345
butyl benzyl phthalate	25,539	17,353	4,925	490	855	860	--					50,022
butyraldehyde	808,994	522,720	284,283	218,384	308,122	218,400	157,034	167,734	134,987	181,445	139,820	3,141,923
cadmium	--	9,000	--	--	--	5,104	1,000	255	646	277	1,089	17,371

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
cadmium compounds	9,250	450	9,010	11,950	11,641	622	1,000	355	374	365	1,583	46,600
captan	500	500	--	--	--	--	--	--	--	--	--	1,000
carbaryl	1,000	1,750	1,505	505	505	505	505	505	505	5	5	7,295
carbon disulfide	2,222,448	1,803,251	1,505,777	2,961,130	3,024,408	901,332	1,172,586	1,019,299	722,932	631,861	879,598	16,844,622
carbon tetrachloride	354,003	384,488	369,176	473,237	438,190	410,165	363,011	193,489	177,970	158,623	155,149	3,477,501
carbonyl sulfide	532,996	469,010	417,918	900,859	1,062,410	406,323	1,230,237	1,197,779	1,081,053	1,260,226	1,176,335	9,735,146
catechol	--	--	5	1,705	750	--	5	--	5	1,106	1,599	5,175
certain glycol ethers	2,814,482	2,855,614	2,565,973	2,215,205	2,380,481	2,231,552	2,208,213	1,838,346	1,523,734	1,357,248	1,390,310	23,381,158
chlordane	--	--	--	--	--	--	--	--	--	--	9	9
chlorine	2,346,639	1,993,201	1,672,873	1,435,231	1,310,942	828,588	875,765	757,164	779,587	832,034	796,816	13,628,840
chlorine dioxide	186,505	330,685	246,410	242,520	244,532	138,246	104,113	55,860	31,164	33,012	27,675	1,640,722
chloroacetic acid	750	750	20	11	12	155	273	23	25	16	21	2,056
chlorobenzene	956,808	1,175,351	943,390	607,208	501,299	461,406	467,084	229,468	101,934	140,594	92,201	5,676,743
chlorodifluoromethane	--	--	--	--	--	--	527,778	508,348	897,465	642,003	532,862	3,108,456
chloroethane	652,125	606,474	605,194	369,153	75,928	68,440	62,651	63,355	132,708	78,127	44,863	2,759,018
chloroform	1,720,037	1,785,567	1,584,003	799,689	1,892,591	1,775,842	1,675,367	1,591,186	1,575,813	1,091,073	1,059,053	16,550,221
chloromethane	2,992,924	2,648,792	2,035,009	1,883,631	1,570,958	1,856,521	1,443,866	1,093,984	963,473	673,253	588,512	17,750,923
chlorophenols	250	250	255	255	500	500	500	500	500	500	500	4,510
chloroprene	373,105	302,240	172,192	81,466	165,292	188,074	128,386	115,725	107,896	111,947	58,947	1,805,270
chlorothalonil	27,074	27,324	11,674	2,488	4,693	2,291	2,960	3,281	7,431	6,884	7,803	103,903
chlorotrifluoromethane	--	--	--	--	--	--	--	250	--	--	--	250
chromium	31,619	75,534	31,790	16,106	14,315	10,454	13,202	12,070	11,924	7,258	5,431	229,703
chromium compounds	138,295	147,666	142,311	103,471	70,702	36,888	32,967	21,442	16,406	21,058	34,091	765,297
cobalt	176	755	711	517	841	558	3,373	4,342	874	106	26	12,279
cobalt compounds	9,262	8,075	7,832	8,084	8,085	6,661	9,056	6,674	6,806	7,262	8,266	86,063
copper	151,236	53,857	57,893	332,771	445,617	270,108	84,138	177,028	171,293	50,143	46,219	1,840,303
copper compounds	259,140	253,147	246,432	254,642	318,848	429,001	74,956	83,314	106,636	105,363	131,428	2,262,907
creosote	--	--	201,278	170,768	136,815	121,210	139,936	140,151	146,957	144,833	145,567	1,347,515
cresol (mixed isomers)	21,228	24,305	42,580	20,557	6,475	14,043	70,290	122,817	100,594	95,332	105,372	623,593
crotonaldehyde	--	--	--	--	--	--	--	10,520	10,330	17,030	11,578	49,458
cumene	943,769	752,789	728,477	715,927	718,943	577,222	353,826	329,386	259,143	260,060	328,933	5,968,475
cumene hydroperoxide	31,902	36,749	39,198	37,241	25,868	19,541	22,018	4,202	4,685	6,856	6,618	234,878
cupferron	140	--	--	--	--	--	--	--	--	--	--	140
cyanazine	--	--	--	--	--	--	--	--	--	--	2	2
cyanide compounds	45,025	38,995	47,524	37,669	107,131	98,595	97,330	97,100	91,047	92,109	79,636	832,161
cyclohexane	6,370,216	8,408,793	7,357,351	7,657,182	6,201,747	4,269,612	3,395,461	3,066,966	2,110,460	2,145,357	2,258,887	53,242,032
cyclohexanol	--	--	--	--	--	--	--	86,216	112,450	98,177	203,285	500,128
decabromodiphenyl oxide	--	--	11,255	1,750	1,608	3,220	1,525	2,015	1,307	1,365	2,985	27,030

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
di(2-ethylhexyl) phthalate	15,415	8,746	13,634	5,336	2,701	6,523	4,820	4,467	4,322	6,682	8,283	80,929
diaminotoluene (mixed isomers)	12,924	12,709	14,939	9,978	4,442	4,395	4,695	494	4,627	475	284	69,962
diazinon	--	--	--	--	--	--	--	--	1	1	10	12
dibenzofuran	4,628	3,226	1,000	280	510	510	510	500	255	--	25	11,444
dibutyl phthalate	1,920	2,900	5,247	5,476	6,670	2,489	1,531	3,659	440	429	460	31,221
dicamba	--	--	--	--	--	--	--	12,150	500	1,000	1,008	14,658
dichlorobenzene (mixed isomers)	2,000	4,254	2,500	505	505	500	255	--	--	--	7	10,526
dichlorodifluoromethane	--	--	--	1,645,043	1,520,930	1,129,592	694,209	678,134	240,048	107,730	144,790	6,160,476
dichloromethane	3,795,877	3,675,361	2,604,822	2,251,116	1,545,541	1,953,133	1,746,827	1,570,314	1,343,835	1,180,206	822,262	22,489,294
dichlorotetrafluoroethane (cfc-114)	--	--	--	45,095	32,146	23,368	8,346	2,447	5,808	5,743	5,877	128,830
dichlorvos	--	--	250	3	500	500	500	--	--	--	--	1,753
dicofol	500	500	--	--	250	5	--	--	--	500	1,000	2,755
dicyclopentadiene	--	--	--	--	--	--	--	109,035	86,768	72,135	86,019	353,957
diethanolamine	228,829	109,998	52,182	81,305	84,001	85,447	82,006	108,539	170,534	127,057	163,966	1,293,864
diethyl phthalate	17,744	12,269	5,675	3,304	2,947	3,303	3,079	--	--	--	--	48,321
diethyl sulfate	6,198	3,762	2,446	1,948	1,881	2,808	3,812	3,666	2,844	2,445	3,543	35,353
dihydrosafrole	--	--	--	--	--	--	--	255	505	505	18	1,283
diisocyanates	--	--	--	--	--	--	--	33,025	17,226	14,352	11,739	76,342
dimethoate	--	--	--	--	--	--	--	--	--	--	6	6
dimethyl chlorothiophosphate	--	--	--	--	--	--	--	--	--	--	40	40
dimethyl phthalate	2,500	1,251	1,260	14,611	13,116	18,707	27,733	29,811	36,145	28,427	39,739	213,300
dimethylamine	--	--	--	--	--	--	--	31,933	19,746	20,204	19,609	91,492
dinitrobutyl phenol	--	--	--	--	--	--	--	10	250	205	181	646
dinitrotoluene (mixed isomers)	--	--	2,500	2,490	5,609	5,297	4,770	2,805	3,030	402	495	27,398
dinocap	--	--	--	--	--	--	--	--	--	--	255	255
diphenylamine	--	--	--	--	--	--	--	2,823	--	4,288	4,170	11,281
dipotassium endothall	--	--	--	--	--	--	--	--	--	--	10	10
epichlorohydrin	275,449	297,099	164,621	245,882	260,248	251,143	225,350	160,647	157,743	125,096	54,039	2,217,317
ethyl acrylate	30,751	32,107	58,854	58,652	71,562	57,472	37,145	35,405	15,674	13,237	15,823	426,682
ethyl chloroformate	4,400	2,150	1,770	1,630	1,840	1,590	2,780	1,520	2,890	2,167	1,754	24,491
ethylbenzene	2,144,411	2,249,410	1,913,352	1,484,226	1,509,829	1,180,206	1,275,811	1,031,137	825,470	842,911	936,562	15,393,325
ethylene	28,217,486	25,468,738	23,101,259	23,018,289	22,202,666	20,821,609	20,159,228	20,583,074	19,616,210	16,282,260	17,580,209	237,051,028
ethylene glycol	2,831,577	2,830,934	1,962,964	2,553,443	2,989,334	3,514,749	2,918,198	861,757	409,225	276,788	1,125,525	22,274,494
ethylene oxide	390,310	502,976	303,293	347,907	154,853	133,474	126,768	283,013	287,602	149,580	124,875	2,804,651
ethyleneimine	--	--	--	--	--	--	--	3	2	6	21	32
ethylidene dichloride	--	--	--	--	--	--	--	--	10	10	161	181
fenvalerate	--	--	--	--	--	--	--	--	1	1	--	2
formaldehyde	1,366,378	1,364,656	1,218,328	1,118,058	1,262,488	1,129,830	836,955	765,819	1,005,323	903,131	954,586	11,925,552

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
formic acid	--	--	--	--	--	--	154,941	127,633	156,688	107,320	98,687	645,269
freon 113	2,983,841	3,546,110	2,567,833	2,251,605	1,541,650	539,944	301,002	144,925	106,780	48,700	46,254	14,078,644
heptachlor	--	--	--	--	--	--	--	--	--	--	5	5
hexachloro-1,3-butadiene	1,606	487	44	323	391	49	104	24	2	223	272	3,525
hexachlorobenzene	1,300	470	405	365	4,082	263	284	289	33	5	15	7,511
hexachlorocyclopentadiene	--	--	10	10	10	10	10	10	10	10	10	90
hexachloroethane	1,295	427	173	295	216	111	443	634	1,209	1,038	598	6,439
hexazinone	--	--	--	--	--	--	--	--	--	--	6	6
hydrazine	14,689	13,229	17,004	19,572	6,701	7,590	4,753	4,053	4,138	3,310	1,684	96,723
hydrochloric acid	3,936,783	4,451,243	4,338,199	3,894,897	3,450,367	2,872,388	2,821,435	2,358,247	3,118,503	2,602,364	7,016,233	40,860,659
hydrogen cyanide	687,315	476,801	300,515	399,306	499,422	503,693	490,157	533,095	471,800	419,689	1,015,621	5,797,414
hydrogen fluoride	2,359,765	1,672,098	1,609,595	1,329,103	1,093,664	911,161	576,984	548,195	1,100,721	771,294	3,609,061	15,581,641
hydroquinone	1,085	586	3,618	1,322	1,034	874	1,379	688	201	56	65	10,908
iron pentacarbonyl	--	--	--	--	--	--	--	1,530	1,379	1,461	1,475	5,845
isobutyraldehyde	361,482	269,482	178,529	126,298	123,517	112,070	115,752	82,882	80,522	72,208	62,049	1,584,791
isopropyl alcohol	6,336	186,683	63,022	101,209	20,459	33,702	5,586	3,430	1,547	19,088	20,494	461,556
lead	46,217	85,909	40,254	20,548	19,334	47,054	39,581	29,703	28,351	13,270	10,864	381,085
lead compounds	97,905	57,452	83,356	81,932	84,510	38,844	39,470	71,410	73,010	76,710	72,951	777,550
lindane	--	250	--	5	--	--	--	--	--	--	2	257
lithium carbonate	--	--	--	--	--	--	--	--	24	3	2	29
m-cresol	--	--	--	57,835	46,010	17,597	22,287	12,187	7,083	7,212	7,168	177,379
m-xylene	530,119	418,315	475,499	540,885	475,437	749,734	312,358	191,927	254,693	284,056	250,446	4,483,469
malathion	--	--	--	--	--	--	--	260	62	260	257	839
maleic anhydride	119,167	90,782	85,668	60,829	91,418	57,476	61,282	54,108	47,169	39,073	24,289	731,261
maneb	500	500	10	10	5	10	--	--	--	--	--	1,035
manganese	41,638	473,049	36,032	26,942	106,100	104,885	125,350	121,372	121,920	55,830	34,742	1,247,860
manganese compounds	47,679	56,140	56,964	43,969	38,930	37,152	46,388	44,922	36,753	56,710	153,892	619,499
mercury	1,260	1,260	--	--	--	--	--	--	--	--	--	2,520
mercury compounds	--	--	--	1,230	1,040	1,040	1,040	1,040	1,040	1,040	1,032	8,502
methanol	14,074,740	10,655,870	10,168,192	10,510,420	9,883,714	9,584,689	10,677,103	9,811,743	11,808,841	12,522,204	13,580,275	123,277,791
methoxychlor	250	--	--	--	--	--	--	--	--	--	2	252
methyl acrylate	287,723	81,953	126,341	128,986	187,322	118,570	118,433	101,066	62,195	57,357	52,473	1,322,419
methyl chlorocarbonate	--	--	--	--	--	--	4,640	1,590	2,187	3,137	1,552	13,106
methyl ethyl ketone	9,254,950	10,302,767	8,748,341	7,236,996	6,604,034	5,750,915	5,209,995	5,028,419	4,622,720	4,596,800	4,943,798	72,299,735
methyl iodide	8,903	24,922	29,281	19,354	20,430	30,635	25,388	15,652	19,834	19,491	6,377	220,267
methyl isobutyl ketone	1,171,976	1,126,426	1,038,355	1,077,894	1,128,642	1,169,034	1,213,008	1,195,446	1,149,769	581,710	705,180	11,557,440
methyl isocyanate	--	--	5	5	--	1,097	699	1	30	31	27	1,895
methyl methacrylate	276,972	330,075	308,867	166,533	270,107	225,566	300,166	203,224	124,391	156,155	88,175	2,450,231

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
methyl tert-butyl ether	1,280,313	1,929,326	1,782,007	1,902,693	1,825,916	2,160,763	1,392,460	1,496,600	1,149,461	834,299	900,325	16,654,163
methylene bromide	--	--	15,900	--	--	--	--	--	--	--	--	15,900
methylenebis(phenylisocyanate)	7,037	11,392	40,496	52,200	34,845	6,745	24,439	--	--	--	--	177,154
molybdenum trioxide	39,979	33,845	11,343	7,190	6,839	15,446	6,319	4,733	4,648	4,790	4,852	139,984
monochloropentafluoroethane	--	--	--	39,199	27,996	33,924	5,279	5,159	44	3,858	3,444	118,903
myclobutanil	--	--	--	--	--	--	--	--	--	500	1,000	1,500
n,n-dimethylaniline	500	--	--	--	--	--	--	--	--	--	--	500
n,n-dimethylformamide	--	--	--	--	--	--	--	40,860	53,856	73,470	58,608	226,794
n-butyl alcohol	4,142,544	3,460,850	3,502,181	2,788,008	2,266,512	2,361,322	2,021,401	1,922,226	1,416,125	1,245,193	1,338,624	26,464,986
n-dioctyl phthalate	346	3,193	10	268	140	--	--	--	--	--	--	3,957
n-hexane	--	--	--	--	--	--	--	11,809,317	9,716,752	8,809,660	8,503,490	38,839,219
n-methyl-2-pyrrolidone	--	--	--	--	--	--	--	86,109	93,654	129,535	113,759	423,057
n-methylolacrylamide	--	--	--	--	--	--	--	501	501	2	2	1,006
n-nitrosodi-n-propylamine	--	--	--	--	--	--	--	--	--	--	750	750
n-nitrosodiethylamine	--	--	--	--	--	--	--	--	--	--	2	2
n-nitrosodiphenylamine	--	--	--	--	--	--	--	--	--	--	65	65
naphthalene	1,716,256	648,513	722,271	630,250	705,358	815,559	707,250	557,159	546,791	346,581	318,263	7,714,251
nickel	13,710	82,181	57,433	41,633	16,060	19,392	27,162	12,479	13,007	4,571	2,439	290,067
nickel compounds	42,793	14,651	8,572	21,628	12,504	27,312	24,197	12,128	10,768	14,305	21,628	210,486
nitrate compounds	--	--	--	--	--	--	--	590	195	50	384	1,219
nitric acid	153,807	175,740	114,664	160,047	162,094	90,910	74,182	92,126	65,130	50,703	48,198	1,187,601
nitrilotriacetic acid	250	--	--	--	--	10	10	--	--	--	--	270
nitrobenzene	6,491	6,240	6,245	3,039	4,022	22,939	13,072	13,307	13,892	14,360	18,091	121,698
norflurazon	--	--	--	--	--	--	--	--	--	--	10	10
o-anisidine	500	500	255	508	408	406	434	503	537	653	635	5,339
o-cresol	1,047	1,729	1,441	22,051	13,890	158,730	9,050	4,701	2,541	2,746	3,067	220,993
o-toluidine	1,840	3,004	2,259	987	2,384	2,363	2,448	2,348	3,300	3,084	2,826	26,843
o-xylene	322,390	328,910	395,213	370,182	474,382	370,748	248,107	249,739	271,746	436,964	280,114	3,748,495
oxyfluorfen	--	--	--	--	--	--	--	--	--	--	10	10
ozone	--	--	--	--	--	--	--	--	2	2	6,603	6,607
p-chloroaniline	--	--	--	--	--	--	--	--	--	--	20	20
p-cresol	1,000	1,523	1,737	35,772	26,636	10,522	21,545	15,415	14,032	13,684	14,633	156,499
p-phenylenediamine	1,550	3,700	540	540	451	--	180	15	15	15	15	7,021
p-xylene	425,917	407,829	471,972	424,531	306,220	694,114	341,438	329,842	145,724	288,313	168,859	4,004,759
paraldehyde	--	--	--	--	--	--	11	32	35	35	26	139
pentachloroethane	--	--	--	--	--	--	244	194	191	165	160	954
pentachlorophenol	500	500	505	10	1,500	1,500	--	--	--	--	--	4,515
permethrin	--	--	--	--	--	--	--	--	1	5	500	506

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
phenanthrene	--	--	--	--	--	--	--	3,374	1,775	2,155	6,878	14,182
phenol	921,259	942,011	1,012,458	647,140	588,344	478,866	440,727	395,059	553,015	532,615	322,040	6,833,534
phosgene	2,774	2,567	1,237	1,222	1,205	1,215	1,174	1,015	2,279	8,011	644	23,343
phosphoric acid	41,044	63,462	54,956	47,594	34,112	86,884	28,016	58,829	56,745	98,802	72,340	642,784
phosphorus (yellow or white)	--	--	6	5	--	5	--	--	--	--	--	16
phthalic anhydride	139,472	125,958	126,455	102,540	121,118	110,864	80,123	58,853	54,883	47,022	42,062	1,009,350
picloram	--	--	--	--	--	--	--	220	520	2,900	460	4,100
piperonyl butoxide	--	--	--	--	--	--	--	255	35	1	1	292
polychlorinated alkanes	--	--	--	--	--	--	--	5	5	5	20	35
polychlorinated biphenyls	6	--	--	--	--	--	--	--	--	--	178	184
polycyclic aromatic compounds	--	--	--	--	--	--	--	7,731	9,989	33,113	26,719	77,552
propargyl alcohol	--	--	--	--	--	--	--	2,074	1,788	819	6,320	11,001
propetamphos	--	--	--	--	--	--	--	500	10	10	10	530
propionaldehyde	493,582	410,052	303,825	513,622	408,938	326,095	347,471	78,570	75,136	62,944	56,240	3,076,475
propoxur	250	--	--	--	--	--	--	--	--	--	--	250
propylene	16,564,618	15,367,833	14,181,692	14,734,002	13,251,925	11,184,711	12,540,095	19,671,046	18,934,248	9,482,800	9,269,134	155,182,104
propylene oxide	1,206,219	615,807	512,984	400,742	501,981	476,967	587,974	472,680	264,765	217,886	252,929	5,510,934
propyleneimine	--	2	2	--	--	24	132	137	232	60	54	643
pyridine	24,352	26,430	18,485	23,019	12,253	8,408	13,019	13,512	12,374	11,815	7,349	171,016
quinoline	250	5,602	500	1,525	1,155	524	524	240	341	290	--	10,951
quinone	--	--	2	12	2	1	1	1	2	1	1	23
quintozene	500	1,000	--	10	--	6	10	--	--	--	--	1,526
resmethrin	--	--	--	--	--	--	--	--	1	1	--	2
safrole	500	--	--	--	--	--	--	255	505	505	10	1,775
sec-butyl alcohol	17,306	22,847	44,705	46,985	36,283	21,651	24,296	37,904	26,995	34,086	40,773	353,831
selenium	250	1,950	--	74	56	95	106	--	--	--	--	2,531
selenium compounds	4,450	9,800	14,955	18,770	15,550	56,999	33,718	50,688	44,732	54,910	137,289	441,861
sethoxydim	--	--	--	--	--	--	--	--	--	--	10	10
silver	500	500	250	--	--	--	--	--	--	--	--	1,250
silver compounds	1,851	2,400	1,250	230	990	870	690	840	810	829	739	11,499
sodium dicamba	--	--	--	--	--	--	--	13,850	--	255	8,550	22,655
sodium hydroxide (solution)	2,062,111	--	--	--	--	--	--	--	--	--	--	2,062,111
sodium nitrite	--	--	--	--	--	--	--	486	1,381	324	92	2,283
styrene	4,494,121	4,317,099	3,996,680	3,527,769	3,627,741	4,103,916	3,809,660	3,412,259	2,966,386	3,371,806	3,959,977	41,587,414
styrene oxide	--	--	5	10	5	8	9	9	8	11	9	74
sulfuric acid	2,976,859	1,533,107	706,819	956,274	1,320,829	778,268	755,077	783,255	774,634	905,815	2,356,875	13,847,812
tebuthiuron	--	--	--	--	--	--	--	5	5	10	10	30
temephos	--	--	--	--	--	--	--	--	--	--	7	7

Appendix C. Continued

Chemical Name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
terephthalic acid	250	250	--	--	--	--	--	--	--	--	--	500
tert-butyl alcohol	1,274,164	1,124,885	1,336,525	992,886	1,501,934	1,246,513	647,792	386,163	430,721	288,802	268,062	9,498,447
tetrachloroethylene	540,259	415,063	321,292	435,303	219,896	224,170	369,748	272,199	246,264	232,021	208,662	3,484,877
thallium	--	500	250	30	--	255	255	255	--	--	--	1,545
thallium compounds	--	--	255	255	255	--	--	--	--	--	23,355	24,120
thiabendazole	--	--	--	--	--	--	--	250	--	--	--	250
thiourea	500	500	265	83	75	60	50	60	60	50	33	1,736
thiram	--	--	--	--	--	--	--	--	9	8	1	18
titanium tetrachloride	11,359	8,307	8,659	13,850	11,798	6,864	6,553	2,936	3,372	2,703	3,094	79,495
toluene	16,077,858	11,837,907	13,475,726	11,727,531	10,458,827	9,085,904	8,445,964	6,834,278	5,841,466	5,547,684	5,190,835	104,523,980
toluene diisocyanate (mixed isomers)	--	--	3,648	6,223	6,548	6,486	2,744	3,272	7,617	4,284	2,471	43,293
toluene-2,4-diisocyanate	23,643	8,569	1,505	1,005	311	173	194	219	210	172	507	36,508
toluene-2,6-diisocyanate	3,003	2,614	1,000	265	10	10	57	55	49	41	255	7,359
toxaphene	--	--	--	--	--	--	--	--	--	--	5	5
trans-1,4-dichloro-2-butene	--	--	--	--	--	--	--	--	--	--	1	1
tributyltin methacrylate	--	--	--	--	--	--	--	20	10	10	10	50
trichloroacetyl chloride								1	1	1	1	4
trichloroethylene	1,882,393	1,922,759	1,585,442	1,231,712	1,525,090	676,307	746,979	678,815	613,729	539,513	419,825	11,822,564
trichlorofluoromethane	--	--	--	676,472	565,560	377,099	127,975	72,320	79,273	34,000	74	1,932,773
triethylamine	--	--	--	--	--	--	--	7,429	2,490	3,073	9,694	22,686
trifluralin	--	500	500	--	--	--	--	--	--	--	8	1,008
urethane	--	250	500	--	--	--	--	--	--	--	--	750
vanadium (fume or dust)	1,590	390	755	1,761	--	--	--	500	82	69	940	6,087
vinclozolin	--	--	--	--	--	--	--	--	--	--	10	10
vinyl acetate	3,796,941	3,423,803	3,435,671	3,705,685	2,438,380	2,342,102	1,935,416	1,756,955	1,638,761	1,174,457	1,310,969	26,959,140
vinyl chloride	170,203	174,886	173,229	269,764	283,293	264,313	276,320	259,016	246,877	240,194	210,930	2,569,025
vinylidene chloride	20,330	25,319	18,450	15,305	14,304	11,901	10,511	7,511	3,001	6,811	5,522	138,965
xylene (mixed isomers)	11,423,345	9,128,439	8,621,083	6,669,583	6,320,447	5,964,986	6,257,628	5,563,246	5,013,901	4,998,805	5,343,546	75,305,009
zinc (fume or dust)	153,662	173,937	52,173	51,826	59,524	95,132	93,923	65,635	81,565	15,203	17,093	859,673
zinc compounds	413,662	339,209	257,571	306,618	318,214	186,344	208,313	247,349	273,132	293,585	625,730	3,469,727
Total	**228,229,823**	**200,320,546**	**183,233,370**	**173,056,933**	**161,510,547**	**144,025,548**	**128,692,987**	**136,149,959**	**125,291,073**	**108,070,281**	**121,968,000**	**1,710,549,067**

Appendix D
Population Subgroups Potentially Most Vulnerable to Toxic Air Emissions in Texas: 1990 and 2000 County Profiles

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Anderson	48,024	490	13,644	2,435	3,661	55,109	617	9,818	2,630	3,802
Andrews	14,338	221	3,479	596	765	13,004	176	3,219	701	920
Angelina	69,884	940	17,039	3,630	5,449	80,130	1,242	19,664	4,188	5,912
Aransas	17,892	172	3,855	1,582	1,729	22,497	238	4,650	2,144	2,287
Archer	7,973	105	1,836	489	625	8,854	112	2,076	555	677
Armstrong	2,021	30	408	192	248	2,148	21	462	167	246
Atascosa	30,533	414	7,325	1,573	2,008	38,628	610	9,555	1,865	2,305
Austin	19,832	218	4,434	1,430	2,081	23,590	292	5,558	1,443	2,052
Bailey	7,064	112	1,576	402	568	6,594	103	1,469	428	576
Bandera	10,562	110	2,360	875	991	17,645	179	3,919	1,447	1,406
Bastrop	38,263	484	9,287	2,043	2,689	57,733	853	14,016	2,636	3,291
Baylor	4,385	55	842	445	698	4,093	40	773	397	588
Bee	25,135	420	6,149	1,209	1,653	32,359	385	6,198	1,412	1,882
Bell	191,088	3,375	51,493	6,767	9,979	237,974	4,565	63,877	8,720	12,145
Bexar	1,185,394	17,059	321,489	47,106	70,264	1,392,931	22,117	370,092	58,909	85,489
Blanco	5,972	56	1,312	505	705	8,418	111	1,859	631	775
Borden	799	4	168	58	55	729	4	166	60	59
Bosque	15,125	170	3,034	1,516	2,200	17,204	178	3,516	1,521	2,014
Bowie	81,665	989	19,852	4,617	7,129	89,306	1,139	20,877	4,835	7,484
Brazoria	191,707	2,616	52,439	6,286	8,662	241,767	3,815	60,767	9,357	11,973
Brazos	121,862	1,485	38,675	3,170	4,944	152,415	2,029	49,044	4,099	6,124
Brewster	8,681	95	2,228	551	666	8,866	122	2,235	579	718
Briscoe	1,971	26	374	177	232	1,790	28	362	145	200
Brooks	8,204	129	1,864	421	655	7,976	116	1,778	473	677
Brown	34,371	416	7,928	2,395	3,682	37,674	478	8,630	2,527	3,652
Burleson	13,625	151	2,934	979	1,401	16,470	205	3,817	1,121	1,531
Burnet	22,677	240	4,629	2,215	2,883	34,147	409	7,692	2,724	3,402
Caldwell	26,392	366	6,617	1,422	2,168	32,194	474	8,067	1,672	2,347

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Calhoun	19,053	237	4,587	933	1,172	20,647	319	4,779	1,260	1,479
Callahan	11,859	111	2,579	837	1,205	12,905	126	2,863	961	1,233
Cameron	260,120	4,188	66,984	12,284	15,231	335,227	6,534	85,371	16,281	21,094
Camp	9,904	113	2,152	731	1,030	11,549	141	2,558	790	1,090
Carson	6,576	88	1,449	450	566	6,516	78	1,516	440	583
Cass	29,982	346	6,695	2,061	3,073	30,438	352	6,800	2,185	3,163
Castro	9,070	148	2,077	360	549	8,285	159	1,871	443	609
Chambers	20,088	234	5,230	831	1,072	26,031	332	6,674	1,043	1,307
Cherokee	41,049	480	9,223	2,849	4,323	46,659	682	10,476	2,815	4,214
Childress	5,953	52	1,229	513	837	7,688	88	1,370	516	696
Clay	10,024	105	2,243	711	995	11,006	129	2,525	774	995
Cochran	4,377	43	974	235	314	3,730	43	872	239	299
Coke	3,424	30	651	378	498	3,864	38	738	410	521
Coleman	9,710	110	1,839	1,016	1,481	9,235	117	1,834	875	1,253
Collin	264,036	3,873	79,848	5,306	8,463	491,675	8,849	139,425	10,767	15,085
Collingsworth	3,573	40	695	326	522	3,206	40	669	281	423
Colorado	18,383	202	3,736	1,486	2,179	20,390	249	4,522	1,622	2,169
Comal	51,832	599	12,253	3,594	4,788	78,021	948	18,436	5,036	6,532
Comanche	13,381	138	2,584	1,295	1,853	14,026	185	2,751	1,231	1,618
Concho	3,044	29	566	250	340	3,966	31	550	229	318
Cooke	30,777	417	7,171	1,980	2,901	36,363	478	8,348	2,213	3,202
Coryell	64,213	975	19,173	1,450	2,136	74,978	1,214	22,116	1,759	2,512
Cottle	2,247	13	414	221	322	1,904	16	369	194	293
Crane	4,652	74	1,153	179	280	3,996	67	966	181	255
Crockett	4,078	61	940	186	293	4,099	60	954	229	299
Crosby	7,304	94	1,596	467	700	7,072	122	1,592	459	646
Culberson	3,407	69	844	142	155	2,975	41	705	172	162
Dallam	5,461	91	1,221	339	456	6,222	133	1,507	276	362
Dallas	1,852,810	26,766	518,770	58,254	94,260	2,218,899	37,901	603,121	70,961	107,911

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Dawson	14,349	184	3,166	910	1,317	14,985	187	2,965	910	1,228
Deaf Smith	19,153	336	4,414	861	1,210	18,561	340	4,367	923	1,325
Delta	4,857	65	1,012	455	691	5,327	60	1,134	379	562
Denton	273,525	4,165	86,742	5,366	8,409	432,976	7,174	128,993	8,840	12,863
De Witt	18,840	229	3,911	1,556	2,419	20,013	227	4,065	1,541	2,240
Dickens	2,571	25	502	273	378	2,762	28	465	226	298
Dimmit	10,433	174	2,538	545	664	10,248	148	2,340	569	726
Donley	3,696	35	736	402	543	3,828	38	760	365	467
Duval	12,918	204	2,977	698	994	13,120	219	2,851	765	1,073
Eastland	18,488	124	3,920	1,653	2,587	18,297	225	3,844	1,562	2,253
Ector	118,934	1,889	30,410	4,696	6,352	121,123	1,955	31,273	5,443	7,795
Edwards	2,266	27	518	126	157	2,162	18	444	170	180
Ellis	85,167	1,209	21,783	3,355	5,254	111,360	1,652	28,766	4,168	6,118
El Paso	591,610	9,645	163,383	20,302	27,965	679,622	11,723	179,201	27,422	38,651
Erath	27,991	336	7,064	1,708	2,670	33,001	469	8,552	1,801	2,631
Falls	17,712	189	3,886	1,351	2,147	18,576	223	4,919	1,293	1,840
Fannin	24,804	254	5,282	2,141	3,059	31,242	377	6,314	2,188	2,836
Fayette	20,095	180	4,031	1,920	2,763	21,804	211	4,581	1,956	2,843
Fisher	4,842	54	946	411	627	4,344	50	883	418	567
Floyd	8,497	145	1,778	581	819	7,771	122	1,722	509	747
Foard	1,794	15	342	181	273	1,622	18	311	148	227
Fort Bend	225,421	3,404	63,721	4,620	6,505	354,452	5,189	97,585	8,693	11,476
Franklin	7,802	88	1,680	603	863	9,458	114	2,035	742	1,011
Freestone	15,818	188	3,472	1,187	1,868	17,867	207	3,658	1,218	1,714
Frio	13,472	200	3,343	634	854	16,252	305	3,393	741	978
Gaines	14,123	256	3,320	559	736	14,467	234	3,557	633	857
Galveston	217,399	2,878	56,120	9,509	13,262	250,158	3,530	64,896	11,653	16,112
Garza	5,143	74	1,128	350	480	4,872	67	978	291	398
Gillespie	17,204	156	3,392	1,784	2,409	20,814	223	3,941	2,278	3,031

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Glasscock	1,447	17	332	48	39	1,406	14	332	65	61
Goliad	5,980	68	1,343	444	570	6,928	69	1,545	553	658
Gonzales	17,205	207	3,623	1,270	1,779	18,628	247	4,169	1,345	1,777
Gray	23,967	282	5,315	1,646	2,516	22,744	259	4,694	1,672	2,453
Grayson	95,021	1,039	22,904	6,022	9,491	110,595	1,450	26,648	6,689	10,031
Gregg	104,948	1,447	25,693	5,255	8,670	111,379	1,565	28,034	5,824	8,933
Grimes	18,828	228	4,476	1,052	1,530	23,552	302	5,114	1,547	1,691
Guadalupe	64,873	846	16,278	3,300	4,486	89,023	1,301	22,534	4,431	5,634
Hale	34,671	558	8,190	1,715	2,584	36,602	644	8,468	1,965	2,748
Hall	3,905	37	708	400	632	3,782	44	747	326	487
Hamilton	7,733	74	1,459	847	1,258	8,229	86	1,613	801	1,139
Hansford	5,848	75	1,310	311	440	5,369	71	1,196	339	479
Hardeman	5,283	72	1,040	485	735	4,724	49	1,038	370	586
Hardin	41,320	511	10,273	2,048	2,812	48,073	666	12,026	2,470	3,394
Harris	2,818,199	41,862	789,248	79,136	119,086	3,400,578	58,000	930,493	103,898	148,997
Harrison	57,483	707	13,766	3,077	4,708	62,110	794	15,642	3,317	4,817
Hartley	3,634	41	841	228	341	5,537	73	931	253	405
Haskell	6,820	78	1,269	672	1,006	6,093	56	1,219	634	919
Hays	65,614	694	20,394	2,219	2,991	97,589	1,181	28,925	3,225	4,260
Hemphill	3,720	37	867	199	294	3,351	55	754	202	292
Henderson	58,543	631	12,582	5,007	6,238	73,277	989	16,021	5,926	7,432
Hidalgo	383,545	6,181	99,466	17,467	20,971	569,463	12,104	145,987	24,852	30,422
Hill	27,146	300	5,701	2,280	3,404	32,321	457	7,131	2,362	3,222
Hockley	24,199	363	5,972	1,066	1,513	22,716	350	5,654	1,188	1,678
Hood	28,981	316	6,591	2,148	2,520	41,100	465	8,911	3,371	3,978
Hopkins	28,833	320	6,791	1,884	2,806	31,960	409	7,398	1,965	2,890
Houston	21,375	209	4,871	1,694	2,412	23,185	249	4,528	1,753	2,414
Howard	32,343	414	7,240	1,923	2,764	33,627	411	6,988	2,051	2,847
Hudspeth	2,915	28	672	138	154	3,344	45	819	154	177

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Hunt	64,343	808	15,780	3,622	5,431	76,596	1,021	18,780	4,118	5,540
Hutchinson	25,689	327	5,798	1,695	2,154	23,857	325	5,686	1,637	2,084
Irion	1,629	15	393	99	116	1,771	15	388	136	140
Jack	6,981	87	1,489	549	763	8,763	91	1,703	571	759
Jackson	13,039	155	2,855	935	1,302	14,391	206	3,355	971	1,324
Jasper	31,102	335	6,979	2,077	2,960	35,604	459	8,245	2,342	3,120
Jeff Davis	1,946	21	401	174	195	2,207	17	485	184	175
Jefferson	239,397	3,039	56,855	13,358	20,276	252,051	3,353	60,401	13,906	20,363
Jim Hogg	5,109	73	1,149	310	382	5,281	64	1,151	325	447
Jim Wells	37,679	534	9,076	1,895	2,500	39,326	633	9,512	2,086	2,784
Johnson	97,165	1,244	25,227	3,976	6,110	126,811	1,810	32,032	5,405	7,240
Jones	16,490	199	3,563	1,241	1,874	20,785	224	3,604	1,251	1,652
Karnes	12,455	197	2,637	926	1,301	15,446	173	2,724	935	1,284
Kaufman	52,220	628	12,934	2,379	3,812	71,313	1,025	17,929	3,107	4,479
Kendall	14,589	186	3,509	976	1,373	23,743	303	5,512	1,429	1,863
Kenedy	460	5	103	21	20	414	9	90	21	23
Kent	1,010	8	195	92	125	859	5	150	92	127
Kerr	36,304	371	7,469	3,851	5,114	43,653	460	8,751	4,789	6,069
Kimble	4,122	47	830	402	473	4,468	55	910	401	531
King	354	5	95	10	12	356	3	86	25	12
Kinney	3,119	29	587	328	361	3,379	39	618	415	407
Kleberg	30,274	431	8,019	1,183	1,790	31,549	525	8,149	1,399	1,940
Knox	4,837	61	894	438	635	4,253	51	830	410	554
Lamar	43,949	513	10,234	3,001	4,660	48,499	700	11,528	3,004	4,569
Lamb	15,072	187	3,146	1,115	1,570	14,709	214	3,280	1,063	1,482
Lampasas	13,521	180	3,115	835	1,290	17,762	232	4,173	1,088	1,491
La Salle	5,254	74	1,223	316	390	5,866	108	1,230	287	395
Lavaca	18,690	201	3,806	1,776	2,643	19,210	217	4,023	1,688	2,506
Lee	12,854	138	2,909	879	1,165	15,657	199	3,608	978	1,274

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Leon	12,665	133	2,582	1,071	1,437	15,335	161	3,192	1,389	1,681
Liberty	52,726	703	12,906	2,588	3,604	70,154	1,009	18,796	3,077	4,115
Limestone	20,946	234	4,604	1,506	2,472	22,051	296	4,738	1,514	2,100
Lipscomb	3,143	31	694	231	283	3,057	33	650	227	336
Live Oak	9,556	113	2,072	682	882	12,309	133	2,326	907	1,059
Llano	11,631	98	1,792	1,759	2,206	17,044	132	2,742	2,428	2,797
Loving	107	0	24	7	7	67	2	13	6	5
Lubbock	222,636	3,004	61,973	8,902	13,085	242,628	3,658	66,715	10,856	15,888
Lynn	6,758	99	1,464	459	579	6,550	85	1,462	404	512
McCulloch	8,778	112	1,800	785	1,170	8,205	113	1,702	637	965
McLennan	189,123	2,336	47,818	10,064	15,556	213,517	3,128	56,054	10,865	16,584
McMullen	817	9	169	53	69	851	6	180	77	75
Madison	10,931	93	2,820	660	1,085	12,940	136	2,218	755	1,051
Marion	9,984	113	2,038	835	1,126	10,941	111	2,306	954	1,147
Martin	4,956	89	1,134	237	343	4,746	77	1,102	287	345
Mason	3,423	34	662	331	508	3,738	33	708	367	512
Matagorda	36,928	520	8,711	1,800	2,472	37,957	572	9,069	1,979	2,732
Maverick	36,378	629	9,506	1,416	1,666	47,297	920	11,820	1,963	2,531
Medina	27,312	321	6,427	1,727	2,105	39,304	572	9,067	2,229	2,649
Menard	2,252	21	436	233	301	2,360	19	484	239	279
Midland	106,611	1,652	27,560	3,945	5,584	116,009	1,744	30,092	5,691	7,775
Milam	22,946	275	4,918	1,752	2,544	24,238	332	5,352	1,744	2,429
Mills	4,531	30	858	518	691	5,151	56	920	534	656
Mitchell	8,016	93	1,628	674	1,005	9,698	85	1,558	624	844
Montague	17,274	183	3,576	1,511	2,282	19,117	223	4,004	1,583	2,201
Montgomery	182,201	2,420	48,852	6,476	9,217	293,768	4,417	75,764	10,846	14,702
Moore	17,865	338	4,324	735	1,032	20,121	353	4,941	902	1,222
Morris	13,200	148	2,894	863	1,370	13,048	156	2,951	1,000	1,386
Motley	1,532	13	287	161	241	1,426	13	263	143	195

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Nacogdoches	54,753	600	15,655	2,542	3,928	59,203	771	16,780	2,969	4,198
Navarro	39,926	516	9,218	2,643	4,220	45,124	606	10,632	2,545	3,942
Newton	13,569	173	3,138	807	1,021	15,072	176	3,419	966	1,168
Nolan	16,594	206	3,802	1,073	1,669	15,802	200	3,594	1,074	1,511
Nueces	291,145	4,031	75,985	12,100	17,322	313,645	4,865	81,195	14,538	20,467
Ochiltree	9,128	130	2,198	431	564	9,006	145	2,187	435	615
Oldham	2,278	23	461	107	133	2,185	23	493	107	139
Orange	80,509	950	20,153	3,632	5,108	84,966	1,053	21,037	4,576	6,200
Palo Pinto	25,055	311	5,710	1,744	2,520	27,026	364	6,047	1,889	2,540
Panola	22,035	267	5,039	1,342	2,141	22,756	287	5,468	1,399	2,199
Parker	64,785	777	16,526	3,023	4,072	88,495	1,008	21,519	4,137	5,181
Parmer	9,863	153	2,244	487	744	10,016	141	2,331	520	754
Pecos	14,675	206	3,513	632	814	16,809	216	3,626	859	962
Polk	30,687	345	6,224	2,857	3,424	41,133	472	8,119	3,347	4,039
Potter	97,874	1,580	24,153	4,896	7,910	113,546	1,847	27,833	5,230	8,072
Presidio	6,637	109	1,555	410	510	7,304	100	1,722	490	527
Rains	6,715	64	1,426	514	700	9,139	80	1,954	662	809
Randall	89,673	1,091	24,545	3,638	5,265	104,312	1,394	27,659	5,328	7,086
Reagan	4,514	78	1,117	144	196	3,326	54	815	155	187
Real	2,412	20	514	215	280	3,047	25	572	296	338
Red River	14,317	137	2,959	1,217	1,908	14,314	169	3,136	1,167	1,647
Reeves	15,852	271	3,598	727	911	13,137	182	2,828	778	878
Refugio	7,976	97	1,823	544	752	7,828	103	1,744	545	756
Roberts	1,025	13	248	45	72	887	9	195	59	69
Robertson	15,511	245	3,179	1,146	1,705	16,000	231	3,515	1,120	1,595
Rockwall	25,604	294	6,944	803	1,173	43,080	601	11,027	1,551	2,135
Runnels	11,294	117	2,328	917	1,422	11,495	152	2,461	894	1,352
Rusk	43,735	531	9,872	2,942	4,592	47,372	592	10,495	3,091	4,321
Sabine	9,586	90	1,760	1,143	1,296	10,469	94	1,948	1,245	1,365

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
San Augustine	7,999	78	1,529	757	1,030	8,946	102	1,860	800	1,113
San Jacinto	16,372	181	3,566	1,197	1,364	22,246	251	4,847	1,681	1,865
San Patricio	58,749	795	14,557	2,635	3,462	67,138	1,094	16,382	3,087	3,958
San Saba	5,401	49	1,074	508	742	6,186	68	1,164	528	728
Schleicher	2,990	27	640	190	271	2,935	29	664	216	266
Scurry	18,634	222	4,417	1,001	1,473	16,361	187	3,537	1,041	1,485
Shackelford	3,316	41	695	263	417	3,302	31	731	234	368
Shelby	22,034	262	4,696	1,646	2,606	25,224	370	5,747	1,670	2,511
Sherman	2,858	40	644	166	223	3,186	38	711	185	249
Smith	151,309	1,829	37,717	8,429	12,404	174,706	2,485	43,672	10,101	14,501
Somervell	5,360	79	1,291	257	384	6,809	81	1,629	376	531
Starr	40,518	744	10,503	1,318	1,540	53,597	1,122	13,688	1,916	2,483
Stephens	9,010	93	1,905	706	1,026	9,674	105	2,059	724	985
Sterling	1,438	15	326	72	105	1,393	12	349	89	115
Stonewall	2,013	38	409	167	250	1,693	17	337	169	237
Sutton	4,135	52	1,028	175	258	4,077	66	972	222	286
Swisher	8,133	111	1,680	578	778	8,378	127	1,699	595	741
Tarrant	1,170,103	17,685	329,279	37,917	59,507	1,446,219	23,481	393,398	48,510	72,075
Taylor	119,655	1,698	31,097	5,494	8,894	126,555	1,914	33,457	6,241	9,474
Terrell	1,410	15	280	88	112	1,081	7	219	93	97
Terry	13,218	202	2,963	741	1,058	12,761	212	2,687	780	1,081
Throckmorton	1,880	21	371	170	254	1,850	22	357	160	220
Titus	24,009	380	5,499	1,448	2,287	28,118	453	6,704	1,402	2,117
Tom Green	98,458	1,267	25,537	4,957	7,576	104,010	1,500	27,053	5,694	8,275
Travis	576,407	7,888	176,672	16,733	25,128	812,280	12,643	238,222	22,561	32,263
Trinity	11,445	124	2,221	1,108	1,393	13,779	149	2,813	1,387	1,645
Tyler	16,646	169	3,438	1,494	1,869	20,871	246	4,184	1,690	2,032
Upshur	31,370	383	7,351	1,814	2,767	35,291	465	8,367	2,119	2,926
Upton	4,447	58	1,038	163	256	3,404	36	796	209	273

Appendix D. Continued

County	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Uvalde	23,340	357	5,732	1,226	1,690	25,926	478	6,124	1,531	2,003
Val Verde	38,721	694	9,843	1,655	2,088	44,856	825	10,894	2,194	2,719
Van Zandt	37,944	420	8,311	2,834	3,943	48,140	586	10,561	3,530	4,676
Victoria	74,361	1,095	19,003	3,343	4,775	84,088	1,295	21,077	4,194	5,865
Walker	50,917	474	15,664	1,952	2,543	61,758	598	13,873	2,466	3,060
Waller	23,390	276	6,176	1,085	1,477	32,663	462	9,059	1,306	1,753
Ward	13,115	185	3,102	594	866	10,909	142	2,526	707	851
Washington	26,154	298	6,120	1,793	2,733	30,373	354	7,232	2,085	3,036
Webb	133,239	2,505	35,661	4,171	6,322	193,117	4,287	51,271	5,837	8,819
Wharton	39,955	573	9,124	2,298	3,457	41,188	626	9,864	2,314	3,408
Wheeler	5,879	65	1,210	495	786	5,284	59	1,109	449	654
Wichita	122,378	1,647	30,590	5,979	9,621	131,664	1,845	32,195	6,755	9,963
Wilbarger	15,121	180	3,383	1,092	1,746	14,676	197	3,300	929	1,446
Willacy	17,705	247	4,299	900	1,076	20,082	301	4,641	1,024	1,304
Williamson	139,551	2,038	39,964	4,244	6,387	249,967	4,173	68,711	7,744	10,645
Wilson	22,650	285	5,429	1,257	1,611	32,408	426	7,939	1,660	2,057
Winkler	8,626	140	1,949	483	618	7,173	94	1,712	455	573
Wise	34,679	417	8,474	1,800	2,539	48,793	662	11,926	2,314	2,864
Wood	29,380	268	6,143	2,560	3,617	36,752	354	7,429	3,373	4,297
Yoakum	8,786	129	2,132	335	429	7,322	118	1,837	366	479
Young	18,126	214	4,033	1,316	1,999	17,943	205	3,924	1,423	2,108
Zapata	9,279	154	2,092	664	722	12,182	215	2,776	828	914
Zavala	12,162	213	3,073	574	726	11,600	216	2,654	534	773
Total	**16,986,510**	**239,831**	**4,526,494**	**695,471**	**1,021,105**	**20,851,820**	**330,770**	**5,454,198**	**862,181**	**1,210,351**

Source: U.S. Department of Commerce (1991, 2001).

Appendix E
Percentages of Subgroup Populations Potentially Most Vulnerable to Toxic Air Emissions in Texas: 1990 and 2000 County Profiles

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Anderson	48,024	1.0%	28.4%	5.1%	7.6%	55,109	1.1%	17.8%	4.8%	6.9%
Andrews	14,338	1.5%	24.3%	4.2%	5.3%	13,004	1.4%	24.8%	5.4%	7.1%
Angelina	69,884	1.3%	24.4%	5.2%	7.8%	80,130	1.5%	24.5%	5.2%	7.4%
Aransas	17,892	1.0%	21.5%	8.8%	9.7%	22,497	1.1%	20.7%	9.5%	10.2%
Archer	7,973	1.3%	23.0%	6.1%	7.8%	8,854	1.3%	23.4%	6.3%	7.6%
Armstrong	2,021	1.5%	20.2%	9.5%	12.3%	2,148	1.0%	21.5%	7.8%	11.5%
Atascosa	30,533	1.4%	24.0%	5.2%	6.6%	38,628	1.6%	24.7%	4.8%	6.0%
Austin	19,832	1.1%	22.4%	7.2%	10.5%	23,590	1.2%	23.6%	6.1%	8.7%
Bailey	7,064	1.6%	22.3%	5.7%	8.0%	6,594	1.6%	22.3%	6.5%	8.7%
Bandera	10,562	1.0%	22.3%	8.3%	9.4%	17,645	1.0%	22.2%	8.2%	8.0%
Bastrop	38,263	1.3%	24.3%	5.3%	7.0%	57,733	1.5%	24.3%	4.6%	5.7%
Baylor	4,385	1.3%	19.2%	10.1%	15.9%	4,093	1.0%	18.9%	9.7%	14.4%
Bee	25,135	1.7%	24.5%	4.8%	6.6%	32,359	1.2%	19.2%	4.4%	5.8%
Bell	191,088	1.8%	26.9%	3.5%	5.2%	237,974	1.9%	26.8%	3.7%	5.1%
Bexar	1,185,394	1.4%	27.1%	4.0%	5.9%	1,392,931	1.6%	26.6%	4.2%	6.1%
Blanco	5,972	0.9%	22.0%	8.5%	11.8%	8,418	1.3%	22.1%	7.5%	9.2%
Borden	799	0.5%	21.0%	7.3%	6.9%	729	0.5%	22.8%	8.2%	8.1%
Bosque	15,125	1.1%	20.1%	10.0%	14.5%	17,204	1.0%	20.4%	8.8%	11.7%
Bowie	81,665	1.2%	24.3%	5.7%	8.7%	89,306	1.3%	23.4%	5.4%	8.4%
Brazoria	191,707	1.4%	27.4%	3.3%	4.5%	241,767	1.6%	25.1%	3.9%	5.0%
Brazos	121,862	1.2%	31.7%	2.6%	4.1%	152,415	1.3%	32.2%	2.7%	4.0%
Brewster	8,681	1.1%	25.7%	6.3%	7.7%	8,866	1.4%	25.2%	6.5%	8.1%
Briscoe	1,971	1.3%	19.0%	9.0%	11.8%	1,790	1.6%	20.2%	8.1%	11.2%
Brooks	8,204	1.6%	22.7%	5.1%	8.0%	7,976	1.5%	22.3%	5.9%	8.5%
Brown	34,371	1.2%	23.1%	7.0%	10.7%	37,674	1.3%	22.9%	6.7%	9.7%
Burleson	13,625	1.1%	21.5%	7.2%	10.3%	16,470	1.2%	23.2%	6.8%	9.3%
Burnet	22,677	1.1%	20.4%	9.8%	12.7%	34,147	1.2%	22.5%	8.0%	10.0%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Caldwell	26,392	1.4%	25.1%	5.4%	8.2%	32,194	1.5%	25.1%	5.2%	7.3%
Calhoun	19,053	1.2%	24.1%	4.9%	6.2%	20,647	1.5%	23.1%	6.1%	7.2%
Callahan	11,859	0.9%	21.7%	7.1%	10.2%	12,905	1.0%	22.2%	7.4%	9.6%
Cameron	260,120	1.6%	25.8%	4.7%	5.9%	335,227	1.9%	25.5%	4.9%	6.3%
Camp	9,904	1.1%	21.7%	7.4%	10.4%	11,549	1.2%	22.1%	6.8%	9.4%
Carson	6,576	1.3%	22.0%	6.8%	8.6%	6,516	1.2%	23.3%	6.8%	8.9%
Cass	29,982	1.2%	22.3%	6.9%	10.2%	30,438	1.2%	22.3%	7.2%	10.4%
Castro	9,070	1.6%	22.9%	4.0%	6.1%	8,285	1.9%	22.6%	5.3%	7.4%
Chambers	20,088	1.2%	26.0%	4.1%	5.3%	26,031	1.3%	25.6%	4.0%	5.0%
Cherokee	41,049	1.2%	22.5%	6.9%	10.5%	46,659	1.5%	22.5%	6.0%	9.0%
Childress	5,953	0.9%	20.6%	8.6%	14.1%	7,688	1.1%	17.8%	6.7%	9.1%
Clay	10,024	1.0%	22.4%	7.1%	9.9%	11,006	1.2%	22.9%	7.0%	9.0%
Cochran	4,377	1.0%	22.3%	5.4%	7.2%	3,730	1.2%	23.4%	6.4%	8.0%
Coke	3,424	0.9%	19.0%	11.0%	14.5%	3,864	1.0%	19.1%	10.6%	13.5%
Coleman	9,710	1.1%	18.9%	10.5%	15.3%	9,235	1.3%	19.9%	9.5%	13.6%
Collin	264,036	1.5%	30.2%	2.0%	3.2%	491,675	1.8%	28.4%	2.2%	3.1%
Collingsworth	3,573	1.1%	19.5%	9.1%	14.6%	3,206	1.2%	20.9%	8.8%	13.2%
Colorado	18,383	1.1%	20.3%	8.1%	11.9%	20,390	1.2%	22.2%	8.0%	10.6%
Comal	51,832	1.2%	23.6%	6.9%	9.2%	78,021	1.2%	23.6%	6.5%	8.4%
Comanche	13,381	1.0%	19.3%	9.7%	13.8%	14,026	1.3%	19.6%	8.8%	11.5%
Concho	3,044	1.0%	18.6%	8.2%	11.2%	3,966	0.8%	13.9%	5.8%	8.0%
Cooke	30,777	1.4%	23.3%	6.4%	9.4%	36,363	1.3%	23.0%	6.1%	8.8%
Coryell	64,213	1.5%	29.9%	2.3%	3.3%	74,978	1.6%	29.5%	2.3%	3.4%
Cottle	2,247	0.6%	18.4%	9.8%	14.3%	1,904	0.8%	19.4%	10.2%	15.4%
Crane	4,652	1.6%	24.8%	3.8%	6.0%	3,996	1.7%	24.2%	4.5%	6.4%
Crockett	4,078	1.5%	23.1%	4.6%	7.2%	4,099	1.5%	23.3%	5.6%	7.3%
Crosby	7,304	1.3%	21.9%	6.4%	9.6%	7,072	1.7%	22.5%	6.5%	9.1%
Culberson	3,407	2.0%	24.8%	4.2%	4.5%	2,975	1.4%	23.7%	5.8%	5.4%
Dallam	5,461	1.7%	22.4%	6.2%	8.4%	6,222	2.1%	24.2%	4.4%	5.8%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Dallas	1,852,810	1.4%	28.0%	3.1%	5.1%	2,218,899	1.7%	27.2%	3.2%	4.9%
Dawson	14,349	1.3%	22.1%	6.3%	9.2%	14,985	1.2%	19.8%	6.1%	8.2%
Deaf Smith	19,153	1.8%	23.0%	4.5%	6.3%	18,561	1.8%	23.5%	5.0%	7.1%
Delta	4,857	1.3%	20.8%	9.4%	14.2%	5,327	1.1%	21.3%	7.1%	10.6%
Denton	273,525	1.5%	31.7%	2.0%	3.1%	432,976	1.7%	29.8%	2.0%	3.0%
De Witt	18,840	1.2%	20.8%	8.3%	12.8%	20,013	1.1%	20.3%	7.7%	11.2%
Dickens	2,571	1.0%	19.5%	10.6%	14.7%	2,762	1.0%	16.8%	8.2%	10.8%
Dimmit	10,433	1.7%	24.3%	5.2%	6.4%	10,248	1.4%	22.8%	5.6%	7.1%
Donley	3,696	0.9%	19.9%	10.9%	14.7%	3,828	1.0%	19.9%	9.5%	12.2%
Duval	12,918	1.6%	23.0%	5.4%	7.7%	13,120	1.7%	21.7%	5.8%	8.2%
Eastland	18,488	0.7%	21.2%	8.9%	14.0%	18,297	1.2%	21.0%	8.5%	12.3%
Ector	118,934	1.6%	25.6%	3.9%	5.3%	121,123	1.6%	25.8%	4.5%	6.4%
Edwards	2,266	1.2%	22.9%	5.6%	6.9%	2,162	0.8%	20.5%	7.9%	8.3%
Ellis	85,167	1.4%	25.6%	3.9%	6.2%	111,360	1.5%	25.8%	3.7%	5.5%
El Paso	591,610	1.6%	27.6%	3.4%	4.7%	679,622	1.7%	26.4%	4.0%	5.7%
Erath	27,991	1.2%	25.2%	6.1%	9.5%	33,001	1.4%	25.9%	5.5%	8.0%
Falls	17,712	1.1%	21.9%	7.6%	12.1%	18,576	1.2%	26.5%	7.0%	9.9%
Fannin	24,804	1.0%	21.3%	8.6%	12.3%	31,242	1.2%	20.2%	7.0%	9.1%
Fayette	20,095	0.9%	20.1%	9.6%	13.7%	21,804	1.0%	21.0%	9.0%	13.0%
Fisher	4,842	1.1%	19.5%	8.5%	12.9%	4,344	1.2%	20.3%	9.6%	13.1%
Floyd	8,497	1.7%	20.9%	6.8%	9.6%	7,771	1.6%	22.2%	6.5%	9.6%
Foard	1,794	0.8%	19.1%	10.1%	15.2%	1,622	1.1%	19.2%	9.1%	14.0%
Fort Bend	225,421	1.5%	28.3%	2.0%	2.9%	354,452	1.5%	27.5%	2.5%	3.2%
Franklin	7,802	1.1%	21.5%	7.7%	11.1%	9,458	1.2%	21.5%	7.8%	10.7%
Freestone	15,818	1.2%	21.9%	7.5%	11.8%	17,867	1.2%	20.5%	6.8%	9.6%
Frio	13,472	1.5%	24.8%	4.7%	6.3%	16,252	1.9%	20.9%	4.6%	6.0%
Gaines	14,123	1.8%	23.5%	4.0%	5.2%	14,467	1.6%	24.6%	4.4%	5.9%
Galveston	217,399	1.3%	25.8%	4.4%	6.1%	250,158	1.4%	25.9%	4.7%	6.4%
Garza	5,143	1.4%	21.9%	6.8%	9.3%	4,872	1.4%	20.1%	6.0%	8.2%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Gillespie	17,204	0.9%	19.7%	10.4%	14.0%	20,814	1.1%	18.9%	10.9%	14.6%
Glasscock	1,447	1.2%	22.9%	3.3%	2.7%	1,406	1.0%	23.6%	4.6%	4.3%
Goliad	5,980	1.1%	22.5%	7.4%	9.5%	6,928	1.0%	22.3%	8.0%	9.5%
Gonzales	17,205	1.2%	21.1%	7.4%	10.3%	18,628	1.3%	22.4%	7.2%	9.5%
Gray	23,967	1.2%	22.2%	6.9%	10.5%	22,744	1.1%	20.6%	7.4%	10.8%
Grayson	95,021	1.1%	24.1%	6.3%	10.0%	110,595	1.3%	24.1%	6.0%	9.1%
Gregg	104,948	1.4%	24.5%	5.0%	8.3%	111,379	1.4%	25.2%	5.2%	8.0%
Grimes	18,828	1.2%	23.8%	5.6%	8.1%	23,552	1.3%	21.7%	6.6%	7.2%
Guadalupe	64,873	1.3%	25.1%	5.1%	6.9%	89,023	1.5%	25.3%	5.0%	6.3%
Hale	34,671	1.6%	23.6%	4.9%	7.5%	36,602	1.8%	23.1%	5.4%	7.5%
Hall	3,905	0.9%	18.1%	10.2%	16.2%	3,782	1.2%	19.8%	8.6%	12.9%
Hamilton	7,733	1.0%	18.9%	11.0%	16.3%	8,229	1.0%	19.6%	9.7%	13.8%
Hansford	5,848	1.3%	22.4%	5.3%	7.5%	5,369	1.3%	22.3%	6.3%	8.9%
Hardeman	5,283	1.4%	19.7%	9.2%	13.9%	4,724	1.0%	22.0%	7.8%	12.4%
Hardin	41,320	1.2%	24.9%	5.0%	6.8%	48,073	1.4%	25.0%	5.1%	7.1%
Harris	2,818,199	1.5%	28.0%	2.8%	4.2%	3,400,578	1.7%	27.4%	3.1%	4.4%
Harrison	57,483	1.2%	23.9%	5.4%	8.2%	62,110	1.3%	25.2%	5.3%	7.8%
Hartley	3,634	1.1%	23.1%	6.3%	9.4%	5,537	1.3%	16.8%	4.6%	7.3%
Haskell	6,820	1.1%	18.6%	9.9%	14.8%	6,093	0.9%	20.0%	10.4%	15.1%
Hays	65,614	1.1%	31.1%	3.4%	4.6%	97,589	1.2%	29.6%	3.3%	4.4%
Hemphill	3,720	1.0%	23.3%	5.3%	7.9%	3,351	1.6%	22.5%	6.0%	8.7%
Henderson	58,543	1.1%	21.5%	8.6%	10.7%	73,277	1.3%	21.9%	8.1%	10.1%
Hidalgo	383,545	1.6%	25.9%	4.6%	5.5%	569,463	2.1%	25.6%	4.4%	5.3%
Hill	27,146	1.1%	21.0%	8.4%	12.5%	32,321	1.4%	22.1%	7.3%	10.0%
Hockley	24,199	1.5%	24.7%	4.4%	6.3%	22,716	1.5%	24.9%	5.2%	7.4%
Hood	28,981	1.1%	22.7%	7.4%	8.7%	41,100	1.1%	21.7%	8.2%	9.7%
Hopkins	28,833	1.1%	23.6%	6.5%	9.7%	31,960	1.3%	23.1%	6.1%	9.0%
Houston	21,375	1.0%	22.8%	7.9%	11.3%	23,185	1.1%	19.5%	7.6%	10.4%
Howard	32,343	1.3%	22.4%	5.9%	8.5%	33,627	1.2%	20.8%	6.1%	8.5%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Hudspeth	2,915	1.0%	23.1%	4.7%	5.3%	3,344	1.3%	24.5%	4.6%	5.3%
Hunt	64,343	1.3%	24.5%	5.6%	8.4%	76,596	1.3%	24.5%	5.4%	7.2%
Hutchinson	25,689	1.3%	22.6%	6.6%	8.4%	23,857	1.4%	23.8%	6.9%	8.7%
Irion	1,629	0.9%	24.1%	6.1%	7.1%	1,771	0.8%	21.9%	7.7%	7.9%
Jack	6,981	1.2%	21.3%	7.9%	10.9%	8,763	1.0%	19.4%	6.5%	8.7%
Jackson	13,039	1.2%	21.9%	7.2%	10.0%	14,391	1.4%	23.3%	6.7%	9.2%
Jasper	31,102	1.1%	22.4%	6.7%	9.5%	35,604	1.3%	23.2%	6.6%	8.8%
Jeff Davis	1,946	1.1%	20.6%	8.9%	10.0%	2,207	0.8%	22.0%	8.3%	7.9%
Jefferson	239,397	1.3%	23.7%	5.6%	8.5%	252,051	1.3%	24.0%	5.5%	8.1%
Jim Hogg	5,109	1.4%	22.5%	6.1%	7.5%	5,281	1.2%	21.8%	6.2%	8.5%
Jim Wells	37,679	1.4%	24.1%	5.0%	6.6%	39,326	1.6%	24.2%	5.3%	7.1%
Johnson	97,165	1.3%	26.0%	4.1%	6.3%	126,811	1.4%	25.3%	4.3%	5.7%
Jones	16,490	1.2%	21.6%	7.5%	11.4%	20,785	1.1%	17.3%	6.0%	7.9%
Karnes	12,455	1.6%	21.2%	7.4%	10.4%	15,446	1.1%	17.6%	6.1%	8.3%
Kaufman	52,220	1.2%	24.8%	4.6%	7.3%	71,313	1.4%	25.1%	4.4%	6.3%
Kendall	14,589	1.3%	24.1%	6.7%	9.4%	23,743	1.3%	23.2%	6.0%	7.8%
Kenedy	460	1.1%	22.4%	4.6%	4.3%	414	2.2%	21.7%	5.1%	5.6%
Kent	1,010	0.8%	19.3%	9.1%	12.4%	859	0.6%	17.5%	10.7%	14.8%
Kerr	36,304	1.0%	20.6%	10.6%	14.1%	43,653	1.1%	20.0%	11.0%	13.9%
Kimble	4,122	1.1%	20.1%	9.8%	11.5%	4,468	1.2%	20.4%	9.0%	11.9%
King	354	1.4%	26.8%	2.8%	3.4%	356	0.8%	24.2%	7.0%	3.4%
Kinney	3,119	0.9%	18.8%	10.5%	11.6%	3,379	1.2%	18.3%	12.3%	12.0%
Kleberg	30,274	1.4%	26.5%	3.9%	5.9%	31,549	1.7%	25.8%	4.4%	6.1%
Knox	4,837	1.3%	18.5%	9.1%	13.1%	4,253	1.2%	19.5%	9.6%	13.0%
Lamar	43,949	1.2%	23.3%	6.8%	10.6%	48,499	1.4%	23.8%	6.2%	9.4%
Lamb	15,072	1.2%	20.9%	7.4%	10.4%	14,709	1.5%	22.3%	7.2%	10.1%
Lampasas	13,521	1.3%	23.0%	6.2%	9.5%	17,762	1.3%	23.5%	6.1%	8.4%
La Salle	5,254	1.4%	23.3%	6.0%	7.4%	5,866	1.8%	21.0%	4.9%	6.7%
Lavaca	18,690	1.1%	20.4%	9.5%	14.1%	19,210	1.1%	20.9%	8.8%	13.0%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Lee	12,854	1.1%	22.6%	6.8%	9.1%	15,657	1.3%	23.0%	6.2%	8.1%
Leon	12,665	1.1%	20.4%	8.5%	11.3%	15,335	1.0%	20.8%	9.1%	11.0%
Liberty	52,726	1.3%	24.5%	4.9%	6.8%	70,154	1.4%	26.8%	4.4%	5.9%
Limestone	20,946	1.1%	22.0%	7.2%	11.8%	22,051	1.3%	21.5%	6.9%	9.5%
Lipscomb	3,143	1.0%	22.1%	7.3%	9.0%	3,057	1.1%	21.3%	7.4%	11.0%
Live Oak	9,556	1.2%	21.7%	7.1%	9.2%	12,309	1.1%	18.9%	7.4%	8.6%
Llano	11,631	0.8%	15.4%	15.1%	19.0%	17,044	0.8%	16.1%	14.2%	16.4%
Loving	107	0.0%	22.4%	6.5%	6.5%	67	3.0%	19.4%	9.0%	7.5%
Lubbock	222,636	1.3%	27.8%	4.0%	5.9%	242,628	1.5%	27.5%	4.5%	6.5%
Lynn	6,758	1.5%	21.7%	6.8%	8.6%	6,550	1.3%	22.3%	6.2%	7.8%
McCulloch	8,778	1.3%	20.5%	8.9%	13.3%	8,205	1.4%	20.7%	7.8%	11.8%
McLennan	189,123	1.2%	25.3%	5.3%	8.2%	213,517	1.5%	26.3%	5.1%	7.8%
McMullen	817	1.1%	20.7%	6.5%	8.4%	851	0.7%	21.2%	9.0%	8.8%
Madison	10,931	0.9%	25.8%	6.0%	9.9%	12,940	1.1%	17.1%	5.8%	8.1%
Marion	9,984	1.1%	20.4%	8.4%	11.3%	10,941	1.0%	21.1%	8.7%	10.5%
Martin	4,956	1.8%	22.9%	4.8%	6.9%	4,746	1.6%	23.2%	6.0%	7.3%
Mason	3,423	1.0%	19.3%	9.7%	14.8%	3,738	0.9%	18.9%	9.8%	13.7%
Matagorda	36,928	1.4%	23.6%	4.9%	6.7%	37,957	1.5%	23.9%	5.2%	7.2%
Maverick	36,378	1.7%	26.1%	3.9%	4.6%	47,297	1.9%	25.0%	4.2%	5.4%
Medina	27,312	1.2%	23.5%	6.3%	7.7%	39,304	1.5%	23.1%	5.7%	6.7%
Menard	2,252	0.9%	19.4%	10.3%	13.4%	2,360	0.8%	20.5%	10.1%	11.8%
Midland	106,611	1.5%	25.9%	3.7%	5.2%	116,009	1.5%	25.9%	4.9%	6.7%
Milam	22,946	1.2%	21.4%	7.6%	11.1%	24,238	1.4%	22.1%	7.2%	10.0%
Mills	4,531	0.7%	18.9%	11.4%	15.3%	5,151	1.1%	17.9%	10.4%	12.7%
Mitchell	8,016	1.2%	20.3%	8.4%	12.5%	9,698	0.9%	16.1%	6.4%	8.7%
Montague	17,274	1.1%	20.7%	8.7%	13.2%	19,117	1.2%	20.9%	8.3%	11.5%
Montgomery	182,201	1.3%	26.8%	3.6%	5.1%	293,768	1.5%	25.8%	3.7%	5.0%
Moore	17,865	1.9%	24.2%	4.1%	5.8%	20,121	1.8%	24.6%	4.5%	6.1%
Morris	13,200	1.1%	21.9%	6.5%	10.4%	13,048	1.2%	22.6%	7.7%	10.6%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Motley	1,532	0.8%	18.7%	10.5%	15.7%	1,426	0.9%	18.4%	10.0%	13.7%
Nacogdoches	54,753	1.1%	28.6%	4.6%	7.2%	59,203	1.3%	28.3%	5.0%	7.1%
Navarro	39,926	1.3%	23.1%	6.6%	10.6%	45,124	1.3%	23.6%	5.6%	8.7%
Newton	13,569	1.3%	23.1%	5.9%	7.5%	15,072	1.2%	22.7%	6.4%	7.7%
Nolan	16,594	1.2%	22.9%	6.5%	10.1%	15,802	1.3%	22.7%	6.8%	9.6%
Nueces	291,145	1.4%	26.1%	4.2%	5.9%	313,645	1.6%	25.9%	4.6%	6.5%
Ochiltree	9,128	1.4%	24.1%	4.7%	6.2%	9,006	1.6%	24.3%	4.8%	6.8%
Oldham	2,278	1.0%	20.2%	4.7%	5.8%	2,185	1.1%	22.6%	4.9%	6.4%
Orange	80,509	1.2%	25.0%	4.5%	6.3%	84,966	1.2%	24.8%	5.4%	7.3%
Palo Pinto	25,055	1.2%	22.8%	7.0%	10.1%	27,026	1.3%	22.4%	7.0%	9.4%
Panola	22,035	1.2%	22.9%	6.1%	9.7%	22,756	1.3%	24.0%	6.1%	9.7%
Parker	64,785	1.2%	25.5%	4.7%	6.3%	88,495	1.1%	24.3%	4.7%	5.9%
Parmer	9,863	1.6%	22.8%	4.9%	7.5%	10,016	1.4%	23.3%	5.2%	7.5%
Pecos	14,675	1.4%	23.9%	4.3%	5.5%	16,809	1.3%	21.6%	5.1%	5.7%
Polk	30,687	1.1%	20.3%	9.3%	11.2%	41,133	1.1%	19.7%	8.1%	9.8%
Potter	97,874	1.6%	24.7%	5.0%	8.1%	113,546	1.6%	24.5%	4.6%	7.1%
Presidio	6,637	1.6%	23.4%	6.2%	7.7%	7,304	1.4%	23.6%	6.7%	7.2%
Rains	6,715	1.0%	21.2%	7.7%	10.4%	9,139	0.9%	21.4%	7.2%	8.9%
Randall	89,673	1.2%	27.4%	4.1%	5.9%	104,312	1.3%	26.5%	5.1%	6.8%
Reagan	4,514	1.7%	24.7%	3.2%	4.3%	3,326	1.6%	24.5%	4.7%	5.6%
Real	2,412	0.8%	21.3%	8.9%	11.6%	3,047	0.8%	18.8%	9.7%	11.1%
Red River	14,317	1.0%	20.7%	8.5%	13.3%	14,314	1.2%	21.9%	8.2%	11.5%
Reeves	15,852	1.7%	22.7%	4.6%	5.7%	13,137	1.4%	21.5%	5.9%	6.7%
Refugio	7,976	1.2%	22.9%	6.8%	9.4%	7,828	1.3%	22.3%	7.0%	9.7%
Roberts	1,025	1.3%	24.2%	4.4%	7.0%	887	1.0%	22.0%	6.7%	7.8%
Robertson	15,511	1.6%	20.5%	7.4%	11.0%	16,000	1.4%	22.0%	7.0%	10.0%
Rockwall	25,604	1.1%	27.1%	3.1%	4.6%	43,080	1.4%	25.6%	3.6%	5.0%
Runnels	11,294	1.0%	20.6%	8.1%	12.6%	11,495	1.3%	21.4%	7.8%	11.8%
Rusk	43,735	1.2%	22.6%	6.7%	10.5%	47,372	1.2%	22.2%	6.5%	9.1%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Sabine	9,586	0.9%	18.4%	11.9%	13.5%	10,469	0.9%	18.6%	11.9%	13.0%
San Augustine	7,999	1.0%	19.1%	9.5%	12.9%	8,946	1.1%	20.8%	8.9%	12.4%
San Jacinto	16,372	1.1%	21.8%	7.3%	8.3%	22,246	1.1%	21.8%	7.6%	8.4%
San Patricio	58,749	1.4%	24.8%	4.5%	5.9%	67,138	1.6%	24.4%	4.6%	5.9%
San Saba	5,401	0.9%	19.9%	9.4%	13.7%	6,186	1.1%	18.8%	8.5%	11.8%
Schleicher	2,990	0.9%	21.4%	6.4%	9.1%	2,935	1.0%	22.6%	7.4%	9.1%
Scurry	18,634	1.2%	23.7%	5.4%	7.9%	16,361	1.1%	21.6%	6.4%	9.1%
Shackelford	3,316	1.2%	21.0%	7.9%	12.6%	3,302	0.9%	22.1%	7.1%	11.1%
Shelby	22,034	1.2%	21.3%	7.5%	11.8%	25,224	1.5%	22.8%	6.6%	10.0%
Sherman	2,858	1.4%	22.5%	5.8%	7.8%	3,186	1.2%	22.3%	5.8%	7.8%
Smith	151,309	1.2%	24.9%	5.6%	8.2%	174,706	1.4%	25.0%	5.8%	8.3%
Somervell	5,360	1.5%	24.1%	4.8%	7.2%	6,809	1.2%	23.9%	5.5%	7.8%
Starr	40,518	1.8%	25.9%	3.3%	3.8%	53,597	2.1%	25.5%	3.6%	4.6%
Stephens	9,010	1.0%	21.1%	7.8%	11.4%	9,674	1.1%	21.3%	7.5%	10.2%
Sterling	1,438	1.0%	22.7%	5.0%	7.3%	1,393	0.9%	25.1%	6.4%	8.3%
Stonewall	2,013	1.9%	20.3%	8.3%	12.4%	1,693	1.0%	19.9%	10.0%	14.0%
Sutton	4,135	1.3%	24.9%	4.2%	6.2%	4,077	1.6%	23.8%	5.4%	7.0%
Swisher	8,133	1.4%	20.7%	7.1%	9.6%	8,378	1.5%	20.3%	7.1%	8.8%
Tarrant	1,170,103	1.5%	28.1%	3.2%	5.1%	1,446,219	1.6%	27.2%	3.4%	5.0%
Taylor	119,655	1.4%	26.0%	4.6%	7.4%	126,555	1.5%	26.4%	4.9%	7.5%
Terrell	1,410	1.1%	19.9%	6.2%	7.9%	1,081	0.6%	20.3%	8.6%	9.0%
Terry	13,218	1.5%	22.4%	5.6%	8.0%	12,761	1.7%	21.1%	6.1%	8.5%
Throckmorton	1,880	1.1%	19.7%	9.0%	13.5%	1,850	1.2%	19.3%	8.6%	11.9%
Titus	24,009	1.6%	22.9%	6.0%	9.5%	28,118	1.6%	23.8%	5.0%	7.5%
Tom Green	98,458	1.3%	25.9%	5.0%	7.7%	104,010	1.4%	26.0%	5.5%	8.0%
Travis	576,407	1.4%	30.7%	2.9%	4.4%	812,280	1.6%	29.3%	2.8%	4.0%
Trinity	11,445	1.1%	19.4%	9.7%	12.2%	13,779	1.1%	20.4%	10.1%	11.9%
Tyler	16,646	1.0%	20.7%	9.0%	11.2%	20,871	1.2%	20.0%	8.1%	9.7%
Upshur	31,370	1.2%	23.4%	5.8%	8.8%	35,291	1.3%	23.7%	6.0%	8.3%

Appendix E. Continued

Counties	1990 Population	Under One[a]	Women 15-49	Men 65+	Women 65+	2000 Population	Under One[a]	Women 15-49	Men 65+	Women 65+
Upton	4,447	1.3%	23.3%	3.7%	5.8%	3,404	1.1%	23.4%	6.1%	8.0%
Uvalde	23,340	1.5%	24.6%	5.3%	7.2%	25,926	1.8%	23.6%	5.9%	7.7%
Val Verde	38,721	1.8%	25.4%	4.3%	5.4%	44,856	1.8%	24.3%	4.9%	6.1%
Van Zandt	37,944	1.1%	21.9%	7.5%	10.4%	48,140	1.2%	21.9%	7.3%	9.7%
Victoria	74,361	1.5%	25.6%	4.5%	6.4%	84,088	1.5%	25.1%	5.0%	7.0%
Walker	50,917	0.9%	30.8%	3.8%	5.0%	61,758	1.0%	22.5%	4.0%	5.0%
Waller	23,390	1.2%	26.4%	4.6%	6.3%	32,663	1.4%	27.7%	4.0%	5.4%
Ward	13,115	1.4%	23.7%	4.5%	6.6%	10,909	1.3%	23.2%	6.5%	7.8%
Washington	26,154	1.1%	23.4%	6.9%	10.4%	30,373	1.2%	23.8%	6.9%	10.0%
Webb	133,239	1.9%	26.8%	3.1%	4.7%	193,117	2.2%	26.5%	3.0%	4.6%
Wharton	39,955	1.4%	22.8%	5.8%	8.7%	41,188	1.5%	23.9%	5.6%	8.3%
Wheeler	5,879	1.1%	20.6%	8.4%	13.4%	5,284	1.1%	21.0%	8.5%	12.4%
Wichita	122,378	1.3%	25.0%	4.9%	7.9%	131,664	1.4%	24.5%	5.1%	7.6%
Wilbarger	15,121	1.2%	22.4%	7.2%	11.5%	14,676	1.3%	22.5%	6.3%	9.9%
Willacy	17,705	1.4%	24.3%	5.1%	6.1%	20,082	1.5%	23.1%	5.1%	6.5%
Williamson	139,551	1.5%	28.6%	3.0%	4.6%	249,967	1.7%	27.5%	3.1%	4.3%
Wilson	22,650	1.3%	24.0%	5.5%	7.1%	32,408	1.3%	24.5%	5.1%	6.3%
Winkler	8,626	1.6%	22.6%	5.6%	7.2%	7,173	1.3%	23.9%	6.3%	8.0%
Wise	34,679	1.2%	24.4%	5.2%	7.3%	48,793	1.4%	24.4%	4.7%	5.9%
Wood	29,380	0.9%	20.9%	8.7%	12.3%	36,752	1.0%	20.2%	9.2%	11.7%
Yoakum	8,786	1.5%	24.3%	3.8%	4.9%	7,322	1.6%	25.1%	5.0%	6.5%
Young	18,126	1.2%	22.2%	7.3%	11.0%	17,943	1.1%	21.9%	7.9%	11.7%
Zapata	9,279	1.7%	22.5%	7.2%	7.8%	12,182	1.8%	22.8%	6.8%	7.5%
Zavala	12,162	1.8%	25.3%	4.7%	6.0%	11,600	1.9%	22.9%	4.6%	6.7%
Total	16,986,510					20,851,820				

Source: U.S. Department of Commerce (1990, 2000).

Appendix F
Toxicity Values and Weights of TRI Chemicals Reported in Air Emissions by Texas Industries, 1988 to 1998[a]

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
1,1,1,2-tetrachloroethane	630-20-6	--	--	--	10
1,1,1-trichloroethane	71-55-6	--	1900	1910	--
1,1,2,2-tetrachloroethane	79-34-5	7	35	6.9	100
1,1,2-trichloroethane	79-00-5	45	45	55	100
1,1-dichloro-1-fluoroethane	1717-00-6	--	--	--	--
1,2,3-trichloropropane	96-18-4	60[b]	300	60[b]	100
1,2,4-trichlorobenzene	120-82-1	40	--	--	100
1,2,4-trimethylbenzene	95-63-6	125	--	--	1,000
1,2-butylene oxide	106-88-7	--	--	--	100
1,2-dibromoethane	106-93-4	.34[c]	153[c]	--	10,000
1,2-dichlorobenzene	95-50-1	300	301	150	10
1,2-dichloroethane	107-06-2	400	161[c]	40	1,000
1,2-dichloroethylene	540-59-0	790	790	793	100
1,2-dichloropropane	78-87-5	--	350	347	1,000
1,3-butadiene	106-99-0	.42[c]	2.21	4.4	10,000
1,3-dichloro-1,1,2,2, 3-pentafluoropropane	507-55-1	--	--	--	--
1,3-dichlorobenzene	541-73-1	--	--	--	10
1,3-dichloropropylene	542-75-6	--	--	--	100
1,3-phenylenediamine	108-45-2	--	--	.01	100
1,4-dichloro-2-butene	764-41-0	--	--	.025[b]	100,000
1,4-dichlorobenzene	106-46-7	10[c]	450	60	10
1,4-dioxane	123-91-1	--	360[b]	72[b]	100
1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	4080-31-3	--	--	--	--
1-chloro-1,1,2,2-tetrafluoroethane	354-25-6	--	--	--	--
1-chloro-1,1-difluoroethane	75-68-3	--	--	--	1
2,2-dichloro-1,1,1-trifluoroethane	306-83-2	--	--	--	--
2,3-dichloropropene	78-88-6	--	--	--	--
2,4,5-trichlorophenol[d]	95-95-4	--	--	--	10
2,4-d	94-75-7	10	10	10	100
2,4-diaminotoluene	95-80-7	--	--	--	10,000
2,4-dichlorophenol	120-83-2	--	--	--	1,000
2,4-dimethylphenol	105-67-9	--	--	--	100
2,4-dinitrophenol	51-28-5	--	--	--	1,000
2,4-dinitrotoluene	121-14-2	1.5[b]	--	--	1,000

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
2,6-dimethylphenol	1300-71-6	--	--	--	--
2,6-dinitrotoluene	606-20-2	--	--	--	10,000
2-chloro-1,1,1,2-tetrafluoroethane	2837-89-0	--	--	--	--
2-chloro-1,1,1-trifluoroethane	75-88-7	--	--	--	--
2-chloroacetophenone	532-27-4	.3	.3	.32	100,000
2-ethoxyethanol	110-80-5	1.8[b]	740[b]	18[b]	10
2-methoxyethanol	109-86-4	.3[b]	80[b]	16[b]	100
2-methyllactonitrile	75-86-5	--	--	--	--
2-methylpyridine	109-06-8	--	--	--	--
2-nitrophenol[d]	88-75-5	--	--	--	--
2-nitropropane	79-46-9	90	36	--	100
3,3-dichloro-1,1,1,2, 2-pentafluoropropane	422-56-0	--	--	--	--
3-iodo-2-propynyl butylcarbamate	55406-53-6	--	--	--	--
4,4'-diaminodiphenyl ether	101-80-4	--	--	--	1,000
4,4'-isopropylidenediphenol	80-05-7	--	--	--	--
4,4'-methylenebis(2-chloroaniline)	101-14-4	.003[b]	--	.11[b]	1,000
4,4'-methylenebis(n,n-dimethyl) benzenamine	101-61-1	--	--	--	100
4,4'-methylene dianiline	101-77-9	.3	.08[c]	.81[b]	--
4,6-dinitro-o-cresol	534-52-1	.2[b]	.2[b]	.2[b]	10,000
acephate	30560-19-1	--	--	--	1,000
acetaldehyde	75-07-0	--	360	--	1,000
acetamide	60-35-5	--	--	--	--
acetone	67-64-1	590	2400	--	--
acetonitrile	75-05-8	34	70	--	100
acetophenone	98-86-2	--	--	--	10
acifluorfen, sodium salt[d]	62476-59-9	--	--	--	100
acrolein	107-02-8	.25	0.25	--	100,000
acrylamide	79-06-1	.03	0.3	.03	10,000
acrylic acid	79-10-7	6[b]	--	5.9	10,000
acrylonitrile	107-13-1	--	--	4.3	1,000
aldicarb	116-06-3	--	--	--	1,000
aldrin	309-00-2	.25[b]	.25[b]	.25[b]	100,000
allyl alcohol	107-18-6	5	5	1.19	1,000
allyl chloride	107-05-1	3	3	3	10,000
aluminum (fume or dust)	7429-90-5	5	5	10	100,000

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
aluminum oxide (fibrous forms)	1344-28-1	--	5	--	--
ammonia	7664-41-7	18	35	17	100
ammonium nitrate (solution)	6484-52-2	--	--	--	--
ammonium sulfate (solution)	7783-20-2	--	--	--	--
aniline	62-53-3	--	19 [b]	7.6	10,000
anthracene	120-12-7	--	--	--	10
antimony	7440-36-0	.5	.5	.5	10,000
antimony compounds	n01-0	.5	.5	.5	10,000
arsenic	7440-38-2	--	.01	.01	100,000
arsenic compounds	n020	--	--	.01	100,000
asbestos (friable)	1332-21-4	.1	.1	.1	1,000
atrazine	1912-24-9	5	--	5	100
barium	7440-39-3	.5	.5	.5	10
barium compounds[e]	n040	--	--	--	10
bendiocarb	22781-23-3	--	--	--	--
benomyl	17804-35-2	--	5	10	100
benzene	71-43-2	.32	3	1.6[b]	100
benzidine	92-87-5	--	--	--	1,000,000
benzoyl chloride	98-88-4	--	--	--	--
benzoyl peroxide	94-36-0	5	5	5	--
benzyl chloride	100-44-7	--	5	5.2	1,000
beryllium	7440-41-7	--	.002	.002	100,000
beryllium compounds[e]	n05-0	--	.002	.002	100,000
bifenthrin	82657-04-3	--	--	--	100
biphenyl	92-52-4	1	1	1.3	100
bis(2-chloro-1-methylethyl) ether	108-60-1	--	--	--	--
bis(2-chloroethyl) ether	111-44-4	30	--	29	10,000
bis(2-ethylhexyl) adipate	103-23-1	--	--	--	--
boron trifluoride	7637-07-2	--	--	--	--
bromacil	31-44-09	10	--	10	--
bromine	7726-95-6	.7	.7	.66	--
bromochlorodifluoromethane	353-59-3	--	--	--	--
bromomethane	74-83-9	--	--	--	1,000
bromotrifluoromethane	75-63-8	6100	6100	6090	--
brucine[d]	357-57-3	--	--	--	--
butyl acrylate	141-32-2	55	--	11	10
butyl benzyl phthalate	85-68-7	--	--	--	--
butyraldehyde	123-72-8	--	--	--	--

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
cadmium	7440-43-9	--	.005	.01	100,000
cadmium compounds	n078	--	.005	.01	100,000
captan	133-06-2	5	--	5	10
carbaryl	63-25-2	5	5	5	10
carbon disulfide	75-15-0	3[b]	62[c]	31[b]	10
carbon tetrachloride	56-23-5	--	63[c]	31[b]	1,000
carbonyl sulfide	463-58-1	--	--	--	100
catechol	120-80-9	20	--	23[b]	100
certain glycol ethers[e]	n230	--	--	--	--
chlordane	57-74-9	.5[b]	.5[b]	.5[b]	10,000
chlorine	7782-50-5	--	--	1.5	--
chlorine dioxide	10049-04-4	.3	0.3	.28	10,000
chloroacetic acid	79-11-8	--	--	--	1,000
chlorobenzene	108-90-7	--	350	46	100
chlorodifluoromethane	75-45-6	3500	--	3540	--
chloroethane	75-00-3	--	2600	264	1
chloroform	67-66-3	--	--	49	1,000
chloromethane	74-87-3	--	--	--	10
chlorophenols	n084	--	--	--	--
chloroprene	126-99-8	--	90[b]	36[b]	--
chlorothalonil	1897-45-6	--	--	--	100
chlorotrifluoromethane	75-72-9	--	--	--	--
chromium	7440-47-3	--	--	--	--
chromium compounds[e]	n090	--	--	--	--
cobalt	7440-48-4	.05	.1	.02	100,000
cobalt compounds[e]	n096	--	--	--	100,000
copper	7440-50-8	1	1	1	1
copper compounds[e]	n100	--	--	--	--
creosote	8001-58-9	--	--	--	--
cresol (mixed isomers)	1319-77-3	10	22[b]	22[b]	--
crotonaldehyde	4170-30-3	6	6	--	--
cumene	98-82-8	245	245	246	100
cumene hydroperoxide	80-15-9	--	--	--	1,000
cupferron	135-20-6	--	--	--	1,000
cyanazine	21725-46-2	--	--	--	--
cyanide compounds[e]	n106	--	--	--	100
cyclohexane	110-82-7	1050	1050	344	1
cyclohexanol	108-93-0	200[b]	200	200[b]	--

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
decabromodiphenyl oxide	1163-19-5	--	--	--	100
di(2-ethylhexyl) phthalate	117-81-7	5	5	5	100
diaminotoluene (mixed isomers)	25376-45-8	--	--	--	100,000
diazinon	333-41-5	.1[b]	--	.1[b]	--
dibenzofuran	132-64-9	--	--	--	--
dibutyl phthalate	84-74-2	5	5	5	10
dicamba	1918-00-9	--	--	--	100
dichlorobenzene (mixed isomers)	25321-22-6	--	--	--	10
dichlorodifluoromethane	75-71-8	4950	4950	4950	--
dichloromethane	75-09-2	--	--	174	10
dichlorotetrafluoroethane (cfc-114)	76-14-2	7000	7000	6990	--
dichlorvos	62-73-7	1	1	.9	10,000
dicofol	115-32-2	--	--	--	--
dicyclopentadiene	77-73-6	30	--	27	--
diepoxybutane[d]	1464-53-5	--	--	--	--
diethanolamine	111-42-2	15	--	2[b]	100
diethyl phthalate	84-66-2	5	--	5	--
diethyl sulfate	64-67-5	--	--	--	10,000
dihydrosafrole	94-58-6	--	--	--	--
dimethoate	60-51-5	--	--	--	10,000
diisocyanates[e]	n120	--	--	--	--
dimethyl chlorothiophosphate	2524-03-0	--	--	--	--
dimethyl phthalate	131-11-3	--	--	--	--
dimethylamine	124-40-3	18	18	9.2	--
dinitrobutyl phenol	88-85-7	--	--	--	1,000
dinitrotoluene (mixed isomers)	25321-14-6	1.5[b]	1.5[b]	.2[b]	--
dinocap	39300-45-3	--	--	--	--
diphenylamine	122-39-4	10	--	10	100
dipotassium endothall	2164-07-0	--	--	--	--
epichlorohydrin	106-89-8	--	19	1.9	10,000
ethyl acrylate	140-88-5	--	100	20	100
ethyl chloroformate	541-41-3	--	--	--	--
ethylbenzene	100-41-4	435	435	434	--
ethylene	74-85-1	--	--	--	1
ethylene glycol	107-21-1	--	--	--	1
ethylene oxide	75-21-8	.18	--	1.8	10,000
ethyleneimine	151-56-4	--	--	.88[b]	--

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
ethylidene dichloride	75-34-3	--	--	--	--
famphur[d]	52-85-7	--	--	--	--
fenvalerate	51630-58-1	--	--	--	100
formaldehyde	50-00-0	--	--	--	100
formic acid	64-18-6	9	9	9.4	1
freon 113	76-13-1	--	--	--	1
hexachloro-1,3-butadiene	87-68-3	.24[b]	--	.21[b]	100
hexachlorobenzene	118-74-1	--	--	.002[b]	10,000
hexachlorocyclopentadiene	77-47-4	.1	--	.11	100
hexachloroethane	67-72-1	10[b]	10[b]	9.7[b]	10
hexazinone	51235-04-2	--	--	--	100
hydrazine	302-01-2	0.1	1.3	.013	100,000
hydrochloric acid	7647-01-0	--	--	--	100
hydrogen cyanide	74-90-8	--	11[b]	--	1,000
hydrogen fluoride	7664-39-3	2.5	--	--	--
hydroquinone	123-31-9	--	2	2	100
iron pentacarbonyl	13463-40-6	.8	--	.8	--
isobutyraldehyde	78-84-2	--	--	--	100,000
isopropyl alcohol	67-63-0	980	980	983	0
lead	7439-92-1	.1	.05	.05	100,000
lead compounds[e]	n420	--	--	--	100,000
lindane	58-89-9	.5[b]	.5[b]	.5[b]	10,000
lithium carbonate	554-13-2	--	--	--	--
m-cresol	108-39-4	--	--	--	100
m-dinitrobenzene[d]	99-65-0	--	--	--	10,000
m-xylene	108-38-3	.1	--	--	1
malathion	121-75-5	10[b]	15[b]	10[b]	100
maleic anhydride	108-31-6	1	1	.4	10
malononitrile	109-77-3	8	--	--	100,000
maneb	12427-38-2	--	--	--	1,000
manganese	7439-96-5	1	--	.2	100,000
manganese compounds[e]	n450	--	--	--	100,000
mercury	7439-97-6	--	--	.025	10,000
mercury compounds	----------	.05	--	--	10,000
methacrylonitrile	126-98-7	--	--	--	10,000
methanol	67-56-1	260	260	262	10
methoxychlor	72-43-5	--	15	10	1,000
methyl acrylate	96-33-3	35	35	7	100

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
methyl chlorocarbonate	79-22-1	--	--	--	--
methyl ethyl ketone	78-93-3	590	590	590	10
methyl iodide	74-88-4	10[b]	28[b]	12[b]	1,000
methyl isobutyl ketone	108-10-1	205	410	205	10
methyl isocyanate	624-83-9	.05	.05	.047	100,000
methyl methacrylate	80-62-6	410	410	205	10
methyl tert-butyl ether	1634-04-4	--	--	--	1
methylene bromide	74-95-3	--	--	--	100
methylenebis (phenylisocyanate)	103-71-9	--	--	--	--
molybdenum trioxide	1313-27-5	--	--	--	10,000
monochloropentafluoroethane	76-15-3	--	--	--	--
myclobutanil	88671-89-0	--	--	--	100
n,n-dimethylaniline	121-69-7	25	--	--	1,000
n,n-dimethylformamide	68-12-2	--	--	--	100
n-butyl alcohol	71-36-3	--	--	--	10
n-dioctyl phthalate	117-81-7	--	--	--	--
n-hexane	110-54-3	180	--	--	10
n-methyl-2-pyrrolidone	872-50-4	--	--	--	--
n-methylolacrylamide	924-42-5	--	--	--	--
n-nitrosodi-n-propylamine	621-64-7	--	--	--	100,000
n-nitrosodiphenylamine	86-30-6	--	--	--	10
naphthalene	91-20-3	--	--	--	--
nickel	7440-02-0	.015	1	1.5	--
nickel compounds[e]	n495	--	--	--	--
nitrate compounds[e]	n511	--	--	--	1
nitric acid	7697-37-2	5	5	5.2	100
nitrilotriacetic acid	139-13-9	--	--	--	100
nitrobenzene	98-95-3	5[b]	5[b]	5[b]	10,000
norflurazon	27314-13-2	--	--	--	100
o-anisidine	90-04-0	.5	.5	.5	10,000
o-cresol	95-48-7	10	22	22	100
o-dinitrobenzene[d]	528-29-0	1	1	1	10,000
o-toluidine	95-53-4	--	22	8.8	1,000
o-xylene	95-47-6	435	435	434	1
oxyfluorfen	42874-03-3	--	--	--	1,000
ozone	10028-15-6	--	.2	.4	--
p-cresol	106-44-5	10	22	22	1,000
p-phenylenediamine	106-50-3	.1	.1	.1	10

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
p-xylene	106-42-3	--	--	--	--
paraldehyde	123-63-7	--	--	--	--
parathion[d]	56-38-2	.05[b]	.1[b]	.1[b]	100
pentachloroethane	76-01-7	--	--	--	--
pentachlorophenol	87-86-5	.5[b]	.5[b]	.5[b]	1,000
permethrin	52645-53-1	--	--	--	100
oxyfluorfen	42874-03-3	--	--	--	1,000
phenanthrene	85-01-8	--	--	--	--
phenol	108-95-2	19[b]	19[b]	19[b]	1
phosgene	75-44-5	.4	.4	.4	--
phosphoric acid	7664-38-2	1	1	1	--
phosphorus (yellow or white)	7723-14-0	.1	.1	.1	100,000
phthalic anhydride	85-44-9	6	12	6.1	1
picloram	1918-02-1	--	5	10	10
piperonyl butoxide	51-03-6	--	--	--	--
polychlorinated alkanes[e]	n583	--	--	--	--
polychlorinated biphenyls	1336-36-3	--	--	--	1,000
polycyclic aromatic compounds	----------	--	--	--	--
potassium dimethyldithio-carbamate[d]	128-03-0	--	--	--	--
propargyl alcohol	107-19-7	2[b]	--	2.3[b]	1,000
propetamphos	31218-83-4	--	--	--	--
propionaldehyde	123-38-6	--	--	--	--
propoxur	114-26-1	.5	--	.5	1,000
propylene	115-07-1	--	--	344	1
propylene oxide	75-56-9	--	240	4.8	100
propyleneimine	75-55-8	5[b]	5[b]	4.7[b]	1,000,000
pyridine	110-86-1	15	15	16	1,000
quinoline	91-22-5	--	--	--	10,000
quinone	106-51-4	.4	.4	.44	--
quintozene	82-68-8	--	--	--	1,000
resmethrin	10453-86-8	--	--	--	100
safrole	94-59-7	--	--	--	--
sec-butyl alcohol	78-92-2	--	--	--	--
selenium	7782-49-2	.2	.2	.2	1,000
selenium compounds[e]	n725	.2	.2	.2	1,000
sethoxydim	74051-80-2	--	--	--	10
silver	7440-22-4	.01	.01	.1	1,000

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
silver compounds[e]	n740	.10	.01	.01	1,000
sodium dicamba	1982-69-0	--	--	--	--
sodium dimethydithiocarbamate[d]	128-04-1	--	--	--	--
sodium hydroxide (solution)	1310-73-2	--	2	--	--
sodium nitrite	7632-00-0	--	--	--	--
styrene	100-42-5	215	425[c]	85	10
styrene oxide	96-09-3	--	--	--	--
sulfuric acid	7664-93-9	1	1	1	10,000
tebuthiuron	34014-18-1	--	--	--	10
terephthalic acid	100-21-0	--	--	10	--
tert-butyl alcohol	75-65-0	--	--	--	--
tetrachloroethylene	127-18-4	--	677[c]	170	100
thallium	7440-28-0	.1[b]	.1[b]	.1[b]	--
thallium compounds[e]	n760	.1[b]	.1[b]	.1[b]	--
thiabendazole	148-79-8	--	--	--	--
thiophanate-methyl	23564-05-8	--	--	--	10
thiourea	62-56-6	--	--	--	10,000
thiram	137-26-8	5	5	1	1,000
thorium dioxide[d]	1314-20-1	--	--	--	10,000
titanium tetrachloride	7550-45-0	--	--	--	100,000
toluene	108-88-3	375	752[c]	188[b]	10
toluene diisocyanate - (mixed isomers)	26471-62-5	--	--	.036	100,000
toluene-2,4-diisocyanate	584-84-9	--	--	.036	100,000
toluene-2,6-diisocyanate	91-08-7	--	--	.036	100,000
trans-1,4-dichloro-2-butene	110-57-6	--	--	--	--
tributyltin methacrylate	2155-70-6	--	--	--	--
trichlorfon	52-68-6	--	--	--	--
trichloroethylene	79-01-6	--	535[c]	269	--
trichlorofluoromethane	75-69-4	--	5600	--	--
triethylamine	121-44-8	--	100	4.1[b]	1,000
trifluralin	1582-09-8	--	--	--	100
urethane	51-79-6	--	--	--	--
vanadium (fume or dust)	7440-62-2	.05	--	--	100
vinclozolin	50471-44-8	--	--	--	100
vinyl acetate	108-05-4	--	--	35	10
vinyl chloride	75-01-4	--	--	2.6	10,000
vinylidene chloride	75-35-4	--	--	40	100

Appendix F. Continued

Chemical Name	CAS Number	NIOSH REL	OSHA PEL	ACGIH TLV	EPA Toxicity Weight
xylene (mixed isomers)	1330-20-7	435	435	434	1
zinc (fume or dust)	7440-66-6	--	--	--	10
zinc compounds[e]	n982	--	--	--	--

Sources: American Conference of Governmental Industrial Hygienists 2001; Beim et al. 1998; and Bouwes and Hassur 1997.

a. CAS = Chemical Abstract Service; NIOSH = National Institute of Occupational Health; OSHA= Occupational Safety and Health Administration; ACGIH = American Conference of Governmental Industrial Hygienists; EPA = Environmental Protection Agency; REL = Recommended Exposure Limit; PEL = Permissible Exposure Limit; and TLV = Threshold Limit Value. RELs, PELs, and TLVs are time-weighted averages (TWAs) expressed as mg/m^3. Blank spaces indicate no toxicity information is available.

b. Value reported for skin exposure.

c. Converted from parts per million (ppm) to milligrams per cubic meter (mg/m^3).

d. Chemical was reported to be in air emissions, but no volume was stated by TRI/Explorer.

e. Number with an 'n' prefix that is reported under the CAS column was assigned by the Environmental Protection Agency.

Appendix G
Annual Relative Weighted Toxicities of TRI Reported Air Emissions in Texas Counties, 1988 to 1998[a]

County Name[b]		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Anderson	R	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2	0	0	0	2/ 3	2/ 2	2/ 3			
	T	1.0000	1.0000	1.0000	.9999	.9999	N/A	N/A	N/A	.0100	.0100	.0100	5.0298	8	.6287
Andrews	R	0	2/ 4	1/ 2	1/ 2	1/ 1	1/ 2	1/ 1	0	1/ 1	1/ 1	9/ 12			
	T	N/A	N/A	N/A	N/A	N/A	N/A	.1000	N/A	.1000	.1000	.0980	.8984	9	.0965
Angelina	R	10/ 18	10/ 17	11/ 17	13/ 21	14/ 23	15/ 23	14/ 22	14/ 19	17/ 25	18/ 28	18/ 27			
	T	.0612	.0610	.0715	.0809	.0454	.0400	.0609	.0826	.1185	.1684	.1552	.9456	11	.0860
Aransas	R	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3			
	T	.0619	.0619	.0618	.0696	.0636	.0626	.0627	.0627	.0768	.0758	.0747	.7341	11	.0667
Atascosa	R	0	0	0	0	0	0	0	0	0	0	6 / 9			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A.	.0183	.0183	1	.0183
Austin	R	1/ 1	1/ 1	2/ 2	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	2/ 3	0	1/ 2			
	T	.1000	.1000	.0500	.1000	.1000	.1000	.1000	.1000	.0104	N/A	.0031	.7635	10	.0764
Bastrop	R	2/ 3	2/ 3	2/ 3	2/ 3	2/ 3	2/ 3	2/ 3	2/ 3	3/ 5	0	0/ 1			
	T	.0400	.0333	.0333	.0571	.0403	.0250	.0250	.0333	.0040	N/A	N/A	.2913	9	.0324
Bee	R	0	0	0	0	0	0	0	0	0	2/ 2	2/ 2			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.8609	.8409	1.7018	2	.8509
Bell	R	12/ 16	14/ 19	14/ 23	17/ 27	15/ 25	16/ 26	15/ 22	19/ 24	16/ 21	15/ 18	15/ 18			
	T	.0829	.1159	.0981	.1114	.0544	.1434	.1302	.1208	.1086	.1065	.1020	1.1743	11	.1068
Bexar	R	30/ 39	36/ 49	33/ 45	33/ 47	24/ 34	25/ 35	29/ 41	23/ 33	25/ 37	19/ 29	28/ 42			
	T	.2337	.3068	.2248	.2433	.2021	.2170	.1890	.1502	.1532	.1846	.1350	2.2397	11	.2036
Bowie	R	11/ 19	10/ 16	9/ 14	4/ 9	8/ 14	7/ 10	11/ 16	11/ 15	8/ 11	7/ 10	11/ 14			
	T	.2031	.4127	.2685	.2242	.2638	.1939	.1232	.1107	.1372	.1932	.1868	2.3173	11	.2107

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Brazoria	R	82/109	82/108	79/105	78/106	80/109	79/106	79/108	85/117	83/116	83/116	87/121			
	T	.3938	.4586	.4585	.4396	.4279	.4044	.4593	.4884	.4800	.4336	.3973	4.8414	11	.4402
Brazos	R	8/ 13	9/ 13	9/ 12	9/ 14	8/ 10	9/ 11	5/ 6	3/ 3	3/ 3	3/ 3	3/ 3			
	T	.2378	.3433	.4132	.3290	.4746	.5430	.6102	.5371	.5366	.7205	.6809	5.4262	11	.4933
Brown	R	13/ 16	14/ 19	15/ 18	13/ 18	11/ 15	11/ 15	9/ 12	10/ 14	11/ 15	13/ 17	12/ 16			
	T	.5057	.3840	.4198	.3711	.3616	.4336	.4521	.4547	.4374	.4212	.3776	4.6188	11	.4199
Burleson	R	6/ 7	5/ 7	5/ 8	5/ 8	4/ 7	4/ 7	5/ 7	2/ 4	3/ 5	2/ 4	0/ 2			
	T	.3796	.3718	.3513	.2536	.3542	.3547	.6119	.0000	.0068	.0000	N/A	2.6839	10	.2684
Burnet	R	0	0	3/ 5	2/ 4	2/ 3	2/ 3	1/ 3	1/ 3	0	0	0			
	T	N/A	N/A	.0999	.0994	.0995	.0995	.0997	.0995	N/A	N/A	N/A	.5975	6	.0996
Caldwell	R	0	1/ 1	1/ 1	1/ 1	1/ 2	1/ 2	1/ 2	2/ 3	2/ 2	2/ 2	2/ 2			
	T	N/A	.1000	.1000	.1000	.0988	.0981	.0986	.0999	.1000	.1000	.1000	.9954	10	.0995
Calhoun	R	38/ 53	44/ 56	42/ 56	49/ 64	47/ 61	48/ 62	46/ 58	50/ 65	52/ 68	53/ 70	53/ 70			
	T	.2299	.5953	.6134	.6100	.5768	.7325	.6687	.6368	.7123	.6910	.7208	6.7875	11	.6170
Cameron	R	7/ 12	9/ 17	9/ 13	10/ 15	7/ 12	6/ 8	8/ 10	8/ 9	5/ 6	9/ 10	10/ 13			
	T	.0452	.0410	.0450	.0262	.0264	.0739	.2841	.1121	.1033	.1159	.1146	.9877	11	.0898
Camp	R	1/ 1	1/ 1	1/ 1	0	0	0	0	0	0	0	5/ 10			
	T	.0100	.0100	.0100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0610	.0361	4	.0090
Carson	R	1/ 2	5/ 7	2/ 3	0/ 1	0	0	0	0	0	0	0			
	T	.0000	.0651	.0083	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0734	3	.0245
Cass	R	6/ 8	8/ 13	9/ 15	8/ 13	9/ 13	13/ 16	13/ 16	12/ 15	10/ 12	13/ 16	13/ 16			
	T	.0420	.0459	.0631	.0756	.0794	.0681	.0756	.0941	.1017	.0941	.0943	.8339	11	.0758

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Castro	R	2/ 4	2/ 3	2/ 3	3/ 7	3/ 6	3/ 6	2/ 5	2/ 4	3/ 5	3/ 4	2/ 3			
	T	.0058	.0080	.0080	.0099	.0100	.0100	.0100	.0100	.0098	.0097	.0100	.1012	11	.0092
Chambers	R	24/ 33	24/ 33	25/ 34	26/ 35	25/ 37	25/ 37	30/ 42	26/ 33	27/ 38	25/ 34	23/ 31			
	T	.1383	.1468	.1738	.2672	.3493	.3215	.4469	.5552	.3908	.4258	.4456	3.6612	11	.3328
Cherokee	R	12/ 15	13/ 18	14/ 20	13/ 16	9/ 12	7/ 11	3/ 5	4/ 6	3/ 3	3/ 3	4/ 4			
	T	.2734	.3213	.1886	.1122	.1157	.0521	.1132	.1101	.1120	.1120	.1119	1.6225	11	.1475
Coleman	R	0	0	1/ 1	0	0	1/ 2	1/ 2	0/ 1	0/ 1	0/ 1	0			
	T	N/A	N/A	.1000	N/A	N/A	.0000	.0000	N/A	N/A	N/A	N/A	.1000	3	.0333
Collin	R	10/ 13	13/ 16	12/ 15	13/ 17	12/ 14	12/ 16	14/ 18	16/ 17	20/ 23	16/ 23	14/ 19			
	T	.6918	.4530	.4425	.4883	.5707	.6636	.5881	.4973	.3479	.2184	.1745	5.1361	11	.4669
Colorado	R	1/ 1	1/ 1	1/ 1	1/ 2	1/ 1	1/ 1	1/ 1	2/ 3	2/ 4	2/ 2	2/ 2			
	T	.1000	.1000	.1000	.0949	.1000	.1000	.1000	.1000	.0991	.1000	.1000	1.0940	11	.0995
Comal	R	1/ 3	2/ 5	3/ 8	2/ 6	1/ 5	4/ 8	3/ 9	3/ 10	6/ 15	6/ 15	11/20			
	T	.0240	.0334	.0290	.0000	.0048	.5154	.2752	.5046	.2049	.2452	.2280	2.0645	11	.1877
Comanche	R	1/ 2	1/ 2	1/ 2	1/ 3	1/ 3	1/ 3	1/ 3	0	0	0	0			
	T	.0000	.0000	.0000	.0000	.0000	.0000	.0000	N/A	N/A	N/A	N/A	.0000	7	.0000
Cooke	R	4/ 6	2/ 4	1/ 3	2/ 4	2/ 4	2/ 4	2/ 3	2/ 2	2/ 2	2/ 2	2/ 2			
	T	.0438	.0198	.0175	.0233	.0188	.0167	.0721	.1000	.1000	.1000	.1000	.6120	11	.0556
Coryell	R	0/ 1	1/ 2	1/ 2	0	2/ 3	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2			
	T	N/A	.0494	.0608	N/A	.0675	.1000	.1000	.1000	.1000	.1000	.1000	.7777	9	.0864
Dallam	R	0	0	0/ 1	0	0	0	0	0	0	0	7/ 8			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.4244	.4244	1	.4244

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Dallas	R	59/ 80	66/ 91	65/ 86	64/ 86	57/ 79	57/ 80	54/ 75	50/ 79	49/ 77	46/ 74	55/ 81			
	T	.2433	.1922	.1907	.1870	.1628	.1478	.1342	.1487	.1399	.1444	.1759	1.8669	11	.1697
Dawson	R	0	0	0	0	0	0	0	1/ 1	1/ 1	1/ 1	1/ 1			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.1000	.1000	.1000	.1000	.4000	4	.1000
Deaf Smith	R	1/ 1	3/ 3	3/ 5	3/ 3	3/ 4	3/ 5	2/ 4	2/ 2	0	1/ 1	1/ 1			
	T	.0100	.0085	.0100	.0100	.0100	.0100	.0079	.0100	N/A	.0100	.0100	.0964	10	.0096
Denton	R	14/ 21	16/ 22	10/ 16	14/ 18	9/ 16	12/ 18	11/ 15	6/ 9	8/ 13	7/ 11	26/ 40			
	T	.3584	.5200	.1901	.3767	.0723	.0785	.1444	.1049	.0992	.2370	.1454	2.3269	11	.2115
Eastland	R	4/ 5	2/ 2	2/ 2	0	1/ 1	1/ 1	1/ 1	1/ 1	2/ 2	1/ 1	1/ 1			
	T	.2725	.1000	.1000	N/A	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	7.4725	10	.7473
Ector	R	22/ 31	20/ 26	27/ 39	23/ 30	25/ 34	25/ 34	22/ 29	24/ 32	23/ 32	23/ 32	21/ 28			
	T	.7543	.7770	.7401	.7413	.7394	.7150	.8031	.7734	.8296	.7616	.8230	8.4578	11	.7689
Ellis	R	29/ 42	46/ 60	52/ 67	62/ 79	54/ 70	58/ 71	54/ 68	31/ 44	36/ 49	29/ 40	35/ 49			
	T	.0773	.0981	.1427	.0648	.0388	.0616	.0585	.0615	.0761	.0707	.0316	.7817	11	.0711
El Paso	R	31/ 46	35/ 50	29/ 40	30/ 42	34/ 46	34/ 46	31/ 40	29/ 41	29/ 41	31/ 43	32/ 49			
	T	.1558	.1655	.2125	.3341	.4102	.3226	.3277	.4595	.3629	.1822	.1362	3.0792	11	.2790
Erath	R	6/ 9	5/ 7	4/ 6	4/ 6	4/ 6	4/ 5	4/ 5	4/ 5	4/ 5	3/ 3	3/ 3			
	T	.0033	.0320	.0695	.0785	.0741	.0721	.0558	.0577	.0711	.1000	.1000	.7141	11	.0649
Fannin	R	0/ 2	0	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 4	1/ 2			
	T	N/A	N/A	.5000	.1191	.0675	.0543	.1737	.0950	.1068	.0767	.4067	1.5998	9	.1778
Fayette	R	0	0	0	0	0	0	0	0	0	0	6 /11			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0076	.0076	1	.0076

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Floyd	R	0	0	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1			
	T	N/A	N/A	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	9.0000	9	1.0000
Fort Bend	R	26/ 37	28/ 39	28/ 38	27/ 37	26/ 37	27/ 39	29/ 40	30/ 41	28/ 39	25/ 36	32/ 47			
	T	.0377	.0932	.1239	.1520	.1159	.0800	.0538	.0598	.0875	.0797	.0172	.9007	11	.0819
Franklin	R	0	0/ 2	0/ 2	0	0	0	0	2/ 2	2/ 2	2/ 2	2/ 2			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.1000	.1000	.1000	.1000	.4000	4	.1000
Freestone	R	0	0	1/ 1	0	0	0	0	0	0	0	8/ 14			
	T	N/A	N/A	.1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0055	.1055	2	.0528
Gaines	R	1/ 2	2/ 3	1/ 2	0	0	0	0	0	0	0	0			
	T	.0000	.0043	.0012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0055	3	.0018
Galveston	R	67/ 88	63/ 80	62/ 80	66/ 88	61/ 84	61/ 83	59/ 79	68/ 94	65/ 91	63/ 88	64/ 88			
	T	.34589	.2724	.2967	.3635	.4162	.3114	.4957	.4747	.3479	.2872	.3677	3.9692	11	.3617
Goliad	R	0	0	0	0	0	0	0	0	0	0	4/ 7			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0076	.0076	1	.0076
Gonzales	R	0	0/2	1/ 3	1/ 3	1/ 3	1/ 3	1/ 3	0	0	0	0			
	T	N/A	N/A	.0000	.0000	.0000	.0000	.0000	N/A	N/A	N/A	N/A	.0000	5	.0000
Gray	R	12/ 15	15/ 20	16/ 22	20/ 28	19/ 28	21/ 28	21/ 27	19/ 23	18/ 23	17/ 23	18/ 24			
	T	.1208	.0780	.0547	.0442	.0273	.0364	.0536	.1460	.0666	.0548	.0463	.7287	11	.0662
Grayson	R	14/ 22	15/ 25	14/ 23	9/ 16	8/ 13	9/ 14	9/ 15	8/ 14	9/ 15	8/ 14	8/ 14			
	T	.3166	.2597	.3167	.1930	.4227	.4020	.1966	.0843	.0086	.0086	.0086	2.2174	11	.2016
Gregg	R	15/ 25	23/ 35	32/ 46	32/ 46	30/ 46	23/ 39	22/ 34	21/ 31	21/ 33	19/ 28	14/ 23			
	T	.1183	.1729	.1780	.1967	.15796	.1269	.1100	.1278	.1429	.1455	.1343	1.6112	11	.1465

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Grimes	R	1/ 3	1/ 3	1/ 3	1/ 3	1/ 3	1/ 3	2/ 4	2/ 4	2/ 4	2/ 4	6/ 11			
	T	.0000	.0000	.0000	.0000	.0000	.0000	.0945	.0955	.0993	.0994	.0227	.4114	11	.0374
Guadalupe	R	12/ 18	11/ 18	9/ 16	8/ 15	8/ 14	6/ 10	7/ 9	4/ 7	4/ 8	3/ 6	3/ 7			
	T	.4140	.5558	.4393	.4431	.4055	.2546	.2463	.1820	.1532	.0977	.0812	3.2727	11	.2975
Hale	R	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2	3/ 3	3/ 3	2/ 2	2/ 2	9/ 10			
	T	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0366	.1366	11	.0124
Hansford	R	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	0	0	0	0	0			
	T	.0001	.0001	.0001	.0001	.0001	.0001	N/A	N/A	N/A	N/A	N/A	.0006	6	.0001
Hardeman	R	0	0	0/ 1	0/ 1	0/ 1	0	0	1/ 1	2/ 2	1/ 1	1/ 1			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.1000	.0936	.1000	.1000	.3936	4	.0984
Hardin	R	6/ 7	6/ 7	8/ 9	10/ 13	11/ 17	11/ 16	8/ 11	10/ 12	10/ 14	9/ 11	12/ 14			
	T	.0954	.1774	.3381	.1094	.2151	.0349	.0352	.1107	.0429	.0685	.0756	1.3032	11	.1185
Harris	R	124/160	126/160	116/154	124/165	119/161	122/160	130/168	135/187	132/188	133/187	169/235			
	T	.3456	.3832	.3721	.3716	.3926	.4316	.4331	.3899	.4256	.4216	.4147	4.3816	11	.3983
Harrison	R	44/ 65	41/ 61	38/ 56	39/ 57	39/ 55	40/ 56	42/ 58	39/ 53	39/ 54	37/ 53	40/ 58			
	T	.7073	.6729	.7237	.7618	.7046	.6643	.7305	.7666	.7392	.7231	.7045	7.8985	11	.7180
Hays	R	2/ 2	2/ 2	2/ 2	3/ 4	2/ 3	2/ 3	5/ 7	4/ 6	4/ 6	5/ 7	4/ 5			
	T	1.0000	1.0000	.5500	.0129	.0099	.0116	.0085	.0083	.0070	.0078	.0093	2.6253	11	.2387
Henderson	R	10/ 13	11/ 17	9/ 13	6/ 11	7/ 12	6/ 10	5/ 6	3/ 4	3/ 4	3/ 4	3/ 5			
	T	.0448	.1026	.1776	.1620	.1234	.0272	.0696	.0710	.0646	.0754	.0256	.9438	11	.0858
Hidalgo	R	4/ 7	5/ 6	4/ 5	3/ 5	3/ 5	3/ 6	3/ 6	2/ 5	2/ 3	7/ 8	7/ 8			
	T	.0494	.0866	.0063	.0023	.0621	.0799	.1256	.0085	.0100	.2822	.2512	.9641	11	.0876

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Hill	R	3/ 5	2/ 4	1/ 3	3/ 4	3/ 3	3/ 3	3/ 3	2/ 4	3/ 4	3/ 4	3/ 4			
	T	.7883	.7912	.0004	.4890	.6084	.6218	.5063	.7612	.6562	.4323	.5244	6.1795	11	.5618
Hockley	R	3/ 4	0	0	0	0	0	0	1/ 1	1/ 1	1/ 1	1/ 1			
	T	.0521	N/A	N/A	N/A	N/A	N/A	N/A	.1000	.1000	.1000	.1000	.4521	5	.0904
Hopkins	R	4/ 8	0/ 2	1/ 2	2/ 3	0/ 1	1/ 2	1/ 2	1/ 2	1/ 2	2/ 2	3/ 4			
	T	.0183	N/A	.9579	.9757	N/A	.0098	.0098	.0099	.0099	.0098	.0099	2.0110	9	.2234
Houston	R	5/ 7	6/ 8	6/ 9	4/ 7	4/ 7	5/ 7	5/ 8	1/ 3	2/ 5	2/ 4	2/ 4			
	T	.4867	.8074	.0050	.0086	.0086	.0238	.0037	.0132	.0030	.0219	.0286	1.4105	11	.1282
Howard	R	15/ 18	15/ 18	15/ 18	15/ 18	15/ 17	13/ 14	13/ 14	17/ 19	16/ 19	15/ 17	15/ 17			
	T	.2661	.3009	.3113	.1821	.3305	.6319	.8180	.5859	.3922	.4430	.5615	4.8234	11	.4385
Hunt	R	11/ 16	13/ 18	10/ 16	11/ 16	11/ 16	11/ 16	9/ 12	9/ 12	9/ 12	2/ 5	5/ 8			
	T	.0311	.0346	.0375	.0522	.0835	.0827	.0851	.0822	.0882	.0521	.0865	.7157	11	.0651
Hutchinson	R	29/ 41	24/ 32	26/ 34	26/ 32	30/ 38	29/ 37	28/ 31	27/ 31	31/ 38	32/ 39	34/ 41			
	T	.3102	.3760	.4195	.6055	.4086	.4123	.3755	.3643	.3411	.3494	.2934	4.2558	11	.3869
Jack	R	0	0	0	0	1/ 1	1/ 1	1/ 1	1/ 1	2/ 2	2/ 2	0			
	T	N/A	N/A	N/A	N/A	.1000	.1000	.1000	.1000	.3116	.3208	N/A	1.0324	6	.1721
Jasper	R	8/ 11	9/ 12	8/ 11	10/ 13	9/ 13	10/ 15	11/ 15	12/ 16	12/ 16	12/ 17	13/ 17			
	T	.0845	.0486	.0376	.0393	.0800	.0907	.0921	.0559	.0522	.0531	.0532	.6872	11	.0625
Jefferson	R	73/ 93	76/ 98	73/ 93	70/ 93	65/ 85	79/100	65/ 83	71/ 98	70/ 93	70/ 94	73/ 98			
	T	.3520	.3600	.3961	.4005	.4588	.4020	.5185	.6232	.6512	.4269	.3836	4.9728	11	.4521
Johnson	R	10/ 14	11/ 13	13/ 17	11/ 16	11/ 14	10/ 12	12/ 15	9/ 11	10/ 12	11/ 12	6/ 7			
	T	.3455	.2444	.6942	.3493	.2206	.1388	.1128	.1563	.1554	.1316	.0152	2.5641	11	.2331

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Jones	R	7/ 8	8/ 9	8/ 10	8/ 9	8/ 10	8/ 10	8/ 10	9/ 10	9/ 10	9/ 10	9/ 10			
	T	.5353	.4491	.7112	.5725	.5021	.4841	.4765	.3919	.3845	.3680	.3318	5.2060	11	.4733
Karnes	R	3/ 5	3/ 4	2/ 3	4/ 5	3/ 4	3/ 4	3/ 3	3/ 3	3/ 3	3/ 3	2/ 2			
	T	.0388	.0475	.0306	.0430	.0494	.0746	.0892	.0941	.0940	.0953	.0931	.7496	11	.0681
Kaufman	R	10/ 15	10/ 13	11/ 14	8/ 12	10/ 16	12/ 16	13/ 16	13/ 20	14/ 21	13/ 17	13/ 18			
	T	.0918	.2702	.1664	.1572	.0679	.1371	.2501	.3443	.3071	.1906	.2102	2.1929	11	.1994
Kerr	R	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	0	0	0			
	T	.0300	.0020	.0246	.0099	.0140	.0144	.0151	.0247	N/A	N/A	N/A	.1347	8	.0168
Lamar	R	6/ 9	7/ 15	8/ 14	9/ 15	8/ 14	9/ 13	8/ 12	9/ 14	9/ 13	9/ 11	6/ 8			
	T	.0872	.2372	.1774	.2521	.3060	.1193	.0549	.0633	.0526	.0541	.0577	1.4618	11	.1329
Lamb	R	1/ 1	1/ 1	1/ 1	0	0	1/ 3	0/ 2	0	0	0	0			
	T	.0001	.0001	.0001	N/A	N/A	.0000	N/A	N/A	N/A	N/A	N/A	.0003	4	.0001
Lampasas	R	0	0	0	0	0	1/ 1	0	0/ 1	1/ 2	1/ 2	1/ 2			
	T	N/A	N/A	N/A	N/A	NA	.0100	N/A	N/A	.0100	.0100	.0100	.0400	4	.0100
Lavaca	R	5/ 6	4/ 5	4/ 6	4/ 6	3/ 4	3/ 4	3/ 4	3/ 4	3/ 4	0	2/ 2			
	T	.3932	.4522	.4110	.5103	.5321	.5519	.5543	.6238	.6020	N/A	.7424	5.3732	10	.5373
Lee	R	0	0	0	4/ 4	0	0	1/ 1	0	0	0	0			
	T	N/A	N/A	N/A	.1951	N/A	N/A	.1000	N/A	N/A	N/A	N/A	.2951	2	.1476
Leon	R	0/ 3	2/ 5	2/ 4	3/ 7	5/ 8	4/ 8	4/ 8	4/ 8	4/ 8	4/ 8	3/ 7			
	T	NA	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	10	.0000
Liberty	R	16/ 20	21/ 26	19/ 23	14/ 18	19/ 22	17/ 20	18/ 20	15/ 16	7/ 8	6/ 7	10/ 12			
	T	.3388	.2976	.4206	.2971	.3764	.3375	.2053	.1214	.1877	.2480	.4130	3.2434	11	.2949

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Limestone	R	0	0	2/ 2	0	0	0	0	0	0	0	8/ 14			
	T	N/A	N/A	.0067	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0037	.0104	2	.0052
Live Oak	R	17/ 24	18/ 24	19/ 28	18/ 26	15/ 22	16/ 23	18/ 24	19/ 27	18/ 25	18/ 25	18/ 25			
	T	.3600	.4138	.4399	.4491	.3834	.3308	.3013	.2817	.2756	.4484	.3052	3.9892	11	.3627
Lubbock	R	8/ 16	12/ 19	11/ 17	11/ 17	12/ 18	12/ 18	11/ 15	9/ 12	9/ 12	8/ 12	9/ 13			
	T	.0524	.1742	.1320	.3116	.1637	.2143	.1277	.1002	.1020	.1134	.1426	1.6341	11	.1486
McCulloch	R	0	0	0	0	0	0	0	1/ 1	2/ 2	2/ 2	2/ 2			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0000	.9105	.8970	.8968	3.7043	4	.9261
McLennan	R	9/ 17	11/ 17	12/ 19	10/ 17	13/ 19	11/ 18	10/ 18	13/ 18	13/ 19	10/ 14	14/ 20			
	T	.1086	.1463	.1390	.0472	.0750	.1324	.0658	.1038	.0822	.1686	.0957	1.1646	11	.1059
McMullen	R	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	0	0	0	0	0			
	T	.0001	.0001	.0001	.0001	.0001	.0001	N/A	N/A	N/A	N/A	N/A	.0006	6	.0001
Marion	R	0	0	0	0	0	0	0	0	4/ 4	4/ 4	4/ 4			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0641	.0630	.0622	.1893	3	.0631
Matagorda	R	20/ 31	19/ 29	21/ 31	21/ 29	20/ 28	18/ 25	17/ 21	18/ 24	15/ 21	13/ 19	14/ 19			
	T	.3876	.2938	.3620	.3507	.1962	.2008	.2191	.1276	.1122	.1559	.1827	2.5886	11	.2353
Medina	R	0	0	0	0	0	2/ 2	2/ 2	2/ 2	0	0	0			
	T	N/A	N/A	N/A	N/A	N/A	.1000	.1000	.0999	N/A	N/A	N/A	.2999	3	.1000
Midland	R	14/ 16	14/ 17	11/ 13	12/ 14	13/ 15	7/ 8	8/ 9	6/ 6	6/ 6	5/ 6	10/ 13			
	T	.2301	.2112	.1525	.2601	.1005	.1018	.1010	.1069	.1053	.1190	.3911	1.8795	11	.1709
Milam	R	4/ 9	4/ 8	3/ 7	4/ 8	4/ 7	4/ 7	5/ 8	6/ 9	6/ 10	10/ 15	9/ 16			
	T	.0003	.0005	.0005	.0004	.0007	.0005	.0067	.0064	.0073	.0086	.0075	.0394	11	.0036

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Montague	R	0	1/ 1	1/ 1	1/ 2	1/ 2	1/ 2	0	0	0	0	0			
	T	N/A	.1000	.1000	.0643	.0507	.0467	N/A	N/A	N/A	N/A	N/A	.3617	5	.0723
Montgomery	R	25/ 35	28/ 35	26/ 32	25/ 31	26/ 32	27/ 36	22/ 26	24/ 30	23/ 30	22/ 26	21/ 26			
	T	.0650	.0462	.0652	.0634	.0601	.0546	.0465	.0548	.0902	.1787	.1724	.8971	11	.0816
Moore	R	21/ 27	22/ 27	21/ 25	20/ 24	20/ 24	21/ 25	21/ 25	21/ 25	20/ 24	21/ 25	22/ 26			
	T	.1778	.1983	.2229	.3165	.2015	.2290	.1992	.2619	.4130	.2636	.2456	2.7293	11	.2481
Morris	R	12/ 18	10/ 17	12/ 19	11/ 18	11/ 18	11/ 17	10/ 16	12/ 20	11/ 19	10/ 17	10/ 16			
	T	.0740	.0622	.1115	.1174	.0907	.1089	.0100	.0820	.1220	.4888	.3374	1.6049	11	.1459
Nacogdoches	R	7/ 10	8/ 10	10/ 13	8/ 10	12/ 14	9/ 12	12/ 14	12/ 14	12/ 15	11/ 13	9/ 12			
	T	.1328	.0904	.1068	.1323	.1073	.0564	.0703	.0628	.0654	.0733	.0682	.9660	11	.0878
Navarro	R	9/ 9	8/ 10	12/ 15	12/ 16	12/ 16	10/ 12	9/ 11	3/ 3	5/ 6	4/ 4	3/ 3			
	T	.0326	.0917	.0787	.0550	.0390	.0561	.0765	.1001	.0937	.1027	.1021	.8282	11	.0753
Newton	R	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2	0	0	0	0	0	1/ 1			
	T	.5587	.5582	.5574	.2955	.2162	N/A	N/A	N/A	N/A	N/A	.1000	2.2860	6	.3810
Nolan	R	1/ 3	1/ 3	2/ 4	1/ 3	1/ 3	1/ 3	1/ 4	1/ 4	1/ 4	1/ 3	1/ 3			
	T	.0000	.0013	.0295	.0061	.0067	.0060	.0060	.0079	.0086	.0086	.0086	.0893	11	.0081
Nueces	R	37/ 54	37/ 53	36/ 54	42/ 60	35/ 51	35/ 50	36/ 48	40/ 54	39/ 52	37/ 51	38/ 51			
	T	.3041	.3226	.3183	.2733	.2936	.3838	.2997	.48040	.3751	.3516	.2780	3.6805	11	.3346
Orange	R	33/ 46	34/ 44	38/ 49	34/ 46	41/ 54	38/ 50	43/ 55	38/ 51	39/ 52	36/ 46	58/ 75			
	T	.5728	.6714	.6124	.7020	.6600	.6499	.6005	.4801	.4313	.4792	.5086	6.3682	11	.5789
Palo Pinto	R	4/ 6	4/ 7	4/ 7	4/ 5	4/ 5	3/ 4	2/ 2	1/ 1	0	0	1/ 1			
	T	.0014	.0015	.0008	.0036	.0027	.0003	.0100	.0100	N/A	N/A	.0000	.0303	9	.0034

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Panola	R	0	1/ 1	1/ 1	1/ 1	0	1/ 1	1/ 1	1/ 1	0	0	4/ 5			
	T	N/A	.0100	.0100	.0100	N/A	.0100	.0100	.0100	N/A	N/A	.0503	.1103	7	.0158
Parker	R	7/ 14	8/ 13	9/ 14	7/ 10	6/ 10	8/ 13	8/ 14	9/ 13	9/ 13	10/ 13	11/ 15			
	T	.0459	.0433	.0303	.0713	.0473	.0431	.0349	.0325	.0155	.0274	.0991	.4906	11	.0446
Parmer	R	1/ 2	1/ 2	1/ 2	1/ 3	1/ 3	1/ 3	2/ 3	2/ 3	2/ 3	1/ 2	1/ 3			
	T	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.1100	11	.0100
Pecos	R	3/ 4	3/ 3	3/ 3	0	0	0	0	0	0	0	0			
	T	.0300	.0399	.0399	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.1098	3	.0366
Polk	R	3/ 5	3/ 5	3/ 5	3/ 5	3/ 5	2/ 4	2/ 4	3/ 5	4/ 6	7/ 9	6/ 8			
	T	.5426	.3680	.3809	.1615	.2311	.0100	.0100	.6635	.2468	.2892	.1283	3.0319	11	.2756
Potter	R	12/ 20	17/ 23	18/ 24	14/ 21	13/ 20	13/ 21	12/ 21	12/ 23	11/ 17	13/ 19	12/ 18			
	T	.0305	.0134	.0139	.0132	.0091	.0147	.0083	.0059	.0039	.0149	.0086	.1364	11	.0124
Rains	R	2/ 4	1/ 2	0	0	2/ 2	0	0	0	0	0	0			
	T	.0000	.0001	N/A	N/A	.0051	N/A	N/A	N/A	N/A	N/A	N/A	.0052	3	.0017
Randall	R	6/ 10	7/ 10	7/ 11	5/ 8	6/ 8	7/ 11	6/ 8	6/ 9	6/ 9	5/ 7	5/ 7			
	T	.1448	.0990	.1085	.3877	.2631	.2549	.2646	.2818	.2792	.3248	.3183	2.7267	11	.2479
Reagan	R	1/ 1	1/ 1	0	0	0	0	0	0	0	0	0			
	T	.0100	.0100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0200	2	.0100
Red River	R	0	0	1/ 2	1/ 2	1/ 2	1/ 1	1/ 1	0	0	0	0			
	T	N/A	N/A	.0229	.0171	.0228	.1000	.1000	N/A	N/A	N/A	N/A	.2628	5	.0526
Robertson	R	2/ 3	3/ 4	2/ 3	2/ 4	2/ 4	2/ 3	2/ 3	2/ 3	1/ 2	1/ 2	1/ 2			
	T	.0025	.0919	.0048	.0034	.0053	.0961	.0940	.0938	.0042	.0046	.0052	.4058	11	.0369

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Rockwall	R	2/ 3	2/ 4	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 1	1/ 1	1/ 1			
	T	.0013	.0029	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0045	11	.0004
Runnels	R	1/ 1	1/ 1	2/ 3	0/ 1	0/ 1	0/ 1	0/ 1	0/ 1	0	0	0			
	T	.1000	.1000	.0597	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.2597	3	.0866
Rusk	R	5/ 7	4/ 6	5/ 7	5/ 6	5/ 6	5/ 6	2/ 2	3/ 3	2/ 3	2/ 3	14/22			
	T	.5297	.6601	.5036	.5549	.6015	.4533	.1000	.0987	.0656	.0630	.0294	3.6598	11	.3327
Sabine	R	0	0	0	0	1/ 1	1/ 1	1/ 1	0	0	0	1/ 1			
	T	N/A	N/A	N/A	N/A	.0100	.0100	.0100	N/A	N/A	N/A	.1000	.1300	4	.0325
San Augustine	R	1/ 3	0	0	1/ 3	0	0	0	0	0	0	0			
	T	.0000	N/A	N/A	.0000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0000	2	.0000
San Patricio	R	8/ 12	12/ 14	16/ 19	21/ 29	25/ 34	24/ 32	24/ 34	24/ 35	24/ 33	24/ 33	23/ 31			
	T	.1354	.8618	.7880	.4414	.3732	.3396	.3676	.2824	.2582	.2532	.2538	4.3546	11	.3959
Scurry	R	0	0	3/ 4	3/ 4	4/ 5	4/ 5	4/ 5	3/ 3	4/ 4	4/ 4	4/ 4			
	T	N/A	N/A	.3419	.3000	.5340	.4856	.4869	.4862	.4932	.6527	.3257	4.1062	9	.4562
Shelby	R	1/ 3	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	1/ 2	3/ 3	3/ 3	7/ 7			
	T	.0097	.0100	.0099	.0099	.0099	.0100	.0098	.0099	.2775	.2648	.0630	.6844	11	.0622
Smith	R	22/ 29	18/ 23	18/ 25	18/ 25	19/ 25	18/ 25	18/ 24	16/ 23	17/ 24	17/ 23	16/ 22			
	T	.2179	.2086	.2174	.2309	.1664	.1975	.1761	.2114	.1899	.1647	.1638	2.1446	11	.1950
Tarrant	R	43/ 62	41/ 62	46/ 66	42/ 63	41/ 59	38/ 56	39/ 57	37/ 55	38/ 55	35/ 52	36/ 55			
	T	.2627	.2709	.2584	.3237	.2662	.2904	.3286	.3419	.4106	.3683	.4807	3.6024	11	.3275
Taylor	R	8/ 13	7/ 11	9/ 14	13/ 19	11/ 17	8/ 15	4/ 11	4/ 10	3/ 8	3/ 8	5/ 11			
	T	.0739	.1550	.0895	.0702	.1049	.0514	.0415	.0581	.0567	.0564	.0599	.8175	11	.0743

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Titus	R	8/ 11	10/ 13	9/ 13	9/ 11	12/ 16	14/ 18	12/ 14	12/ 15	11/ 15	1/ 1	4/ 5			
	T	.3892	.2297	.3415	.3044	.2190	.4904	.5795	.6022	.5182	1.0000	.7333	5.4174	11	.4925
Tom Green	R	4/ 6	4/ 7	4/ 7	3/ 6	2/ 5	1/ 3	1/ 3	1/ 3	1/ 3	3/ 5	1/ 3			
	T	.4776	.4220	.2697	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	1.1694	11	.1063
Travis	R	22/ 30	24/ 33	23/ 33	21/ 32	20/ 30	19/ 28	20/ 32	22/ 32	23/ 33	18/ 28	25/ 37			
	T	.3407	.4081	.3598	.3460	.2883	.1643	.1222	.1588	.0954	.0673	.0868	2.4377	11	.2216
Trinity	R	1/ 1	1/ 1	1/ 1	0	0/ 1	0/ 1	0/ 1	0	0	0	0			
	T	.0000	.0000	.0000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0000	3	.0000
Tyler	R	0	0	0	0	0	0	0	0	0	1/ 1	2/ 2			
	T	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0000	.8078	1.8078	2	.9039
Upshur	R	6/ 12	6/ 9	6/ 10	6/ 8	4/ 4	6/ 8	6/ 9	5/ 6	6/ 9	5/ 8	4/ 5			
	T	.2427	.2441	.2112	.2091	.1000	.1629	.1853	.1776	.3155	.3369	.1000	2.2853	11	.2078
Uvalde	R	0	0	0	0	1/ 1	0	0	0	0	0	0			
	T	N/A	N/A	N/A	N/A	.0100	N/A	N/A	N/A	N/A	N/A	N/A	.0100	1	.0100
Val Verde	R	0	0	0/ 1	1/ 5	1/ 4	1/ 5	2/ 5	2/ 4	4/ 6	2/ 2	2/ 2			
	T	N/A	N/A	N/A	.0124	.0164	.0089	.0226	.0605	.0542	.1000	.1000	.3750	8	.0469
Van Zandt	R	0	3/ 3	2/ 3	1/ 2	1/ 2	0	1/ 1	0	0	0	0			
	T	N/A	.7893	.4421	.0000	.0000	N/A	1.0000	N/A	N/A	N/A	N/A	2.2314	5	.4463
Victoria	R	18/ 23	18/ 24	16/ 22	16/ 25	17/ 26	20/ 29	18/ 24	19/ 25	18/ 24	19/ 25	19/ 25			
	T	.5837	.4315	.3973	.3324	.3991	.4405	.6352	.4724	.4752	.4440	.4145	5.0258	11	.4569
Walker	R	2/ 5	2/ 3	2/ 3	3/ 6	3/ 6	3/ 6	3/ 6	0/ 1	0/ 1	0	2/ 2			
	T	.2942	.3026	.3119	.1803	.3151	.6625	.7269	N/A	N/A	N/A	.5876	3.3811	8	.4226

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Waller	R	1/ 3	0/ 1	2/ 6	1/ 4	1/ 4	2/ 5	1/ 2	1/ 1	0/ 1	0/ 1	1/ 7			
	T	.0035	N/A	.0297	.0043	.0034	.0078	.0054	.0100	N/A	N/A	.0000	.0641	8	.0080
Washington	R	6/ 7	5/ 6	5/ 7	4/ 6	4/ 9	4/ 9	5/ 10	5/ 9	4/ 8	3/ 8	4/ 9			
	T	.0960	.0899	.0381	.0343	.0359	.0728	.0840	.0958	.0881	.0856	.0799	.8004	11	.0728
Webb	R	0	3/ 5	2/ 4	4/ 6	4/ 6	4/ 6	4/ 6	4/ 6	5/ 7	4/ 6	3/ 5			
	T	N/A	.0001	.0001	.0003	.0003	.0003	.0003	.0006	.0003	.0002	.0005	.0030	10	.0003
Wharton	R	8/ 11	10/ 12	9/ 11	8/ 9	9/ 10	9/ 10	8/ 9	7/ 8	7/ 8	11/ 12	7/ 8			
	T	.2355	.3155	.2638	.2753	.3437	.2765	.1575	.1263	.1191	.4639	.6219	3.1990	11	.2908
Wichita	R	16/ 27	15/ 25	17/ 26	16/ 27	15/ 27	15/ 25	15/ 25	14/ 23	12/ 19	13/ 19	14/ 21			
	T	.1199	.1685	.1180	.1057	.1080	.1032	.1081	.1554	.2430	.2367	.2825	1.7490	11	.1590
Wilbarger	R	1/ 2	1/ 1	1/ 1	2/ 2	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	1/ 1	4/ 9			
	T	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0100	.0061	.1061	11	.0096
Williamson	R	7/ 11	12/ 17	8/ 12	10/ 15	8/ 12	8/ 12	7/ 10	5/ 8	5/ 8	4/ 7	4/ 7			
	T	.3600	.3515	.3505	.3224	.2691	.1985	.2643	.3688	.3361	.2003	.3118	3.3333	11	.3030
Wilson	R	0	2/ 2	1/ 2	0/ 1	0	0	0	0	0	0	0			
	T	N/A	.5500	.0667	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.6167	2	.3084
Wise	R	1/ 1	0/1	2/ 2	2/ 2	1/ 1	2/ 3	1/ 1	1/ 1	3/ 4	1/ 1	1/ 2			
	T	.1000	N/A	.1000	.1000	.1000	.0730	.1000	.1000	.0449	.1000	.0611	.8790	10	.0879
Wood	R	0	0	1/ 3	2/ 4	2/ 4	2/ 4	2/ 4	0	0	2/ 4	1/ 1			
	T	N/A	N/A	.0000	.0100	.0100	.0100	.0100	N/A	N/A	.0100	.0100	.0600	7	.0086
Young	R	1/ 3	1/ 3	2/ 4	2/ 3	2/ 3	2/ 3	2/ 2	1/ 1	1/ 1	1/ 1	4/ 4			
	T	.0285	.0268	.0311	.0315	.0256	.0340	.1000	.1000	.1000	.1000	.2096	.7871	11	.0716

Appendix G. Continued

County Name		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOX	EY	EA
Zavala	R	1/ 1	1/ 1	3/ 3	0	0	0/2	0	0	0	0	0			
	T	.0100	.0100	.0100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.0300	3	.0100

a. R = the ratio of toxic chemicals which had estimated EPA toxicity weights to the total number of toxic chemicals in air emissions during that year (the difference between the two values is the number of chemicals for which toxicity weights have not been calculated by EPA); T = the calculated annual aggregated toxicity value for TRI reported air emissions in a particular county; TOX = the sum of the annual toxicities; EY = the number of years that a county had air emissions (with at least one chemical having an estimated toxicity weights) reported to the EPA by facilities; EA = the average toxicity level of annual air emissions (i.e., TOX / EY).

b. Toxicity values (T) of .0000 indicate that aggregated toxicities were <.00001. Overall, lower T and EA values mean greater toxicities.