

Risk-Based Analysis of Form A and Form NS Toxics Release Inventory Reform Proposal Alternatives

by

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for



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The Office of Advocacy, an independent office within the U.S. Small Business Administration, has primary responsibility for government-wide oversight of the Regulatory Flexibility Act of 1980 (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA). The principal goal of the RFA is to identify, and, if possible, lessen the burdens federal regulations place on small entities. The Office of Advocacy sponsored this report under contract SBAHQ-03C0020. The statements, findings, conclusions, and recommendations found in this report are those of the authors and do not necessarily reflect official policies of the Office of Advocacy, the U.S. Small Business Administration, or the U.S. Government.



**OFFICE OF ADVOCACY
U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, DC 20416**

October 14, 2004

The Honorable Kimberly T. Nelson
Assistant Administrator for Environmental Information
U.S. Environmental Protection Agency
Ariel Rios Building, 2810A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Risk-Based Analysis of Form A and Form NS Toxics Release Inventory Reform Proposal Alternatives

Dear Assistant Administrator Nelson:

The Office of Advocacy of the U.S. Small Business Administration (Advocacy) is pleased to provide the Environmental Protection Agency (EPA) with the enclosed report, "Risk-Based Analysis of Form A and Form NS Toxics Release Inventory Reform Proposal Alternatives," prepared for Advocacy by our contractor, E. H. Pechan & Associates (Pechan). The Pechan report supplements a prior report on reducing regulatory burdens on small businesses under the Toxics Release Inventory (TRI) prepared for Advocacy by Jack Faucett Associates (JFA) and transmitted to EPA in April, 2004. We welcome EPA's TRI burden reduction efforts and look forward to ongoing collaboration with the agency on this important initiative. We also appreciate the opportunity that Kevin Bromberg has had to work with your staff on the upcoming stakeholder meeting on the 19th

As you know, Advocacy recommended specific changes to TRI reporting (specifically revisions to the Form A, and development of a Form NS) in our September 2, 2003 comment letter on EPA's Information Collection Request. The April 2004 JFA report provides a detailed analysis of some of the regulatory alternatives we have encouraged EPA to consider for revisions to the TRI reporting requirements. The new Pechan report goes beyond the JFA report by analyzing in more

depth two of the major regulatory options: (1) expansion of Form A eligibility; and (2) adoption of a new “no significant change” form (Form NS). The Pechan report explains that relief based on revisions to the Form A and the introduction of a Form NS would provide important burden reduction to approximately 35-45 percent of the currently reported Form Rs, without a detriment to data quality. The major contribution of this report is the substitution of a risk-based evaluation approach for analyzing the TRI database, using EPA’s Risk Screening Environmental Indicators (RSEI) model, instead of relying on a pounds-based approach employed by EPA in 1994. While the statements, findings, conclusions and recommendations in the report are those of its authors, the Office of Advocacy does generally agree with the conclusions and recommendations of this report. Because the Office of Advocacy is an independent office, its views do not necessarily represent the positions of the U.S. Small Business Administration or this Administration.

As the EPA moves forward with rulemaking on TRI burden reduction, we encourage the agency to consider Advocacy’s recommendations and other regulatory options that reduce reporting burden, while maintaining the integrity of the TRI database. The Office of Advocacy looks forward to working with EPA on this important task. If you have any questions or comments, please feel free to call me or Assistant Chief Counsel Kevin Bromberg at (202) 205-6964, or email at kevin.bromberg@sba.gov.

Sincerely,

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Enclosure

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ACRONYMS AND ABBREVIATIONS

ARA	annual reportable amount
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
JFA	Jack Faucett Associates, Inc.
PBT	persistent, bioaccumulative, and toxic
Pechan	E.H. Pechan & Associates, Inc.
POTW	publicly owned treatment works
PPA	Pollution Prevention Act
RCRA	Resource Conservation and Recovery Act
RFA	Regulatory Flexibility Act
RSEI	Risk Screening Environmental Indicators
SBA	Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
SIC	Standard Industrial Classification (code)
TRI	Toxics Release Inventory
TRI-ME	Toxics Release Inventory - Made Easy
U.S.	United States

EXECUTIVE SUMMARY

Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) established the Toxic Chemical (or “Toxics”) Release Inventory (TRI) program. The TRI is a national database that identifies facilities; the chemicals they manufacture, process and use; and the annual amounts of these chemicals released and otherwise managed on- and off-site in waste. In 1990, Congress passed the Pollution Prevention Act (PPA), which expanded the TRI to include additional information on toxic chemicals in waste and on source reduction methods.

The preparation and submission of TRI reports has been estimated to cost businesses hundreds of millions of dollars annually. Industry incurs additional costs from state and federal requirements (such as those related to storm water) that are triggered by the TRI reports (the so-called “piggyback” requirements). The Environmental Protection Agency (EPA) reviews and analyzes the TRI reports submitted each year at a cost of millions of dollars. Over the past several years, industry has expressed great concern about the cost in time and resources of preparing these reports, particularly reports involving no or minimal releases to the environment.

In the past, the United States (U.S.) Small Business Administration (SBA) Office of Advocacy has developed TRI reporting reform recommendations (for example, the addition of a Form A streamlined certification statement) that have been adopted by EPA and have resulted in millions of dollars in annual estimated savings. The EPA is currently evaluating additional alternatives to help streamline TRI requirements to further ease the paperwork burden for businesses affected by the requirements.

The purpose of this study was to evaluate how various TRI reform proposals might affect TRI data quality with respect to the ability to characterize health risks to local communities. An earlier review by Jack Faucett Associates, Inc., (JFA) noted, “[t]he key issue is to identify methods that retain the information that is valuable to the public, by retaining the current Form R (for the most significant chemical reports), while reducing the overall burden by establishing an alternative form of reporting for the reports with minimal or no public interest (such as a modified Form A).”¹

In this study, E.H. Pechan & Associates, Inc. (Pechan) evaluated 10 TRI program reform alternatives: seven related to increased Form A reporting eligibility and three based on the creation of a new Form NS that would allow facilities to certify to “no significant change” measured against a designated baseline year.

The two sets of proposals related to expanding the Form A reporting eligibility for non-PBT (persistent, bioaccumulative, and toxic) chemicals encompassed seven alternatives:

¹ “Proposed Reforms to the Toxics Release Inventory Program: Streamlining Reporting and Preserving Data Integrity,” Jack Faucett Associates, Inc., April 2004, pg. 5.

- The first set (Proposal 1) would increase the “annual reportable amount” (ARA) eligibility threshold from the current 500 pounds to: (a) 1,000 pounds, (b) 2,000 pounds, or (c) 5,000 pounds.
- The second set (Proposal 2) would revise the current Form A reporting eligibility to reflect an ARA that excludes recycling and energy recovery and the following chemical quantity thresholds: (a) 500 pounds, (b) 1,000 pounds, (c) 2,000 pounds, and (d) 5,000 pounds.

A different option would be to replace Form R reporting with a Form NS or “no significant change” filing in some years, provided certain conditions are met. The two form NS eligibility criteria evaluated in this report are:

- Chemical use changes of less than a given percentage (e.g. 10 percent), and
- Chemical releases of less than a given amount (e.g., less than 10 pounds) in the baseline and Form NS reporting years.

Finally, in addition to evaluating the two reform proposals independently, Pechan analyzed the impact of combining both proposals.

When EPA promulgated the original Form A in 1994, it set the Form A ARA at 500 pounds, using solely a pounds-based analysis to identify facilities with less public interest for the shorter form. However, because the TRI database aims to provide information about risks to the public, that risk, and not the quantity in pounds, is of central concern in any evaluation of reform proposals. As it was with the 1994 Form A adoption, the purpose of this study is also to identify facilities with reports of minimal or no public interest to illuminate the discussion of reporting reform proposals, but the 1994 EPA analysis could not evaluate the risk to the public represented by any Form R because it relied only on information about the waste quantity.

This study improves upon the 1994 analysis in two ways more closely related to risk to the community by identifying: (1) the toxicity of the particular chemical and (2) the exposure of the surrounding population to the chemical. The EPA’s own Risk Screening Environmental Indicators (RSEI) Chronic Human Health Model was specifically developed to characterize the risks from TRI facilities. In this study, the environmental significance of each individual TRI report was estimated using the RSEI to assign a risk score to each individual facility, based on the TRI data submission and information about the community surrounding the facility.

The results indicate that nine of the 10 alternatives analyzed are associated with national percentage changes in risk that are less than the changes in risk associated with EPA’s adoption of the Form A in 1994. In other words, the new alternatives, with one exception, involve less data loss than the data loss of the actual year 2000 Form R filings that met the 500-pound Form A reporting threshold. So the risk impacts of all but one of the alternatives analyzed are estimated to be less than those associated with full reporting under the current Form A certification statement eligibility requirements.

With respect to the Form A, this study finds that two alternatives warrant further consideration: Proposal 1 (original ARA) – the 2,000-pound threshold and Proposal 2 (revised ARA) – the 1,000-pound threshold. Both of these involve less than a 10 percent change in nationwide risk information, and provide relief for between 6,593 and 10,299 additional Form Rs (i.e., 12 to 19 percent of year 2000 Form Rs).

According to this study, adoption of the Form NS reform proposal alternatives would be more advantageous than adoption of the Form A reforms analyzed. The Form NS would provide relief to about 24 percent of the Form Rs and would offer virtually the equivalent information by using the baseline Form R (the previous year's form) to represent the information reported by the Form NS facility.

The Form A proposals do provide significant regulatory relief for thousands of facilities that would not be eligible for the Form NS; thus, the relatively larger benefit of the Form NS does not mean that Form A relief should not be considered in concert with Form NS relief. Using both forms can provide additional relief for about 35 to 45 percent of the Form Rs. In addition, the Form A reform proposals can be further refined to maintain much of the benefit of the Form R with consequently smaller impacts on TRI data quality. These refinements would be to “enhance” the Form A by incorporating required range reporting for the environmental release data, and possibly some additional waste data, currently found only in Sections 8.1 through 8.7 of the Form R.

I. BACKGROUND

A. REGULATORY HISTORY - FORM R AND FORM A

The TRI is a federal government program that collects and disseminates information about toxic chemicals that are either introduced into the environment or otherwise managed (e.g., treated or stored) in the United States. Approximately 650 toxic chemicals and toxic chemical categories are currently subject to TRI reporting. Nearly 25,000 manufacturing, mining, electric power generation, and chemical and petroleum wholesaler facilities, among other entities, are required to submit annual reports about the release and waste management of these chemicals to EPA and State agencies.

Reporting to the TRI is required by section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA or Title III of the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499). TRI reporting was initially required of facilities in the manufacturing sector (i.e., Standard Industrial Classification [SIC] codes 20-39) that have 10 or more full time employee equivalents and manufacture (including import), process, or otherwise use any EPCRA section 313 (TRI) chemical in calendar year quantities greater than the established thresholds.

As originally promulgated in 1988, the thresholds for manufacturing and processing were 25,000 pounds and the otherwise use threshold was 10,000 pounds. These thresholds were later modified for PBT (persistent, bioaccumulative and toxic) chemicals. In addition, the original rule provided for range reporting, instead of point estimates, for certain sections of the Form R report, as a means for reducing the burden of reporting small quantities of up to 1,000 pounds.

Section 6607 of the Pollution Prevention Act of 1990 expanded reporting requirements to include toxic chemical source reduction, energy recovery, recycling, and treatment data. In 1993, EPA expanded the list of covered chemicals for the first time. In 1994 it added 286 more chemicals and chemical categories. Also in 1994, EPA amended TRI regulations to permit facilities with low levels of waste to report via a shorter Form A Certification Statement, beginning in 1995. The Form A allows facilities that generate small quantities of chemical waste to file abbreviated annual reports, saving businesses millions of dollars every year. All other facilities continued to use the standard Form R.

Based on 2001 filings, Form A provides the right-to-know information for only about 13 percent of current TRI reporting forms (<http://www.sba.gov/advo/laws/comments/tri2004.pdf>) (JFA, 2004). A facility may use the Form A (certification form) only if the total wastes do not exceed 500 pounds in a single year (less than two pounds/day). In other words, the facility must count all releases, all transfers for treatment, disposal, and amounts recycled on- or off-site and amounts used for energy recovery. In order to qualify for the Form A, the facility must also process, manufacture or otherwise use less than one million pounds, which is the alternate threshold amount that applies to the Form A universe of reporters. In the final rule, EPA considered alternate methods of calculating the annual reportable amount (ARA) (e.g. excluding recycling or energy recovery), alternate ARA amounts (e.g. 1,000 and 2,000 pounds), and alternate reporting thresholds. The Form A provides the name of the chemical and some facility identification information, but no information regarding the disposition of the waste chemical (e.g. air or water release).

Pursuant to Executive Order 13148, federal facilities began reporting in 1994. In 1997, EPA amended the TRI regulations to require annual reports from certain mining, electric power generation, hazardous waste management, and petroleum and chemical wholesaler facilities (covered industries are identified based on SIC codes).

In 1999, EPA expanded the chemical list yet again and divided it into two categories: PBT (persistent, bioaccumulative and toxic) chemicals and non-PBT chemicals. PBT chemicals are subjected to stricter reporting thresholds and are ineligible for Form A. For PBT chemicals, the thresholds are 100 pounds for manufacture, process or otherwise use. The threshold for a subset of PBT chemicals found to be highly bioaccumulative and persistent was lowered to 10 pounds. For dioxin and dioxin-like compounds, the threshold was lowered further to 0.1 gram. Additionally, for PBT chemicals, the use of Form A, range reporting, and a *de minimis* concentration exemption are not available, thus increasing the burden of reporting for PBT chemical filings. In 2001, EPA added lead and lead compounds to the PBT chemical list, resulting in a fourfold increase in Form R filings for that chemical category (the number of filings grew from 2,025 in 2000 to 8,734 in 2001). Many of the new reports describe zero on-site releases whose right-to-know value to the public is questionable. Lead reporting in 2001 accounted for 59.3 percent of the total number of PBT reports (JFA, 2004).

The EPA committed to further reduce the burden of paperwork associated with reporting as far back as 1997 when it expanded the number of covered chemicals and industries. In its October 1, 1996, Terms of Clearance document for TRI data collection, the Office of Management and Budget (OMB) asked EPA to investigate changes, including specifically the adoption of a higher reportable amount for Form A eligibility. In 1998, the Toxics Data Reporting Subcommittee to the National Advisory Council for Environmental Policy and Technology (NACEPT) offered opinions on raising the alternate threshold, but the Subcommittee never filed formal

recommendations and no action was considered by EPA. The OMB has continued issuing requests for burden reduction since 1996 as part of the Information Collection Request process.

B. STAKEHOLDER DIALOGUE

The EPA has developed a stakeholder dialogue process for the purpose of summarizing and soliciting comments on the TRI program reform options that EPA is considering. The EPA initiated this process, which is maintained as online dialogue on the EPA E-docket website, in September 2002. A primary goal of EPA's effort is to reduce the burden associated with TRI reporting while continuing to provide valuable information to the public. Two examples of areas where the EPA has developed past attempts to reduce the burden associated with TRI reporting requirements are: the Toxics Release Inventory - Made Easy (TRI-ME) software, and the Form A certification statement. In 2003, approximately 90 percent of Form Rs submitted were prepared using the TRI-ME software.

As identified in the most recent stakeholder dialogue phase II white paper titled "Stakeholder Dialogue Phase II – Burden Reduction Options" (EPA, 2004), EPA is requesting comment on the following TRI program reform options:

- Higher reporting thresholds for small businesses;
- Higher reporting thresholds for a category of facilities or class of chemicals with small reportable amounts;
- Expanded eligibility requirements for the Form A certification statement, through either a higher alternate reporting threshold, a higher annual reportable amount threshold, and/or a revised definition of the annual reportable amount threshold. This option could be combined with an enhanced Form A that provides range estimates for a subset of the full release and other waste management information included on Form R;
- A new short form for facilities that are able to certify that they have had no significant change in releases and other waste management quantities relative to a designated baseline year; and
- Use of range reporting for Section 8 of the Form R.

Below are summaries of the program reform options that EPA describes in the most recent stakeholder dialogue phase II white paper. Additional details on these options, including specific questions for which EPA has requested stakeholder comment, are available in the white paper (EPA, 2004).

Option #1 - Higher Reporting Thresholds for Small Businesses

In this option, EPA suggests that small businesses receive a higher reporting threshold to accommodate the smaller size of the enterprise, and the likelihood of smaller environmental releases. In specifying this option, EPA notes that consideration would have to be given to the specific criteria to be used to define “small business” as well as the actual revised reporting thresholds that would apply. Small business might be defined based on number of employees (e.g., less than 20), annual production (e.g., less than \$5 million), and/or SBA’s size standards for different industry classifications (<http://www.sba.gov/size>). Under this approach to burden reduction, the category of facilities identified would not have to report to the TRI if the revised, higher activity thresholds were not exceeded. Appendix A of the white paper also contains a table of TRI reporting year 2001 statistics that summarizes TRI submissions and data by size of facility and parent company.

Option #2 - Higher Reporting Thresholds for a Category of Facilities or Class of Chemicals with Small Reportable Amounts

Under this option, EPA would modify the reporting thresholds for a category of facilities and/or class of chemicals with small reportable amounts. This option would focus on a particular industry sector (or some other category of facilities) where the majority of facilities in the sector or category do not report significant release and other waste management quantities. Similarly, EPA notes that there may be a specific class of chemicals for which a few large reporters account for the great majority of releases and other waste management, and the remaining reporters account for only a small percent of the national totals. In such a case, higher reporting thresholds might provide significant burden reduction with relatively little loss of information.

Option #3 - Expanding Eligibility for the Form A Certification Statement

Under Option 3, EPA is considering expanding Form A eligibility requirements by: (1) raising the 1 million pound alternate threshold; and/or (2) modifying the 500-pound “annual reportable amount” criterion used to define the category of facilities eligible for the alternate threshold. Another way to modify the “annual reportable amount” criterion is to change the waste management activities included in this criterion. However, EPA notes that this type of change might affect facility choices regarding waste generation and management, which could have either positive or negative pollution prevention impacts. To partially compensate for the detailed information that would no longer be reported on Form R, EPA is also considering including additional range estimate information on Form A.

Option #4 - Creating a New, “No Significant Change” Certification Statement

Under this option, EPA is considering development of a new form that would allow facilities to certify to “no significant change” measured against a designated baseline year. The EPA states that the criteria for determining eligibility for this new form could be based on a specific percentage change in total releases, a specific percentage change in total quantity managed as waste, a specific percentage change in total production, a specific set of qualitative criteria, or some combination of these.

Option #5 - Use of Range Reporting for Section 8 of the Form R

Facilities that report non-PBT chemical information in Form R using ranges in Sections 5 and 6 still must report values for the same information in calculating the data items in Section 8. Under this option, EPA would extend the current use of range reporting in Sections 5 and 6 of Form R to Section 8.

Option #6 - Other Options for Burden Reduction

The EPA considered additional burden reduction options which it decided not to include as specific options in the white paper. For example, EPA contemplated reporting relief to facilities that report zero releases on Form R but decided against including this option in part, because it believes that this approach would not result in a significant burden reduction given that facilities would first have to determine that there were no releases in order to qualify. Alternate year reporting was also considered, but EPA decided against including this option because it believes that the “no significant change” option is a better way of providing similar burden relief.

The EPA is also requesting specific comment on a number of potential enhancements to the TRI-ME software. For example, enhanced validation logic could be included to assist in reducing the number of errors associated with TRI submissions.

C. SBA EVALUATION OF POTENTIAL TRI PROGRAM REFORM PROPOSALS

In 2004, the SBA commissioned a study by Jack Faucett Associates, Inc., (JFA) titled “Proposed Reforms to the Toxics Release Inventory Program: Streamlining Reporting and Preserving Data Integrity” that evaluated TRI program reform proposals (JFA, 2004). This study analyzed a series of reform proposals with respect to: (1) the number of Form Rs qualifying for relief; and (2) the change in the quantity of toxic chemicals reported. The proposed reform options seek not only to maintain to the largest extent possible the percentage of aggregate data reported on Form R, but also to ensure that local interests are preserved by seeking burden relief only for the class of filers that individually release minimal amounts of chemical wastes. The following reform proposals, which were patterned after proposals included in EPA’s stakeholder dialogue, were evaluated in this study:

- Expanding Form A eligibility and enhancing this form to include range reporting of waste data;
- Allowing facilities with no significant year-to-year changes in TRI activities to file a newly proposed form, tentatively titled Form NS;
- Allowing range reporting on all sections of Form R; and
- Reducing the reporting burden on petroleum and chemical wholesalers.

It is important to note that this study only evaluated TRI data quality with respect to the quantity of chemicals reported and not the estimated health risks associated with these chemicals. Indeed, that is the objective of this study – to provide an analysis based on health risks, that reflects both

the chemical-specific toxicities, and population exposures – two factors that previous studies by JFA or EPA did not account for.

The report that describes the results of the study contains numerous tables summarizing the analyses performed (JFA, 2004). For each reform proposal, these tables present the number of Form Rs affected and the change in number of pounds reported. In some cases, the report also identifies the estimated cost savings for a specific proposal.

The study identified the fact that many Form Rs for lead and lead compounds indicate zero or insignificant on-site releases and that many of these zero-release sites are concentrated in the petroleum bulk terminals sector. In 2001, for example, 3,220 facilities reported zero on-site releases of lead and lead compounds, and nearly 90 percent of the lead/lead compound reports for the petroleum bulk terminals sector (SIC code 5171) had zero on-site releases in the 2001 TRI. The report suggests that this high number of insignificant reports provides EPA with an important opportunity to make revisions to the TRI reporting requirements for these facilities without harming the utility of the database.

The JFA study recommended four simple TRI program reforms that will generate substantial cost savings with minimal effects on data quality (as measured by change in the amount of pounds reported to the TRI):

(1) *Expansion of Form A eligibility by increasing the existing annual reportable amount (sum of Sections 8.1 through 8.7 on Form R) to 1,000, 2,000, or 5,000 pounds.* As an alternative, the annual reportable amount (ARA) could be redefined as a facility's routine releases (Section 8.1 only) or its releases and transfers (the sum of Sections 8.1, 8.6, and 8.7), and the redefined ARA set at 500, 1,000, 2,000, or 5,000 pounds. The purpose of these two reforms is to broaden Form A eligibility for facilities/chemicals that contribute nominally, if at all, to overall community toxic chemical health risks. The first reform is based on a simple increase in the ARA quantity threshold using the current methodology for defining the ARA. The second reform is premised on an adjustment of the ARA to better capture the risks to the local community by excluding quantities that do not contribute significantly to community risk (energy recovery and recycling). The premise of the second reform is that this definition of ARA is more closely targeted to preserving data of value to the community. The study estimated savings of millions of dollars and thousands of hours of reporting burden as facilities switch from Form R to Form A.

(2) *Modification of Form A to provide range estimates of selected release and waste data now reported on Form R.* This enhanced Form A would reduce the amount of information lost from the potential substitution of thousands of Form Rs with Form As. This modification is designed to ensure that communities would continue to receive regular information about routine chemical releases and waste management practices at these facilities. The report notes that because range estimates are currently allowed on Form R, TRI filers and data users are accustomed to this approach. In addition, with the incorporation of an enhanced Form A, the report recommends that EPA should: (a) reinstate Form A reporting for PBT chemicals; and (b) reconsider allowing the *de minimis* concentration provision to apply to PBT chemicals.

(3) *Creation of a new Form NS to allow facilities a cost-effective means to report no significant change in year-to-year activities.* Facilities with small changes in production or chemical handling would be allowed the use of the Form NS (e.g. less than a 10 percent change in production of the product that uses the TRI chemical). The report also recommends that a *de*

minimis on-site quantity threshold be established to permit facilities with small on-site releases to file Form NS and that all facilities affected by the TRI program, including those handling PBT chemicals, should be allowed to use Form NS. The *de minimis* option reflects the idea that large percentage changes in small releases also represent insignificant change in TRI-related activity. The baseline Form R from a previous year would remain in the database to provide information that would substitute for the TRI data normally filed by the facility filing the Form NS. The JFA report further recommended that facilities be limited to four consecutive Form NSs for a particular chemical and that range reporting be allowed in Section 8, as well as Sections 5 and 6 of Form R.

(4) *Establishment of a special small business reporting threshold for Petroleum Wholesalers (SIC code 5171) and Chemical Wholesalers (SIC code 5169)*. This threshold, which would be based on number of employees, would eliminate a large number of TRI reports with insignificant chemical releases.

II. ANALYTIC APPROACH

A. PURPOSE

The purpose of this E.H. Pechan & Associates, Inc. (Pechan) study is to extend the chemical quantity-based reform proposal analysis conducted in the JFA study to a risk-based analysis. Using estimates of pounds of chemical releases to investigate potential impacts on the right to know of local communities and the ability to model health and environmental impacts is limited by the assumptions that all chemicals are equally toxic and all people are equally exposed. Although formal risk assessments are more accurate than the screening analysis conducted in this study, they are complicated and time consuming to prepare, requiring detailed data that are not always available, and the results are typically limited in scope and geographic area. To augment estimates of pounds released with toxicity and exposure considerations, Pechan utilized the EPA's Risk Screening Environmental Indicators (RSEI) Chronic Health Model in this study (EPA, 2002). Although the RSEI model does not address all of the potential factors that a full risk assessment would include, the RSEI model is designed to conduct comparative analyses. For the purpose of this study, the RSEI model approach is valid for determining the relative magnitude of the impact of each reform proposal on the ability to characterize chronic health risks. The results of this analysis for a limited geographic area could be further evaluated through a formal quantitative risk analysis that would yield estimated changes in health risks (e.g., increases in cancer incidence) associated with each reform proposal. This report uses data for the 1999 and 2000 reporting years, with a special data set provided in April 2004 by EPA (Antisdell, 2004), and the current RSEI model (Version 2.1) data (EPA, 2002).

The EPA has developed the RSEI Chronic Health Model to assess the potential impact of industrial releases from pounds-based, hazard-based, and risk-related perspectives. The RSEI model analyzes both cancer and non-cancer health effects and inhalation and ingestion exposure pathways. The model uses the reported quantities of TRI releases and transfers of chemicals to estimate the risk-related impacts associated with each type of air and water release or transfer by every TRI facility. The RSEI model is particularly useful for examining trends, ranking and prioritizing chemicals and industry sectors for strategic planning, conducting risk-related targeting, supporting community-based projects, and investigating environmental justice issues. The original model was reviewed by outside risk assessment experts in 1991, and submitted for

agency review and public comment in 1992. The current version of the RSEI model (2.1), was released in 2002; an updated model is due to be released later this year. The model has undergone three reviews by EPA's Science Advisory Board and has been used in numerous studies including risk, compliance, and environmental justice analysis of federal facilities' TRI reporting; analyses to assist in industry sector- and facility-based targeting; and investigations of potential disproportionate impacts on local populations.

It is important to note that this study does not sufficiently address impacts vis-à-vis current lead reporting requirements. This report uses data from 1999 and 2000. Because lead and lead compounds were added to the PBT chemical list in 2001, the Form R reporting threshold for lead and lead compounds (except for lead when it is contained in stainless steel, brass, or bronze alloys) was lowered from a manufacturing/processing threshold of 25,000 pounds and a "otherwise use" threshold of 10,000 pounds to 100 pounds beginning with the 2001 reporting year. As a result of this change, the number of lead and lead compounds reports quadrupled between 2000 and 2001. This is an important limitation to the results of the Form NS reform proposal analyses in this study, because lead and lead compounds constitute a substantial portion of the TRI database for PBT chemicals.² As noted in Section V of this report, SBA plans to commission a new set of TRI reform proposal analyses later this year when the next version of the RSEI model, which will contain 2001 and 2002 TRI data, is released. It should be emphasized that this limitation does not apply to the Form A reform proposal analysis results because only non-PBT chemicals are affected by these reform proposals.

B. CHARACTERIZATION OF HEALTH RISKS

There are several approaches available for characterizing health risks, which can generally be categorized as pounds-based, hazard-based, or risk-based approaches. As noted above, utilizing a pounds-based approach requires assumptions that all chemicals are equally toxic and that all people are equally exposed.

Toxicity-adjusted releases are called "hazard-based results" and provide an alternative perspective to pounds-based or full risk-related results, and are especially valuable when necessary data for risk-related modeling are not available. Toxicity weights for chemicals increase as the toxicological potential to cause chronic human health effects increases. The RSEI model uses EPA toxicity weights, which separately evaluate exposure routes (inhalation and oral) and classes of effects (cancer and noncancer). For each exposure route, chemicals are evaluated based on their single most sensitive adverse effect; if a chemical exhibits both cancer and noncancer effects, the higher of the two weights is assigned as the final weight for that route. While hazard-based estimates account for the toxicity of each chemical, they do not account for exposure potential or the size of the exposed population.

Risk-based approaches incorporate estimates of the exposure ("surrogate dose") and size of the population affected. To estimate the surrogate dose, a separate exposure evaluation is conducted

² In 2001, lead and lead compounds accounted for 59.3 percent of the Form R's filed for PBT chemicals, 97.5 percent of non-dioxin PBT on-site releases (subset of Section 8.1) and 96.4 percent of non-dioxin PBT total production-related waste (sum of Sections 8.1-8.7) (JFA, 2004). Given the large proportion of small onsite releases among lead reporters (47 percent of the RY 2001 lead reports showed onsite releases of less than 1 pound, according to the Advocacy letter to EPA dated September 2, 2003), we would expect the addition of the lead data to the analysis would yield a very large increase in the number of forms eligible for Form NS (*de minimis*).

for each exposure pathway. The exposure evaluations use models to estimate the ambient chemical concentration in the medium into which the chemical is released or transferred. The ambient concentrations are then combined with human exposure assumptions and estimates of exposed population size.

A risk-based approach was selected to analyze the potential impacts of each TRI reform proposal. Therefore, to the extent possible, the analysis incorporates two key pieces of information (exposure potential and size of exposed population) that are not accounted for with the hazard-based approach. It is important to note, however, that the current RSEI model risk scores do not account for every pathway (dermal) or every chemical release (i.e., chemicals are not included when toxicity weights are not available). Table II-1 summarizes the three types of risk estimates available from the RSEI model.

Table II-1. Health Risk Characterizations Available from RSEI Model

Type	Measure
Pounds-Based	TRI pounds released
Hazard-Based	TRI pounds x toxicity weight
Risk-Based (used in this study)	Surrogate dose x toxicity weight x population

C. ALTERNATIVE FORM A REPORTING REFORM PROPOSALS³

Currently, EPA allows firms to report on a shorter Form A (two pages rather than five pages for Form R) for a given non-PBT chemical when the annual reportable amount for that chemical (defined as the sum of Form R Sections 8.1 through 8.7) does not exceed 500 pounds.

In this study, Pechan evaluated the change in chronic health risks associated with two sets of TRI reform proposals related to expanding the Form A reporting eligibility for non-PBT chemicals. In addition to changes in the RSEI model risk score, Pechan evaluated changes associated with the number of Form Rs filed and the quantity of chemicals reported. Impacts were evaluated relative to both the current Form A eligibility threshold (ARA of 500 pounds or less) and the complete set of year 2000 RSEI model records (the RSEI model contains many Form Rs that may be Form A-eligible in that their annual reportable amount is reported to be less than 500 pounds).⁴

The first set of Form A reform proposals involves increasing the “annual reportable amount” eligibility threshold from the current 500 pounds to: (a) 1,000 pounds; (b) 2,000 pounds; and (c) 5,000 pounds.

The second set of Form A reform proposals entails revising the current Form A reporting eligibility threshold from a 500-pound annual reportable amount criterion to the following thresholds based on annual reportable amount minus recycling and energy recovery: (a) 500 pounds; (b) 1,000 pounds; (c) 2,000 pounds; and (d) 5,000 pounds.

³ This option corresponds to option #3 in the EPA Stakeholder Dialogue Phase II white paper (EPA, 2004).

⁴ Note that Form A eligibility also requires handling of 1 million or fewer pounds of the particular chemical. Because this information is not available from the TRI, it was not possible to evaluate this criterion in this study.

D. ALTERNATIVE FORM NS REPORTING REFORM PROPOSALS⁵

Pechan evaluated two sets of Form NS reporting reform proposals using 1999 and 2000 year RSEI model data. These evaluations analyzed the change in chemical quantities, the number of Form R reports, and risk scores associated with replacing 2000 year RSEI model data with 1999 year RSEI model data for year 2000 Form NS-eligible records. These proposals are predicated on two different types of nonsignificant change: (1) a small percentage change in chemical use or production (e.g. less than 10 percent) or (2) any change in a facility that remains below a *de minimis* facility chemical activity threshold. These proposals were first developed by the Office of Advocacy in a letter regarding the TRI information collection request, dated September 2, 2003 (http://www.sba.gov/advo/laws/comments/epa03_0902.html). In addition, Pechan chose to limit all Forms NS eligibility to onsite releases of 10,000 pounds or less, consistent with the Advocacy proposal, to eliminate potentially larger releases from Form NS relief.

Under the first Form NS reform proposal (Proposal 1), Form NS-eligible records are defined as facility/chemical combinations where both 1999 and 2000 year on-site releases (defined as the sum of the RSEI model on-site media codes listed in Table II-2) are less than 10,000 pounds AND there is no change in reporting between 1999 and 2000 for RSEI model categories (i.e., if the year 1999 quantity value for a facility/chemical combination is null or zero for a particular media/category then that facility/chemical/media/category must be reported with a null or zero quantity in 2000, and if a media/category quantity is non-null/zero for year 1999, then the year 2000 RSEI model quantity for that media/category must also be non-null/zero); AND the 2000/1999 total quantity ratio is between 0.90 and 1.10. For the purpose of this criterion, "total quantity" is defined as the sum of the RSEI model chemical quantities for all on- and off-site media.

Table II-2. RSEI Model On-Site Release Media Codes

Media	Related Form R Section
1 Fugitive Air	5.1
2 Stack Air	5.2
3 Direct Water	5.3
401 Und Inj (Class I wells)	5.4.1
402 Und Inj (Class II-V wells)	5.4.2
520 Land Treatment/applic./farming	5.5.2
530 Surface Impoundment	5.5.3
540 Other Land Disposal	5.5.4
560 Other Landfills	5.5.1B
590 RCRA Subtitle C Landfills	5.5.1A

Under the second reform proposal, Form NS-eligible records are defined using the first two Proposal 1 criteria (i.e., both 1999 and 2000 year on-site releases are less than 10,000 pounds AND there is no change in reporting between 1999 and 2000) AND the (i) 1999 and 2000 year on-site non-PBT chemical releases (on-site releases defined as the sum of the RSEI model on-site media codes) are less than 100 pounds, and (ii) 1999 and 2000 year on-site PBT chemical releases are less than 10 pounds (except dioxin and dioxin-like compounds).

⁵ This option corresponds to option #4 in the EPA Stakeholder Dialogue Phase II white paper (EPA, 2004).

In addition to evaluating each of these two proposals independently, Pechan analyzed the impact of the combination of both proposals (i.e., records that meet either or both proposals). The evaluations of each alternative were performed relative to actual 2000 year RSEI model quantities and risk scores. The impacts of the Form NS reform proposal alternatives were measured by comparing year 2000 RSEI model values with year 2000 values for non-Form NS-eligible Form Rs and year 1999 values for Form Rs identified as Form NS-eligible.

III. DATA SOURCES

Pechan utilized two main data sources for conducting this study's TRI reporting reform analyses: the EPA's Risk Screening Environmental Indicators (RSEI) Chronic Human Health Model and a 2000/2001 TRI database prepared by EPA (EPA, 2002; Antisdell, 2004). The following two sections describe each data source in turn.

A. EPA RSEI CHRONIC HUMAN HEALTH MODEL

The EPA has developed the RSEI Chronic Health Model to assess the potential impact of industrial releases from pounds-based, hazard-based, and risk-related perspectives. The RSEI model analyzes both cancer and non-cancer health effects and inhalation and ingestion exposure pathways. The model uses the reported quantities of TRI releases and transfers of chemicals to estimate the risk-related impacts associated with each type of air and water release or transfer by every TRI facility. The risk-related impacts potentially posed by a chemical are a function of chemical toxicity, the fate and transport of the chemical in the environment after it is released, the pathway of human exposure, and the number of people exposed.⁶ This information is used to create numerical values that can be added and compared to assess the relative risk of chemicals, facilities, regions, industries, or other factors. These values do not provide absolute measures of risk and can only be interpreted as *relative* measures that are compared with other such values in a comparative analysis.⁷

The RSEI model starts with release information as reported on Form R (the RSEI model does not attempt to estimate data from Form A reports).⁸ For each exposure pathway associated with each chemical release, the model generates an "Indicator Element." For instance, a release of benzene to air via a stack from the "ABC" facility in 2000 is an "Indicator Element." Each Indicator Element is associated with a set of results, including pounds-based, hazard-based, and risk-related results, or scores. The risk-related score is a unitless value proportional to the potential risk-related impact of each element. There are numerous ways that Indicator Elements can be grouped together to assess chronic human health impacts. For example, all of the RSEI model results can be aggregated for each year to allow an assessment of trends in estimated impacts, or results can be grouped to compare results across facilities, regions, chemicals, and any combinations of these and other variables.

⁶ Note that the model does not focus on highly exposed individuals, but rather general populations.

⁷ It should be emphasized that the RSEI model results do not represent a detailed or quantitative risk assessment. A comprehensive quantitative risk analysis would require resources beyond those available for this study. However, it would be possible to conduct a quantitative risk analysis for sample locations to validate the relative magnitude of the change in health risks estimated by the RSEI model. A quantitative analysis would also provide metrics that are used for estimating/comparing actual changes in health risk (e.g., change in cancer incidence per 1 million people).

⁸ The RSEI model does include data from Form R facilities that were eligible for the Form A.

The RSEI model relies on the ability to locate facilities and people geographically, and to attribute characteristics of the physical environment, such as meteorology, to areas surrounding the facilities once they are located. To locate the facilities and attribute data to those facilities, the model uses a 1 kilometer by 1 kilometer grid system. For each cell in the grid, a location in terms of (X,Y) coordinates is assigned based on latitude and longitude. TRI facilities are located using the facilities' latitude/longitude coordinates. To locate population, the model uses U.S. Decennial Census data for 1990 and 2000 at the block level. These data are used to create detailed age/sex-defined population groups for each of the census blocks in the United States for 1990 and for 2000. Because the census block boundaries changed between 1990 and 2000, each set of census block-level data is first transposed onto the model grid, which is unchanging, using an area-weighted method. Once populations for 1990 and 2000 are placed on the grid, the model uses a linear interpolation in each grid cell to create annual estimates of the population sizes for each year between 1990 and 2000. In the case of this study, RSEI calculates population for 1999 and uses the actual 2000 population for 2000.

Once facilities and people are located on the model's grid, three main components are used to compute risk-related impacts in the model. These components are:

- the quantity of chemicals released or transferred;
- adjustments for chronic human health toxicity; and
- adjustments for exposure potential and population size.

The RSEI model estimates exposure potential using a "surrogate" dose. To estimate the surrogate dose, a separate exposure evaluation is conducted for each pathway-specific chemical release. The exposure evaluations use models that incorporate data on pathway-specific chemical releases and transfers, physicochemical properties and, where available, site characteristics, to estimate the ambient chemical concentration in the medium into which the chemical is released or transferred. The ambient concentrations are combined with human exposure assumptions and estimates of exposed population size specific to age and sex.⁹

The following identify some of the major limitations of the RSEI model:

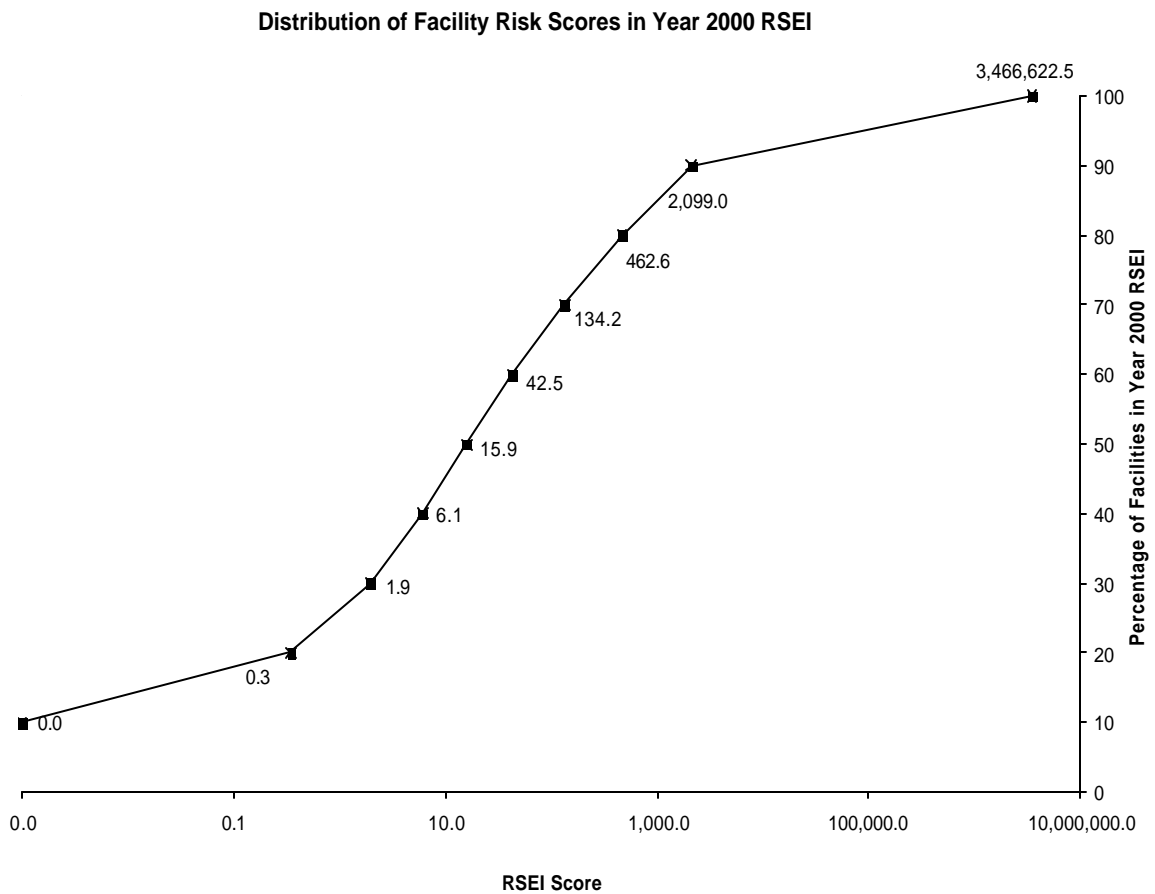
- Model results do not provide quantitative risk estimates (e.g., cancer incidence);
- Model results do not evaluate individual risk;
- The model does not account for all sources of TRI chemicals; it accounts for only those sources that are required to report to TRI. It also does not provide scores for all TRI chemicals, although chemicals without toxicity weights account for a very small percentage of total releases and of total risk-related impacts;

⁹ The results of this methodology should not be interpreted as an actual numerical estimate of dose resulting from TRI releases, because limited facility-specific data and the use of models that rely on default values for many parameters prevent the calculation of an actual dose. Instead, the methodology generates as accurate a surrogate dose as possible without conducting an in-depth risk assessment.

- The model assumes that air concentrations of TRI chemicals are the same for indoor and outdoor exposures, and that populations are continuously exposed;
- Dermal and food ingestion pathways (other than fish consumption), and some other indirect exposure pathways are not evaluated; and
- Acute health effects associated with short-term, periodic exposures to higher levels of these same chemicals are not addressed.

The total RSEI score for the year 2000 for all TRI facilities (after accounting for known errors) is 50,965,154. The observed distribution of risk scores developed for the year 2000 is represented in Figure III-1. The median score for all 19,494 facilities in the 2000 RSEI is 15.9; the 90th percentile is 2,099 (or 0.03 percent of the nationwide total), and the 10th percentile is 0.01. Just as the great majority of the releases are accounted for by a small minority of the facilities, 95 percent of the risk score is accounted for by the top 10 percent of all facilities. Thus, the top 10 percent facilities would naturally warrant the greatest attention of the public and the regulators.

Figure III-1. Distribution of Facility Risk Scores in Year 2000 RSEI



In Table III-1, we present the RSEI record elements for three specific facilities: the 10th, 50th (median) and the 90th percentile facilities. The table shows the specific facility, the relevant chemicals and the exposure pathways, with the respective pounds released, and the risk score attributable to each pathway. In the case of the median facility, General Chemical Corp. Syracuse Works, the risk score is 15.9. More than 98 percent of the risk is attributable to two sources – air emissions of sodium nitrite and ammonia, substances of relatively low toxicity weight (less than 20). The total air emissions were 2,439 pounds of ammonia and 11,018 of sodium nitrite. This type of record reflects a typical TRI facility. Since this facility is the median facility, half of all facilities have RSEI scores under 15.9.

Table III-1. RSEI Model Facility Records for 10th, 50th, and 90th Percentile Facilities

Chemical	Media	Category	TRI Pounds	Risk Score	Toxicity Weight	Ingestion Pathway
Foremost Farms USA – 10th Percentile						
Nitrate compounds	Direct Water	Cannot locate facility stream	33,286	0.0	0	None
Nitrate compounds	Land Treatment/applic./farming	Unmodelled - PRD	8,321	0.0	0	None
			41,607	0.0		
General Chemical Corp. Syracuse Works – 50th Percentile - Median						
Sodium nitrite	Stack Air	Direct Point Air - Rural	11,018	8.8	5	Inhalation
Sodium nitrite	POTW Transfer	POTW Effluent	50	0.0	5	Oral
Sodium nitrite	POTW Transfer	Missing Physical-Chemical Data	2	0.0	0	None
Sodium nitrite	POTW Transfer	POTW Biodegradation	0	0.0	0	None
Sodium nitrite	POTW Transfer	POTW Effluent-Fish Ing. (Rec)	25	0.0	5	Oral
Sodium nitrite	POTW Transfer	POTW Effluent-Fish Ing. (Sub)	25	0.0	5	Oral
Ammonia	Fugitive Air	Direct Fugitive Air - Rural	2,343	6.9	18	Inhalation
Ammonia	Stack Air	Direct Point Air - Rural	86	0.2	18	Inhalation
Ammonia	POTW Transfer	No Toxicity Data	2	0.0	0	None
Ammonia	POTW Transfer	POTW Biodegradation	4	0.0	0	None
Nitrate compounds	Stack Air	Direct Point Air - Rural	29	0.0	0	Inhalation
Nitrate compounds	POTW Transfer	No POTW Removal Data	5	0.0	0	None
			13,589	15.9		
Ball Metal Beverage Container Corp. – 90th Percentile						
n-Butyl alcohol	Fugitive Air	Direct Fugitive Air - Rural	15,000	18.3	5	Inhalation
n-Butyl alcohol	Stack Air	Direct Point Air - Rural	45,000	31.8	5	Inhalation
n-Butyl alcohol	Offsite Xfer to Broker (Recov.)	Unmodelled - PRD	48	0.0	0	None
Hydrogen fluoride	Fugitive Air	Direct Fugitive Air - Rural	26	2.0	310	Inhalation
Hydrogen fluoride	Stack Air	Direct Point Air - Rural	96	4.3	310	Inhalation
Sulfuric acid	Fugitive Air	Direct Fugitive Air - Rural	3	1.0	1,400	Inhalation
Sulfuric acid	Stack Air	Direct Point Air - Rural	77	15.5	1,400	Inhalation
Glycol ethers	Fugitive Air	Direct Fugitive Air - Rural	35,000	761.7	90	Inhalation
Glycol ethers	Stack Air	Direct Point Air - Rural	100,000	1,264.4	90	Inhalation
Glycol ethers	Offsite Xfer to Broker (Recov.)	Unmodelled - PRD	425	0.0	0	None
			195,675	2,099.0		

In conducting the reform proposal evaluations in this study, Pechan identified a number of quality assurance issues with the current version of the RSEI model. These issues, which EPA expects to fix in the next version of the RSEI model, include risk scores that were improperly calculated for certain Publicly Owned Treatment Works (POTW) Transfer (alternate intake) records. Based on an assessment of the use of the drinking water intake on the Los Angeles river, the EPA notes that these risk scores will be zeroed out in the next version of the RSEI model (Engler, 2004). Our study zeroed out these LA facility records, which are listed below:

Facility	Chemical	Media	Category	Pounds	Risk Score
Alco Cad-Nickel Plating Co.	Nickel compounds	6 POTW Transfer	POTW Effluent (alt intake)	79	150,583
Alco Cad-Nickel Plating Co.	Zinc compounds	6 POTW Transfer	POTW Effluent (alt intake)	43	14,040
Baxter Hyland Immuno	Ethylene glycol	6 POTW Transfer	POTW Effluent (alt intake)	1,862	89,074
Baxter Hyland Immuno	Methanol	6 POTW Transfer	POTW Effluent (alt intake)	3,281	627,918
Graphic Research LLC	Copper	6 POTW Transfer	POTW Effluent (alt intake)	5	710,830
Ambitech Inc.	Copper	6 POTW Transfer	POTW Effluent (alt intake)	10	1,441,405
Burbank Plating Services Corp.	Cadmium compounds	6 POTW Transfer	POTW Effluent (alt intake)	41	429,512
Burbank Plating Services Corp.	Cyanide compounds	6 POTW Transfer	POTW Effluent (alt intake)	125	1,717,287
Burbank Plating Services Corp.	Zinc compounds	6 POTW Transfer	POTW Effluent (alt intake)	43	14,033
Pharmavite Corp.	Zinc compounds	6 POTW Transfer	POTW Effluent (alt intake)	43	14,033
Photo Fabricators Inc.	Copper	6 POTW Transfer	POTW Effluent (alt intake)	1	98,726

These records accounted for 5,307,441 of the total year 2000 RSEI risk score of 56,272,594 (or approximately 9 percent of the reported total).

The following summarizes additional individual RSEI model records for which significant problems were identified in this study (details on the source of these problems/methods for correction were not available from EPA):

- Ametek Inc. U.S. Gauge Division/Lead – there are dramatic reductions between 1999 and 2000 in the quantities transferred to POTWs for every category except POTW Sludge Volatilization-Urban (risk score of 6,398);
- Du Pont Cooper River Plant/Antimony compounds – similar to Ametek, all of the POTW transfer quantities decrease significantly between 1999 and 2000 except for POTW Sludge Volatilization-Rural (risk score of 29,906);
- VA Hudson Valley Health Care System Montrose Campus/Chlorine – for the Direct Fugitive Air-Urban score category, there is an anomalously large increase in the estimated exposed population between 1999 and 2000 (the 1999 estimated population is 6,831,609 while the 2000 estimated population is 14,387,214) (risk score of 883); and
- American Tank and Fabricating Co./Manganese compounds - the RSEI model reports a large decrease in risk between 1999 and 2000 for both the fugitive air and stack air score categories (fugitive air are releases not caught by a capture system), although there is no reported change in the quantity of chemical released (risk score of 6,527).

It is not believed that these errors are common, nor would they have a major impact on the overall results of the analyses performed in this study, although they may have significant impacts on specific facility/chemical-level results.

B. YEAR 2000 AND 2001 TRI DATABASE

The RSEI model does not contain information reported in Section 8 (Source Reduction and Recycling Activities) of Form R. Because the reform proposals analyzed in this study rely on information reported in Section 8 to identify Form A eligibility, the SBA Office of Advocacy requested a TRI database file from EPA for reporting years 2000 and 2001. In April 2004, the EPA provided SBA with a database containing the requested 2000 and 2001 information (Antisdell, 2004). This file contained over 60 data fields, including: (1) facility ID and name, (2) facility address, (3) chemical ID and name, (4) facility SIC code, (5) Section 8.1 through 8.7 quantities, (6) Section 8.8 (one-time releases) quantity, (7) Section 8.9 (production index) value, (8) total releases by medium (air, water, land, underground injection), (9) total transfers to POTWs, and (10) a value identifying whether the report is for a PBT or non-PBT chemical.

It is important to note that the RSEI model used in this analysis contains TRI information from April 2002, while the TRI database supplied by EPA contains information as of April 2004. The information reported in the TRI database sometimes differs from that reported in the RSEI model because facilities often revise their previous year TRI reports. Because the Form A reform proposal analyses relied on both sets of information, Pechan developed a procedure to limit the analysis to records for which the reported quantity of chemicals handled were similar in each database. Further details on this procedure are provided in the following section, which also describes procedures Pechan used to quality assure select chemical quantity values reported in the TRI database.

C. FORM A PROPOSAL QUALITY ASSURANCE

The purpose of the Form A reform proposals evaluated in this study is to provide Form R reporting burden relief to additional facilities without significantly affecting the local communities' right to know, or the ability to model health risks associated with toxic chemical handling. The focus of these proposals is on increasing the annual reportable amount threshold from the current 500-pound value and/or removing recycling and energy recovery from the definition of annual reportable amount. As described in the following sections, Pechan performed quality assurance procedures on the data sources used in evaluating the Form A reform proposals to improve the validity of the analysis results.

1. Quality Assurance of TRI Database Chemical Quantity Values

The annual reportable amount is currently defined as the sum of the quantities reported in the following TRI Form R sections:

- 8.1 – Quantity released;
- 8.2 – Quantity used for energy recovery onsite;
- 8.3 – Quantity used for energy recovery offsite;
- 8.4 – Quantity recycled onsite;
- 8.5 – Quantity recycled offsite;
- 8.6 – Quantity treated onsite;
- 8.7 – Quantity treated offsite; and
- 8.8 – Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes.

Section 5 of Form R is used to report the quantity of toxic chemicals released onsite (also included as part of Section 8.1). Transfers to POTWs are reported in Section 6 of Form R (portions of Section 6 are also included as parts of Sections 8.1, 8.3, 8.5, and 8.7). By definition, for a given Form R, the sum of Section 5 quantities plus Section 6 quantities must be less than or equal to the total quantities reported in Sections 8.1 through 8.8. Therefore, it is possible to quality assure the sum of the quantity values reported in Sections 8.1 through 8.8 using the values reported on Form R for Sections 5 and 6. Given that Sections 5 and 6 are used to report releases/transfers rather than other forms of chemical handling, Pechan decided to use the sum of the Section 5 and 6 quantity values to represent the annual reportable amount rather than the sum of Sections 8.1 through 8.8 in cases where the sum of the Section 5 and 6 quantities was greater than the sum of the Section 8.1 through 8.8 quantities.¹⁰

Pechan compared the sum of the Section 8.1 through 8.8 values for each Form R in the TRI database to the sum of the Section 5 and 6 values for that Form R. When the sum of the Section 5 and 6 values for a given TRI database record was higher than the sum of that record's Section 8.1 through 8.8 values, Pechan used the Section 5 and 6 sum in evaluating the first set of Form A reform proposals as described in section II.C. of this report. This resulted in revisions to the sum of Section 8.1 through 8.8 values for approximately 9 percent of the TRI database records for year 2000. We chose this conservative assumption to ensure that this analysis does not treat suspect Form Rs as eligible for Form A reporting.

Pechan also conducted a separate quality assurance procedure for the second set of Form A reform proposals, which reflect annual reportable amount thresholds that exclude recycling and energy recovery. For these reform proposals, the ARA is defined as the sum of Sections 8.1, 8.6, 8.7, and 8.8 as reported on Form R. As a quality assurance check on the Section 8.1 and 8.7 information reported to the TRI, Pechan evaluated the second set of Form A reform proposals using Form R quantity values computed from the following equation:

$$A_2 = [\text{> of } R \text{ or } (O_R + P_M)] + [O_T] + [\text{> of } F_T \text{ or } P_N] + T \text{ [if } R > (O_R + P_M) \text{ and } F_T > P_N]$$

where :

A_2 = Quantity value used to evaluate Form A Reform Proposal 2

R = Total releases (Form R Section 8.1)

O_R = Onsite releases (Form R Section 5)

P_M = Transfers of metals to POTWs (Form R Section 6.1)

O_T = Onsite treatment (Form R Section 8.6)

F_T = Offsite treatment (Form R Section 8.7)

P_N = Transfers of non – metals to POTWs (Form R Section 6.2)

T = One – time releases (Form R Section 8.8)

¹⁰ These comparisons may be hindered somewhat by range reporting within Sections 5 and 6. However, the impact that this will have on estimation of Form A eligibility is expected to be minor. In many cases, however, values reported in Sections 5 and 6 are substantially greater than values reported in Section 8 (e.g., there are over 250 Form Rs for which a zero value is reported in Section 8.1 while thousands of pounds are reported for the sum of Sections 5 and Section 6.1). The effect of this revision is to reduce the number of facilities eligible for Form A reporting.

The above calculation was performed for each Form R to yield the annual reportable amount value that was used to evaluate Form A eligibility under the second set of Form A reform proposals. As in the previous method, Pechan chose the larger value of the Section 8 and Sections 5 and 6 quantities, to be consistent with the previous choice. This reduces the eligibility for the Form A. Based on these calculations, approximately 24 percent of Section 8.1 values were replaced with the sum of Section 5 values plus Section 6.1 values and approximately 3 percent of the Section 8.7 values were replaced with values from Section 6.2.

2. Comparison of RSEI Model Quantities with TRI Database Quantities

Because the RSEI model does not report quantities used for energy recovery, recycled onsite, treated onsite, or one-time releases (Form R Sections 8.2, 8.4, 8.6, and 8.8, respectively), the RSEI model does not provide all of the TRI information necessary for calculating annual reportable amounts that are needed to evaluate Form A reform proposal eligibility. Therefore, Pechan linked the year 2000 records in the RSEI model with year 2000 records in the TRI database to use the risk information from the RSEI model with the quantity information available from the TRI database. The RSEI model used in this analysis contains TRI information from April 2002, while the TRI database contains up-to-date information as of April 2004. Because it would not make sense to apply RSEI model risk scores to TRI database quantities if the quantities reported in each database are not approximately equal, Pechan developed the following procedure to limit the analysis to records for which the reported quantity of chemicals handled were similar in each database.

Pechan compared year 2000 quantity information from the TRI database with quantity information from the RSEI model to identify facility/chemical combinations for which the TRI and RSEI model quantity values were within 5 percent of each other. To make the necessary comparisons, Pechan allocated year 2000 media-level quantity values from the TRI database to the categories that the RSEI model uses to model risk. Because the TRI database did not provide data specific to each of the more than 30 media that the RSEI uses to report TRI data, only a subset of the RSEI model was used in the Form A reform proposal analysis. Table III-2 displays the complete list of media that were included in the 2000 RSEI model, the RSEI national risk score for year 2000 for each media, and the media that were included in the Form A reform proposal analysis. As indicated in Table III-2, it was necessary to omit media representing only 0.01 percent of the RSEI total risk score from the Form A proposal analyses.

Pechan allocated the Onsite Air release values for each Form R from the TRI database between the two air media reported in the 2000 RSEI model (i.e., fugitive air and stack air) based on the quantities reported in each of these two media in the RSEI model for that Form R. (The Onsite Water release and POTW Transfer media could be directly matched to the same media that are reported in the RSEI model.) The next step was to allocate each Form R's TRI database media quantities across the 2000 RSEI model categories within each media (see Table III-3 for list of year 2000 RSEI model categories for media types included in the Form A reform proposal analysis). Pechan used a procedure analogous to that used to allocate Total Onsite Air releases to fugitive air and stack air media in that the TRI database media-level estimates were apportioned to RSEI model categories based on the quantity reported for that media/category combination in the 2000 RSEI model.

Table III-2. Media Included in Year 2000 RSEI Model

Media	Form R Match	Facility ID Count	TRI Pounds	Risk Score	In Form A Reform Proposal Analysis?
1 Fugitive Air	5.1	44,560	254,476,710	15,603,404	Yes
2 Stack Air	5.2	49,762	1,648,796,892	18,759,379	Yes
3 Direct Water	5.3	29,928	260,882,473	13,678,635	Yes
401 Und Inj (Class I wells)	5.4.1	730	240,977,364	0	No
402 Und Inj (Class II-V wells)	5.4.2	73	38,059,216	0	No
520 Land Treatment/applic./farming	5.5.2	720	14,028,825	0	No
530 Surface Impoundment	5.5.3	2,691	1,083,012,725	0	No
540 Other Land Disposal	5.5.4	2,389	2,527,153,406	0	No
560 Other Landfills	5.5.1B	3,195	299,080,790	0	No
590 RCRA Subtitle C Landfills	5.5.1A	865	206,126,760	0	No
6 POTW Transfer	6.1.A	59,541	340,039,881	8,224,633	Yes
710 Offsite Storage Only	6.2 M10	848	9,449,062	0	No
720 Offsite Recyc. (S/O Recovery)	6.2 M20	2,885	223,849,446	0	No
724 Offsite Recyc. (Metal Recovery)	6.2 M24	6,917	1,361,909,712	0	No
726 Offsite Recyc. (Other Recovery)	6.2 M26	3,375	179,700,137	0	No
728 Offsite Recyc. (Acid Regen.)	6.2 M28	38	4,159,523	0	No
740 Offsite Trtmnt (Solidification)	6.2 M40	811	5,619,377	0	No
741 Solid./Stab. -metals	6.2 M41	2,649	153,054,960	0	No
750 Offsite Incineration	6.2 M50	12,245	158,865,728	5,389	No
754 Offsite Inciner (No Fuel Value)	6.2 M54	4,118	31,117,475	1,154	No
756 Offsite Energy Recovery	6.2 M56	9,822	720,373,797	0	No
761 Offsite Wastewater Trtmnt	6.2 M61	2,269	61,500,405	0	No
762 Wstwr Trtmnt Ex. POTW- metals	6.2 M62	867	7,081,472	0	No
769 Offsite Other Waste Treatment	6.2 M69	1,165	13,243,625	0	No
771 Offsite Underground Injection	6.2 M71	564	36,032,622	0	No
772 Offsite Landfill	6.2 M72	13,046	334,869,395	0	No
773 Offsite Land Treatment	6.2 M73	362	5,793,318	0	No
779 Offsite Other Land Disposal	6.2 M79	867	22,126,052	0	No
790 Offsite Other Management	6.2 M90	1,505	18,471,050	0	No
791 Xfer to Broker- 1988 to 1990	6.2 ???	2	1,126	0	No
792 Offsite Xfer to Broker (Recov.)	6.2 M92	2,607	79,864,749	0	No
793 Offsite Xfer to Broker (Recyc)	6.2 M93	3,639	315,199,934	0	No
794 Offsite Xfer to Broker (Disp)	6.2 M94	1,856	16,017,050	0	No
795 Offsite Xfer to Broker (Trtmnt)	6.2 M95	1,007	11,782,469	0	No
799 Offsite Unknown	6.2 M99	1,413	16,411,929	0	No

Table III-3. Year 2000 RSEI Model Categories for Media Types Matched to Year 2000 TRI Database

Media	Category
1 Fugitive Air	1 Direct Fugitive Air - Rural
1 Fugitive Air	2 Direct Fugitive Air - Urban
1 Fugitive Air	24 No Toxicity Data
1 Fugitive Air	29 Unable to find WBAN
2 Stack Air	3 Direct Point Air - Rural
2 Stack Air	4 Direct Point Air - Urban
2 Stack Air	24 No Toxicity Data
2 Stack Air	29 Unable to find WBAN
2 Stack Air	31 Internal error
3 Direct Water	5 Direct Water
3 Direct Water	20 Cannot locate facility stream
3 Direct Water	24 No Toxicity Data
3 Direct Water	55 Direct Water-Fish Ingestion (Recreation)
3 Direct Water	105 Direct Water-Fish Ingestion (Subsistence)
3 Direct Water	205 Direct Water (alternate intake)
6 POTW Transfer	7 POTW Effluent
6 POTW Transfer	8 POTW Volatilization - Rural
6 POTW Transfer	9 POTW Volatilization - Urban
6 POTW Transfer	11 POTW Sludge Volatilization - Rural
6 POTW Transfer	12 POTW Sludge Volatilization - Urban
6 POTW Transfer	19 Cannot place Lat/Long
6 POTW Transfer	20 Cannot locate facility stream
6 POTW Transfer	24 No Toxicity Data
6 POTW Transfer	25 No POTW Removal Data
6 POTW Transfer	32 Missing Physical-Chemical Data
6 POTW Transfer	34 Unmodelled - PRD
6 POTW Transfer	37 POTW Biodegradation
6 POTW Transfer	57 POTW Effluent-Fish Ingestion (Recreation)
6 POTW Transfer	107 POTW Effluent-Fish Ingestion (Subsistence)
6 POTW Transfer	207 POTW Effluent (alternate intake)

Next, Pechan removed any year 2000 RSEI model records from the Form A analysis whose reported quantities were not within 5 percent of the resulting category-level year 2000 quantities computed from the 2000 TRI database quantities. To ensure that only an entire TRI report would be included in the analysis, Pechan eliminated any RSEI model category level records that were within 5 percent of TRI database values, but whose Form R had other category level records that were not within 5 percent of the TRI database values. This also has the effect of eliminating RSEI data that were later updated by the facilities because the updated TRI data would no longer match the earlier RSEI based data. Therefore, it provides an additional quality screen by eliminating the outdated erroneous data in RSEI. Of the total number of 183,791 category-level records from the 2000 RSEI model that were matched to year 2000 TRI database records, these procedures resulted in 6,160 category-level records being excluded from the Form A reform proposal analyses.

D. FORM NS PROPOSAL QUALITY ASSURANCE

The purpose of the Form NS reform proposals is to allow TRI facilities to file brief certifications of “no significant change” from their previous year TRI submittal information whenever year-to-year changes for these facilities are not significant. The focus of these proposals is on minimizing the reporting period burden at facilities that either release small amounts of chemicals or operate in a substantially similar manner year to year. As described in the following sections, Pechan performed quality assurance procedures to improve the quality of the data used in evaluating the Form NS reform proposals.

1. Records Included in Analysis

Because the Form NS reform proposals rely solely on information available from the RSEI model, it was not necessary to conduct a quality assurance analysis similar to the one implemented before conducting the Form A reform proposal evaluations. However, it is important to note that the Form NS analyses were only performed on RSEI model records that appear in both 1999 and 2000. Any additional facility/chemical/media/category combination records that appear in 1999 but not 2000 (and vice-versa) were excluded.

2. Comparison of Year 2001 Form R Section 8.9 (Production Index) values with TRI 2001/2000 Quantity Values

As one of the criteria for evaluating Form NS eligibility, Pechan considered including a provision that the production index (reported in Form R Section 8.9) be between 0.90 and 1.10 (i.e., a change of 10 percent or less). To evaluate the validity of this approach for identifying small year-to-year changes in quantities handled, Pechan compared each Form R’s year 2001 production index (for Form Rs with production indices between 0.90 and 1.10) to the 2001 to 2000 waste ratio (i.e., calculated from the sum of the amount of chemical released, recycled, treated, or used for energy recovery in each year).¹¹ Table III-4 displays the results of these comparisons. Table III-4 indicates a poor correlation between the two measures of quantity of waste handled. Based on the results of this comparison, it does not appear reasonable to assume that the Section 8.9 production index is a valid surrogate indicator for year-to-year changes in the quantity of chemicals handled. Pechan notes that Form R provides considerable discretion to the

¹¹ Represents the sum of Form R quantity values reported in Sections 8.1 through 8.7.

facility in determining how to calculate the production index, and thus, the lack of correlation is not surprising. Therefore, as noted below, Pechan has defined the first Form NS reform proposal to include a criterion that the year-to-year total waste ratio (and not the Section 8.9 production index) is between 0.90 and 1.10.

Table III-4. Comparison of 2001 Production Index with 2001/2000 Waste Ratio

Comparison	Number of Form Rs	% of Total Form Rs
Production index within 5 percent of Waste Ratio	9,365	23.5
Production index within 10 percent of Waste Ratio	14,269	35.8
Production index within 25 percent of Waste Ratio	23,015	57.7

IV. ANALYTIC RESULTS

A. FORM A REFORM PROPOSAL ALTERNATIVES

The tables presented in this section display the results of the Form A reform proposal analyses. These tables only include a sub-set of all RSEI model media types because the TRI database did not provide data specific to each of the thirty-five RSEI model media types. This caveat may have a significant impact on the change in quantity of chemicals reported in the analysis because only 25 percent of the total year 2000 quantity of chemical waste reported in the RSEI model is associated with the media included in the Form A analysis (see Table III-2).¹² However, this will not significantly affect the risk score analysis because the media included in the Form A analysis accounted for 99.99 percent of the total risk score in the year 2000 RSEI. The national results are described in more detail in the following sections.

1. National Results

Table IV-1 displays the results of the analyses performed for each of the Form A reform proposal alternatives. These results are presented relative to two baseline values: (1) all year 2000 Form R filings included in the analysis; and (2) the current 500-pound Form A reporting threshold. As indicated in Table IV-1, approximately 16 percent of the Form Rs analyzed in the Form A proposal analysis were eligible for Form A reporting in year 2000 based solely on the 500-pound annual reportable amount threshold. These are in addition to the 14 percent of TRI reports that did utilize the Form A in year 2000. These Form A-eligible Form Rs accounted for only 0.14 percent of the total pounds, but approximately 20 percent of the year 2000 risk score in the RSEI model. Because many Form Rs that were submitted in 2000 may have been eligible for Form A reporting, the results that are summarized below are described relative to the current 500-pound Form A reporting threshold rather than actual year 2000 Form R filings.¹³

¹² The quantity of chemicals reported in the RSEI model includes the total quantity of chemicals as reported to the TRI with the exception of amounts associated with onsite energy recovery, onsite recycling, and onsite treatment.

¹³ For completeness, Table IV-1 provides the results of the Form A reform proposal analyses both ways: (1) relative to the actual year 2000 filings, and (2) relative to the current 500-pound threshold.

Table IV-1. Form A Reform Proposal National-Level RY 2000 Results

Reform Proposal 1 (Increase Annual Reportable Amount [ARA] Threshold) Results Relative to Actual Year 2000 Filings

Reporting Threshold (lbs)	Pounds from RSEI	% Change in RSEI Pounds	RSEI Risk Score	% Change in Risk Score	# of Reports (Facility/Chemical Combinations)	% Change in # of Reports	# of Facilities Reporting	% Change in # of Facilities
All Filed Reports	2,439,839,830	n/a	44,107,005	n/a	62,910	n/a	17,674	n/a
500 (Baseline)	2,436,323,017	-0.14	35,237,148	-20.1	53,032	-15.7	16,361	-7.4
1000	2,434,860,070	-0.20	34,508,619	-21.8	49,844	-20.8	14,023	-20.7
2000	2,432,356,621	-0.31	33,671,914	-23.7	46,439	-26.2	12,372	-30.0
5000	2,425,444,408	-0.59	31,876,297	-27.7	41,531	-34.0	10,332	-41.5

Reform Proposal 2 (Exclude Recycling and Energy Recovery from ARA) Results Relative to Actual Year 2000 Filings

Reporting Threshold (lbs)	Pounds from RSEI	% Change in RSEI Pounds	RSEI Risk Score	% Change in Risk Score	# of Reports (Facility/Chemical Combinations)	% Change in # of Reports	# of Facilities Reporting	% Change in # of Facilities
500	2,435,491,748	-0.18	33,636,540	-23.7	46,907	-25.4	13,032	-26.3
1000	2,433,354,398	-0.27	31,882,086	-27.7	42,733	-32.1	10,799	-38.9
2000	2,429,697,241	-0.42	30,419,535	-31.0	38,563	-38.7	9,203	-47.9
5000	2,419,842,181	-0.82	27,996,072	-36.5	33,269	-47.1	7,416	-58.0

Table IV-1. Form A Reform Proposal National-Level RY 2000 Results (continued)

Reform Proposal 1 (Increase ARA Threshold) Results Relative to Current 500-Pound Reporting Threshold

Reporting Threshold (lbs)	Pounds from RSEI	% Change in RSEI Pounds	RSEI Risk Score	% Change in Risk Score	# of Reports (Facility/Chemical Combinations)	% Change in # of Reports	# of Facilities Reporting	% Change in # of Facilities
500 (Baseline)	2,436,323,017	n/a	35,237,148	n/a	53,032	n/a	16,361	n/a
1000	2,434,860,070	-0.06	34,508,619	-2.07	49,844	-6.0	14,023	-14.3
2000	2,432,356,621	-0.16	33,671,914	-4.44	46,439	-12.4	12,372	-24.4
5000	2,425,444,408	-0.45	31,876,297	-9.54	41,531	-21.7	10,332	-36.8

Reform Proposal 2 (Exclude Recycling and Energy Recovery from ARA) Results Relative to Current 500-Pound Reporting Threshold

Reporting Threshold (lbs)	Pounds from RSEI	% Change in RSEI Pounds	RSEI Risk Score	% Change in Risk Score	# of Reports (Facility/Chemical Combinations)	% Change in # of Reports	# of Facilities Reporting	% Change in # of Facilities
500	2,435,491,748	-0.03	33,636,540	-4.54	46,907	-11.5	13,032	-20.3
1000	2,433,354,398	-0.12	31,882,086	-9.52	42,733	-19.4	10,799	-34.0
2000	2,429,697,241	-0.27	30,419,535	-13.67	38,563	-27.3	9,203	-43.8
5000	2,419,842,181	-0.68	27,996,072	-20.55	33,269	-37.3	7,416	-54.7

Under the 1,000-pound Form A Proposal 1 alternative, 6 percent more Form Rs would have been eligible to report via Form A in year 2000. The loss of these Form R reports would have resulted in a decrease in the quantity of chemicals reported of less than 0.1 percent, while the risk score associated with Form Rs would have decreased by approximately 2 percent.

Under the 2,000-pound Form A Proposal 1 alternative, 12.4 percent more Form Rs would have been eligible to report via Form A in year 2000. These new Form A-eligible reports account for 0.16 percent of the total quantity of chemicals reported in 2000 and approximately 4.4 percent of the year 2000 RSEI model risk score.

Under the 5,000-pound Form A Proposal 1 alternative, 21.7 percent additional Form Rs would have been Form A-eligible in year 2000. The loss of these Form R reports would have caused a reduction in the total quantity of chemicals reported of only 0.45 percent, while the RSEI model risk score would have decreased by approximately 9.5 percent.

Pechan also analyzed a series of reporting thresholds under Form A reform Proposal 2. This proposal excludes recycling and energy recovery from the definition of annual reportable amount used to identify Form A reporting thresholds. Relative to the existing annual reportable amount threshold of 500 pounds, when chemical quantities associated with recycling and energy recovery are removed from the definition of annual reportable amount, approximately 11.5 percent additional Form Rs would have been Form A-eligible in year 2000. These additional Form Rs accounted for 0.03 percent of the total pounds, but approximately 4.5 percent of the year 2000 risk score in the RSEI model.

Under the 1,000-pound Form A Proposal 2 alternative, approximately 19.4 percent more Form Rs would have been eligible to report via Form A in year 2000. The loss of these Form R reports would have resulted in a decrease in the quantity of chemicals reported of 0.12 percent, while the risk score would have decreased by approximately 9.5 percent.

Under the 2,000-pound Form A Proposal 2 alternative, 27.3 percent more Form Rs would have been eligible to report via Form A in year 2000. These new Form A-eligible reports account for 0.27 percent of the total quantity of chemicals reported in 2000 and approximately 13.7 percent of the year 2000 RSEI model risk score.

Under the 5,000-pound Form A Proposal 2 alternative, 37.3 percent additional Form Rs would have been Form A-eligible in year 2000. The loss of these Form R reports would have resulted in a 0.68 percent reduction in the total quantity of chemicals reported, while the RSEI model risk score would have decreased by approximately 20.6 percent.

Table IV-2 presents comparisons of the national results from this study with the results of an EPA study of Form A reform proposals reported in the Stakeholder Dialogue Phase II White Paper (EPA, 2004). It is important to note that the results of the two studies should not be expected to be the same because each utilizes different reporting years (2001 for EPA, 2000 for this study) and different data sources (TRI data submittals for EPA; RSEI for this study).

Table IV-2. Comparison of National Form A Reform Proposal Results: EPA Study versus This Study

Reform Proposal Alternative	Number of Forms Lost		Percent of Forms Affected		Percent of Waste Data Captured	
	EPA	Pechan	EPA	Pechan	EPA	Pechan
<i>Current Definition of Annual Reportable Amount (ARA)</i>						
500 lbs (full use)	10,649	9,878	12.8	15.7	99.99	99.86
1,000 lbs	13,920	13,066	16.7	20.8	99.99	99.80
2,000 lbs	17,622	16,471	21.2	26.2	99.97	99.69
5,000 lbs	23,128	21,379	27.8	34.0	99.90	99.41
<i>Alternative ARA Definition: Excluding Energy Recovery and Recycling</i>						
500 lbs	19,805	16,003	23.6	25.4	94.69	99.82
1,000 lbs	24,007	20,177	28.6	32.1	93.56	99.73
2,000 lbs	28,172	24,347	33.5	38.7	92.36	99.58
5,000 lbs	33,641	29,641	40.0	47.1	90.26	99.18

Notes
 EPA data are for reporting year 2001; Pechan data are for reporting year 2000
 All values are relative to existing reporting (and not to full use of Form A for Form Rs reporting 500 lbs or less)
 EPA data include all non-PBT Form Rs; Pechan data for current ARA definition includes non-PBT Form Rs that pass QA procedures described in Section III.A
 Percent of waste captured by EPA includes all quantities found within Sections 8.1-8.7 of the Form R
 Percent of waste captured for Pechan is relative to RSEI total waste, which does not include amounts for the following on-site activities: recycling, energy recovery, or treatment
 Percent of Forms estimated by EPA for Alternate ARAs – calculation using figures in EPA Stakeholder Dialogue Phase II white paper

However, with the exception of the percentage of total waste data captured, the Pechan results are generally comparable to EPA's study results.¹⁴

The EPA study estimated a significantly lower percentage of total waste data captured by the Form Rs under the alternative ARA definition TRI reform proposals than this study. The reason for this discrepancy is that this risk-based study required the use of the RSEI model. The RSEI model does not include information for onsite recycling, onsite energy recovery, or onsite treatment because these activities should result in zero risk. Because these activities account for approximately 70 percent of the total quantity of waste reported to the TRI,¹⁵ the removal of recycling and energy recovery from the ARA definition results in a much smaller reduction in percentage of total waste data captured in this study than the EPA study. The results of both studies however, indicate that there is a substantial opportunity to reduce the TRI reporting burden without the loss of a significant proportion of the currently reported data.

2. Top 20 County Results

The national-level results provide valuable insight into the impacts of the TRI reform proposals. Because it is important to understand that the magnitude of community level impacts may differ from the magnitude of the national-level impacts, Pechan also evaluated the potential county-level impacts for each Form A reform proposal alternative. In order to examine the worst case situation, Tables IV-3 through IV-9 present results for the top 20 counties impacted by each reform proposal (the counties in each table are sorted in descending order by reduction in risk score). Since the United States has 3,142 counties, more than 99 percent of the counties will show data losses that are less than these tables show. It is important to note that all county-level results are presented relative to the current 500-pound reporting threshold (i.e., all Form Rs with an ARA of 500 pounds or less are removed before calculating relative impacts). Not surprisingly, the top 20 counties account for anywhere between 36 percent and 51 percent of the national change in risk score under each of the Form A reform proposals. Appendix Tables B-1 through B-3 and C-1 through C-4 display the full set of top 400 county Form A reform proposal results generated in this study.

¹⁴ The waste quantities are not comparable because EPA used a slightly different definition of waste quantity from Pechan. The RSEI data used by Pechan did not include amounts for the following on-site activities: recycling, energy recovery, or treatment (see note to Table IV-1A).

¹⁵ Based on the TRI year 2000 database from EPA (Antisdel, 2004), 67.7 percent of the total of the Section 8.1 through 8.8 quantity values is from Sections 8.2 (onsite energy recovery), 8.4 (onsite recycling), and 8.6 (onsite treatment).

Table IV-3. Form A Reform Proposal 1: 1,000-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk	
Cook	IL	14,432,312	42,416	1,091,352.65	53,538	-0.29	-4.91	2.90	7.35	
Charleston	SC	4,274,949	4,119	75,322.17	52,044	-0.10	-69.10	0.28	7.14	
Marion	IN	3,194,765	14,478	1,186,716.87	33,517	-0.45	-2.82	0.99	4.60	
Hudson	NJ	3,570,173	2,067	134,695.16	33,128	-0.06	-24.59	0.14	4.55	
Arapahoe	CO	27,022	1,188	24,053.43	19,086	-4.40	-79.35	0.08	2.62	
Los Angeles	CA	19,486,010	40,328	246,047.81	16,346	-0.21	-6.64	2.76	2.24	
Rankin	MS	65,344	1,221	16,232.66	15,866	-1.87	-97.74	0.08	2.18	
Tuscaloosa	AL	1,011,387	3,896	151,292.76	15,552	-0.39	-10.28	0.27	2.13	
Peoria	IL	4,291,146	2,090	131,906.96	14,000	-0.05	-10.61	0.14	1.92	
Alameda	CA	1,568,746	3,397	75,669.63	13,070	-0.22	-17.27	0.23	1.79	
York	PA	7,587,992	4,601	176,224.41	12,884	-0.06	-7.31	0.31	1.77	
Jefferson	KY	16,468,056	8,309	645,143.76	12,550	-0.05	-1.95	0.57	1.72	
Worcester	MA	571,894	4,452	29,779.98	12,183	-0.78	-40.91	0.30	1.67	
Clarke	IA	3,580	3,575	11,125.33	11,084	-99.86	-99.63	0.24	1.52	
Providence	RI	964,975	8,138	15,401.88	10,131	-0.84	-65.78	0.56	1.39	
Harris	TX	58,337,968	40,901	626,574.85	10,120	-0.07	-1.62	2.80	1.39	
Scott	IA	879,836	3,687	417,413.99	9,753	-0.42	-2.34	0.25	1.34	
Berks	PA	5,112,647	3,333	506,264.63	9,282	-0.07	-1.83	0.23	1.27	
Hartford	CT	857,597	2,766	251,378.27	8,998	-0.32	-3.58	0.19	1.24	
Northampton	PA	3,940,024	1,904	28,630.99	8,819	-0.05	-30.80	0.13	1.21	
								Totals:	13.46	51.06

Table IV-4. Form A Reform Proposal 1: 2,000-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk	
Cook	IL	14,432,312	107,996	1,091,352.65	70,197	-0.75	-6.43	2.72	4.48	
Muscatine	IA	1,487,910	9,382	202,616.61	54,703	-0.63	-27.00	0.24	3.49	
Charleston	SC	4,274,949	10,982	75,322.17	52,346	-0.26	-69.50	0.28	3.34	
Hudson	NJ	3,570,173	10,762	134,695.16	51,797	-0.30	-38.46	0.27	3.31	
Allegheny	PA	7,159,589	30,609	460,716.12	40,498	-0.43	-8.79	0.77	2.59	
Muskegon	MI	6,377,673	6,679	203,802.96	39,406	-0.10	-19.34	0.17	2.52	
Los Angeles	CA	19,486,010	111,187	246,047.81	35,788	-0.57	-14.55	2.80	2.29	
Marion	IN	3,194,765	30,585	1,186,716.87	33,958	-0.96	-2.86	0.77	2.17	
Milwaukee	WI	3,959,770	16,844	433,246.04	31,409	-0.43	-7.25	0.42	2.01	
Berkeley	SC	6,180,040	3,992	101,317.74	30,226	-0.06	-29.83	0.10	1.93	
San Bernardino	CA	1,642,993	16,411	151,702.29	29,623	-1.00	-19.53	0.41	1.89	
Caddo	LA	1,826,803	3,347	44,298.70	26,267	-0.18	-59.30	0.08	1.68	
Winnebago	IL	1,389,579	8,817	225,476.68	25,700	-0.63	-11.40	0.22	1.64	
Montgomery	PA	1,229,827	6,461	51,119.83	25,114	-0.53	-49.13	0.16	1.60	
Lorain	OH	4,355,361	9,320	108,870.30	24,171	-0.21	-22.20	0.23	1.54	
Multnomah	OR	3,558,373	33,106	368,779.58	24,069	-0.93	-6.53	0.83	1.54	
Saint Louis City	MO	8,872,161	30,035	155,793.93	21,066	-0.34	-13.52	0.76	1.35	
York	PA	7,587,992	13,833	176,224.41	20,611	-0.18	-11.70	0.35	1.32	
Arapahoe	CO	27,022	1,188	24,053.43	19,086	-4.40	-79.35	0.03	1.22	
Scott	IA	879,836	5,469	417,413.99	19,077	-0.62	-4.57	0.14	1.22	
								Totals:	11.77	43.13

Table IV-5. Form A Reform Proposal 1: 5,000-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk	
Cook	IL	14,432,312	250,584	1,091,353	225,134	-1.74	-20.63	2.30	6.70	
Tuscaloosa	AL	1,011,387	41,740	151,293	144,488	-4.13	-95.50	0.38	4.30	
Bucks	PA	862,584	37,680	122,897	106,867	-4.37	-86.96	0.35	3.18	
Berks	PA	5,112,647	23,814	506,265	97,321	-0.47	-19.22	0.22	2.90	
Allegheny	PA	7,159,589	58,585	460,716	76,330	-0.82	-16.57	0.54	2.27	
Los Angeles	CA	19,486,010	294,738	246,048	65,131	-1.51	-26.47	2.71	1.94	
Clark	IN	459,250	5,014	64,176	63,913	-1.09	-99.59	0.05	1.90	
Jefferson	KY	16,468,056	90,688	645,144	60,039	-0.55	-9.31	0.83	1.79	
Muskegon	MI	6,377,673	21,731	203,803	58,199	-0.34	-28.56	0.20	1.73	
Harris	TX	58,337,968	346,679	626,575	56,943	-0.59	-9.09	3.19	1.69	
Charleston	SC	4,274,949	23,437	75,322	55,562	-0.55	-73.77	0.22	1.65	
Muscatine	IA	1,487,910	11,673	202,617	55,316	-0.78	-27.30	0.11	1.65	
Peoria	IL	4,291,146	14,395	131,907	53,678	-0.34	-40.69	0.13	1.60	
Hudson	NJ	3,570,173	15,517	134,695	52,269	-0.43	-38.81	0.14	1.56	
Winnebago	IL	1,389,579	18,664	225,477	51,553	-1.34	-22.86	0.17	1.53	
Milwaukee	WI	3,959,770	30,298	433,246	48,528	-0.77	-11.20	0.28	1.44	
Hamilton	OH	20,214,489	83,303	231,534	47,036	-0.41	-20.31	0.77	1.40	
Multnomah	OR	3,558,373	100,284	368,780	43,778	-2.82	-11.87	0.92	1.30	
Saint Louis City	MO	8,872,161	62,567	155,794	39,385	-0.71	-25.28	0.58	1.17	
Marion	IN	3,194,765	66,577	1,186,717	37,116	-2.08	-3.13	0.61	1.10	
								Totals:	14.69	42.80

Table IV-6. Form A Reform Proposal 2: 500-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk	
Maricopa	AZ	3,151,487	3,488	301,790	146,028	-0.11	-48.39	0.42	9.12	
Santa Clara	CA	2,632,975	3,386	276,696	91,455	-0.13	-33.05	0.41	5.71	
Allegheny	PA	7,159,589	7,902	460,716	60,796	-0.11	-13.20	0.95	3.80	
York	PA	7,587,992	2,623	176,224	51,150	-0.03	-29.03	0.32	3.20	
Winnebago	IL	1,389,579	3,863	225,477	41,311	-0.28	-18.32	0.46	2.58	
Erie	PA	8,182,255	3,498	281,833	40,753	-0.04	-14.46	0.42	2.55	
Kent	MI	3,797,433	4,652	157,122	35,837	-0.12	-22.81	0.56	2.24	
Cook	IL	14,432,312	30,040	1,091,353	35,228	-0.21	-3.23	3.61	2.20	
Jefferson	AL	4,715,468	5,815	315,474	34,030	-0.12	-10.79	0.70	2.13	
Los Angeles	CA	19,486,010	16,716	246,048	32,941	-0.09	-13.39	2.01	2.06	
Milwaukee	WI	3,959,770	6,969	433,246	25,202	-0.18	-5.82	0.84	1.57	
Monroe	NY	7,194,225	583	409,144	23,925	-0.01	-5.85	0.07	1.49	
Greene	MO	1,129,020	6,950	46,339	21,528	-0.62	-46.46	0.84	1.34	
Suffolk	MA	677,803	817	75,782	20,998	-0.12	-27.71	0.10	1.31	
Stark	OH	2,558,320	4,215	103,636	20,960	-0.16	-20.22	0.51	1.31	
Jefferson	KY	16,468,056	6,366	645,144	20,900	-0.04	-3.24	0.77	1.31	
Hamilton	OH	20,214,489	6,298	231,534	19,989	-0.03	-8.63	0.76	1.25	
San Bernardino	CA	1,642,993	7,238	151,702	18,589	-0.44	-12.25	0.87	1.16	
Tulsa	OK	972,926	5,447	128,210	15,535	-0.56	-12.12	0.66	0.97	
Pierce	WA	1,641,719	1,346	34,283	15,272	-0.08	-44.55	0.16	0.95	
								Totals:	15.42	48.26

Table IV-7. Form A Reform Proposal 2: 1,000-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk	
Santa Clara	CA	2,632,975	9,919	276,696	163,958	-0.38	-59.26	0.33	4.89	
Maricopa	AZ	3,151,487	16,666	301,790	156,284	-0.53	-51.79	0.56	4.66	
Cook	IL	14,432,312	92,386	1,091,353	113,988	-0.64	-10.44	3.11	3.40	
Marion	IN	3,194,765	25,530	1,186,717	103,962	-0.80	-8.76	0.86	3.10	
Allegheny	PA	7,159,589	21,227	460,716	86,771	-0.30	-18.83	0.72	2.59	
Monroe	NY	7,194,225	6,418	409,144	69,096	-0.09	-16.89	0.22	2.06	
Hamilton	OH	20,214,489	17,796	231,534	67,966	-0.09	-29.35	0.60	2.03	
Winnebago	IL	1,389,579	10,215	225,477	66,011	-0.74	-29.28	0.34	1.97	
York	PA	7,587,992	7,551	176,224	64,102	-0.10	-36.38	0.25	1.91	
Charleston	SC	4,274,949	5,129	75,322	62,027	-0.12	-82.35	0.17	1.85	
Harris	TX	58,337,968	67,349	626,575	52,565	-0.12	-8.39	2.27	1.57	
Los Angeles	CA	19,486,010	67,237	246,048	51,465	-0.35	-20.92	2.26	1.53	
Milwaukee	WI	3,959,770	17,710	433,246	47,337	-0.45	-10.93	0.60	1.41	
Erie	PA	8,182,255	8,887	281,833	46,856	-0.11	-16.63	0.30	1.40	
Jefferson	AL	4,715,468	13,785	315,474	46,112	-0.29	-14.62	0.46	1.37	
Dallas	TX	2,784,674	30,220	95,928	43,371	-1.09	-45.21	1.02	1.29	
Wayne	MI	11,923,748	36,033	214,610	38,524	-0.30	-17.95	1.21	1.15	
Erie	NY	6,671,021	18,005	102,215	37,751	-0.27	-36.93	0.61	1.13	
Kent	MI	3,797,433	10,701	157,122	36,042	-0.28	-22.94	0.36	1.07	
San Bernardino	CA	1,642,993	20,566	151,702	34,935	-1.25	-23.03	0.69	1.04	
								Totals:	16.96	41.40

Table IV-8. Form A Reform Proposal 2: 2,000-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk	
Santa Clara	CA	2,632,975	14,920	276,696	166,432	-0.57	-60.15	0.23	3.45	
Maricopa	AZ	3,151,487	36,771	301,790	157,071	-1.17	-52.05	0.55	3.26	
Cook	IL	14,432,312	211,055	1,091,353	141,781	-1.46	-12.99	3.19	2.94	
Winnebago	IL	1,389,579	18,725	225,477	113,901	-1.35	-50.52	0.28	2.36	
Allegheny	PA	7,159,589	51,715	460,716	108,796	-0.72	-23.61	0.78	2.26	
Marion	IN	3,194,765	51,574	1,186,717	105,064	-1.61	-8.85	0.78	2.18	
Milwaukee	WI	3,959,770	36,798	433,246	101,674	-0.93	-23.47	0.56	2.11	
Muskegon	MI	6,377,673	23,035	203,803	86,512	-0.36	-42.45	0.35	1.80	
Hamilton	OH	20,214,489	48,418	231,534	80,603	-0.24	-34.81	0.73	1.67	
York	PA	7,587,992	20,388	176,224	75,473	-0.27	-42.83	0.31	1.57	
Los Angeles	CA	19,486,010	158,802	246,048	70,679	-0.81	-28.73	2.40	1.47	
Monroe	NY	7,194,225	14,209	409,144	69,127	-0.20	-16.90	0.21	1.43	
Montgomery	OH	3,401,385	16,537	236,595	67,099	-0.49	-28.36	0.25	1.39	
Harris	TX	58,337,968	172,517	626,575	63,442	-0.30	-10.13	2.60	1.32	
Charleston	SC	4,274,949	11,992	75,322	62,329	-0.28	-82.75	0.18	1.29	
San Bernardino	CA	1,642,993	35,374	151,702	59,689	-2.15	-39.35	0.53	1.24	
Muscatine	IA	1,487,910	13,217	202,617	55,403	-0.89	-27.34	0.20	1.15	
Dallas	TX	2,784,674	75,673	95,928	53,643	-2.72	-55.92	1.14	1.11	
Hudson	NJ	3,570,173	12,158	134,695	51,828	-0.34	-38.48	0.18	1.08	
Erie	NY	6,671,021	31,802	102,215	50,737	-0.48	-49.64	0.48	1.05	
								Totals:	15.93	36.14

Table IV-9. Form A Reform Proposal 2: 5,000-lb Reporting Threshold Top 20 County Results

County	State	Baseline RSEI Pounds	Reduction in RSEI Pounds	Baseline RSEI Risk	Reduction in Risk	% Change in Pounds	% Change in Risk	% of Total Change in RSEI Pounds	% of Total Change in Risk
Cook	IL	14,432,312	459,456	1,091,353	290,535	-3.18	-26.62	2.79	4.01
Santa Clara	CA	2,632,975	22,423	276,696	186,522	-0.85	-67.41	0.14	2.58
Milwaukee	WI	3,959,770	76,940	433,246	171,053	-1.94	-39.48	0.47	2.36
Maricopa	AZ	3,151,487	74,726	301,790	162,972	-2.37	-54.00	0.45	2.25
Tuscaloosa	AL	1,011,387	55,833	151,293	144,825	-5.52	-95.73	0.34	2.00
Allegheny	PA	7,159,589	97,782	460,716	134,216	-1.37	-29.13	0.59	1.85
Orange	CA	3,537,315	70,539	157,500	128,916	-1.99	-81.85	0.43	1.78
Berks	PA	5,112,647	53,485	506,265	126,069	-1.05	-24.90	0.32	1.74
Hamilton	OH	20,214,489	126,074	231,534	124,079	-0.62	-53.59	0.76	1.71
Winnebago	IL	1,389,579	33,308	225,477	121,594	-2.40	-53.93	0.20	1.68
Harris	TX	58,337,968	441,475	626,575	113,708	-0.76	-18.15	2.68	1.57
Bucks	PA	862,584	63,910	122,897	113,212	-7.41	-92.12	0.39	1.56
Montgomery	OH	3,401,385	39,837	236,595	109,589	-1.17	-46.32	0.24	1.51
Jefferson	AL	4,715,468	75,248	315,474	107,746	-1.60	-34.15	0.46	1.49
Marion	IN	3,194,765	109,354	1,186,717	107,276	-3.42	-9.04	0.66	1.48
Muskegon	MI	6,377,673	41,471	203,803	105,043	-0.65	-51.54	0.25	1.45
Los Angeles	CA	19,486,010	402,945	246,048	89,823	-2.07	-36.51	2.44	1.24
Jefferson	KY	16,468,056	137,661	645,144	80,994	-0.84	-12.55	0.84	1.12
New Haven	CT	3,489,734	48,149	142,932	80,058	-1.38	-56.01	0.29	1.11
York	PA	7,587,992	27,649	176,224	78,655	-0.36	-44.63	0.17	1.09
							Totals:	14.92	35.59

Cook County, Illinois is associated with the largest reduction in risk score for all Form A Proposal 1 alternatives. Cook, Illinois; Maricopa, Arizona; or Santa Clara, California are the counties with the largest reduction in risk score under the Form A Proposal 2 alternatives.

Under the 1,000-pound Form A Proposal 1 alternative, Cook County, Illinois has the largest reduction in risk score from baseline year 2000 levels (see Table IV-3). This county accounts for more than 7 percent of the total reduction in risk score associated with this alternative. Relative to baseline levels, however, the total quantity of toxic chemicals reported for Cook County would have decreased by only 0.29 percent, and the total risk score by less than 5 percent.

It should be noted that although the analysis may indicate that a particular county is associated with only a small reduction in absolute risk score, this reduction may represent a large percentage reduction from baseline risk. For example, a reduction in risk score of 16 is estimated for Daviess County, Indiana under the 1,000-pound Form A Proposal 1 alternative. Because the baseline risk score in 2000 for this county was 16.64, this alternative results in a greater than 95 percent reduction in risk score from baseline levels. It is important to emphasize, however, that a large percentage change in risk score does not equate to a large change in health risk if the baseline risk score is sufficiently small (a full quantitative risk analysis would be required to validate that a particular county's baseline risk score does not represent a significant health risk concern as measured by estimated cancer incidence).

Tables IV-6 through IV-9 present the results of the Form A Proposal 2 reform alternatives, which reflect removal of recycling and energy recovery quantities from the definition of annual reportable amount. Cook County's percentage reduction in risk score varies from 3.2 percent under the 500-pound reporting threshold to 26.6 percent under the 5,000-pound reporting threshold. These values are larger than the percentage reductions associated with the Form A reform Proposal 1 alternatives at the same quantity thresholds (e.g., a 20.6 percent reduction for the 5,000-pound threshold). In addition, Santa Clara County's percentage risk score reduction varies from 33 percent under the 500-pound reporting threshold to 67.4 percent under the 5,000-pound threshold, while Maricopa County's risk score reduction ranges from 48 percent to 54 percent.

3. Top 20 Facility/Chemical Results

Tables IV-10 through IV-16 display the analytic results of the Form A reform proposal alternatives for the top 20 Form Rs as measured by magnitude of reduction in risk score. These Form R-level results are presented in descending order by risk score reduction. Under the 1,000-pound threshold for the Form A Proposal 1 alternative, for example, Scotts-Sierra Horticultural Prods. Co., Inc./Copper Compounds is associated with the largest reduction in risk score (48,769). The entries displayed in Tables IV-10 through IV-16 were derived by summing RSEI model records, which are specified at the category level, to the Form R level. For example, under the 1,000-pound Form A Proposal 1 alternative, the Scotts-Sierra Horticultural Prods. Co. Inc./Copper Compounds Form R is associated with the five category-level records identified in Table IV-17. For each of the Form A reform proposal alternatives, Appendix Tables D-1 through D-3 and E-1 through E-4 present the RSEI category level results for the top 400 facility/chemical combinations.

Table IV-10. Form A Reform Proposal 1: 1,000 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
29418GRCSR7200I	Scotts-Sierra Horticultural Prods. Co. Inc.	Charleston	SC	Copper compounds	765	48,769	0.05	0.11	6.69
60650GNRLL1540S	GE Co.	Cook	IL	Manganese	840	24,615	0.06	0.06	3.38
07306HDSNGDUFFI	Hudson Generating Station	Hudson	NJ	Chromium compounds	910	21,299	0.06	0.05	2.92
94541WNSBR22302	Owens-Brockway Glass Container Inc. Plant #52	Alameda	CA	Chromium compounds	510	12,973	0.03	0.03	1.78
46222MRCNR4717W	American Art Clay Co. Inc.130130	Marion	IN	Copper compounds	775	12,723	0.05	0.03	1.75
01615NRTNC1NEWB	Saint-Gobain Abrasives & Saint-Gobain Ceramics & Plastics.	Worcester	MA	Chromium compounds	770	12,059	0.05	0.03	1.66
46224NNCRB1245M	Praxair Surface Tech. Inc.	Marion	IN	Chromium	521	11,607	0.04	0.03	1.59
39201RVLMN1325F	Holmes Group/Rival Mfg.	Rankin	MS	Chromium	813	10,227	0.06	0.02	1.40
02909NSNNC100DU	C & J Jewelry Co. Inc.	Providence	RI	Nickel	765	9,832	0.05	0.02	1.35
80120THLCT5101S	Electron Corp.	Arapahoe	CO	Manganese compounds	594	9,543	0.04	0.02	1.31
80120THLCT5101S	Electron Corp.	Arapahoe	CO	Manganese	594	9,543	0.04	0.02	1.31
60409PLSTC142EA	Plastics Color Corp. of IL	Cook	IL	Chromium compounds	510	9,411	0.03	0.02	1.29
19603DNCRPROBES	Dana Corp.	Berks	PA	Manganese	760	9,246	0.05	0.02	1.27
17406NWSTNRD24	New Standard Corp.	York	PA	Chromium	879	9,149	0.06	0.02	1.26
46219NVSTR5565B	International Truck & Engine Corp.	Marion	IN	Manganese	810	8,976	0.06	0.02	1.23
40219CRDNL4005O	Cardinal Aluminum Co. Plant 3	Jefferson	KY	Nickel compounds	624	8,886	0.04	0.02	1.22
45005PTMTV2301C	Faurecia Exhaust Sys. Inc. Franklin Facility	Warren	OH	Chromium	510	7,994	0.03	0.02	1.10
60827HCKMN13513	Hickman Williams & Co.	Cook	IL	Manganese	750	7,614	0.05	0.02	1.05
50213PLMLL1000T	Paul Mueller Co.	Clarke	IA	Copper	515	7,579	0.04	0.02	1.04
53072NRTHR845HI	Northern Stainless Corp.	Waukesha	WI	Chromium	510	7,315	0.03	0.02	1.00
						Totals:	0.94	0.59	35.60

Table IV-11. Form A Reform Proposal 1: 2,000 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
29418GRCSR7200I	Scotts-Sierra Horticultural Prods. Co. Inc.	Charleston	SC	Copper compounds	765	48,769	0.02	0.11	3.12
49441CNNNM2875L	Cannon Muskegon Corp.	Muskegon	MI	Cobalt	1,703	32,703	0.04	0.07	2.09
29411DPNTCCYPRE	Du Pont Cooper River Plant	Berkeley	SC	Antimony compounds	848	29,906	0.02	0.07	1.91
71135FRYMS8700L	Frymaster L.L.C.	Caddo	LA	Chromium	988	25,635	0.02	0.06	1.64
60650GNRLL1540S	GE Co.	Cook	IL	Manganese	840	24,615	0.02	0.06	1.57
61104GNTCR302PE	Gunite Corp.	Winnebago	IL	Chromium	1,005	23,634	0.03	0.05	1.51
19440PNNCL2755B	Penn Color Inc.	Montgomery	PA	Antimony compounds	515	23,606	0.01	0.05	1.51
07306HDSNGDUFFI	Hudson Generating Station	Hudson	NJ	Chromium compounds	910	21,299	0.02	0.05	1.36
52761HCKTT1770Z	Harsco Corp. Heckett Multiserv Plant 52	Muscatine	IA	Chromium compounds	1,477	17,787	0.04	0.04	1.14
52761HCKTT1770Z	Harsco Corp. Heckett Multiserv Plant 52	Muscatine	IA	Chromium	1,477	17,787	0.04	0.04	1.14
15017CYTMPMAYER	Universal Stainless & Alloy Prods. Inc.	Allegheny	PA	Cobalt compounds	510	17,151	0.01	0.04	1.10
53154CRCHS7929S	Delphi Energy & Chassis Sys.	Milwaukee	WI	Chromium compounds	843	15,618	0.02	0.04	1.00
44035NGLHR120PI	Engelhard Corp.	Lorain	OH	Cobalt compounds	520	13,341	0.01	0.03	0.85
94541WNSBR22302	Owens-Brockway Glass Container Inc. Plant #52	Alameda	CA	Chromium compounds	510	12,973	0.01	0.03	0.83
15017GNRLLMAYER	GE Co. Bridgeville Glass Plant	Allegheny	PA	Nickel compounds	982	12,850	0.02	0.03	0.82
46222MRCNR4717W	American Art Clay Co. Inc.130130	Marion	IN	Copper compounds	775	12,723	0.02	0.03	0.81
90023MVCCH4100E	AMVAC Chemical Corp.	Los Angeles	CA	Chlorine	1,561	12,609	0.04	0.03	0.81
92335HCKTT8888C	Harsco Co. Heckett Multiserv Plant 42	San Bernardino	CA	Manganese compounds	1,027	12,138	0.03	0.03	0.78
92335HCKTT8888C	Harsco Co. Heckett Multiserv Plant 42	San Bernardino	CA	Manganese	1,027	12,138	0.03	0.03	0.78
01615NRTNC1NEWB	Saint-Gobain Abrasives & Saint-Gobain Ceramics & Plastics.	Worcester	MA	Chromium compounds	770	12,059	0.02	0.03	0.77
						Totals:	0.48	0.91	25.51

Table IV-12. Form A Reform Proposal 1: 5,000 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
18970BRCLN20WCR	Bracalente Mfg. Co. Inc.	Bucks	PA	Copper	4,800	103,189	0.04	0.23	3.07
19610CNSTRSPRIN	Construction Fasteners Inc.	Berks	PA	Chromium	2,478	86,479	0.02	0.20	2.57
60650GRDNR4718R	GAC Kansas -Chicago-Springville Inc.	Cook	IL	Asbestos (friable)	144	72,350	0.00	0.16	2.15
47130JFFBT1030E	Jeffboat L.L.C.	Clark	IN	Manganese	3,854	62,574	0.04	0.14	1.86
29418GRCSR7200I	Scotts-Sierra Horticultural Prods. Co. Inc.	Charleston	SC	Copper compounds	765	48,769	0.01	0.11	1.45
35404SRMLL2100R	SRA Mill Services Inc. Plant 58	Tuscaloosa	AL	Chromium	2,277	45,517	0.02	0.10	1.35
35404SRMLL2100R	SRA Mill Services Inc. Plant 58	Tuscaloosa	AL	Chromium compounds	2,277	45,517	0.02	0.10	1.35
61605CTRPL2411W	Caterpillar Inc. Seal Ring	Peoria	IL	Chromium	2,235	34,552	0.02	0.08	1.03
45217PMCSPP501MU	Cincinnati Specialties L.L.C.	Hamilton	OH	Diaminotoluene (mixed isomers)	1,768	34,396	0.02	0.08	1.02
60617CMSTL10730	Acme Steel Co. Furnace Plant	Cook	IL	Manganese compounds	4,101	34,251	0.04	0.08	1.02
49441CNNNM2875L	Cannon Muskegon Corp.	Muskegon	MI	Cobalt	1,703	32,703	0.02	0.07	0.97
40213NTDCT4900C	S&S-Chemie Inc. South Plant	Jefferson	KY	Cobalt compounds	1,060	31,378	0.01	0.07	0.93
29411DPNTCCYPRE	Du Pont Cooper River Plant	Berkeley	SC	Antimony compounds	848	29,906	0.01	0.07	0.89
30913MRRYBARTHE	Boral Bricks Inc. Augusta Plants 3 & 5	Richmond	GA	Manganese compounds	3,956	29,757	0.04	0.07	0.89
71135FRYMS8700L	Frymaster L.L.C.	Caddo	LA	Chromium	988	25,635	0.01	0.06	0.76
60650GNRLL1540S	GE Co.	Cook	IL	Manganese	840	24,615	0.01	0.06	0.73
61104GNTCR302PE	Gunite Corp.	Winnebago	IL	Chromium	1,005	23,634	0.01	0.05	0.70
19440PNNCL2755B	Penn Color Inc.	Montgomery	PA	Antimony compounds	515	23,606	0.00	0.05	0.70
19145TLNTC3144P	Sunoco Inc. (R&M) Philadelphia Refy.	Philadelphia	PA	Nickel compounds	2,613	22,080	0.02	0.05	0.66
84116CHVRN2351N	Chevron USA Prods. Co.	Salt Lake	UT	1,2,4-Trimethylbenzene	1,260	21,337	0.01	0.05	0.63
						Totals:	0.36	1.89	24.76

Table IV-13. Form A Reform Proposal 2: 500 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
85282NLCTC1130W	Laminate Tech. Corp.	Maricopa	AZ	Copper compounds	255	66,277	0.03	0.15	4.14
85043TTTCH505NO	Belden Communications Div.	Maricopa	AZ	Copper	510	66,277	0.06	0.15	4.14
17404PRCSN500LI	Precision Components Corp.	York	PA	Chromium	255	23,887	0.03	0.05	1.49
02134CPTLC24DEN	Capitol Circuits Corp.	Suffolk	MA	Copper	58	20,808	0.01	0.05	1.30
35234BRMNG4301F	Birmingham Steel Corp. Birmingham AL Steel Div.	Jefferson	AL	Cadmium compounds	434	17,431	0.05	0.04	1.09
15017CYTMPMAYER	Universal Stainless & Alloy Prods. Inc.	Allegheny	PA	Cobalt compounds	510	17,151	0.06	0.04	1.07
14692PFDLR1000W	Pfautler Inc.	Monroe	NY	Chromium	255	16,512	0.03	0.04	1.03
95131SNMNC2101O	Sanmina Corp. Plant #1	Santa Clara	CA	Copper compounds	255	16,484	0.03	0.04	1.03
95131SNMNC2068B	Sanmina Plant 2	Santa Clara	CA	Copper compounds	255	16,484	0.03	0.04	1.03
95054HRBRL3021K	Harbor Electronics Inc.	Santa Clara	CA	Copper compounds	255	16,484	0.03	0.04	1.03
95050SNMNC2539S	Sanmina Plant 3	Santa Clara	CA	Copper compounds	255	16,484	0.03	0.04	1.03
15136PTTSBBUILD	Pittsburgh Annealing Box Co.	Allegheny	PA	Chromium	255	15,619	0.03	0.04	0.98
61101RNTZN1025S	Arntzen Corp.	Winnebago	IL	Chromium	360	15,471	0.04	0.04	0.97
35212SMSTLPOBOX	SMI Steel Alabama	Jefferson	AL	Chromium compounds	510	14,639	0.06	0.03	0.91
95050SGMCR393MA	Tyco Printed Circuit Group Santa Clara Div.	Santa Clara	CA	Copper compounds	187	13,109	0.02	0.03	0.82
16502DBRLY1500C	D. B. Riley	Erie	PA	Chromium compounds	255	11,416	0.03	0.03	0.71
91331BRBNK13561	Burbank Plating Services Corp.	Los Angeles	CA	Cadmium compounds	219	10,668	0.03	0.02	0.67
93041PCFND705IN	Pac Foundries	Ventura	CA	Chromium	332	10,633	0.04	0.02	0.66
40214THMRL6333S	Marley Cooling Tower Co.	Jefferson	KY	Chromium	295	10,412	0.04	0.02	0.65
17404PRCSN500LI	Precision Components Corp.	York	PA	Nickel	255	9,999	0.03	0.02	0.62
						Totals:	0.72	0.92	25.38

Table IV-14. Form A Reform Proposal 2: 1,000 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
95050ZCNC445EL	Sanmina Santa Clara Inc.	Santa Clara	CA	Copper compounds	916	72,145	0.03	0.16	2.15
85282NLCTC1130W	Laminate Tech. Corp.	Maricopa	AZ	Copper compounds	255	66,277	0.01	0.15	1.98
85043TTTCH505NO	Belden Communications Div.	Maricopa	AZ	Copper	510	66,277	0.02	0.15	1.98
29418GRCSR7200I	Scotts-Sierra Horticultural Prods. Co. Inc.	Charleston	SC	Copper compounds	765	48,769	0.03	0.11	1.45
46202PRLSS2005D	Sterling Fluid Sys. Inc. (DBA Peerless Pump Co.)	Marion	IN	Chromium	871	36,627	0.03	0.08	1.09
45215SWBRKSHEPH	Sawbrook Steel Castings Co.	Hamilton	OH	Chromium	755	32,909	0.03	0.07	0.98
75220MFCNC10725	EMF Co. Inc.	Dallas	TX	Chromium	750	26,508	0.03	0.06	0.79
46218MJRTL1458E	Major Tool & Machine Inc.	Marion	IN	Chromium	750	25,097	0.03	0.06	0.75
60650GNRLL1540S	GE Co.	Cook	IL	Manganese	840	24,615	0.03	0.06	0.73
14603MXNGQ135MT	General Signal Corp. Lightning Div.	Monroe	NY	Chromium	765	24,537	0.03	0.06	0.73
17404PRCSN500LI	Precision Components Corp.	York	PA	Chromium	255	23,887	0.01	0.05	0.71
07306HDSNGDUFFI	Hudson Generating Station	Hudson	NJ	Chromium compounds	910	21,299	0.03	0.05	0.63
02134CPTLC24DEN	Capitol Circuits Corp.	Suffolk	MA	Copper	58	20,808	0.00	0.05	0.62
35234BRMNG4301F	Birmingham Steel Corp. Birmingham AL Steel Div.	Jefferson	AL	Cadmium compounds	434	17,431	0.01	0.04	0.52
15017CYTMPMAYER	Universal Stainless & Alloy Prods. Inc.	Allegheny	PA	Cobalt compounds	510	17,151	0.02	0.04	0.51
14692PFDLR1000W	Pfautler Inc.	Monroe	NY	Chromium	255	16,512	0.01	0.04	0.49
95050SNMNC2539S	Sanmina Plant 3	Santa Clara	CA	Copper compounds	255	16,484	0.01	0.04	0.49
95054HRBRL3021K	Harbor Electronics Inc.	Santa Clara	CA	Copper compounds	255	16,484	0.01	0.04	0.49
95131SNMNC2101O	Sanmina Corp. Plant #1	Santa Clara	CA	Copper compounds	255	16,484	0.01	0.04	0.49
95131SNMNC2068B	Sanmina Plant 2	Santa Clara	CA	Copper compounds	255	16,484	0.01	0.04	0.49
						Totals:	0.36	1.38	18.09

Table IV-15. Form A Reform Proposal 2: 2,000 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
95050ZYCNC445EL	Sanmina Santa Clara Inc.	Santa Clara	CA	Copper compounds	916	72,145	0.01	0.16	1.50
85282NLCTC1130W	Laminate Tech. Corp.	Maricopa	AZ	Copper compounds	255	66,277	0.00	0.15	1.38
85043TTTCH505NO	Belden Communications Div.	Maricopa	AZ	Copper	510	66,277	0.01	0.15	1.38
29418GRCSR7200I	Scotts-Sierra Horticultural Prods. Co. Inc.	Charleston	SC	Copper compounds	765	48,769	0.01	0.11	1.01
46202PRLSS2005D	Sterling Fluid Sys. Inc. (DBA Peerless Pump Co.)	Marion	IN	Chromium	871	36,627	0.01	0.08	0.76
45215SWBRKSHEPH	Sawbrook Steel Castings Co.	Hamilton	OH	Chromium	755	32,909	0.01	0.07	0.68
49441CNNNM2875L	Cannon Muskegon Corp.	Muskegon	MI	Cobalt	1,703	32,703	0.03	0.07	0.68
29411DPNTCCYPRE	Du Pont Cooper River Plant	Berkeley	SC	Antimony compounds	848	29,906	0.01	0.07	0.62
52406CHRRY24006	Evergreen Packaging Equipment	Linn	IA	Chromium	1,603	29,697	0.02	0.07	0.62
75220MFCNC10725	EMF Co. Inc.	Dallas	TX	Chromium	750	26,508	0.01	0.06	0.55
71135FRYMS8700L	Frymaster L.L.C.	Caddo	LA	Chromium	988	25,635	0.01	0.06	0.53
46218MJRTL1458E	Major Tool & Machine Inc.	Marion	IN	Chromium	750	25,097	0.01	0.06	0.52
60650GNRLL1540S	GE Co.	Cook	IL	Manganese	840	24,615	0.01	0.06	0.51
14603MXNGQ135MT	General Signal Corp. Lightning Div.	Monroe	NY	Chromium	765	24,537	0.01	0.06	0.51
61101RNTZN1025S	Arntzen Corp.	Winnebago	IL	Manganese	1,340	24,106	0.02	0.05	0.50
45404SLCTT60HEI	Select Inds. Corp. Plants 1 & 2	Montgomery	OH	Chromium	1,241	23,938	0.02	0.05	0.50
19381MTLLR810LI	Metallurgical Prods. Co.	Chester	PA	Copper	403	23,890	0.01	0.05	0.50
17404PRCSN500LI	Precision Components Corp.	York	PA	Chromium	255	23,887	0.00	0.05	0.50
61104GNTCR302PE	Gunite Corp.	Winnebago	IL	Chromium	1,005	23,634	0.02	0.05	0.49
19440PNNCL2755B	Penn Color Inc.	Montgomery	PA	Antimony compounds	515	23,606	0.01	0.05	0.49
						Totals:	0.26	1.55	14.21

Table IV-16. Form A Reform Proposal 2: 5,000 lb Reporting Threshold Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Reduction in RSEI Pounds	Reduction in Risk	% of Total Change in RSEI Pounds	% Reduction in Risk Relative to Total Baseline Risk	% of Total Change in Risk
18970BRCLN20WCR	Bracalente Mfg. Co. Inc.	Bucks	PA	Copper	4,800	103,189	0.03	0.23	1.43
92688CC 22591	CCI	Orange	CA	Chromium	3,105	96,333	0.02	0.22	1.33
19610CNSTRSPRIN	Construction Fasteners Inc.	Berks	PA	Chromium	2,478	86,479	0.02	0.20	1.19
60650GRDNR4718R	GAC Kansas -Chicago-Springville Inc.	Cook	IL	Asbestos (friable)	144	72,350	0.00	0.16	1.00
95050ZYCNC445EL	Sanmina Santa Clara Inc.	Santa Clara	CA	Copper compounds	916	72,145	0.01	0.16	1.00
85282NLCTC1130W	Laminate Tech. Corp.	Maricopa	AZ	Copper compounds	255	66,277	0.00	0.15	0.92
85043TTTCH505NO	Belden Communications Div.	Maricopa	AZ	Copper	510	66,277	0.00	0.15	0.92
47130JFFBT1030E	Jeffboat L.L.C.	Clark	IN	Manganese	3,854	62,574	0.02	0.14	0.86
06511SRGNT100SA	Sargent Mfg. Co.	New Haven	CT	Copper compounds	770	55,020	0.00	0.12	0.76
35234BRMNG4301F	Birmingham Steel Corp. Birmingham AL Steel Div.	Jefferson	AL	Manganese compounds	3,401	54,899	0.02	0.12	0.76
53172BCYRS1100M	Bucyrus Intl. Inc.	Milwaukee	WI	Manganese	4,566	48,970	0.03	0.11	0.68
29418GRCSR7200I	Scotts-Sierra Horticultural Prods. Co. Inc.	Charleston	SC	Copper compounds	765	48,769	0.00	0.11	0.67
35404SRMLL2100R	SRA Mill Services Inc. Plant 58	Tuscaloosa	AL	Chromium	2,277	45,517	0.01	0.10	0.63
35404SRMLL2100R	SRA Mill Services Inc. Plant 58	Tuscaloosa	AL	Chromium compounds	2,277	45,517	0.01	0.10	0.63
45401MMPRC345SP	Techmetals Inc.	Montgomery	OH	Chromium compounds	1,030	41,799	0.01	0.09	0.58
06050THSTN195LA	Stanley Works Hardware Div.	Hartford	CT	Nickel compounds	1,136	38,105	0.01	0.09	0.53
92508RVRSD1500R	Riverside Cement Co. Crestmore	Riverside	CA	Chromium compounds	3,600	37,463	0.02	0.08	0.52
46202PRLSS2005D	Sterling Fluid Sys. Inc. (DBA Peerless Pump Co.)	Marion	IN	Chromium	871	36,627	0.01	0.08	0.51
61605CTRPL2411W	Caterpillar Inc. Seal Ring	Peoria	IL	Chromium	2,235	34,552	0.01	0.08	0.48
45217PMCSP501MU	Cincinnati Specialties L.L.C.	Hamilton	OH	Diaminotoluene (mixed isomers)	1,768	34,396	0.01	0.08	0.48
						Totals:	0.25	2.60	15.84

Table IV-17. Form A Reform Proposal 1: 1,000-lb RSEI Model Category-Level Records for Scotts-Sierra Horticultural Prods. Co. Inc./Copper Compounds

Media	Category	Change in Quantity (lbs)	Change in Risk Score
Fugitive Air	Direct Fugitive Air - Rural	255	42
Stack Air	Direct Point Air - Rural	255	18
Direct Water	Direct Water	128	48,638
Direct Water	Direct Water-Fish Ingestion (Recreation)	64	45
Direct Water	Direct Water-Fish Ingestion (Subsistence)	64	26
		765	48,769

As identified in Tables IV-10 through IV-16, with the exception of a small number of Form Rs, all 62,910 Form Rs included in the Form A reform proposal analysis have risk scores below 50,000, which represents considerably less than 5 percent of the total change in risk score associated with each Form A reform proposal. In addition, under each reform proposal, a maximum of 20 Form Rs will contribute 1 percent or more of the total change in risk score. In other words, approximately 0.1 percent of the total number of Form Rs will each have a risk score that represents at least 1 percent of the nationwide score. For each Form R identified as Form A- eligible, this study assumes that all Form R information is lost when the report becomes Form A- eligible. These Form R-level impacts will be smaller than indicated in this analysis if range reporting is implemented as part of an enhanced Form A that EPA is considering, because much or all of the otherwise significant missing data would be captured.

The media (pathway) and category are important RSEI considerations in determining the magnitude of the health risk score. As noted in Table IV-17, the same quantity of copper compounds released to the air (255 pounds) is estimated to have more than twice the impact on the risk score from fugitive air releases than from stack air releases (due in large part to the magnitude of the estimated surrogate dose).

The correlation between individual Form Rs with the greatest reduction in risk score and the counties with the greatest reduction in risk score is important to note. For the 1,000-pound Form A Proposal 1 alternative, for example, the Scotts-Sierra Horticultural Prods. Co., Inc./Copper Compounds Form R is associated with a 48,769 reduction in risk score. Of the total 52,044 reduction in risk score estimated for this alternative for Charleston County, South Carolina, approximately 94 percent is attributable to the removal of this single Form R.

Table IV-18 summarizes the RSEI model category-level record with the largest reduction in risk under each Form A reform proposal alternative. This table demonstrates how each of these RSEI model categories is associated with effluent from POTW or direct water intake.¹⁶ Reviewing the top category-level records for each reform proposal alternative reveals that fugitive air releases represent the other major contributing pathway to the reduction in risk score.

¹⁶ Given that the risk associated with the drinking water is capped by assuming compliance by the facility with the federal drinking water standards, it is surprising that these particular RSEI scores associated with drinking water are in the 50,000 to 100,000 range, well above the 90th percentile for TRI facilities. Perhaps these particular scores are erroneously high.

Table IV-18. RSEI Model Category-Level Records with Largest Reduction in Risk Score by Form A Reform Proposal Alternative

Form A Reporting Threshold	Facility/Chemical	Media	Category	Change in Risk Score
<i>Proposal 1 (Increase in Annual Reportable Amount Threshold)</i>				
1,000 lbs	Scotts-Sierra Horticultural Prods. Co. Inc./Copper Compounds	Direct Water	Direct Water	48,638
2,000 lbs	same as above			
5,000 lbs	Bracalente Mfg. Co. Inc./Copper	POTW Transfer	POTW Effluent	101,407
<i>Proposal 2 (Remove Recycling and Energy Recovery from Annual Reportable Amount)</i>				
500 lbs	Laminate Tech. Corp./Copper Compounds and Belden Communications Div./Copper	POTW Transfer	POTW Effluent	64,583
1,000 lbs	same as above			
2,000 lbs	same as above			
5,000 lbs	Bracalente Mfg. Co. Inc./Copper	POTW Transfer	POTW Effluent	101,407

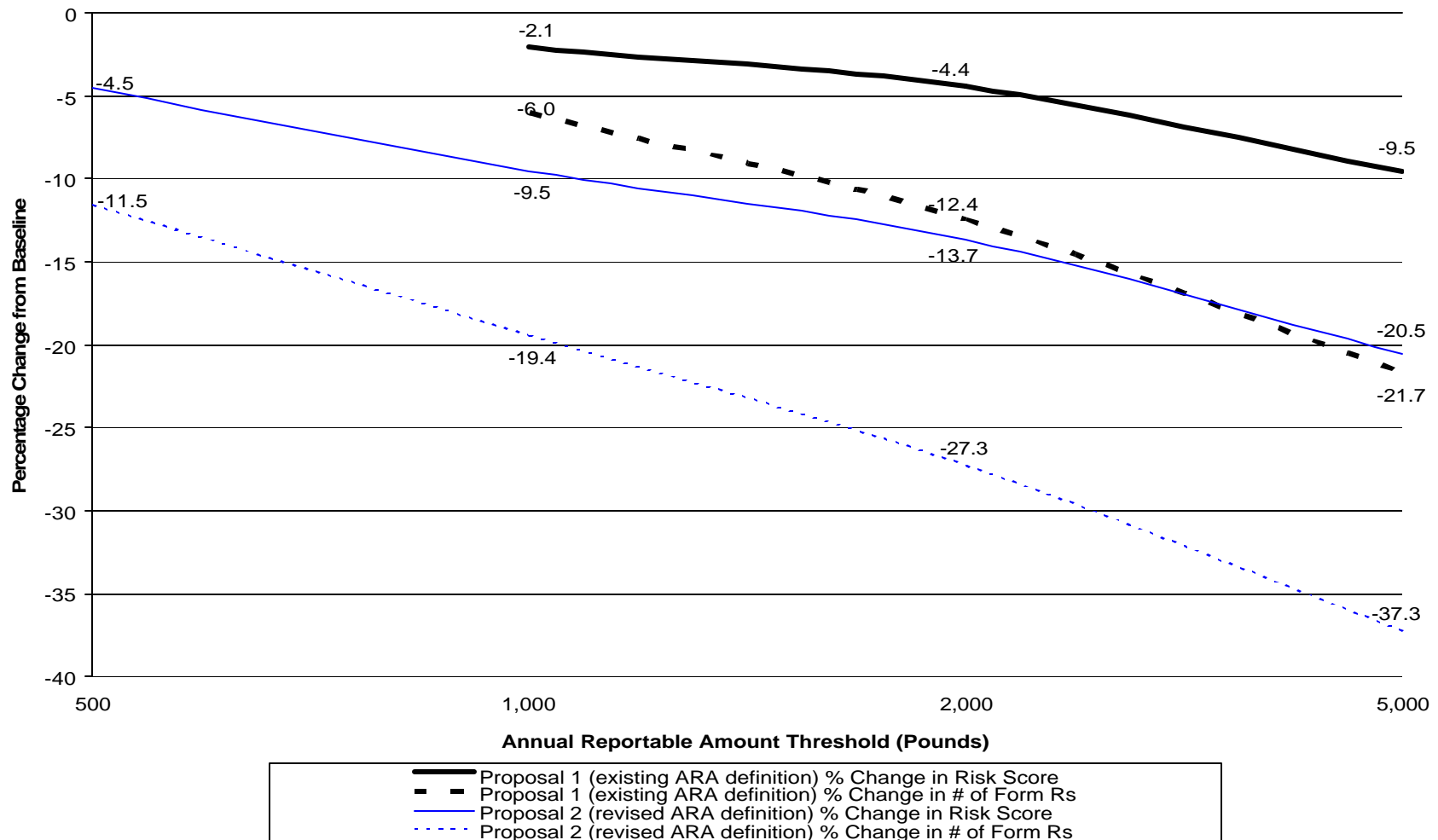
B. DISCUSSION OF FORM A RESULTS

Figure IV-1 summarizes the national results from the Form A reform proposal analysis. This figure indicates that the equivalent change in risk score for a 15 percent reduction in number of Form Rs is a little more than 5 percent under Proposal 1 and approximately 7 percent under Proposal 2. For a 20 percent reduction in number of Form Rs, it is estimated that the risk score will decline by approximately 9 percent under Proposal 1 and by approximately 10 percent under Proposal 2. Although energy recovery and recycling activities are not associated in the RSEI with estimated health risks, the removal of these quantities from the definition of annual reportable amount results in additional risk score reductions because information will be lost for other sections of the same Form R which do report activities associated with risk, such as releases to air and water. For example, assume the following Form R information:

- 8.1 (Quantity released) = 250 pounds of copper; risk score of 1,000
- 8.2 (Quantity used for energy recovery onsite) = 500 pounds; risk score of 0
- 8.3 (Quantity used for energy recovery offsite) = 0 pounds
- 8.4 (Quantity recycled onsite) = 500 pounds; risk score of 0
- 8.5 (Quantity recycled offsite) = 0 pounds
- 8.6 (Quantity treated onsite) = 0 pounds
- 8.7 (Quantity treated offsite) = 0 pounds.

The annual reportable amount for this Form R is 1,250 pounds, which is above the 500-pound Form A reporting threshold. If recycling and energy recovery is removed from the definition of annual reportable amount, this report will become eligible for Form A reporting at the current 500-pound threshold because only the 250-pound release is included in determining Form A eligibility. Therefore, the information that was used in estimating the risk score of 1,000 would be lost under all of the Form A reform Proposal 2 alternatives, but not under the 1,000-pound threshold Form A Proposal 1 reform proposal alternative.

Figure IV-1. Percentage Change from Baseline by Form A Reform Proposal Alternative: Number of Form Rs and Year 2000 Risk Scores



Many Form Rs that were submitted in year 2000 may not have been required to be filed because their chemical quantity values are below the current Form A annual reportable amount threshold. It is important to note that the national-level impacts of each reform proposal are generally small relative to the impacts associated with removing Form R reports with quantity values at or below the current 500-pound Form A reporting threshold. As identified in Table IV-19, for all but one Form A reform proposal alternative (Proposal 2 with a 5,000-pound reporting threshold), the Form A reform proposal alternatives have percentage risk score reductions that are less than that associated with the loss of Form Rs that are Form A-eligible based on the current Form A reporting threshold (-20.11 percent).

Table IV-19. Comparison of Current Form A Reporting Threshold (500 lbs) with Year 2000 Actual Form Rs and Alternative Form A Reform Proposal Thresholds

Comparison Analyzed	Change in Risk Score (%)
Current Form A (500 lb) vs. all current Form R filings	-20.11
<i>Proposal 1 (Increase in Annual Reportable Amount [ARA] Threshold)</i>	
1,000 lb vs. Current Form A	-2.07
2,000 lb vs. Current Form A	-4.44
5,000 lb vs. Current Form A	-9.54
<i>Proposal 2 (Remove Recycling and Energy Recovery from ARA Threshold)</i>	
500 lb. vs. Current Form A	-4.54
1,000 lb. vs. Current Form A	-9.52
2,000 lb. vs. Current Form A	-13.67
5,000 lb. vs. Current Form A	-20.55

Although the analyses indicate that many counties have large percentage changes in risk scores under the Form A reform proposal alternatives, these percentage changes do not necessarily imply a large change in absolute health risk. In fact, in counties where the baseline risk score is small, it is anticipated that large percentage changes will not result in a substantial change in absolute health risk. Such large percentage changes may result simply from the loss of a single Form R for an individual facility that represents a major contributor to the county’s baseline risk score. A formal quantitative risk analysis could be conducted to identify whether the largest absolute changes in county-level risk scores are associated with nominal changes in chronic health risks.

Form A currently provides TRI data users with no specific information about waste management practices beyond the certification that total production-related wastes (sum of Form R Sections 8.1 through 8.7) are less than 500 pounds. This study analyzed the impact of Form A reform proposals assuming that all chemical quantity information would be lost when Form R reports become Form A-eligible. However, Form A reform proposals could incorporate use of an enhanced Form A that would further preserve TRI program data quality/community right-to-know by requiring range estimates of certain release and waste quantities now reported only on Form R. Further discussion of this concept is provided in the Recommendations section (Section VI) of this report.

It should be noted that the results of this study are specific to the year 2000 TRI. The SBA plans to prepare additional Form A reform proposal analyses using 2001 and/or 2002 TRI data when the next version of the RSEI model is released later this year. However, it is unlikely that the results will be substantially different from those developed from the 2000 data.

C. FORM NS REFORM PROPOSAL ALTERNATIVES

The tables presented in this section summarize the results of the Form NS reform proposal analyses. Pechan performed these analyses using year 1999 and 2000 data from the latest available RSEI model (EPA, 2002). As described more fully in section II.D., the Form NS reform proposals were analyzed by replacing year 2000 RSEI information with year 1999 RSEI information for all Form NS-eligible records. In interpreting the Form NS reform proposal results, it should be noted that the change in RSEI model risk score between 1999 and 2000 is sometimes solely associated with a population increase or other modeling procedure change incorporated into the RSEI, and not with a change in TRI reporting. For example, the Form NS reform proposal results are an artifact of the RSEI model in that 1999 risk values will tend to be smaller than they would be if the same population data were used to calculate risk scores in both 1999 and 2000. Therefore, areas that experienced population increases between 1999 and 2000 would be estimated to have either smaller increases (if 1999 chemical quantities were higher than 2000) or larger decreases (if 1999 chemical quantities were lower than 2000) in risk scores than solely attributable to each Form NS reform proposal.

1. National Results

Under the first Form NS reform proposal (change in quantity ratio), Form NS-eligible records are defined as facility/chemical combinations where both the 1999 and 2000 year on-site releases are less than 10,000 pounds AND there is no change in reporting between 1999 and 2000 for RSEI model categories; AND the 2000/1999 total quantity ratio is between 0.90 and 1.10. Under the second reform proposal (*de minimis*), Form NS-eligible records are defined using the first two change-in-quantity-ratio proposal criteria (i.e., both 1999 and 2000 year on-site releases are less than 10,000 pounds AND there is no change in reporting between 1999 and 2000) AND the (i) 1999 and 2000 year on-site non-PBT chemical releases (on-site releases defined as the sum of the RSEI model on-site media codes) are less than 100 pounds, and (ii) 1999 and 2000 year on-site PBT chemical releases are less than 10 pounds (except dioxin and dioxin-like compounds).

Table IV-20 presents the national-level results associated with Form NS Proposal 1 (change in quantity ratio), Form NS Proposal 2 (*de minimis* on-site release quantity threshold), and the combination of Form NS Proposal 1 with Form NS Proposal 2. These results are presented relative to all Form R submittals in year 2000 (including submittals that may be Form A-eligible based on the current annual reportable amount threshold). As indicated in the table, replacing year 2000 values with 1999 values for Form NS-eligible records does not have a large impact on the national-level estimates of pounds or risk scores. In fact, risk scores increase by 0.1 percent or less under each alternative analyzed. However, there is a significant reduction in the number of Form Rs that would need to be reported. Under Proposal 1, approximately 21 percent of the current Form Rs could use Form NS; under Proposal 2, 14 percent of Form Rs would be able to use Form NS. When the contribution of both proposals is evaluated, a full 24 percent of Form Rs would become Form NS-eligible.

Table IV-20. Form NS Reform Proposal National Results

	Pounds from RSEI	% Change in RSEI Pounds	RSEI Risk Score	% Change in Risk Score	# of Form R Reports (Facility/Chemical Combinations)	% Change in # of Reports	# of Facilities Filing Form R¹	% Change in # of Facilities
All Filed Reports	10,699,129,454	n/a	50,965,154	n/a	71,557	n/a	19,494	n/a
Form NS Proposal 1	10,757,916,858	0.55	51,006,770	0.1	56,464	-21.1	11,344	-41.8
Form NS Proposal 2	10,688,958,598	-0.10	50,942,484	0.0	61,347	-14.3	13,550	-30.5
Form NS Proposal 1 or 2	10,744,405,135	0.42	51,009,478	0.1	54,271	-24.2	10,695	-45.1

¹ Change in value represents the number of facilities filing Form Rs that will qualify to report using Form NS for one or more chemicals.

The change in the number of Form R facilities in Table IV-20 represents the number of facilities that would be eligible to file at least one Form NS under each reform proposal. For example, under Proposal 1, approximately 42 percent of the facilities currently filing a Form R would be able to file using Form NS for one or more chemicals (as with the Form R counts above, the number currently filing would include some facilities that could file using Form A instead of Form R). Because the national results may have a tendency to disguise the size of impacts on local communities, Pechan performed county-level analyses comparing actual year 2000 pounds and risk scores with the values that would be reported under each Form NS proposal.

2. Top 20 County Results

Again, in order to look at the worst case situation, Tables IV-21 and IV-22 present the top 20 counties (approximately the top 0.5 percent of all counties) with the largest change in risk score under Form NS Proposal 1 and 2, respectively (Appendix Tables F-1 and F-2 report the full set of results prepared in this study for the top 400 counties). Note that the national impacts reflect the fact that some positive changes are offset by negative changes. The counties in these tables are sorted in descending order by the absolute value of the change in risk score. If Form NS Proposal 1 had been adopted for year 2000, Bucks County, Pennsylvania would have experienced the largest change in risk score (increase of 86,433, or a 719 percent increase from the baseline risk estimate). The Form R level results indicate that a single Form R is responsible for nearly all of this change. Replacing the 2000 year values with 1999 values for the lead Form R for the Ametek, Inc., U.S. Gauge Div. facility accounts for a risk score increase of more than 85,000. With the exception of the top nine counties (representing only 0.5 percent of total counties), all the other revisions represented less than a 10,000 change in the risk score, which is equivalent to 0.2 percent of the nationwide total risk score. In sum, there are very few counties with risk scores that are significantly affected by the Form NS proposals in the years 1999/2000.

On a percentage basis, there is one county under Proposal 1 that has a higher percentage change from the baseline risk score than Bucks County, PA: El Paso, Colorado (3,145 percent increase). The risk score increase of 5,108 is due to a large reported reduction in chromium that is modeled as POTW effluent/drinking water ingestion between 1999 (301 lbs) and 2000 (1 lb). This results in a risk score increase from 101 to 5,166 for this one record. However, it is important to emphasize that the risk score changes identified in Tables IV-21 and IV-22 may not translate into a significant change in actual health risk (a quantitative risk analysis is required to determine the significance of changes in RSEI risk score).

Under Proposal 2, Santa Clara, California is the county with the largest absolute change in risk score with a decrease of 35,086. This decrease reflects an approximate 49 percent decrease in risk compared to the baseline risk score. For Proposal 2, El Paso, Colorado is again the county with the largest percentage absolute value change from baseline risk score (a decrease of 5,110 or 4,081 percent from baseline levels).

The above values indicate the possibility that under ANY reform proposal that reduces the TRI reporting burden, there will be one or more counties that may see a significant percentage change in risk score. It is important to emphasize, however, that a quantitative risk analysis is required to evaluate whether counties with the largest changes in risk score have significant changes in the metrics that are used for estimating actual changes in health risk (change in cancer incidence per 1,000,000 people). A quantitative risk analysis would also be useful to benchmark the large absolute changes in risk.

Table IV-21. Form NS Reform Proposal 1: Top 20 County Results

County	State	Baseline Pounds	Change in Pounds	Baseline RSEI Risk	Change in Risk	% Change in Pounds for County	% Change in Risk for County
Bucks	PA	506,499.00	-121,416.00	12,027.73	86,433.11	-23.97	718.62
Charleston	SC	118,696.21	4,246,046.03	85,019.80	28,337.44	3,577.24	33.33
Santa Clara	CA	2,684,767.00	-897,132.00	77,095.68	-27,146.28	-33.42	-35.21
Cuyahoga	OH	10,171,219.93	-1,162,150.43	87,719.86	15,304.58	-11.43	17.45
Fairfield	CT	1,141,033.68	101,804.06	27,649.84	-14,251.79	8.92	-51.54
Harris	TX	25,884,870.40	-1,977,295.29	111,182.56	-13,564.59	-7.64	-12.20
Greenville	SC	1,872,256.84	354,076.95	18,231.58	-11,807.44	18.91	-64.76
Maricopa	AZ	18,439,246.73	958,079.15	249,412.47	-11,072.11	5.20	-4.44
Dallas	TX	7,579,439.00	1,011,247.00	60,660.35	-10,634.97	13.34	-17.53
Delaware	IN	114,713.85	62,248.10	157,202.94	7,485.21	54.26	4.76
Venango	PA	767,724.00	41,786.00	53,566.84	-6,293.70	5.44	-11.75
Muskegon	MI	2,677,750.84	550,243.19	95,876.28	-5,795.94	20.55	-6.05
Los Angeles	CA	39,754,486.87	-2,020,391.28	95,208.09	5,777.86	-5.08	6.07
Mc Henry	IL	1,093,078.29	-274,874.23	14,096.50	-5,402.51	-25.15	-38.33
El Paso	CO	258,834.00	-160,040.00	162.43	5,108.60	-61.83	3,145.10
Jefferson	AL	2,030,630.01	-255,041.00	112,055.51	4,503.60	-12.56	4.02
Union	OH	18,900.20	9,847.77	2,865.54	4,388.99	52.10	153.16
Aiken	SC	138,918.89	-10,015.02	4,685.00	4,081.81	-7.21	87.13
Saline	KS	817,644.00	11,066,596.00	5,193.72	-3,560.05	1,353.47	-68.55
Onondaga	NY	9,979,589.76	469,398.46	43,649.27	-3,098.24	4.70	-7.10

Table IV-22. Form NS Reform Proposal 2: Top 20 County Results

County	State	Baseline Pounds	Change in Pounds	Baseline RSEI Risk	Change in Risk	% Change in Pounds	% Change in Risk
Santa Clara	CA	2,832,159.32	-894,901.40	72,151.51	-35,085.70	-31.60	-48.63
Fairfield	CT	510,060.68	-18,764.94	13,866.53	-13,643.17	-3.68	-98.39
Delaware	IN	7,816.85	85,333.10	411.85	7,483.64	1,091.66	1,817.08
Mc Henry	IL	930,522.29	-281,745.23	5,953.29	-5,169.90	-30.28	-86.84
El Paso	CO	246,923.00	-155,742.00	125.19	5,110.08	-63.07	4,081.81
Milwaukee	WI	3,558,956.93	324,358.93	28,383.11	-4,960.59	9.11	-17.48
Maricopa	AZ	6,185,342.60	-736,139.77	167,494.27	-4,828.75	-11.90	-2.88
Union	OH	19,075.20	9,716.77	2,866.38	4,388.32	50.94	153.10
Fayette	KY	191,082.00	54,012.00	391.02	2,960.87	28.27	757.22
Montgomery	OH	843,957.56	40,755.76	14,777.09	2,713.87	4.83	18.37
Greene	AR	168,415.00	21,050.00	189.64	2,533.04	12.50	1,335.73
Davidson	NC	1,072.00	708.00	469.72	2,446.75	66.04	520.90
Cook	IL	12,231,321.15	-3,369,574.03	8,792.46	2,434.79	-27.55	27.69
Medina	OH	1,248,793.00	-175,663.00	479.61	2,359.46	-14.07	491.95
Forsyth	NC	510,418.00	-201,271.00	3,778.83	-2,263.01	-39.43	-59.89
Albany	NY	388,579.97	-261,969.00	2,659.69	2,097.00	-67.42	78.84
Mahoning	OH	738,490.00	-89,908.00	449.35	1,619.86	-12.17	360.49
Bexar	TX	966,817.98	-154,433.00	3,336.68	-1,328.16	-15.97	-39.80
Harris	TX	21,303,450.95	-2,311,045.73	3,525.75	1,287.86	-10.85	36.53
Marion	IN	5,378,768.04	-500,217.99	5,315.86	1,146.16	-9.30	21.56

3. Top 20 Facility/Chemical Results

Again, looking at the worst case, Tables IV-23 and IV-24 present the change in reported pounds and RSEI model risk scores for the top 20 Form Rs under NS reform Proposal 1 and 2, respectively. These tables display each of the top 20 Form Rs sorted in descending order by absolute value of the change in risk score. The largest absolute change in risk score for Proposal 2 is associated with Clairol/Glycol Ethers (-12,724). However, this facility may be anomalous because although there are no apparent changes in the relevant transfer to POTWs, the RSEI model inexplicably assumes a zero exposed population in 2000, and an exposed population in 1999, which results in the 100 percent elimination of all risk in 2000. The next largest absolute change is Sanmina Plant 3/Copper Compounds, with a risk score change of -9,502. More than 99.9 percent of the Form Rs are associated with absolute changes in risk score under 1,000 for each Form NS reform proposal. Thus, the right-to-know value of the Form NS is very well represented by the underlying baseline report in virtually all the cases examined in 1999/2000. Appendix Tables F-3 and F-4 report the full set of top 400 facility/chemical results prepared in support of the Form NS reform proposal analysis.

4. Representative Facility/Chemical Records

To provide insight into the range of values represented by the Form NS Proposal results, Pechan identified representative Form Rs based on their percentile ranking with respect to change in risk score. Tables IV-25 and IV-26 display the Form Rs that represent the 25th, 50th, and 75th percentiles when all Form Rs are ranked in descending order by their change in absolute value risk score. For the Form NS Proposal 1, for example, the 25th percentile is associated with lead reporting by SEM-COM Co., Inc., Tables IV-25 and IV-26 indicate that the vast majority of Form Rs that are Form NS-eligible would have nominal changes in risk scores if their year 2000 Form R reports were replaced with year 1999 Form R information. The results indicate that the size of these percentage changes will be smallest for Proposal 2 (e.g., 0.215 increase in risk score for Proposal 1 at the 25th percentile, versus 0.070 decrease in risk for Proposal 2 at the same percentile). This should be compared to the median facility score of 15.9 (including scores from multiple chemicals). These results are consistent with the national results, which also indicate a lower percentage change in risk score for Proposal 2 relative to Proposal 1.

D. DISCUSSION OF FORM NS RESULTS

The Form NS analysis results indicate that the three reform proposal alternatives analyzed will have a nominal impact on the ability to characterize national level toxic chemical health risks. Based on 1999/2000 RSEI model data, each reform proposal is expected to result in no more than a 0.1 percent change from the baseline risk score associated with current Form R reporting, while allowing Form NS reporting for at least 14 percent of current Form R reports. The results also indicate that the combination of both Proposal 1 (quantity ratio) and Proposal 2 (*de minimis* on-site release threshold) will provide the most advantageous trade-off between smaller reporting burden and reduction in TRI data quality.

Table IV-23. Form NS Reform Proposal 1: Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Baseline Pounds	Change in Pounds	Baseline RSEI Risk	Change in Risk	% Change in Pounds	% Change in Risk
18960MTKNC900CL	Ametek Inc. U.S. Gauge Div.	Bucks	PA	Lead	6,290	6,745	6,398	85,419	107	1,335
29411DPNTCCYPRE	Du Pont Cooper River Plant	Charleston	SC	Antimony compounds	1,428	87	29,906	28,349	6	95
77506RPRDC1423H	Air Prods. L.P.	Harris	TX	Diaminotoluene (mixed isomers)	1,131,700	-417,779	55,782	-14,517	-37	-26
44111MRCNT12314	American Tank & Fabricating Co.	Cuyahoga	OH	Manganese compounds	147,712	-40,802	6,527	12,872	-28	197
06922CLRLN1BLAC	Clairol Inc.	Fairfield	CT	Glycol ethers	42,400	3,100	12,724	-12,724	7	-100
29602HTCHL575MA	Hitachi Electronic Devices (USA) Inc.	Greenville	SC	Lead compounds	76,541	-17,139	12,944	-11,593	-22	-90
75234GNBNC1880V	Exide Corp.	Dallas	TX	Lead compounds	6,303,659	1,105,370	29,395	-9,759	18	-33
95050SNMNC2539S	Sanmina Plant 3	Santa Clara	CA	Copper compounds	138,400	-75,297	16,484	-9,502	-54	-58
85205TRWSF4051N	TRW Vehicle Safety Sys. Mesa I Facility	Maricopa	AZ	Sodium nitrite	12,499	-1,500	75,421	-9,051	-12	-12
95131SNMNC2101O	Sanmina Corp. Plant #1	Santa Clara	CA	Copper compounds	119,755	-49,050	16,484	-8,921	-41	-54
95131SNMNC2068B	Sanmina Plant 2	Santa Clara	CA	Copper compounds	201,460	-111,219	16,484	-8,662	-55	-53
91331PRCPF13500	Price Pfister Inc.	Los Angeles	CA	Lead	583,540	-493,710	211	7,374	-85	3,499
47307CRFDM1210E	MTI Dynamerica	Delaware	IN	Sodium nitrite	1,500	28,497	370	7,036	1,900	1,900
60632MDWYW4630W	Midway Wire Inc.	Cook	IL	Lead	1,265	-760	6,400	-5,442	-60	-85
60013FPMCNC320CA	FPM Continuous Processing Inc.	Mc Henry	IL	Sodium nitrite	232,976	-213,978	5,629	-5,170	-92	-92
80132SYNTH1051S	Synthes (USA)	El Paso	CO	Chromium	685	16,610	102	5,110	2,425	5,000
85260MRTNL15570	Morton Intl. Inc. (Oper By Shipley Co. LLC)	Maricopa	AZ	Glycol ethers	218	507	1,911	4,444	233	233
43040HNDFM24000	Honda Of America Mfg. Inc.	Union	OH	Sodium nitrite	7,900	12,848	2,866	4,389	163	153
53215MYNRD2856S	Maynard Steel Casting Co.	Milwaukee	WI	Manganese	34,753	3,785	53,835	4,384	11	8
16301LCTRL175MA	Electralloy	Venango	PA	Chromium compounds	126,691	4,669	37,584	-4,308	4	-11

Table IV-24. Form NS Reform Proposal 2: Top 20 Facility/Chemical Results

Facility ID	Facility Name	County	State	Chemical Name	Baseline RSEI Pounds	Change in Pounds	Baseline RSEI Risk	Change in Risk	% Change in Pounds	% Change in Risk
06922CLRLN1BLAC	Clairol Inc.	Fairfield	CT	Glycol ethers	42,400	3,100	12,724	-12,724	7	-100
95050SNMNC2539S	Sanmina Plant 3	Santa Clara	CA	Copper compounds	138,400	-75,297	16,484	-9,502	-54	-58
85205TRWSF4051N	TRW Vehicle Safety Sys. Mesa I Facility	Maricopa	AZ	Sodium nitrite	12,499	-1,500	75,421	-9,051	-12	-12
95131SNMNC2101O	Sanmina Corp. Plant #1	Santa Clara	CA	Copper compounds	119,755	-49,050	16,484	-8,921	-41	-54
95131SNMNC2068B	Sanmina Plant 2	Santa Clara	CA	Copper compounds	201,460	-111,219	16,484	-8,662	-55	-53
95050SGMCR393MA	Tyco Printed Circuit Group Santa Clara Div.	Santa Clara	CA	Copper compounds	86,939	52,327	13,109	-7,250	60	-55
47307CRFDM1210E	MTI Dynamerica	Delaware	IN	Sodium nitrite	1,500	28,497	370	7,036	1,900	1,900
60013FPMCNC320CA	FPM Continuous Processing Inc.	Mc Henry	IL	Sodium nitrite	232,976	-213,978	5,629	-5,170	-92	-92
80132SYNTH1051S	Synthes (USA)	El Paso	CO	Chromium	685	16,610	102	5,110	2,425	5,000
85260MRTNL15570	Morton Intl. Inc. (Oper By Shipley Co. LLC)	Maricopa	AZ	Glycol ethers	218	507	1,911	4,444	233	233
43040HNDFM24000	Honda Of America Mfg. Inc.	Union	OH	Sodium nitrite	7,900	12,848	2,866	4,389	163	153
53204MRCNB710WN	Bell Aromatics	Milwaukee	WI	Sodium nitrite	138,271	-28,757	16,128	-3,354	-21	-21
40511SQRDC1601M	Square D Co.	Fayette	KY	Copper	3,542	-716	143	2,949	-20	2,064
72450PRSTLONEPR	Prestolite Wire Corp. Paragould Plant	Greene	AR	Lead compounds	16,610	-6,350	190	2,533	-38	1,336
45401DLICMR1420W	Delphi Automotive Sys. Wisconsin Ops.	Montgomery	OH	Asbestos (friable)	23,047	5,009	12,783	2,510	22	20
27360THMSM1024R	Thomas Mfg. Co. Inc.	Davidson	NC	Lead	317	708	185	2,447	223	1,320
44258RCPPR230NS	Erie Copper Works Inc.	Medina	OH	Copper	162,111	-72,872	48	2,403	-45	4,991
53186MTRCS1323S	Motor Castings Co.	Milwaukee	WI	Chromium	5,434	-5,050	2,567	-2,366	-93	-92
27105LCNCN2941I	Ilco Unican Corp.	Forsyth	NC	Copper	295,565	-159,770	3,360	-2,253	-54	-67
12183LLDSGTIBBE	Honeywell Friction Materials	Albany	NY	Asbestos (friable)	10	7	2,278	2,073	70	91

Table IV-25. Representative Facility/Chemical Records by Risk Score Percentile Ranking: Form NS Proposal 1

Percentile	Rank	Facility ID	Name	County	State	Chemical	1999 Pounds	2000 Pounds	Change in Pounds	1999 Risk	2000 Risk	Change in Risk (absolute value)	+ or - Change in Risk
25	3,773	43607SMCMC1040N	SEM-COM Co. Inc.	Locas	OH	Lead	1,015	2,334	-1,319	28.630	28.415	0.215	+
50	7,547	18853TYLRPRD1RT	Taylor Packaging Co. Inc.	Bradford	PA	Chlorine	260	260	0	1.276	1.271	0.005	+
75	11,320	77656KRBYFPOBOX	Louisiana-Pacific Corp. Silsbee OSB Mill	Hardin	TX	Diisocyanates	42	38	4	0.000	0.000	0.000	0

Table IV-26. Representative Facility/Chemical Records by Risk Score Percentile Ranking: Form NS Proposal 2

Percentile	Rank	Facility ID	Facility Name	County	State	Chemical	1999 Pounds	2000 Pounds	Change in Pounds	1999 Risk	2000 Risk	Change in Risk (absolute value)	+ or - Change in Risk
25	2,553	60609MRCNN1101W	Rexan Beverage Can Co. Chicago Plant	Cook	IL	Hydrogen Fluoride	28	29	-1	1.990	2.060	0.070	-
50	5,105	61920MBRNN1555N	Arkwright Inc.	Coles	IL	Zinc compounds	1,455	1,266	189	0.045	0.045	0.000	0
75	7,658	24439THBRKSTATE	Burke-Parsons -Bowlby Corp.	Rockbridge	VA	Copper	131	161	-30	0.690	0.690	0.000	0

It is important to recall that many facilities currently use Form R even though they appear to be eligible to use Form A. If all Form A-eligible reports were submitted using Form A, the change in both the number of Form Rs and the risk score associated with the Form NS reform proposals would be less than that estimated in this analysis. In addition, as described earlier, areas that experienced population increases between 1999 and 2000 would be estimated to have either smaller increases (if 1999 chemical quantities were higher than 2000) or larger decreases (if 1999 chemical quantities were lower than 2000) in risk scores than solely attributable to each Form NS reform proposal. Of course, that score increase is not attributable to any facility activity changes.

Although the analyses indicate that many counties have large percentage changes in risk scores under the Form NS reform proposal alternatives, these percentage changes do not frequently correspond to a large change in absolute health risk. In fact, in counties where the baseline risk score is small, it is anticipated that large percentage changes will not result in a substantial change in absolute health risk. To best interpret the impacts of each reform proposal on county-level risk, a formal quantitative risk analysis should be conducted to identify whether the largest absolute changes in county-level risk scores are associated with substantial changes in chronic health risks as measured by increased cancer incidence.

It should be noted that the results of this study are specific to the TRI changes that occurred between 1999 and 2000. An important limitation of this Form NS analysis is the fact that it does not reflect current lead reporting requirements. In 2001, EPA added lead and lead compounds to the list of PBT chemicals, which significantly lowered the Form R reporting threshold for this chemical. Later this year, the SBA plans to commission a supplementary analysis using 2001 and 2002 data from the forthcoming updated version of the RSEI model. The 2000 and 2001 data in the forthcoming RSEI model will therefore reflect the current lead reporting requirements. Based on our knowledge of the 2001 lead reports, we anticipate that thousands of the lead reports will qualify for the Form NS, based on the *de minimis* onsite releases alone.

E. DISCUSSION OF THE COMBINED BENEFIT OF FORM A AND FORM NS PROPOSALS

The Form A and Form NS proposals provide an opportunity for reduced reporting burden for two different and overlapping universes of current Form Rs. It is valuable to examine the magnitude of relief that is provided by the combination of various forms of the two types of proposals: Form A expansion and Form NS. In order to measure the total burden reduction, we need to estimate the universe of Form Rs affected by both proposals.

It is easiest to calculate the combination of the two universes by starting with the number of Form Rs eligible for Form A reporting. Using the figures from Table IV-1, Table IV-27 shows the number of current and newly eligible Form As for each proposal and option level (e.g. Proposal 1, 1,000 pounds). These figures were derived using the database that excluded Form Rs that did not pass the quality assurance procedures described in section III.C. The result of this analysis is the count of Form Rs that are currently eligible for Form A reporting and the count of Form Rs that would be newly eligible for Form A reporting under each Form A reform proposal alternative.

Table IV-27. Estimated Number of Form Rs Eligible For Form A Reporting

Form A Annual Reportable Amount Threshold (lbs)	Current Form A ¹	New Form A	Total Form A
<i>Form A Proposal 1 Threshold</i>			
500 (Baseline)	9,878	0	9,878
1000	9,878	3,188	13,066
2000	9,878	6,593	16,471
5000	9,878	11,501	21,379
<i>Form A Proposal 2 Threshold</i>			
500	9,878	6,125	16,003
1000	9,878	10,299	20,177
2000	9,878	14,469	24,347
5000	9,878	19,763	29,641

¹ Refers to Form Rs included in the Form A analysis that have year 2000 annual reportable amounts of 500 lbs or less.

Next, it was necessary to estimate the total number of Form NS-eligibles that are found among the non-Form A-eligible universe. This number is then added to the number of Form A-eligibles from Table IV-27 to yield the total benefits of both the Form A and Form NS reform proposals. Since the number of Proposal 1 NS eligibles is 21.1 percent of all Form Rs, this 21.1 percent figure was used to estimate the number of Form NS eligibles among the non-Form A-eligible Form Rs. Table IV-28 shows the number of non-Form A-eligible Form Rs, and the estimated number of Form NS eligibles, calculated using the 21.1 percent factor. The last column in Table IV-28 shows the total Form Rs eligible for reporting using either Form A or Form NS.

Table IV-28. Estimated Number of Form Rs Eligible For Form A and Form NS Reporting

Form A Annual Reportable Amount Threshold (lbs)	Non-Form A Eligible Form Rs	Form NS Eligible Reports ²	Form A & Form NS Eligible Reports ³
<i>Form A Proposal 1 Threshold</i>			
500 (Baseline)	53,032	11,186	21,064
1000	49,844	10,513	23,579
2000	46,439	9,795	26,266
5000	41,531	8,760	30,139
<i>Form A Proposal 2 Threshold</i>			
500	46,907	9,894	25,897
1000	42,733	9,013	29,190
2000	38,563	8,134	32,481
5000	33,269	7,017	36,658

¹ Only includes eligibility under Form NS Proposal 1 because of difficulty in estimating remaining Form Rs that would qualify under Form NS Proposal 2.

² Estimated by multiplying number of non-Form A eligible Form Rs by 0.211.

³ Includes both current and new Form A eligible Form Rs.

Additional non-Form A-eligible Form Rs that may be eligible for burden relief under Form NS Proposal 2 were not estimated because only a few of these are assumed to be able to qualify under the *de minimis* on-site release criteria (only 14 percent of all Form Rs are estimated to qualify under Form NS Proposal 2, and it is not possible to reasonably estimate which portion of the remaining Form Rs would qualify for this option). It is reasonable to assume, however, that this would be a small percentage.

Table IV-29 presents estimates for the total Form A and Form NS burden relief as measured by the percentage reduction in number of Form Rs. When compared to the baseline of all currently reporting Form Rs, the combination of Proposal 1 under both Form NS and Form A results in new reporting relief for an additional 18 to 32 percent of Form Rs.¹⁷ The combination of Form A Proposal 2 and Form NS Proposal 1, is estimated to result in reporting burden relief for an additional 26 to 42 percent of current Form Rs. This table also demonstrates that 16 percent of Form Rs are estimated to be eligible for Form A reporting under the current Form A eligibility 500-pound chemical quantity criterion.

Table IV-29. Estimated Number of Form Rs Eligible For Form A and Form NS Reporting

Form A Annual Reportable Amount Threshold (lbs)	New Form A	Total Form A	Total Form A & NS Proposal 1	% New NS and New A Forms / Total Form Rs	% Current Form A / Total Form Rs	% New NS and All A Forms / Total Form Rs
<i>Form A Proposal 1 Threshold</i>						
500 (Baseline)	0	9,878	21,064	17.8	15.7	33.5
1000	3,188	13,066	23,579	21.8	15.7	37.5
2000	6,593	16,471	26,266	26.0	15.7	36.1
5000	11,501	21,379	30,139	32.2	15.7	47.9
<i>Form A Proposal 2 Threshold</i>						
500 (Baseline)	6,125	16,003	25,897	25.5	15.7	41.2
1000	10,299	20,177	29,190	30.7	15.7	46.4
2000	14,469	24,347	32,481	35.9	15.7	51.6
5000	19,763	29,641	36,658	42.6	15.7	58.3

¹ Only includes eligibility under Form NS Proposal 1 because of difficulty in estimating remaining Form Rs that would qualify under Form NS Proposal 2.

Note that because this analysis includes only the Form Rs that passed the quality assurance procedures described in Section III.C., the results are most relevant when viewed on a percentage, rather than absolute basis. This is of particular importance in comprehending the Form A reform proposal results because implementing these quality assurance procedures resulted in a significant number of Form Rs (12 percent) being excluded from the Form A analysis. Further, as this analysis relies on year 2000 data and not 2002, it does not account for lead PBT reports. Therefore, relief is potentially underestimated because a large portion of the lead PBT reports would qualify for Form NS relief under Form NS Proposal 2 (*de minimis*). We expect that the future phase two analysis, as discussed earlier, will incorporate year 2001 and 2002 data.

V. POTENTIAL FUTURE ANALYSES

This report summarizes the results of the first phase of a two-phase SBA analysis of TRI program reform alternatives. In the second phase, SBA expects to refine the analyses described in this report by including the most current (2001 and 2002) TRI data and by performing additional TRI data quality assurance before incorporating the data into the analyses. The additional data will allow a more accurate analysis of the impacts of the reform proposals based

¹⁷ The JFA report noted that some of the currently eligible Form Rs could be converted into Form As if EPA changed its enforcement policy that currently discourages the use of the Form A (JFA, 2004).

on current lead reporting requirements, given the important change in lead reporting that occurred in year 2001. This second phase analysis will also facilitate comparisons with the results of the first phase analysis, and will either reinforce this report's conclusions or identify important distinctions that would further clarify the impacts of the proposals. Furthermore, the SBA may consider conducting analyses of additional TRI program reform alternatives in this second phase. For example, the SBA may wish to evaluate the impact of Form A reform proposal alternatives that include range reporting for the quantity of chemicals handled. An additional Form NS reform alternative that could be evaluated is described later in this section.

To ensure the validity of the analytical results, it is important to quality assure the data that are incorporated into the TRI program reform analyses. As noted earlier, concerns were identified during the first phase of the analysis with respect to the current RSEI model and invalid TRI data. Because of the limitations of the Form R Section 5 and 6 information that was included in the TRI database used in the first phase analysis, it was not possible to conduct a comprehensive quality assurance check on the Section 8 information that was used in the Form A reform proposal analyses. The SBA plans to obtain additional TRI information from Section 5 to provide a means for conducting more thorough quality assurance checks on the Section 8 information used in the second phase analysis. This information will also allow the Form A reform proposal analysis to reflect all RSEI media (the current Form A analysis is specific to data for on-site media and transfers to POTWs that were available from the TRI database supplied in April 2004). Furthermore, the first phase study identified a number of RSEI records with invalid values. The SBA will review the new RSEI model when it is released to ensure that these values have been corrected and to identify any similar records that may be faulty in the new model. Any records newly identified as invalid will be eliminated from the analysis to the extent possible.

For the second phase analysis, the SBA may decide to evaluate additional Form NS reform proposals. One such proposal identifies the following criteria for determining Form NS eligibility: (i) previous year and current year total non-PBT chemical releases (sum of Sections 8.1 and 8.8) are less than 100 pounds, (ii) previous year and current year on-site non-PBT chemical releases are less than 100 pounds, and (iii) previous year and current year on-site PBT chemical releases are less than 10 pounds (except dioxin and dioxin-like compounds). To evaluate this proposal, it would be necessary to conduct matching between data in the next TRI database and the RSEI, similar to that performed for the Form A reform proposal analysis. In addition, it may also be worthwhile to analyze whether there is a specific class of chemicals for which a few large reporters account for the great majority of total estimated health risk, while the remaining reporters account for only a small proportion. In such a case, higher reporting thresholds might provide significant burden reduction with relatively little loss of the most important information.

VI. RECOMMENDATIONS

The main purpose of this first phase analysis was to characterize the impact of TRI program reform proposal alternatives on the ability to characterize health risks and to maintain the current level of right-to-know information for local communities. When compared to the Form A reform proposals, the Form NS reform proposal alternatives result in the most significant reporting burden relief relative to their impact on the ability to characterize health risks without consideration of the enhanced Form A. This result is as expected because the Form A

alternatives analyzed reflect the complete loss of TRI data for Form Rs that are identified as Form A-eligible, while the Form NS proposal analyses utilize the previous year TRI data to replace Form Rs that are identified as Form NS-eligible. As noted in the following Form A reform proposal recommendations section, it is possible to further refine the Form A reform proposal alternatives to reduce their impact on TRI data quality, while continuing to provide significant reporting burden relief. This section is followed by a discussion of conclusions/recommendations for EPA consideration related to the Form NS reform proposal alternatives. In sum, EPA can enact both Form A and Form NS revisions, without compromise to the right-to-know objectives, with the Form NS providing relatively more data value of the two options.

For completeness, we include here the other TRI burden reduction recommendations of the 2004 JFA report that are not fully addressed in this current study. First, as discussed earlier in this report, and in more detail in (JFA, 2004), EPA should re-work its Form A enforcement policy.¹⁸ Currently, EPA treats erroneous Form A reports as nonreporters. EPA should treat erroneous Form A reports and erroneous Form R reports equally, which would allow more facilities to take advantage of the Form A option. Second, the JFA report recommends raising the alternate threshold for Form A from 1 million to 10 million pounds, based on an analysis of 1995 data.¹⁹ Third, the “enhanced Form A” is discussed in more detail in the earlier report.²⁰ Fourth, the JFA report suggests that the enhanced Form A should be applicable to PBT chemicals.²¹ Fifth, the JFA report advocates that range reporting should be allowed in Section 8 of the Form R, and not simply in Sections 5 and 6, so that real burden reduction can occur in the creation of these TRI estimates.²² Lastly, the report recommends a separate reporting threshold for small chemical and petroleum wholesalers to lower the reporting burden for very small releases.²³ EPA should not overlook these additional recommendations simply because these were not the subject of this later report.

A. FORM A REFORM PROPOSALS

The results of the first phase analysis of TRI program reform proposals generally indicate a nominal national change in ability to characterize risk from almost every Form A reform proposal alternative:

With the exception of the 5,000-pound threshold Proposal 2 alternative (Proposal 2 removes recycling and energy recovery from the definition of annual reportable amount), all Form A proposal alternatives are associated with a smaller percentage change in risk score than that associated with removing all currently filed Form Rs that meet the current Form A reporting threshold of 500 pounds instituted in 1994. Therefore, it appears that the magnitude of the change in risk for all but one alternative is less than the size of the change in risk that EPA previously accepted through the adoption of TRI Form A certification.

¹⁸ JFA, 2004 Report at pp. 22-23.

¹⁹ Id. at pp. 54-55.

²⁰ Id. at pp. 55-59.

²¹ Id. at pg. 59.

²² Id. at pp. 68-69.

²³ Id. at pp. 69-72.

Pechan evaluated the impacts of two sets of TRI reform proposals related to expanding the Form A reporting eligibility for non-PBT chemicals. The first set of Form A reform proposals would increase the ARA eligibility threshold from the current 500 pounds to: (a) 1,000 pounds; (b) 2,000 pounds; and (c) 5,000 pounds. The second set of Form A reform proposals would revise the current Form A reporting eligibility to reflect an ARA that excludes recycling and energy recovery and the following chemical quantity thresholds: (a) 500 pounds; (b) 1,000 pounds; (c) 2,000 pounds; and (d) 5,000 pounds.

As demonstrated in Figure IV-1, this study suggests that the Proposal 1 alternatives result in a smaller change in risk than the Proposal 2 alternatives for the same level of TRI reporting burden relief (as measured by the incremental number of Form Rs that become Form A-eligible). In Table IV-30, two alternatives appear particularly worthy of consideration (these are in italics): Proposal 1 – 2,000-pound threshold and Proposal 2 – 1,000-pound threshold. Both of these involve less than a 10 percent change in risk, and provide relief for between 6,593 and 10,299 additional Form Rs (i.e., 12 and 19 percent of year 2000 Form Rs). These values compare to the 9,878 Form Rs in year 2000 that are estimated to have been eligible for Form A reporting based on existing EPA Form A eligibility requirements.²⁴ If EPA revises its enforcement policy it could obtain greater relief for both the new and old Form-A-eligible facilities.

Table IV-30. Summary of Form A Reform Proposal Results

Proposal	Reporting Threshold (lbs)	% Change in Risk	% Change in Form R Reports
1 (current ARA definition)	1,000	-2.1	-6.0
	<i>2,000</i>	<i>-4.4</i>	<i>-12.4</i>
	<i>5,000</i>	<i>-9.5</i>	<i>-21.7</i>

2 (revised ARA definition)	500	-4.5	-11.5
	<i>1,000</i>	<i>-9.5</i>	<i>-19.4</i>
	2,000	-13.7	-27.3
	5,000	20.6	-37.3

By comparison, the two italicized alternatives in Table IV-30 address total nationwide risk scores that are less than half of the risk score attributable to the current Form A-eligible Form Rs (-20.1 percent). Equally, if not more importantly, where the TRI information is used for the local community, the replacement of individual Form Rs with Form As is unlikely to have a significant effect, except for an extremely small minority of facilities (see earlier discussion in section IV.A).

In addition, revision of the Form A itself could yield significant benefits for the right to know. It is important to emphasize that the Form A reform proposals analyzed in this study assume no change in current Form A reporting requirements. In other words, we assume that the Form A would continue to carry no specific information about the disposition of chemical wastes,

²⁴ In reporting year (RY) 2000, 8,456 Form As were filed (EPA RY 2000 Public Data Release, Table ES -9). Although we could estimate the total number of expected Form As by adding the 8,456 to the estimated newly eligible Form As, these figures are not directly comparable with the actually filed Form Rs and As because the Form A analysis deleted 12 percent of the Form Rs as part of the quality control edits, as discussed earlier in the report. Thus, we cannot derive an accurate estimate for the number of Form As filed and newly eligible Form As.

including releases to air and water. An enhanced Form A, which requires chemical reporting using quantity ranges, would improve upon the right-to-know benefits of Form A. This modified Form A would provide range estimates for some or all of the elements in Sections 8.1 through 8.7 of Form R. Although the information would be less precise than that reported on Form R, TRI data users would be able to approximate the releases and waste management practices of the affected facilities, which would provide much more information than the current Form A. Range reporting of Sections 8.1 through 8.7 would not be unduly burdensome to current Form A filers because they already compile these data to determine eligibility for Form A. The enhanced Form A can generally be thought of as a compromise between the existing Form A and Form R.

In sum, the two italicized Form A alternatives appear to provide relief to a wider proportion of Form As, with a very small change in the total nationwide risks, and similarly small changes on a local community level. The inclusion of the enhanced Form A would further increase the right to know benefits. These alternatives are worthy of further exploration by EPA.

B. FORM NS REFORM PROPOSALS

Form NS reform Proposals 1 and 2, and the combination of both reform proposals, are associated with a minor change in national risk (0.1 percent or less) relative to current Form R filings. All of these alternatives would provide substantial reporting burden relief as measured by the number of Form NS-eligible Form Rs. While the national risk impacts are nominal for both Proposals 1 (10 percent change or less) and 2 (*de minimis*), the benefits of Proposal 2 are significantly less than those provided by Proposal 1 or the combination of Proposals 1 and 2:

Table IV-31. Summary of Form NS Reform Proposal Results

Proposal	% Change in Risk	% Change in Form R Reports
2	0.0	-14.3
1	0.1	-21.1
1 and/or 2	0.1	-24.2

It should be emphasized that unlike the Form A reform proposals, the Form NS proposals are analyzed by replacing actual current year information with previous year information. The issue of the appropriate number of years for the program could be evaluated in the second phase analysis by comparing results from two adjoining TRI reporting years to results based on an analysis of TRI data for two years over a longer time-frame (perhaps 3 or 4-years before the current reporting year). This type of analysis could assist EPA in determining an appropriate limit to the number of consecutive years for which a Form NS could be filed before a new Form R would be required. EPA could consider allowing Form NS reporting over a period of between one to four years before another baseline report would be required.

Although there is some overlap, the universe of facilities affected by Proposals 1 and 2 is very different. Therefore, it makes the most sense for EPA to combine both Proposals in fashioning the Form NS. On a nationwide basis, there is no apparent significant change in risk associated with either Proposal 1 or 2. Like the Form A analysis above, there were very few local communities that showed significant changes between one year and the next under both proposals. Furthermore, both Form NS Proposals 1 and 2 are designed to limit the amount of

data loss by the manner in which they were constructed (e.g. relevant quantity not changing by more than 10 percent). As discussed above, use of the Form NS does not involve the same type of loss of data as Form A because Form NS will utilize prior year data to represent current year waste handling information. Thus, Form NS is more advantageous than Form A due to the preservation of additional significant information. However, as discussed in Section V.E., EPA should not overlook the combined benefits of employing both Form NS and Form A (or enhanced Form A) in its efforts to reduce reporting burden while preserving data quality.

The results of the comparative analysis of Form R Section 8.9 (Production Index) data with Section 8 information on the total quantity of each chemical indicate that current Section 8.9 information provides a poor surrogate for year-to-year changes in chemical handling. It is also possible that the lack of correlation reflects poor data quality in section 8 today, and not merely poor estimation of the 8.9 factor itself. Therefore, unless the instructions for this section are significantly revised to clearly identify that this index must reflect the change in total quantity of chemical handled, it is recommended that EPA should not rely on the information developed for this section to determine Form NS eligibility. In lieu of such change, Pechan recommends that Form NS eligibility be determined based on either production or use, or a measurable quantity that otherwise serves as a proxy for total onsite releases.

VII. REFERENCES

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APPENDIX A. DETAILED DESCRIPTION OF ANALYTIC STEPS

The data used in the TRI reform proposal analyses came from two sources: Tim Antisdell of the EPA provided the database of 2000 and 2001 TRI Form R reports. This set of data did not include risk estimates. Risk scores were obtained from 1999 and 2000 output from EPA's RSEI Chronic Human Health Model.

Form A Reform Proposals:

Currently, the requirement is that businesses must file Form R for a chemical if total releases of that chemical exceed 500 pounds. The SBA has made several proposals for evaluation. The hope was to find the best balance between corporation burden/cost (Form R is complicated and time-consuming to complete) and citizen risk/right-to-know (less information about releases can be gleaned from the alternate, shorter Form A).

The first set of Form A reform proposals raises the baseline reporting threshold from 500 pounds to 1,000, 2,000, or 5,000 pounds (some values were reported in grams and these values were converted to pounds). Alternately, SBA has proposed a more fundamental change in the reporting criteria. Rather than reporting total releases, the second Form A reform proposal would consider only onsite releases in determining eligibility for Form R/Form A, and the thresholds examined were 500, 1,000, 2,000, and 5,000 pounds. In performing the analyses, E.H. Pechan & Associates, Inc. (Pechan) looked at data from the RSEI and TRI databases for the year 2000.

- The RSEI and TRI databases for 2000 were linked on Facility ID and Chemical ID (to include all records from RSEI and only matching records from TRI) to create a new "All Records" table.
- The main database tables did not explicitly include Toxicity Weight, Ingestion Pathway, or Exposed Population. A crosswalk to Toxicity Weight and Ingestion Pathway was created (available in a separate table extracted from RSEI) and these fields were added to the All Records table. Exposed Population was determined by dividing ModeledPoundsToxPop by ModeledPoundsTox, two fields provided in the RSEI model output.
- Next, the toxic releases were summed in several ways.
- Total releases from the TRI database were calculated as the sum of 8.1 through 8.8 from Form R.
- The sum of Total Onsite Releases + Total POTW Transfers was calculated by adding Total Onsite Air Releases 2000 + Total Onsite Water Releases 2000 + Total Onsite Underground Releases 2000 + Total Onsite Land 2000 + Total Transfers to POTWs 2000 (these fields were created by Tim Antisdell in the TRI database).

- Total Onsite + POTW Metals was calculated by adding Total Onsite Air Releases 2000 + Total Onsite Water Releases 2000 + Total Onsite Underground Releases 2000 + Total Onsite Land 2000 + Metal Releases to POTWs 2000.
- In each category-level record, the greater of the sum of 8.1 through 8.8 or Total Onsite Releases + Total POTW Transfers was placed in a new field called SBA Estimate of Proposal 1 Sum.
- In each category-level record, the greater of blank 8.1 from Form R (called 81 Releases 2000 in the database) or Total Onsite + POTW Metals was placed in a new field called SBA 81.
- In each category-level record, the greater of blank 8.7 from Form R (called 87 Treated Offsite) or Non-Metal Transfers to POTWs 2000 was placed in a new field called SBA 87.
- The new field SBA Estimate of Proposal 2 Sum is filled with $SBA\ 81 + 8.6 + SBA\ 87 + 8.8$ if $SBA\ 81 = 81\ Releases\ 2000$ and $SBA\ 87 = 87\ Treated\ Offsite$, otherwise this field is updated to $SBA\ 81 + 8.6 + SBA\ 87$.
- Pechan decided to consider only those records that correlated well between the RSEI and TRI databases. Pechan only included those release quantities from TRI in which the corresponding RSEI release quantity was within 5 percent (inclusive) of the TRI quantity. It did not make sense to apply RSEI risk scores to TRI release quantities if the releases reported in each database were not approximately the same.
- Since RSEI release quantities were given at the category level and TRI release quantities were at the facility/category (Form R) level, Pechan allocated the TRI releases to the category level. This procedure required several steps.
- A field called TRI Media Sum Lbs was created that summed pounds from the TRI database at the Media level and this was filled in as appropriate (e.g., the value found in “Total Onsite Air Releases 2000” created by Tim Antisdell in the TRI database would be filled in when the Media code was 1 or 2).
- A field called RSEI Media Sum Lbs was created that summed pounds from the RSEI database at the Media level (1 + 2, 3, or 6).
- New fields for allocating pounds from TRI to the Score Category Level were created.
- The field Category to Media Total Ratio was created, which was filled with the ratio of $(RSEI\ Lbs) / (RSEI\ Media\ Sum\ Lbs)$.
- The field TRI Pounds was created and filled with the product of “TRI Media Sum Lbs” and “Category to Media Total Ratio”.
- The field “TRI/RSEI Compare 5 %” was created to check that releases between RSEI and TRI were within 5 percent (inclusive) at the Score Category level. $TRI/RSEI\ Compare\ 5\ \% = (RSEI - TRI) / RSEI * 100\ \%$.

- A table of facility/chemical combinations (Form Rs) was create that includes categories outside the 5 percent range. This table was linked table back to the “All Records” table for the purpose of deleting all the category records associated with a Form R having a category outside the allowable range.
- Remaining records were considered in the two Form A reform proposal analyses. Based on the totals in SBA Estimate of Proposal 1 Sum and SBA Estimate of Proposal 2 Sum (>500 lbs, >1,000 lbs, >2,000 lbs, >5,000 lbs), records were selected to represent the available data under each reform proposal (i.e., if the reporting threshold were raised to 2,000 pounds, detailed risk assessments could only be performed on those releases totaling more than 2,000 pounds).
- Results were summarized for both reform proposals and all suggested alternate reporting thresholds in several spreadsheets.
- The national results spreadsheet contained the column headings Reporting Threshold (lbs), Pounds from RSEI, % Change in RSEI Pounds, RSEI Risk Score, % Change in Risk Score, # of Reports (Facility/Chemical Combinations), % Change in # of Reports, # of Facilities Reporting, and % Change in # of Facilities.
- The top 400 (by risk) facility/chemical combinations (with category-level detail) table contained the column headings Facility ID, Facility Name, City, County, State, Zip Code, SIC Code, Chemical ID, Chemical Name, Media Text, Category, RSEI Pounds, Risk, Toxicity Weight, Ingestion Pathway Modeled, Exposed Population, Year 2000 8.1 from Form R, Total Onsite + POTW Metals, SBA Estimate of Year 2000 8.1, Year 2000 8.7 from Form R, Non-Metal Transfers to POTWs 2000, SBA Estimate of Year 2000 8.7, Sum of 81 through 88, Total Onsite + Total POTW, 86 Treated Onsite 2000, 88 One Time Release 2000, Proposal 1 Sum Replaced?, Proposal 2 Sum Replaced?, % of Total Change in RSEI Pounds, and % of Total Change in Risk.
- The top 400 (by risk) counties table contained the following column headings: County, State, Reduction in RSEI Pounds, Reduction in Risk, % of Total Change in RSEI Pounds, and % of Total Change in Risk.

Form NS Reform Proposals:

The SBA has also proposed the addition of a new form, the so-called Form NS. This form would allow businesses to fill out a very simple form certifying “no significant change” to their releases since the last year. There are two different proposals that were analyzed to find a balance between burden/cost and risk/right-to-know.

The first proposal states that businesses may file Form NS if onsite releases are less than 10,000 pounds in both the present and the previous year, there is no change in which categories have releases in the two years under consideration (e.g., an urban fugitive air release in the first year must have a corresponding urban fugitive air release in the second year), the Quantity Ratio (ratio of pounds released in the current year to pounds released in the previous year) is between 0.90 and 1.10, inclusive.

The second proposal states that businesses may file Form NS if onsite releases are less than 10,000 pounds in both the present and the previous year, there is no change in which categories have releases in the two years under consideration (e.g., an urban fugitive air release in the first year must have a corresponding urban fugitive air release in the second year), onsite non-PBT chemical releases in both years are less than 100 pounds, and onsite PBT chemical releases are less than 10 pounds (dioxin and dioxin-like compounds are not eligible) in both years.

Our Form NS analysis looked at releases from the years 1999 and 2000 using release data and risk estimates from RSEI.

Evaluation of the first Form NS reform proposal (described above) required the following steps:

- The main database tables (“All Records 1999” and “All Records 2000”) did not explicitly include Toxicity Weight, Ingestion Pathway, or Exposed Population. A crosswalk to Toxicity Weight and Ingestion Pathway was created and these fields were added to the main tables. Exposed Population was determined by dividing ModeledPoundsToxPop by ModeledPoundsTox, two fields provided in the RSEI model output.
- To judge the onsite releases and Quantity Ratio criteria, new tables were made of the 1999 and 2000 data consisting only of onsite media codes (1, 2, 3, 401, 402, 520, 530, 540, 560, or 590). These releases were grouped at the facility/category level (i.e., an individual Form R/Form NS) and the releases were summed.
- The 1999 and 2000 tables were linked on facility and chemical and a new table was made of the combined data. Flag fields were marked based on the total pounds released (<10,000 pounds was considered passing), and a new Quantity Ratio field was computed and updated as the ratio of year 2000 onsite releases to year 1999 onsite releases. A Quantity Ratio flag field was filled in based on the value of the Quantity Ratio (between 0.9 and 1.1 inclusive was passing).
- To determine which Form R filings had no change in the types of releases reported (the “no change in process” criterion) in 1999 and 2000, the “All Records 1999” and “All Records 2000” tables (note that this step considered *all* categories as opposed to the strictly onsite category analysis performed for the other criteria) were linked on facility, chemical, media, and category. Categories that “matched” (i.e., both 1999 and 2000 had releases greater than zero) were flagged. To pass this test, *all* categories attached to a given Form R were required to match between 1999 and 2000. To make this determination, further queries were needed.
- A table was made of all facility/chemical combinations (i.e., Form Rs) that did not match in at least one category in either year being examined. This new table of unmatched facility/chemical combinations was linked back to the two “All Records” tables. A new flag field was created in the “All Records 1999” and “All Records 2000” tables to mark records matching or not matching in *all* categories for a given Form R.

- A category-level table of combined 1999 and 2000 data was made consisting of all records matching at the facility, chemical, media, and category levels and passing the “no change in process” criterion.
- This category-level table was linked to the facility/chemical level table created above (i.e., the table containing the <10,000 pounds released and Quantity Ratio flags). Records passing all the tests were considered to be the first part of the master list of records passing the first Form NS reform proposal.
- An additional step was required at this point. Form Rs that did not have any onsite releases associated with them would be incorrectly classified as Form NS ineligible due to the way the queries were arranged. As written, the queries look for onsite releases meeting the requirements of the proposals and mark those that pass and those that fail. But those Form Rs without onsite releases are not considered at all and when the flags are tested the offsite-only Form Rs are passed by. Pechan identified the records that a) were associated with Form Rs not having any onsite releases and b) passed the “no change in process” criterion. These records were then marked as Form NS-eligible and added to the set of NS-eligible records created in the previous step.
- To analyze the data, several queries were run on the final dataset to create Microsoft Excel spreadsheets.
- A National table was created that summarized the results. Column headings in this table were Pounds from RSEI, Percent Change in RSEI Pounds, RSEI Risk Score, Percent Change in Risk Score, Number of Form R Reports (Facility/Chemical Combinations), Percent Change in Number of Reports, Number of Facilities Filing Form R, Percent Change in Number of Facilities.
- A category-level table of the top 400 facility/chemical combinations (by absolute value of the change in risk from 1999 to 2000) was created with the following column headings: Facility ID, Name, City, State, Zip Code, County, SIC Code, CAS Number, Chemical, Media, Media Text, Score Category, Category, 1999 Pounds, 2000 Pounds, Change in Pounds, 1999 Risk, 2000 Risk, ABS (Change in Risk), + or - Change in Risk, 1999 Toxicity Weight, 1999 Ingestion Pathway, 1999 Exposed Population, 2000 Toxicity Weight, 2000 Ingestion Pathway, 2000 Exposed Population.
- The top 400 counties (by absolute value of the change in risk from 1999 to 2000) were also examined. Column headings in this spreadsheet were County, State, 1999 RSEI Pounds for NS-eligible Records, 2000 RSEI Pounds for NS-eligible Records, 1999 RSEI Pounds - 2000 RSEI Pounds, 1999 Risk for NS-eligible Records, 2000 Risk for NS-eligible Records, ABS (Change in Risk), + or - Change in Risk, Baseline 2000 Pounds for Entire County, Baseline 2000 Risk for Entire County, Percent Change in Pounds for County, Percent Change in Risk for County.
- Finally, a table was created of the 25th, 50th, and 75th percentile facility/chemical combinations (based on absolute value of the change in risk from 1999 to 2000 and with category-level detail). Column headings were Percentile, Rank, Facility ID,

Name, City, State, Zip Code, County, SIC Code, CAS Number, Chemical, Media, Media Text, Score Category, Category, 1999 Pounds, 2000 Pounds, Change in Pounds, 1999 Risk, 2000 Risk, ABS (Change in Risk), + or - Change in Risk, 1999 Toxicity Weight, 1999 Ingestion Pathway, 1999 Exposed Population, 2000 Toxicity Weight, 2000 Ingestion Pathway, 2000 Exposed Population.

Evaluation of the second Form NS reform proposal (described above) was very similar to evaluation of the first proposal. The differences were

- The only media codes considered in evaluating the 10,000-pound onsite release limit, the 100-pound onsite non-PBT release limit, and the 10-pound onsite PBT release limit were codes 1, 2, 3, 401, 402, 520, 530, 540, 560, and 590. New tables were made (one for 1999 and one for 2000) that contained the releases for these media codes summed at the facility/chemical level and omitting the ineligible chemicals (dioxins, CAS Number N150 and dibenzofuran, CAS Number 132649).

Flag fields were created and marked in the original tables (All Records 1999, All Records 2000).

- The 10,000-pound onsite release flags used in the first proposal were used again for this proposal.
- The Quantity Ratio that was used in the first Form NS proposal to determine Form NS filing eligibility was not considered in this proposal.
- Instead of the Quantity Ratio, onsite non-PBT releases were required to be less than 100 pounds and onsite PBT releases were required to be less than 10 pounds (dioxins were not eligible for Form NS under this proposal).
- The “no change in process” flags used in the first proposal were used again for this proposal.
- As described in the Form NS Proposal 1 procedure above, those Form Rs without onsite releases had to be analyzed separately and records deemed Form NS-eligible (but not included in the list) were added to the set of Form NS-eligible records.
- Those records meeting the Form NS filing criteria under this proposal were analyzed in the same way as those meeting the criteria for the first proposal. The Excel spreadsheets made for the summary/analysis of the data were identical to those created under the first proposal.

In addition to identifying and analyzing those records that met the criteria of each of the Form NS proposals, Pechan also identified those records meeting the criteria of either the first Form NS proposal OR the second proposal. This assessment was relatively simple to make, as the needed flag fields were already extant in the tables. A summary of the records qualifying under at least one of the two proposals is given in the national results table. Column headings in this table were Pounds from RSEI, Percent Change in RSEI Pounds, RSEI Risk Score, Percent Change in Risk Score, Number of Form R Reports (Facility/Chemical Combinations), Percent Change in Number of Reports, Number of Facilities Filing Form R, Percent Change in Number of Facilities.

**APPENDIX B. DETAILED COUNTY RESULTS: FORM A
PROPOSAL 1**

**APPENDIX C. DETAILED COUNTY RESULTS: FORM A
PROPOSAL 2**

**APPENDIX D. DETAILED FACILITY/CHEMICAL RESULTS:
FORM A PROPOSAL 1**

**APPENDIX E. DETAILED FACILITY/CHEMICAL RESULTS:
FORM A PROPOSAL 2**

**APPENDIX F. DETAILED COUNTY AND
FACILITY/CHEMICAL RESULTS: FORM NS
PROPOSALS 1 & 2**