Economic Analysis for the Amended Inventory Update Final Rule

Final Report

Economic and Policy Analysis Branch
Economics, Exposure and Technology Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency

August 2002

This page intentionally left blank.

ACKNOWLEDGMENTS

EPA acknowledges the analytical support of Research Triangle Institute of Research Triangle Park, NC, provided under EPA Contract No. 68-W7-0018 in the preparation of this report.

CONTENTS

LIST OF FIGURES

Number **Page**

LIST OF TABLES

LIST OF BOXES

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) currently requires manufacturers and importers of certain chemical substances to report plant site and production volume information to the Agency every four years. The information is collected under reporting requirements known as the Inventory Update Rule (IUR), based on EPA's authority under Section 8(a) of the Toxic Substances Control Act (TSCA). EPA is seeking to amend these reporting requirements to collect additional information. The economic analysis presented here examines changes in reporting that will result from these amendments and associated costs, benefits, and impacts.

The rule will amend the IUR data collection in several ways. First, it will require the collection of various types of exposure-related data about certain chemicals (such as the number of workers potentially exposed, the types of industrial processes the chemical is used in, the number and type of processing sites, the types of commercial and consumer uses of the chemical, and the concentration in these products). The IUR amendments (IURA) will also make inorganic chemicals reportable, raise the reporting threshold, add a second threshold for reporting chemical processing and use information (with an exemption from reporting this information for petroleum process stream chemicals and specific chemicals for which there is low current interest in processing and use data), and make administrative changes that will enhance the effectiveness of the data collected under the IUR.

EPA will use the information collected under these amendments to screen chemicals based on relative risk, set risk assessment priorities among chemical substances of potential concern, and support EPA's pollution prevention and environmental protection activities. The data collected through these amendments will help to determine potential risks, identify opportunities for safer substitutes, target specific population groups, and evaluate the need for risk management. The data will allow EPA to better focus its programs and use resources more efficiently. Currently, the lack of nationwide information related to chemical production and use prevents the Agency from screening large numbers of chemicals in a timely manner. The data to be produced by the IURA are critical for EPA to meet its obligations under TSCA.

This report analyzes multiple regulatory options for amending the IUR by varying the reporting thresholds, exemptions, and reporting cycle. Please note that the results of the economic analysis here differ from earlier drafts. First, the IURA was revised substantially during the interagency review process prior to proposal. The economic results reflect those changes in content. Moreover, EPA has carefully considered the comments on the economic analysis submitted to EPA during the public comment period for the proposed rule and has accordingly revised the rule, as well as the economic analysis methods and assumptions. EPA has also revised the rule as a result of interagency review. In addition, the passage of time in the rulemaking process has allowed EPA to update the data used to perform the analysis and the base year for which costs are reported (Year 2000 dollars).

The IURA will collect basic information on roughly 8,900 chemicals out of the more than 76,000 chemicals on the TSCA Inventory. Approximately 1,000 chemical manufacturers or importers will be

required to report. These companies are expected to submit about 26,800 reports covering approximately 3,000 sites. In the first submission period under IURA, approximately 35 percent of the reports (covering 44 percent of the chemicals) are expected to be full reports (i.e., containing processing and use information as well as manufacturing information), while the remaining 65 percent will be partial reports (i.e., containing only manufacturing information). In future submission periods, approximately 44 percent of the reports (covering 51 percent of the chemicals) are expected to be full reports, with the remaining 56 percent being partial reports. Many submitters already report under the IUR, and will simply be providing additional information under the IURA. However, the universe of reportable chemicals is also adjusted under the IURA. Approximately 1,100 inorganic chemicals will be reportable for the first time, and about 1,200 currently reportable chemicals will no longer be reported due to the higher reporting threshold.

EPA estimates the incremental cost of the amendments to be between $72 million and $87 million in the first reporting cycle and between $64 million and $77 million for each future reporting cycle (every four years). These startup and quadrennial costs are equivalent to an annual cost of between $17.3 million and $20.8 million for the first 20 years of the rule using a three percent discount rate. When a seven percent discount rate is used, the annual cost increases to between $18.5 million and $22.2 million.

EPA has taken a number of steps to reduce the reporting burden, including raising the reporting threshold from the existing level of 10,000 pounds up to 25,000 pounds; introducing a second threshold of 300,000 pounds to reduce the number of reports for which processing and use information must be provided; establishing a partial exemption for inorganic chemicals in the first reporting cycle; establishing partial exemptions for petroleum process stream chemicals and for specific chemicals for which there is a low current interest in processing and use data and a full exemption for certain forms of natural gas; requiring the reporting of "readily obtainable" processing and use information instead of the higher standard of "reasonably ascertainable" information; and allowing submitters to report much of the information in ranges.

The small business impacts of the rule are minimal. Most small businesses are not affected, since the regulations exempt companies meeting certain small business criteria. The costs will be relatively small for those small businesses that report. For the roughly 200 to 350 small businesses expected to report, the cost of reporting is estimated at 0.20 percent or less of sales. Because the regulatory costs represent a small fraction of a typical firm's sales, the financial impacts of the regulation are not expected to be significant.

Because the IURA is an information collection exercise, no negative environmental equity issues are associated with the rule. Instead, the information that will become available will enable the Agency to target educational, regulatory, or enforcement activities towards industries or chemicals that pose the greatest potential risks and to target programs for population groups that are at the highest potential risk. Thus, the information to be gathered under the IURA will help EPA to make decisions that will benefit potentially at-risk communities, some of which may be disadvantaged.

Taking together the factors analyzed in this report, EPA believes that amending the IUR will generate benefits to society of improved public and private decisions related to chemical risks that more than justify the costs of data collection and administration.

SUMMARY

S.1 Introduction

Based on its authority under Section 8(a) of the Toxic Substances Control Act (TSCA), the U.S. Environmental Protection Agency (EPA) currently requires manufacturers and importers of certain chemicals to report limited data, including production volume, every four years. The regulation that requires the reporting is known as the Inventory Update Rule (IUR). EPA is amending the IUR to change the reporting threshold, alter certain reporting exemptions, require companies to provide use and exposure information for some of the chemicals, and make administrative and confidential business information (CBI) reporting changes that will enhance the effectiveness of the existing regulation. The additional data will assist EPA in evaluating potential exposures and risks resulting from industrial chemical operations and consumer uses of chemical substances. EPA will use the information collected under this rule to set risk assessment priorities among chemical substances of potential concern, to more efficiently manage these risks, and to support EPA's pollution prevention and environmental protection activities. The information will also be valuable to other public- and private-sector organizations for similar purposes.[1] The data to be produced by the IUR amendments (IURA) are critical for EPA to meet its obligations under TSCA. This analysis reviews the costs, benefits, and impacts of the TSCA IURA reporting requirements.

S.2 Background

Congress enacted TSCA in 1976 to establish a number of new requirements and authorities for identifying and controlling toxic chemical risks to human health and the environment. To implement its responsibilities under TSCA, EPA must identify potential chemical risks, assess the magnitude of the identified risks, and manage risks determined to be unreasonable. TSCA provides EPA with the authority to gather information (such as chemical toxicity, chemical exposure, and other related data) to determine whether a chemical substance may present an unreasonable risk of injury to human health or the environment.

Section 8(b) of TSCA requires EPA to compile and keep current an inventory of chemical substances in commerce (excluding pesticides, tobacco, nuclear material and byproducts, firearms and ammunition, food and food additives, drugs, and cosmetics). In 1977 EPA collected basic information about subject chemicals, including the chemical identity, the identity of sites that were manufacturing or importing the chemical, and the chemical's production volume (in a range). EPA compiled the information into the initial TSCA Inventory. The TSCA Inventory originally contained approximately 60,000 chemicals. As new chemicals enter into commerce in the United States, they are added to the TSCA Inventory. As a result, the Inventory currently contains more than 76,000 chemicals.

[1]Only non-CBI information will be publicly available.

Section 8(a) of TSCA authorizes EPA to collect a broad variety of information about chemicals in commerce. EPA exercised this authority in 1986 when it promulgated the IUR (51 FR 21438) (*Federal Register*, 1986a). The IUR, codified at 40 CFR Part 710, requires chemical manufacturers and importers to provide updated information for chemicals in the TSCA Inventory meeting specific criteria. Small businesses as defined in TSCA Section 8 are exempted from reporting. The IUR includes a production volume threshold of 10,000 pounds a year, and exemptions from reporting for inorganic chemicals, polymers, microorganisms, and naturally occurring substances.

The IUR requires companies to submit reports every four years; data have been collected in 1986, 1990, 1994, and 1998. Under the IUR, companies report company, plant site, and chemical identity information; whether the chemical is manufactured or imported; whether it is site limited or is distributed off-site; and its production volume at the site. Companies can claim specific data elements as CBI by using a check-box, although CBI claims for chemical identity require up-front substantiation. Companies must retain records that support their submissions for four years following the reporting period. About 26,000 required submissions from approximately 2,700 sites, providing information on roughly 8,900 chemicals, were reported to EPA in the 1998 reporting cycle.[2] EPA enters the information into the Chemical Update System (CUS), a confidential database.

S.3 Need to Amend the IUR

EPA uses the IUR data to identify chemical substances, plant sites, and exposures of most concern and to set priorities for more detailed risk assessment and potential risk management actions. Although risk is based on hazard and exposure, EPA's past approaches to chemical risk screening have primarily used production volume as a proxy for exposure. Where available, this information is supplemented by relatively scarce public data on chemical use and exposures. To make more accurate estimates, EPA needs better information on potential exposure. Information such as how chemicals are used, how many sites use the chemical, and how many workers are potentially exposed will enable EPA and others to develop exposure scenarios.

The existing public data sources are inadequate because they are poor in coverage and are often outdated. While EPA has used these sources in the past (because they do contain useful data), they are far from adequate for prioritizing, identifying chemicals of concern to specific populations, and managing risks on a nationwide basis.

Existing EPA data collections typically do not provide exposure-related information that the Agency needs for risk screening, such as industrial and commercial uses, the number of workers potentially exposed, or levels of use in consumer products. Many programs cover only a limited set of chemical substances, a limited number of chemical uses, or only specific industry sectors. Others are regional, rather than national, in scope. Some of the programs collect information on categories of pollutants or on waste streams and not on specific chemical substances, making it difficult to use data in chemical risk screening. And some collect monitoring data for a specific media (e.g., air or water) but do not collect information on the potential sources of the chemical releases to the environment.

[2]It should be noted that the numbers of chemicals, reports, and sites presented above do not include statistics for chemicals with a production volume lower than 10,000 pounds that reported voluntarily.

Commercial data sources are very limited in scope and detail of use information, and generally provide information only on larger-volume chemicals. Although the sources can provide some useful information for these large volume chemicals, none of these information sources (considered individually or in aggregate) are adequate substitutes for the information EPA is proposing to collect because each either covers a narrow set of reportable chemicals, was a one-time collection, or does not contain adequate exposure-related data elements for risk screening.

Information specific to the manufacture and use of chemicals, including information on the potential for exposure during the chemical's life cycle, has not been comprehensively or systematically collected at the national level. Each of the existing data sources has limited utility due to a small or specialized sample size, a limited number of chemicals, or the age of the data. None of the databases, either alone or combined, provides the Agency with the necessary array of screening-level data.

After reviewing the data available from existing sources, EPA determined that the best way to address the lack of exposure-related data was to use the IUR to collect basic information related to potential chemical exposures. EPA also identified problems associated with the current IUR reporting requirements, including an inconsistent reporting period (i.e., company fiscal year) that creates difficulties in matching the IUR data to other Agency databases and the Agency's inability to publicly cite useful information because a company has inappropriately claimed that data should be classified as TSCA CBI. The Agency determined that amending some of the IUR's administrative and CBI provisions will provide EPA and others with needed flexibility in using these data, while protecting the legitimate concerns of submitters.

S.4 Options Analyzed for the IURA

This report analyzes eight regulatory options considered by EPA for amending the IUR reporting requirements. The options were created by varying the threshold for processing and use data, the exemptions based on the type of chemical, and the reporting cycle. Table S-1 summarizes these options.

As a result of the various analyses performed and feedback received throughout the regulatory development process, EPA amended the IUR based on Option 1 (as modified for the final rule).[3] In particular, the selected option will make the following changes to the IUR:

- *Increase the reporting threshold*: The reporting threshold will increase from 10,000 to 25,000 pounds.
- *Create a second reporting threshold*: Chemicals produced or imported at volumes less than 300,000 pounds will complete a partial reporting form, requiring only site and manufacturing information. Chemicals with production volumes of 300,000 pounds or greater will complete the full form, requiring reporting of processing and use data as well as site and manufacturing information.

[3]Between the proposed rule and the final rule, Option 1 (the selected option) was modified in two ways in order to lower industry burden. EPA removed a requirement for CBI reassertion and added a partial exemption for specific chemicals based on low current interest in processing and use data.

Table S-1. Regulatory Options Summary

Option	Thresholds		Reporting Cycles		Number of Chemicals	Number of Sites	Number of Reports	Percentage of Reports[a]		Annualized Cost (million 2000$)[b]	
	Site and Manufacturing Information	Processing and Use Information	Site and Manufacturing Information	Processing and Use Information				Partial	Full	Low	High
Threshold Options											
1a - Draft Final[c]	25,000 lbs	300,000 lbs	4 yrs.	4 yrs.	8,865	3,026	26,797	63.6/54.0%	36.4/46.0%	$19.5	$23.3
1b - Selected Final[c]	25,000 lbs	300,000 lbs	4 yrs.	4 yrs.	8,865	3,026	26,797	64.6/56.2%	35.4/43.8%	$17.3	$20.8
2	25,000 lbs	100,000 lbs	4 yrs.	4 yrs.	8,865	3,026	26,797	51.7/38.9%	48.3/61.1%	$24.4	$27.7
3	25,000 lbs	500,000 lbs	4 yrs.	4 yrs.	8,865	3,026	26,797	68.1/59.9%	31.9/40.1%	$17.6	$20.3
4	25,000 lbs	1,000,000 lbs	4 yrs.	4 yrs.	8,865	3,026	26,797	73.7/67.0%	26.3/33.0%	$15.3	$17.8
5[d]	25,000 lbs	500,000 lbs/ 100,000 lbs	4 yrs.	4 yrs.	8,865	3,026	26,797	68.1/38.9%	31.9/61.1%	$22.9	$26.0
Reporting Exemption Option[e]											
6	25,000 lbs	100,000 lbs	4 yrs.	4 yrs.	7,748	2,482	22,260	41.8/41.8%	58.2/58.2%	$19.8	$22.2
Reporting Cycle Options											
7	25,000 lbs	100,000 lbs	2 yrs.	2 yrs.	8,865	3,026	26,797	51.7/38.9%	48.3/61.1%	$47.6	$53.9
8	25,000 lbs	100,000 lbs	one-time	one-time	8,865	3,026	26,797	51.7/38.9%	48.3/61.1%	$6.0	$6.8

[a] These percentages are reported as first submission period/future submission period.

[b] The annualized cost is based on a 20 year period and a 3 percent discount rate.

[c] Option 1a represents the draft final included in the initial submission to the interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data .

[d] This option has a threshold of 500,000 lbs for processing and use information in the first reporting cycle and a threshold of 100,000 lbs for reporting this information in all future reporting cycles.

[e] Inorganic chemicals are fully exempt from reporting.

Note: Option 1b does not include CBI reassertion and does include a partial exemption for specific chemicals, as described in footnote c. All other options include CBI reassertion and do not include the partial exemption for specific chemicals.

- *Remove the inorganic exemption*: Inorganic chemicals will no longer be exempt from reporting. Inorganic chemicals will not be required to report processing and use data in the first submission period, but in subsequent reporting cycles they will be subject to the same reporting requirements as organic chemicals.

- *Add exposure-related data*: Two types of exposure-related data will be added:

  – *Exposure-related manufacturing information.* All reportable chemicals will supply the number of workers potentially exposed during manufacturing(in ranges), the physical state(s) of the chemical and the associated percent production volume, the maximum concentration of the chemical when manufactured(in ranges), and whether production volume is confidential when considered in a specific range.

  – *Processing and use information.* Larger-volume chemicals (with production volumes of 300,000 pounds or greater) will also report exposure-related information on industrial processing and use and commercial and consumer use. *Industrial processing and use information* includes process or use codes, five-digit North American Industry Classification System (NAICS) codes, industrial function categories, the percentage of production volume in each category, number of sites (in ranges), and number of potentially exposed workers (in ranges). *Consumer and commercial end-use information* includes commercial/consumer end-use categories, percent of production volume in each category, maximum concentration (in ranges) of the chemical in the commercial/consumer end use, and an indication of whether the chemical is intended for children's use.

- *Create reporting exemptions*: Certain petroleum streams and specific chemicals for which there is a low current interest in processing and use data[4] will be exempt from providing processing and use data (industrial processing and use information, and commercial and consumer use information). Inorganic chemicals are also exempt from reporting this information in the first submission period; in future reporting cycles they are subject to the same reporting requirements as organic chemicals. In addition, some forms of natural gas[5] will be fully exempt from reporting.

- *Change the CBI requirements*: Companies will be required to provide up-front substantiation when claiming plant site identity as CBI.

- *Make certain administrative changes*: The reporting year will be changed from the current fiscal year to the calendar year. As part of the site identification, companies will be required to report the county name of the plant site, as well as the Dun & Bradstreet number, the postal mailing address, and e-mail address of the parent company. The records retention period will be lengthened from four to five years.

---

[4]The partial exemption for specific chemicals based on low current interest in processing and use data currently includes 77 organic chemicals and 4 inorganic chemicals for which there is relatively little interest in processing and use information. However, the list may be revised in the future as the need for processing and use information changes.

[5]"Natural gas" includes the following CAS Registry Numbers: 64741-48-6, 68919-39-1, 8006-61-9, 68425-31-0, 8006-14-2, 68410-63-9.

S.5 Analysis of Options

Table S-1 also summarizes the results of the analysis for each of the eight different options, including the number of sites that will report, the number of reports that will be submitted, the distribution of partial and full reports, and the cost of reporting. Under the selected option, the IURA will collect basic information on about 8,900 chemicals out of the more than 76,000 chemicals on the TSCA Inventory. This information will be collected from about 26,800 reports covering approximately 3,000 sites.[6] In the first reporting cycle, approximately 35 percent of the reports (covering 44 percent of the chemicals) are expected to be full reports (i.e., containing processing and use information), while the remainder will be partial reports. The proportion of full reports rises to about 44 percent (covering 51 percent of the chemicals) in future reporting cycles as inorganic chemicals become fully reportable under the amendments. Many submitters already report under the IUR, and will simply be providing additional information. There are more than 1,100 inorganic chemicals that will be reportable to the IUR for the first time, and about 1,200 currently reportable chemicals that will no longer be reported as a result of raising the reporting threshold.

Costs of the IURA will be borne by the chemical industry and the taxpayers who fund EPA.[7] Industry costs are associated with complying with the regulation, while EPA costs are associated with administering the regulation and maintaining the collected data. EPA estimated industry costs based on the time required for companies to determine if they must comply with the IURA, become familiar with the rule, prepare and submit reports, and maintain records of the submitted data.

To determine burden estimates for report preparation and submission, EPA surveyed industry respondents. There are two important factors to note in interpreting the burden estimates obtained through this survey. First, the IURA requires that industry report "reasonably ascertainable" information for most data elements and "readily available" information for downstream processing and use information. While the "reasonably ascertainable" standard is currently used by the IUR, the decision to use the "readily available" standard was made after the survey was executed. Thus, survey respondents were reporting burden estimates assuming the "reasonably ascertainable" standard, which is a higher standard of information. Second, EPA had experience with the UEIP program, in which respondents reported chemical information very similar to that required by the IURA. Respondents also reported the time spent responding to the UEIP form (EPA, 1997b). Companies reported a median burden of 8 hours per chemical report, with a mean of 12 hours per chemical report. Both of these factors indicate that the burden estimates derived from the survey may overestimate the actual burden.

EPA assumed that the burden associated with submitting a report under the IURA will decrease over time as companies become more familiar with the new requirements. Burden will also decrease over time to the extent that the information being reported remains somewhat constant from one reporting period to the next. However, the total burden on inorganic chemical producers will be higher in future

---

[6]As used here, the number of "reports" refers to the number of individual chemical-site combinations reported nationwide. Companies generally submit one Form U per site, addressing multiple chemicals, and therefore multiple chemical "reports" per site.

[7]The information requirements imposed by the amendments can, in principle, lead to additional welfare losses from associated reductions in output in affected markets. Those welfare costs are likely to be quite small relative to the burden estimates and are not estimated separately in this report.

reporting cycles than in the first cycle. Even though the cost per partial report will have fallen, the removal of the inorganic partial exemption in future submission period leads to a higher total burden (since some of the partial reports will need to be full reports). Taken together, the factors that raise and lower future reporting costs lead to a reduction in total industry reporting costs of about 11 percent between the first submission period and future submission periods. More detail on cost estimates is given below.

EPA assumed that no capital costs will be associated with this rule. EPA estimated the total industry cost of the IURA by multiplying these estimated costs by the estimated number of sites and submissions that will be affected by the IURA. A separate estimate of EPA costs to administer the rule was added to the industry costs to derive the total cost to society.

The estimated cost to submit a report depends on the type of chemical being reported (e.g., organic chemical, petroleum stream chemical, or inorganic chemical) and the production volume of the chemical being reported (e.g., 25,000 to 300,000 pounds, or 300,000 pounds or greater). The estimated incremental cost or savings are as follows:

- Chemicals produced at a volume between 10,000 pounds and 25,000 pounds will now be exempt from reporting. This results in avoided reporting costs (i.e., savings) of approximately $589 to $936 per report for these chemicals for sites that must continue to report other chemicals under the IURA. The estimated reduction in cost for a site that no longer must report (because it does not manufacture or import any reportable chemicals in volumes of 25,000 pounds or greater) is between $6,213 and $9,843.

- For sites manufacturing or importing organic chemicals that must report under the amendments, the estimated incremental cost of compliance determination and rule familiarization (costs incurred at the site level) is $1,629 to $1,952 in the first submission period and $0 in subsequent periods. Sites manufacturing or importing inorganic chemicals are estimated to have an incremental cost of compliance determination and rule familiarization of $2,018 to $2,539 in the first submission period and $389 to $587 in subsequent periods.

- Chemicals with a production volume of 25,000 to 300,000 pounds, or those qualifying for one of the partial exemptions, can submit a partial report that does not contain processing and use information. The incremental cost for preparation and submission of a partial report and recordkeeping for that report is estimated to range from $577 to $940 in the first submission period and $487 to $804 in future periods for organic chemicals, while the incremental cost for inorganic chemicals is estimated at about $1,166 to $1,876 in the first submission period and $1,076 to $1,740 in future periods. Based on the CUS database, EPA expects that 57 percent of reports filed on organic chemicals will be partial reports. For inorganic chemicals, EPA expects 100 percent to be partial reports in the first submission period, because inorganic chemicals are exempt from full reporting in the first period, but only 51 percent in future submission periods.

- Chemicals produced in volumes of 300,000 pounds or greater that do not qualify for one of the partial exemptions must file a full report. The incremental cost for preparation and submission of a full report and recordkeeping for that report is estimated to range from $6,008 to $6,802 for organic chemicals in the first submission period (inorganic chemicals are exempt from reporting processing and use information in the first submission period). In future submission periods, the incremental cost is estimated to be $4,832 to $5,493 for organic chemicals and $5,421 to $6,429 for inorganic chemicals.

Inorganic chemicals generally have a higher incremental cost because they have heretofore been exempt from reporting. An estimate of the average cost per site can be derived based on the estimated number of full and partial reports per site. Organic chemical manufacturers are expected to file an average of 9.0 reports per site, while inorganic chemical manufacturers are expected to file an average of 8.3 reports per site. Combining the costs incurred on a per-site level with the costs per report, the number of reports per site, and the percentage of reports expected to be full and partial reports, EPA estimates the incremental cost per site for an organic chemical manufacturer to be between $27,034 and $31,939 in the first submission period, and between $20,441 and $24,276 in future submission periods. A similar calculation for inorganic chemical manufacturers yields an estimated incremental cost per site of $11,742 to $18,185 in the first submission period and $27,222 to $34,369 in subsequent submission periods.

Projected incremental costs for EPA operations are relatively small and are estimated at about $576,000 in the first reporting cycle, and about $270,000 for each subsequent reporting cycle. These Agency costs annualize to about $90,500 per year using a 3 percent discount rate or about $101,500 using a 7 percent discount rate. EPA estimates the incremental cost to industry of the amendments to be between $72.4 million and $87.4 million for the first reporting cycle. Costs for subsequent reporting cycles (every four years) are estimated at $64.4 million to $77.2 million. The startup and quadrennial costs are equivalent to an annual cost of $17.3 million to $20.8 million per year over the first 20 years of the rule based on a 3 percent discount rate. Using a 7 percent discount rate leads to an increase in the estimated annualized cost to between $18.5 million and $22.2 million.

EPA used exemptions or partial exemptions to reduce the number of reports (and thus costs), where this did not conflict with the utility of the data collection. Specifically, EPA reduced the number of reports by

- raising the reporting threshold from 10,000 pounds to 25,000 pounds and adding a full exemption for natural gas (reducing the number of reports by about 3,100 and 1,000, respectively);
- introducing a second threshold of 300,000 pounds for reporting processing and use data (reducing the number of reports for which full information must be provided by about 7,800 in the first submission period and 9,800 in future periods, when compared with requiring this information for all reports); and
- establishing partial exemptions for petroleum process streams, chemicals for which there is a low current interest in processing and use data, and inorganic chemicals (reducing the number of full reports by over 4,400 for petroleum process streams [relative to the case without the partial exemptions], by about 600 full reports due to the partial exemption for chemicals with a low current interest in processing and use data, and by about 2,300 full reports for inorganic chemicals in the first submission period).[8]

The result is that full reports are expected on only about 3,900 chemicals in the first submission period and 4,500 chemicals in future submission periods and partial reports are expected on about 5,000 chemicals in the first submission period and 4,400 chemicals in future submission periods (out of the

[8]The number of chemicals exempted from full reporting in the first submission period by the inorganic chemical exemption does not include the inorganic chemicals that are exempted by the partial exemption for specific chemicals based on low current interest in processing and use data to avoid double-counting.

more than 75,000 chemicals on the TSCA Inventory). EPA also reduced the specificity of the information required by

- requiring the reporting of only readily obtainable processing and use information;
- requiring that submitters report much of the information in ranges, reducing the need to generate precise estimates; and
- requiring processing and use information only on the bulk of the chemical's volume, not necessarily on 100 percent of the volume (for instance, only on the top ten NAICS codes).

These steps limit the amount of information required, reducing the time and effort spent by industry on complying with the amendments.

S.6 Benefits

The data collected through this rule will assist EPA in evaluating potential exposures and risks resulting from industrial chemical operations and commercial and consumer uses of chemical substances. EPA will use the information collected under this rule to set risk assessment priorities among chemical substances of potential concern and to support EPA's pollution prevention and environmental protection activities. The information (non-CBI portions) will also be valuable to other public- and private-sector organizations for similar purposes.

Because the current state of knowledge about the economics of information is not highly developed, this analysis does not attempt to assign monetary value to the direct benefits of the information collected by this rule. The direct benefits are the improved quality and timeliness of decision-making in EPA's risk screening process and EPA's improved ability to focus its programs and use resources more efficiently. Because the outcome of EPA's screening and risk management programs for these chemicals cannot be predicted, it is also not possible to quantitatively estimate the indirect benefits of the rule in terms of lives saved, illness averted, or ecosystem damages avoided. While the benefits cannot be monetized or quantified, the analysis does qualitatively describe the types of benefits that are expected. The benefits of some of the major changes are described below and summarized in Table S-2.

The amendments are directed at improving the data available for risk screening of existing chemicals. Improving the data available for the chemical-screening process provides EPA with the means to more effectively protect human health and the environment. At present, EPA uses hazard information in conjunction with production volume (as a proxy for exposure) as the primary tools to focus existing chemical resources. The addition of use and exposure-related information will provide a better risk characterization and allow EPA to develop priorities based on that risk. Identifying and focusing on those chemicals with greater risks earlier in the process reduce the health care and environmental costs borne by society. The amendments will also require reporting on inorganic chemicals, which will enable the Agency to identify and target risks from this class of chemicals.

The amendments make a number of administrative changes that will increase the effectiveness of the data collected. One example is the change to the reporting year. Under the current IUR, companies report on the basis of their fiscal year, which varies from company to company. Changing the reporting

Table S-2. Summary of IURA

Action	Result	Benefit or Rationale
Raise Threshold Raises the production volume-reporting threshold from 10,000 pounds a year to 25,000 pounds a year.	Exempts 75 sites and roughly 3,100 reports for 1,200 chemicals, at a savings of $1.8 to $2.9 million per reporting cycle.	Lowers companies' reporting burden.
Remove Inorganic Exemption Removes the exemption for inorganic chemicals in the current IUR.	Adds approximately 4,500 reports for over 1,100 chemicals, including about 2,200 full reports in future reporting cycles at a cost of $6.4–$9.9 million in the first year of reporting and $14.8-$18.7million in future reporting cycles.	Allows EPA to make informed risk-screening decisions about inorganic chemicals.
Petroleum Process Stream Partial Exemption Exempts specific petroleum process stream chemicals from reporting processing and use information	Exempts approximately 4,416 reports from providing processing and use information, saving $24.0-$25.9 million in the first reporting cycle and $19.2-$20.7 million in future reporting cycles relative to the case without this exemption.	Reduces burden by eliminating a large number of full reports on these specific chemicals for which EPA does not have a current interest in the processing and use data.
Partial Exemption for Specific Chemicals Based on Low Current Interest in that Data Exempts chemicals for which there is a low current level of interest in processing and use information (currently 77 organic chemicals and 4 inorganic chemicals).	Exempts approximately 599 reports from providing processing and use information, saving $3.2-$3.5 million in the first reporting cycle and $2.6-$2.8 million in future reporting cycles relative to the case without this exemption.	Reduces burden by eliminating full reports on these specific chemicals for which EPA does not have a current interest in the processing and use data.
Natural Gas Exemption Eliminates all reporting for natural gas substances with six specific Chemical Abstracts Service (CAS) numbers.	Exempts approximately 99 sites and roughly 1,000 reports from all reporting, saving $0.6 to $1.0 million per reporting cycle.	Reduces burden by eliminating a large number of reports on these specific chemicals for which EPA feels available data are adequate for current needs.
Site and Manufacturing Information Requires additional site and manufacturing information: • the company's Dun & Bradstreet number, postal mailing address, and e-mail address; • the location of the plant site, mailing address, and county; • the number of exposed workers(in ranges); • the physical state of the chemical and the associated percent production volume; and • the maximum concentration of the chemical(in ranges).	Does not change the number of reports required. Increases costs for reporting organic chemicals by approximately $10.0–$15.3 million in the first reporting cycle and $8.0–$12.2 million in future reporting cycles.	Increases the usefulness of information and improves EPA's ability to make more informed risk-screening decisions. Better site and company identification improves EPA's ability to link information with other databases. Worker exposure and chemical concentration information gives EPA the ability to complete a screening-level assessment of risks during the manufacture of chemicals.

(continued)

Table S-2. Summary of IURA (continued)

Action	Result	Benefit or Rationale
Processing and Use Information Requires additional processing and use information for chemicals with production volumes of 300,000 pounds or greater that do not qualify for a partial exemption: • process or use code; • five-digit NAICS code for processing; • industrial function category; • percentage of production volume in function category; • number of processing sites (in ranges); • number of potentially exposed workers (in ranges); • end-use category; • percentage production volume in end-use category; • indication of children's use • maximum concentration (in ranges) of the chemical in the end use.	Results in an increase in unit costs; does not change the number of reports required. Processing and use exposure information on organic chemicals is collected from approximately 9,500 reports on roughly 4,000 chemicals, at an estimated cost of approximately $51.4-$55.5 million in the first reporting cycle, and $41.1-$44.4 million in future reporting cycles.	Increases EPA's ability to make informed risk-screening decisions. The earlier identification of problems and fewer misidentifications improves the targeting of resources by EPA and industry.
Reporting Period Changes the reporting period from the company's fiscal year to the calendar year.	Does not change unit costs or the number of reports required.	Reporting for industry will be the same as for other reporting requirements. All data within the IURA database will reflect a consistent time frame, which will make data inferences more reliable. Reporting period consistent with other EPA data collections.
Extend Record Retention Period Extends record retention period from four to five years.	Does not change the number of reports required.	Since the reporting cycle is four years, this will make records from prior submission periods available to assist firms in completion of future IURA forms.

(continued)

Table S-2. Summary of IURA (continued)

Action	Result	Benefit or Rationale
Confidential Business Information Requires separate confidentiality claims for production volume ranges, in addition to exact production volume. Requires up-front substantiation of confidentiality claims for plant site information.	Results in an increase in unit costs; does not change the number of reports required. Approximately 20 percent of submissions received during the 1994 reporting period claimed plant site information as CBI, suggesting that a comparable percentage will provide up-front substantiation under the amendments.	Produces greater flexibility in the use of the data. Production volume ranges are less likely to be claimed to be confidential than point estimates. Production volume ranges maintain confidentiality for point estimates, while allowing greater flexibility in the use of the information. Up-front substantiation of plant site claims reduces the frequency of inappropriate CBI claims being filed, while protecting data that can legitimately be claimed as CBI.

year to coincide with the calendar year as opposed to a company's fiscal year will make the data set internally consistent. It will also make the reporting year for the IUR data consistent with other EPA databases, most of which are on a calendar year basis.

Much of the information reported through the current IUR is claimed CBI, which reduces the usability of the data. Information that is claimed to be CBI can only be used by staff with a security clearance, and the data cannot be included in any report or other document that will be made available to the public. As a result, if EPA uses this information (for instance to set risk management priorities), the basis for the decision cannot be completely shared with the public. If EPA only uses data that have not been claimed as confidential, the results will be incomplete and of limited usefulness. Several of the amendments are intended to limit CBI claims to only those that are necessary to protect legitimate business interests. For instance, since companies are less likely to claim production volume as CBI if the data are presented as a range rather than a point estimate, the IURA adds a range reporting element. Data that have been appropriately claimed as CBI will continue to be treated as confidential. These changes will allow EPA to provide more information to the public without breaching the confidentiality of legitimate CBI data.

Finally, collecting the additional IURA information will help further develop and measure the results of private-sector stewardship programs. The data will help to identify potential risks and opportunities for safer substitutes, target specific population groups, and evaluate the need for risk management.

In general, the additional information collected through the IURA will be used to identify and manage human health and environmental risks. The data will aid in identifying chemicals to which consumers, children, and workers are exposed; establishing priority chemicals for testing; and finding areas where voluntary programs are more likely to provide real gains in environmental protection.

Currently, the lack of nationwide information related to chemical production and use prevents the Agency from screening large numbers of chemicals in a timely manner. These amendments are critical for EPA to meet its obligations under TSCA.

As presented in Table S-1, EPA considered a variety of options in developing its selected approach. These options can be separated into three categories—reporting threshold, reporting exemption, and reporting cycle options. In determining which reporting threshold to propose, EPA considered the number of chemicals on which information will be collected, the burden associated with reporting the information, comments received from a variety of sources, and the future direction of EPA's program. For the reporting exemption options, EPA considered its ability to use the information, its interest in the information, and what other information is otherwise available to the Agency. For the reporting cycle options, EPA considered the dynamic nature of the chemical industry and the burden associated with reporting the information. Decisions as to the specific information collected were based on EPA's experience and information needs and are described in the technical support documents.

S.7 Small Entity Analysis

Small businesses are the only small entities expected to be affected by the IURA. In addition to the reporting thresholds (that help screen out small businesses), the existing regulation contains two small business exemptions (40 CFR 704.3). First, companies with annual sales of less than $4 million are exempt from reporting regardless of their production volume. Second, companies with annual sales less than $40 million are exempt from reporting if they produce less than 100,000 pounds of a regulated substance at a single site. These exemptions are not being changed by the IURA. For the purpose of the small entity analysis, all firms with $40 million or less in annual sales were assumed to be small businesses.

The rule is estimated to affect between 202 and 335 small businesses. EPA compared the cost of reporting due to the IURA to sales at these small businesses. Even using conservative assumptions, the average cost-to-sales ratio in the first year of reporting is estimated to be 0.18 percent or less. In future reporting cycles, costs are estimated to be 0.16 to 0.20 percent of sales for inorganic chemical manufacturers and slightly less for organic chemical manufacturers. Because regulatory costs represent a small fraction of a typical firm's sales, the financial impacts of the regulation are likely to be minimal.

S.8 Environmental Justice

Because the IURA is an information collection exercise, there are no negative environmental equity issues associated with them. Instead, the information that will become available through the rule will enable the Agency to target educational, regulatory, or enforcement activities towards industries or chemicals that pose the greatest risks and to target programs to geographic areas that are at the highest risk. Thus, the information to be gathered under the IURA will help EPA make decisions that will benefit potentially at risk communities, some of which may be disadvantaged. Of the 121 million people who live within 10 miles of an IUR site, almost 38 million (30 percent) are minorities. This number is greater than the nationwide rate of approximately 20 percent minority individuals. Roughly 24 million (20 percent) of the people living within 12 miles of an IUR site are at or below 150 percent of the poverty level, which is consistent with the nationwide rate of 21 percent.

S.9 Differences in Economic Analysis Results between the Final and Proposed Rule

The results of the economic analysis for the final rule are materially different than the results of the economic analysis for the proposed rule (EPA, 1999a). Of particular note is the difference in the estimates of the total cost of the rule. The costs of the selected option reported here are approximately $72 to $87 million every four years. The annualized cost over the first 20 years of the rule is $17 to $21 million per year using a 3 percent discount rate. By comparison, the cost of the rule at proposal was estimated to be $36 to $51 million in the first year, $27 to $41 million in future reporting cycles, and the annualized total cost of the proposed rule was approximately $10 to $14 million based on a 3 percent discount rate.

Several reasons contribute to the difference in cost estimates.

- **The selected option in this report differs from the proposed rule.**

  Notable differences between the proposed and final rule include the fact that the partial exemption for inorganic chemicals now applies only in the first reporting cycle, CBI reassertion is no longer required, and a partial exemption has been added for specific chemicals based on low current interest in processing and use data. Some of the modifications lead to cost increases while others lead to cost decreases. Overall, the changes to the selected option since proposal lead to a net increase in the estimated cost of the rule (as well as an increase in the amount of processing and use information that will be available for inorganic chemicals).

- **The costing methodology was modified.**

  The methodology to estimate the costs of the rule was modified to account for feedback provided to EPA in the public comment period. Also, after careful reassessment of the connection between the costing methodology used in the EA for the proposed rule and the industry survey data from which the burden estimates are made, the methodology was modified to better reflect the data provided in industry survey responses.

- **The final rule analysis employs data from the 1998 CUS database.**

  Compared to the previous data from 1994 and before, the new data provide a more accurate assessment of current IUR reporting volume, the distribution of chemicals reported, and the distribution of reporting sites. Using the 1998 data increased the number of reports used in the analysis by about 1,000 relative to the data used at proposal, which led to an increase in the cost of the rule.

- **Costs are now expressed in year 2000 dollars**.

  The costs of the rule at proposal stage were expressed in 1997 dollars. Costs are now expressed in 2000 dollars (first quarter). This base year adjustment inflates costs about 13 percent.

These modifications provide a more accurate assessment of the social costs of the rule. While the estimated cost of the rule is higher, EPA believes that the rule's benefits to society, derived from improvements in risk screening and risk management, justify the costs borne to obtain the information and administer the program. Benefit-cost comparisons are addressed in Section 5 of the report.

SECTION 1

INTRODUCTION

The U.S. Environmental Protection Agency's (EPA's) Office of Pollution Prevention and Toxics (OPPT) conducts economic analyses of planned regulatory actions to inform Agency decisionmakers about the effects of the regulatory action on society at large and on specific subpopulations. An economic analysis is typically composed of both a benefit-cost analysis and impact analyses. The former refers to analyses of the overall benefits and costs of an action and its alternatives, while the latter analyses are often intended to supplement a traditional benefit-cost analysis and usually involve analyzing the distribution of benefits and costs across different segments of society.

In addition to informing decisionmakers within the Agency, economic analyses meet numerous statutory and administrative requirements imposed by Congress and the White House. The White House, through Executive Order (EO) 12866, requires Executive Branch agencies to assess the benefits and costs of all rules it deems to be "significant"[1] and to submit these analyses to the Office of Management and Budget (OMB) for review. In addition to benefit-cost analysis, impact analyses are required in certain circumstances by both EOs and statutes. The Regulatory Flexibility Act (RFA) requires agencies to consider the effects of their regulations on small entities (businesses, governments, and nonprofit organizations). In addition, EO 12898, Federal Actions to Address Environmental Justice in Minority Populations requires each Federal agency to assess the impacts of its regulations on minority and low-income populations.

This report assesses the benefits and costs expected to result from implementing amendments to the Inventory Update Rule (IUR). The existing IUR, which has been in place since 1986, requires chemical manufacturers and importers to collect, maintain, and submit location and production volume information for chemicals with annual production volumes of 10,000 pounds or higher. The IUR amendments (IURA) will change this reporting threshold to 25,000 pounds and will augment the required site and production information. The amendments will also require sites with production volumes of 300,000 pounds or higher of a reportable chemical to collect, maintain, and submit additional information to EPA regarding chemical processing and use. Furthermore, the amendments change administrative requirements and exemption status for various chemical groups. Moreover, the amendments will include revise provisions for confidential business information (CBI) data claims to (1) require up-front substantiation of CBI claims for plant site identification, and (2) allow submitters to claim production

[1]According to EO 12866, a significant regulatory action is any regulatory action that is likely to (1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in EO 12866.

volume as CBI when presented in ranges (while also retaining the ability to claim specific production volumes as CBI).

The data elements required by the amendments will provide information to populate an exposure and use information database, which will provide the information necessary for EPA's everyday decisionmaking and will enable EPA to develop chemical screening priorities and streamline regulatory efforts. This will benefit society by enabling public and private parties to make more informed risk-screening decisions. The collected information will improve understanding of potential exposures resulting from industrial chemical use, allow more accurate tracking of chemical exposure and use, and permit more effective targeting of chemicals that pose the greatest exposure or risk. The costs associated with these amendments include the costs for private entities to collect, maintain, and submit the required information and the cost to taxpayers for financing government expenditures attributable to data management.

This economic analysis assesses and compares the benefits and costs of the IURA. This report also analyzes alternatives to the selected regulatory approach. The following analyses are provided in this report:

- an overview of changes in the reporting requirements,
- a characterization of the industry groups considered in this analysis (i.e., regulated community),
- a compilation and estimation of industry and Agency unit and total costs,
- an assessment of the benefits that will result from the information collected, and
- a comparison of the benefits and the costs of the IURA.

This report also discusses the impacts of the IURA on small businesses pursuant to the RFA and the impacts on minority and low-income populations in conformance with EO 12898, and it addresses impacts emphasized by other relevant congressional mandates (e.g., Paperwork Reduction Act).

The remainder of this section provides information on EPA's statutory authority for implementing the IURA, a discussion of the regulatory history and a description of the original rule requirements and the changes under the IURA, an overview of the regulated community, and a description of the contents of this report.

1.1 Statutory Authority

Congress has granted EPA broad authority to collect information on chemical substances, including information that will help EPA and others assess the magnitude and extent of human and environmental exposure to chemicals used in commerce. Specifically, under Section 8(a) of the Toxic Substances Control Act (TSCA) (15 U.S.C. 2607(a)), EPA is authorized to promulgate regulations requiring manufacturers and processors of chemicals to report production and use information on various types and classes of chemicals. Examples of the types of chemical-specific information that the Agency is authorized to collect is provided under TSCA §8(a)(2). Box 1-1 presents a summary of this information.

1.2 Description of the IUR

This section describes the regulatory history of the TSCA IUR, the original requirements of the rule, and the planned changes to the rule through the IURA.

1.2.1 Regulatory History

The TSCA Chemical Substances Inventory (42 FR 64572) (*Federal Register*, 1977), also known as the TSCA Inventory, was created just after TSCA's passage into law. The TSCA Inventory lists all TSCA chemicals in commerce, thereby providing a snapshot of chemicals manufactured or processed in the United States. All chemicals are included, with the exception of pesticides, tobacco, nuclear material, firearms and ammunition, food and food additives, drugs, and cosmetics. The TSCA Inventory initially included chemicals in commerce in 1977. Chemicals for which manufacturers complete EPA's New Chemicals[2] process and file a Notice of Commencement have been added to the Inventory. Currently, the Inventory lists over 76,000 chemicals.

Box 1-1. Chemical-Specific Information EPA is Authorized to Collect Under Section 8(a) of TSCA (not a comprehensive list)

1. Common or trade name, chemical identity, and molecular structure of each chemical substance or mixture for which reports are required.
2. Categories or proposed categories of use for each substance or mixture reported.
3. The total amount of each substance and mixture manufactured or processed and each of its categories of use; reasonable estimates of the total amount to be manufactured or processed and each of its categories of use.
4. A description of the byproducts resulting from the manufacture, processing, use, or disposal of each such substance or mixture.
5. All existing data concerning the environmental and health effects of such substances or mixtures.
6. The number of individuals exposed, and reasonable estimates of the number who will be exposed, to such substances or mixtures in their places of employment and the duration of such exposure.
7. The manner or method of disposal, and in any subsequent report on such substance or mixture, any change in the manner or method.

Under the authority of TSCA Section 8(a), EPA promulgated regulations requiring chemical manufacturers and importers to submit data on certain chemical substances listed in the TSCA Inventory (51 FR 21447) (*Federal Register*, 1986b) that they produce in volumes of 10,000 pounds or more per site. These regulations are commonly called the TSCA Inventory Update Rule, or IUR. Data are collected every four years. From 1986 to 1998, an average of 9,200 individual chemicals were reported per cycle; in 1998 (the most recent year data are available), 8,915 individual chemicals were reported. This collection provides a more up-to-date picture of a subset of the TSCA chemicals in commerce, generating data that are used to support many EPA risk management activities. The data also provide general support to many other EPA and non-EPA program activities.

[2]Chemicals listed on the TSCA Inventory are referred to as Existing Chemicals. Chemicals not currently listed are referred to as New Chemicals, and all producers intending to manufacture or import a new chemical must comply with the Agency's New Chemicals Program (NCP). The NCP screens new chemicals to determine if and under what conditions they can be brought into the United States. Once a chemical passes through the program, the manufacturer or importer files a Notice of Commencement indicating that the chemical will now be in commerce.

After analyzing the data submitted under the IUR during the 1986, 1990, and 1994 reporting periods and publicly available data, EPA identified the need to amend the IUR to provide basic information related to potential chemical exposures. EPA plans to use this new information to improve its chemical risk-screening capabilities. EPA also identified the need to amend some CBI reporting requirements and administrative provisions to enhance the data's usefulness.

1.2.2 Current IUR Requirements

The IUR currently requires that members of the regulated community submit information on certain TSCA chemicals once every four years. Reporting is mandatory for each regulated chemical produced or imported in annual quantities of 10,000 pounds or greater, although inorganic substances, polymers, microorganisms, and naturally occurring chemical substances are exempt from reporting. Reporters are required to provide the following information:

- **Company information** requires information for a technical contact, including company name, contact name, company street address, and telephone number.
- **Plant site identification** includes reporting the identification and address information for a manufacturing plant site, including plant site name, Dun & Bradstreet number, and plant site street address.
- **Chemical identifying number** involves reporting both the specific chemical name and the Chemical Abstracts Service (CAS) Registry Number, or other identifying number, of the chemical substance.
- **Manufacturer/importer activity** requires identifying whether the chemical is produced at the site or is imported.
- **Site-limited activity** entails indicating whether the chemical substance is produced and used at the same site. These chemicals do not undergo packaging and shipping.
- **Production volume** must be reported for the chemical manufactured at the plant site.
- **CBI** status can be claimed for each data element reported. Up-front substantiation of chemical identification CBI claims is required.
- **Certification statement** requires a signature certifying that complete and accurate information is provided.

1.2.3 Changes in Reporting Requirements under the IURA

The reporting requirements under the IURA encompass changes in the reporting thresholds, timing of reports, exemptions, and the amount and type of information that must be collected and submitted to EPA. This section defines several terms that correspond to data needs for the new requirements.

1.2.3.1 Reporting Thresholds, Reporting Cycles, and Exemptions

The IURA raises the reporting threshold from 10,000 to 25,000 pounds and add a second reporting threshold of 300,000 pounds for processing and use information. This means that sites producing or importing TSCA chemicals at annual volumes of 25,000 pounds up to 300,000 pounds are required to report only site and manufacturing information (Parts I and II of Form U). Sites producing or importing TSCA chemicals at annual volumes of 300,000 pounds or greater are required to report

processing and use information (Part III of Form U) as well as site and manufacturing data. The amendments retain the original reporting cycle of every four years but change the period of coverage for production from corporate fiscal year to calendar year. Additionally, the amendments change the recordkeeping period from four years to five years.

The amendments include certain changes to the current reporting exemptions. Under IURA, the inorganic chemical exemption is eliminated and reporting for these chemicals is phased-in. For the first reporting cycle, inorganic chemicals are subject to a partial exemption. For future reporting cycles, inorganic chemicals are subject to full reporting requirements. A partial exemption stipulates that only site and manufacturing information (Parts I and II of Form U), but not processing and use information (Part III of Form U), must be reported. A partial exemption is also granted for petroleum process stream chemicals and for specific chemicals based on low current interest in processing and use data.[3] Certain natural gas substances will be fully exempt from reporting.

1.2.3.2 Information Collected

The IURA adds new data elements to the information currently collected. Information already required under the current IUR will continue to be collected. Form U, the instrument used to collect the IUR information, has been revised; a copy of the draft revised form is provided in Appendix A. The draft revised Form U is divided into three parts: Site Identification Information, Manufacturing Information, and Processing and Use Information. An overview of the changes in the types of information to be reported follows:

- **Site Identification Information**
  - *Company and plant site identification* will include more detailed information to determine the company and plant site identities. The most notable change is the addition of the county name.
  - *Up-front CBI substantiation* for plant site identification is also being added. Under the existing IUR, up-front substantiation is only required for chemical identification.
- **Manufacturing Information**
  - *Exposure-related data* include the number of workers involved in manufacturing, the physical form(s) as the chemical leaves the site(including associated percent production volume), and the maximum concentration of the chemical as it leaves the site. Codes representing ranges will be used to report these data.
  - *Production volume data* now includes a CBI range check box, enabling submitters to identify if the production volume range for their chemical should be considered confidential.

[3]These are chemicals that are covered by the IURA, but where there is a low current level of interest in processing and use information. At present, there are 77 organic chemicals and 4 inorganic chemicals that will fall under this exemption. However, the list may be revised in the future to reflect changes in interest.

- **Processing and Use Information**

  – *Industrial processing and use exposure-related data* will be reported for the first time. These data include process or use codes, North American Industrial Classification System (NAICS) codes, industrial function codes, percentage of production volume attributable to each processing or use activity reported, number of sites, and number of workers for downstream processing and uses of the chemical.[4] Codes representing ranges will be used to report these data, and only "readily obtainable" data will be reported. These data will be reported for up to ten uses most applicable to each chemical (by volume).

  – *Consumer and commercial end-use exposure-related data* will also be reported for the first time. These data include product category codes, percentage of production volume, maximum concentration of the chemical in each final product, and an indication of whether the chemical is intended for children's use. Codes representing ranges will be used to report these data, and only "readily obtainable" data will be reported. These data will be reported for up to ten uses most applicable to each chemical (by volume).

1.2.3.3 Definitions of Reporting Terms

Several terms are defined below to provide some general background for the new requirements.

- Submitters will now report the total **number of workers reasonably likely to be exposed** to each reportable chemical substance at each site where the substance is manufactured. "Reasonably likely to be exposed" is defined as exposure to a chemical substance under foreseeable conditions of manufacture (including import), processing, distribution in commerce, or use of each reportable chemical, that is more likely to occur than not to occur. This definition includes, but is not limited to, such activities as charging reactor vessels, drumming, bulk loading, cleaning equipment, maintenance operations, materials handling and transfers, and analytical operations. Accidental or merely speculative exposures are excluded. The amendments require reporting of exposure using the range code corresponding to the submitter's estimate of the total number of potentially exposed workers.

- **Processing** is (1) the preparation of a chemical substance, after its manufacture, for distribution in commerce in the same form or physical state or in a different form or physical state from that in which it was received; (2) the preparation of a chemical substance, after its manufacture, for distribution in commerce as a part of a mixture or article containing the substance; or (3) use of a chemical substance as an intermediate.

- **NAICS** codes describe the industrial activities associated with each reported industrial processing or use operation.

- **Industrial function category** codes correspond to the appropriate functions of the reportable chemicals, based on a review of different chemical function classification systems both internal and external to EPA. For each NAICS code that is reported, the functional use category code that best represents the specific manner in which the reportable chemical substance is used must be selected. These categories were developed from the European Organisation for Economic Cooperation and Development's (OECD's) use categories and EPA experience from the NCP. Box 1-2 lists the Industrial Function Categories for the IURA. There is significant overlap between this list and the industrial function codes used for the Premanufacture Notification (PMN), Use Cluster Scoring System (UCSS), Use and Exposure Information Project (UEIP), and the OECD's programs (EPA, 1996d). If more

[4]The Standard Industrial Classification (SIC) system has recently been replaced with the NAICS. NAICS is a six-digit coding system, therefore allowing for more detailed specification than the four-digit SIC system.

Box 1-2. Industrial Function Categories

- Adsorbents and absorbents
- Adhesives and binding agents
- Aerosol propellants
- Agricultural chemicals (nonpesticidal)
- Antiadhesive agents
- Bleaching agents
- Coloring agents, dyes
- Coloring agents, pigments
- Corrosion inhibitors and antiscaling agents
- Fillers
- Fixing agents
- Flame retardants
- Flotation agents
- Fuels
- Functional fluids
- Intermediates
- Lubricants
- Odor agents
- Oxidizing agents
- pH-regulating agents
- Photosensitive chemicals
- Plating agents and metal surface treating agents
- Processing aid, not otherwise listed
- Process regulators, used in vulcanization or polymerization processes
- Process regulators, other than polymerization or vulcanization processes
- Reducing agents
- Solvents (for cleaning or degreasing)
- Solvents (which become part of product formulation or mixture)
- Solvents (for chemical manufacture and processing and are not part of the end product at greater than 1 percent by weight)
- Stabilizers
- Surface active agents
- Viscosity adjustors
- Other

than ten NAICS-industrial function code combinations apply to a reportable chemical substance, only the ten-code combinations for the substance that cumulatively represent the largest percentage of production volume (measured by weight) need to be reported.

- **Commercial and consumer product category** codes must be reported for each category in which the reportable chemical substance is used. These categories have been developed based on a review of national usage surveys of consumer products, exposure monitoring data, product emissions testing, and a variety of other data sources. This review provided a list of consumer products and a subsequent categorization of these products by common characteristics, such as use scenarios, into major groupings of consumer and commercial products. Box 1-3 provides a listing of these commercial and consumer product categories.

Box 1-3. Commercial and Consumer Product Categories

- Artists' supplies
- Adhesives and sealants
- Automotive care products
- Electrical electronic products
- Glass and ceramic products
- Fabrics, textiles, and apparel
- Lawn and garden products (nonpesticidal)
- Leather products
- Lubricants, greases and fuel additives
- Metal products
- Paper products
- Paints and coatings
- Photographic chemicals
- Polishes and sanitation goods
- Rubber and plastic products
- Soaps and detergents
- Transportation products
- Wood and wood furniture
- Other

1.3 Overview of the Regulated Community

The regulated community for the IURA consists of companies manufacturing or importing chemicals in amounts of 25,000 pounds or more annually that are listed on the TSCA Inventory and regulated under TSCA §8. In

general, the industry segments that compose the regulated community for the IURA are those that produce or import organic and inorganic chemical substances. Manufacturers and importers of non-TSCA chemical substances (such as pesticides, tobacco, nuclear material, firearms and ammunition, food and food additives, drugs, and cosmetics) are not required to report on those chemicals under the IUR or the IURA. Chemical processors are also exempt from all reporting. The sections below describe the industries likely to be affected by the amendments. This list is not intended to be exhaustive, rather it is intended to describe those entities likely to be affected by the IURA. Companies must review the rule to determine whether they are subject.

1.3.1 Chemical Industry Segments Likely to be Affected by the IURA

The NAICS codes correlating with the industry groups likely to be affected by the IURA are identified in Table 1-1. These NAICS codes show the primary activities for establishments within industries that manufacture or import chemicals listed on the TSCA Inventory. The six sectors of the U.S. economy likely to be most affected can be classified and described as follows (EOP, 1997):[5]

- **Major Group 211—Oil and Gas Extraction** includes establishments primarily engaged in producing crude petroleum and natural gas, extracting oil from oil sands and oil shale, producing natural gasoline and cycle condensate, and producing gas and hydrocarbon liquids from coal at the mine site.
- **Major Group 2122—Metal Ore Mining** includes establishments primarily concerned with mining, developing mines, or exploring for metallic minerals (ores). These ores are valued for the metals contained and the metals to be recovered for use as such or as constituents of alloys, chemicals, pigments, or other products.
- **Major Group 322—Paper Manufacturing** includes establishments primarily engaged in the manufacture of pulps from wood and other cellulose fibers and from rags; the manufacture of paper and paperboard; and the manufacture of paper and paperboard into converted products.
- **Major Group 324—Petroleum and Coal Products Manufacturing** includes establishments that participate in petroleum refining, petroleum manufacturing, manufacturing of paving and roofing materials, and compounding of lubricating oils and greases from purchased materials. Establishments providing gas to consumers are not included in this category, but rather are classified with Utilities Industries (Major Group 221).
- **Major Group 325—Chemicals Manufacturing** includes establishments producing basic chemicals and establishments manufacturing products by predominantly chemical processes. Major Group 325 establishments manufacture three general classes of products: basic chemicals, chemical products to be used in further manufacture, and finished chemical products to be used for ultimate consumption.
- **Major Group 422—Wholesale Trade—Nondurable Goods** includes establishments primarily engaged in the wholesale distribution of nondurable goods. This group includes the wholesale distribution of plastics materials and of chemicals and allied products, not elsewhere classified.

[5]These segments of the chemical industry represent those most likely to be subject to TSCA §8 reporting, but other industry sectors (as indicated by Table 1-1) may also manufacture certain subject chemicals and thus may also be affected by the IURA.

Table 1-1. North American Industrial Classification System for Industries Likely to be Subject to IURA Reporting

NAICS	Description
211	**Oil and Gas Extraction**
2111	Oil and Gas Extraction
21111	Oil and Gas Extraction
211111	Crude Petroleum and Natural Gas
211112	Natural Gas Liquid Extraction
212	**Mining (Except Oil and Gas)**
2122	Metal Ore Mining
21223	Copper, Nickel, Lead and Zinc Mining
212234	Copper Ore and Nickel Ore Mining
2123	Nonmetallic Mineral Mining and Quarrying
21232	Sand, Gravel, Clay, and Ceramic and Refractory Minerals Mining and Quarrying
212325	Clay and Ceramic and Refractory Minerals Mining
21239	Other Nonmetallic Mineral Mining and Quarrying
212391	Potash, Soda, and Borate Mineral Mining
212392	Other Chemical and Fertilizer Mineral Mining
213	**Support Activities for Mining**
2131	Support Activities for Mining
21311	Support Activities for Mining
213111	Drilling Oil and Gas Wells
213112	Support Activities for Oil and Gas Operations
311	**Food Manufacturing**
3112	Grain and Oilseed Milling
31122	Starch and Vegetable Fats and Oils Manufacturing
311222	Soybean Processing
311223	Other Oil Seed Processing
311225	Fats and Oils Refining and Blending
3116	Animal Slaughtering and Processing
31161	Animal Slaughtering and Processing
311613	Rendering and Meat Byproduct Processing
3117	Seafood Product Preparation and Packaging
31171	Seafood Product Preparation and Packaging
311711	Seafood Canning
311712	Fresh and Frozen Seafood Processing
3119	Other Food Manufacturing
31194	Seasoning and Dressing Manufacturing
311942	Spice and Extract Manufacturing

NAICS	Description
322	**Paper Manufacturing**
3221	Pulp, Paper, and Paperboard Mills
32211	Pulp Mills
322121	Paper (except Newsprint) Mills
322122	Newsprint Mills
32213	Paperboard Mills
3222	Converted Paper Product Manufacturing
32221	Paperboard Container Manufacturing
322211	Corrugated and Solid Fiber Box Manufacturing
322222	Coated and Laminated Paper Manufacturing
324	**Petroleum and Coal Products Manufacturing**
3241	Petroleum and Coal Products Manufacturing
32411	Petroleum Refineries
32412	Asphalt Paving, Roofing, and Saturated Materials Manufacturing
324121	Asphalt Paving Mixture and Block Manufacturing
324122	Asphalt Shingle and Coating Materials Manufacturing
32419	Other Petroleum and Coal Products Manufacturing
324191	Petroleum Lubricating Oil and Grease Manufacturing
324199	All Other Petroleum and Coal Products Manufacturing
325	**Chemical Manufacturing**
3251	Basic Chemical Manufacturing
32511	Petrochemical Manufacturing
32512	Industrial Gas Manufacturing
32513	Synthetic Dye and Pigment Manufacturing
325131	Inorganic Dye and Pigment Manufacturing
325132	Synthetic Organic Dye and Pigment Manufacturing
32518	Other Basic Inorganic Chemical Manufacturing
325181	Alkalines and Chlorine Manufacturing
325182	Carbon Black Manufacturing
325188	All Other Basic Inorganic Chemical Manufacturing

(continued)

Table 1-1. North American Industrial Classification System for Industries Likely to be Subject to IURA Reporting (continued)

NAICS	Description
	Chemical Manufacturing (continued)
32519	Other Basic Organic Chemical Manufacturing
325191	Gum and Wood Manufacturing
325192	Cyclic Crude and Intermediate Manufacturing
325193	Ethyl Alcohol Manufacturing
325199	All Other Basic Organic Chemical Manufacturing
3252	Resin, Synthetic Rubber, and Artificial and Synthetic Fibers and Filaments Manufacturing
32521	Resin and Synthetic Rubber Manufacturing
325211	Plastics Material and Resin Manufacturing
325212	Synthetic Rubber Manufacturing
32522	Artificial and Synthetic Fibers and Filaments Manufacturing
325221	Cellulosic Organic Fiber Manufacturing
325222	Noncellulosic Organic Fiber Manufacturing
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
32531	Fertilizer Manufacturing
325311	Nitrogenous Fertilizer Manufacturing
325312	Phosphatic Fertilizer Manufacturing
32532	Pesticide and Other Agricultural Chemical Manufacturing
3259	Other Chemical Product and Preparation Manufacturing
32599	All Other Chemical Product and Preparation Manufacturing
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
3254	Pharmaceutical and Medicine Manufacturing
32541	Pharmaceutical and Medicine Manufacturing
325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
32551	Pain and Coating Manufacturing
32552	Adhesive Manufacturing
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
32561	Soap and Cleaning Compound Manufacturing
325611	Soap and Other Detergent Manufacturing
325612	Polish and Other Sanitation Good Manufacturing
325613	Surface Active Agent Manufacturing
32562	Toilet Preparation Manufacturing
3259	Other Chemical Product and Preparation Manufacturing
32591	Printing Ink Manufacturing
32592	Explosives Manufacturing
327	**Nonmetallic Mineral Manufacturing**
3274	Lime and Gypsum Product Manufacturing
32741	Lime Manufacturing
331	**Primary Metal Manufacturing**
3311	Iron and Steel Mills and Ferroalloy Manufacturing
33111	Iron and Steel Mills and Ferroalloy Manufacturing
331111	Iron and Steel Mills
3312	Steel Product Manufacturing from Purchased Steel
33122	Rolling and Drawing of Purchased Steel
331221	Rolled Steel Shape Manufacturing
3313	Alumina and Aluminum Production and Processing
33131	Alumina and Aluminum Production and Processing
331311	Alumina Refining

(continued)

Table 1-1. North American Industrial Classification System for Industries Likely to be Subject to IURA Reporting (continued)

NAICS	Description
332	**Fabricated Metal Product Manufacturing**
3329	Other Fabricated Metal Product Manufacturing
33299	All Other Fabricated Metal Product Manufacturing
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
32791	Abrasive Product Manufacturing
327125	Nonclay Refractory Manufacturing
422	**Wholesale Trade, Nondurable Goods**
4226	Chemical and Allied Products Wholesalers
42269	Other Chemical and Allied Products Wholesalers
4227	Petroleum and Petroleum Products Wholesalers
42271	Petroleum Bulk Stations and Terminals
42272	Petroleum and Petroleum Products Wholesalers (except Bulk Stations and Terminals)
	Wholesale Trade, Nondurable Goods (continued)
4229	Chemical and Allied Products Wholesalers
42291	Farm Supplies Wholesalers
42295	Paint, Varnish, and Supplies Wholesalers
444	**Building Materials and Garden Supplies Dealers**
4442	Lawn and Garden Equipment and Supplies Stores
44422	Nursery and Garden Centers—Retail
454	**Nonstore Retailers**
4543	Direct Selling Establishments
45431	Fuel Dealers
454311	Heating Oil Dealers
454312	Liquified Petroleum Gas (Bottled Gas) Dealers

The major groups identified above and the more detailed four-digit groups presented in Table 1-1 represent the designation of examples of sites likely to be subject to IURA reporting. However, many factors relate to the nature of these sites, making identification of the entire regulated community more difficult. For example, NAICS codes reflect a site's *primary* activity, omitting substantial participation a company may have in other industry activities. Secondly, NAICS codes assigned to parent companies reflect the parent company's primary activity, although many parent companies are primarily holding companies with multiple subsidiaries. Each of these subsidiaries may belong in a completely different industry classification based on its own primary activity. Therefore, sites considered to fit into other NAICS codes due to their primary activities or to their parent company activities may be subject to this rule. Likewise, sites whose parent companies fit into these NAICS codes may not be subject to this rule.

1.3.2 Information to be Reported

In addition to the information required under the existing IUR, companies reporting under IURA will be reporting additional information on site and company identification and chemical use and exposure. In addition to reporting information on their own site, the company will also report estimates of downstream uses and exposures, as well as provide information on commercial and consumer end uses of their chemical. Reported site and manufacturing information is to be supplied as far as it is known to or reasonably ascertainable by the submitter, and reported processing and use information is to be supplied as far as it is readily obtainable by the submitter. The purpose in specifying the term "readily obtainable" is to ensure that supplying these data elements will not entail a highly burdensome level of

effort (see Box 1-4). Furthermore, EPA requires that some information will be reported in ranges, and that only the majority of the production volume will be accounted for when reporting use information. Allowing for reporting in ranges is intended to reduce the potential burden to submitters of developing a precise point estimate of their chemical production, but it will provide information that is sufficiently precise for the Agency's risk-screening purposes.

Box 1-4. Reporting Processing and Use Information on Chemicals

The regulated community will be expected to provide readily obtainable information on downstream processing and use of subject chemicals. Reporting this information could be straightforward for companies that manufacture a chemical for a single customer for a specific commercial end use. For example, a small-volume, proprietary-use chemical (e.g., a specialty adhesive for aerospace applications) might have only one processor, very few users, no consumer use, and a limited exposure profile. By comparison, the nuances associated with distributing a large-volume chemical within and outside of a particular site will place a greater burden on the portion of the regulated community that provides chemicals to a wide range of sites and for a variety of end uses. An example of this might be a company distributing chemicals for use in various perfumes and fragranced toiletries, thereby reaching hundreds of processing sites. In either case, however, manufacturers and importers are required only to provide downstream information considered to be readily obtainable; therefore, more complicated scenarios should require only a marginally greater effort than small-volume, limited-use chemicals. Processors are not required to report.

1.4 Organization of this Report

The contents of the five remaining chapters and six appendices contained in this report are organized as follows:

- **Section 2** describes the need for amendments to the IUR, existing data sources, and regulatory options considered. The statement of need explains the economic rationale for these amendments.
- **Section 3** analyzes and presents the social costs of the selected amendments and the nonselected regulatory alternatives. Social costs include both the industry costs to comply with the reporting requirements and the Agency costs to administer the amended IUR program.
- **Section 4** qualitatively describes the benefits that will be generated from collecting additional information under the IURA. This section describes how the Agency will use the information and how use of this information will generate societal benefits by improving public and private risk management decisionmaking.
- **Section 5** compares the nonmonetized benefits of the amendments with the associated costs. Comparisons are made for the selected option to address whether the rule is likely to generate benefits for society that justify its costs. Comparisons are also made between the selected option and regulatory alternatives to assess whether the most cost-effective option is selected.
- **Section 6** provides a discussion of small business impacts and environmental equity considerations.
- **Appendix A** includes the draft Form U, the revised IUR reporting form.
- **Appendix B** provides information on the types of data that are currently available to EPA, demonstrating the need for collecting additional data under the IURA.
- **Appendix C** presents basic data regarding the number of chemicals, reports, and sites involved in IUR reporting, as well as the methodology used to generate numbers of reports expected to be submitted for each reporting cycle.

- **Appendix D** presents the cost of the existing IUR to use as a point of comparison for the costs of the IURA estimated in Section 3.
- **Appendix E** describes the survey administered to determine the industry burden of reporting under the current IUR and the IURA and presents an analysis of the survey results.
- **Appendix F** provides a sensitivity analysis of several cost assumptions used in determining the industry cost of reporting. The analyzed cost assumptions include the number of chemicals reported per site and the discount rate used to calculate the net present value and annualized costs of the amendments.

SECTION 2

STATEMENT OF THE PROBLEM AND REGULATORY OPTIONS

The production, processing, and use of chemicals can generate residuals that, when introduced into the environment, can cause great harm to humans and ecosystems. The market has not provided the public or the government with adequate information on risks associated with the production, processing, and use of chemicals. Because the market does not necessarily provide all of the information for affected parties to optimally modify their behaviors and reduce environmental risks, socially suboptimal levels of human health and environmental quality persist.

This section describes the underlying market failure that the IURA is designed to address, and discusses how this new regulation helps to solve the problem. It summarizes the difficulties related to a lack of information on the risks associated with these chemicals. This section explains the market failure, the need for information, and the manner in which the IURA address these information needs. It also discusses the reasons why there is a potential need for federal regulation in cases such as this one. To show how the problem is currently being addressed, the current IUR requirements are presented. Finally, the regulatory options that were considered for this rule are summarized.

2.1 Problem Addressed by IUR

Effective screening of the risks posed by chemicals requires sufficient information to predict potential exposure to humans and the ecosystem. Because of resource constraints, EPA can provide detailed risk assessment for a limited number of chemicals in a given year. Therefore, it is important for EPA to have enough information to select efficiently the chemicals that will be subjected to detailed assessment of the potential risks associated with their use. Risk is a function of both hazard and exposure, and EPA needs information on both variables. Other things being equal, chemicals that are thought to be highly toxic to humans and/or ecosystems would have priority for detailed risk assessment. However, exposure also plays an important part in determining assessment priorities. For a given level of suspected hazard, chemicals that humans and the environment are exposed to in large quantities (as measured by a combination of chemical concentration, duration, and frequency of exposure) are a higher priority for detailed examination than those chemicals to which humans and the environment are rarely exposed. For most chemicals, though, the market makes little information relevant to exposure readily available. Therefore, it is not necessarily clear how to prioritize more detailed chemical management activities, such as chemical testing. This lack of market information about chemical exposure is one of the primary justifications for the government to collect information through the IUR. However, the current IUR and other public sources of information do not provide enough exposure information to effectively aid in EPA's risk-screening process for chemicals.

With sufficient risk information, individuals can better respond to the risks from chemical exposure by changing their behavior. These behavioral responses would lead to changes in market demands and prices so that the market would more accurately reflect the risk involved with chemical use

and exposure. In addition, EPA could take actions to mitigate the risks to public health and the environment where needed. This intervention is necessary because, even under perfect information, negative externalities may still exist in the absence of government intervention.[1]

In the absence of such risk data, individuals cannot correctly account for the risk of chemical exposure in decisionmaking, and EPA cannot effectively decide where regulation is most appropriate. This results in suboptimal perceived levels of risk, where the suboptimal level may be either too high or too low. Obtaining more data concerning exposure is vital to improve EPA's ability to conduct efficient chemical screenings so that information concerning the risks associated with using various chemicals is made available in the most appropriate order (see Box 2-1).

Box 2-1. Progress on Screening Chemicals for Risks

A successful chemical risk management program requires EPA to identify chemical substances, plant sites, and exposures of most concern, and to set priorities for more detailed risk assessment and potential risk management actions. EPA's TSCA Inventory lists more than 76,000 chemicals in commerce. Screening the potential risks of these chemical substances and setting priorities for more detailed risk assessment and possible risk management are enormous challenges given the extremely large number of manufacturing, processing, and use sites and exposure scenarios. However, of these 76,000 chemicals, EPA is focusing the IUR and the IURA on the 10 percent to 15 percent of chemicals that are the highest priority. This is based on the fact that many chemicals are produced in very low volumes, not at all, or belong to larger classes of chemicals, such as polymers, that present little risk.

Additional information is required to adequately assess the risks of these approximately 10,000 chemicals on which EPA would like to focus attention. EPA plans to prescreen these chemicals and requires additional use and exposure information to adequately screen their risks. Without the additional information to be collected with the IURA, EPA and others may not be able to identify the potential risks posed by these chemicals and their use. If the potential risks are not identified, EPA may not be able to evaluate or address the severity of these risks associated with the chemicals and their use. EPA believes that collecting augmented site and manufacturing information for the remaining chemicals provides sufficient information to maintain a profile of the chemical industry and to react to unanticipated risks.

Key benefits of the IURA are that EPA will be able to collect and process data to develop more accurate exposure estimates, and will be able to develop these estimates more quickly. Because the process by which chemicals enter and proceed through EPA's risk management programs is hindered by the lack of data on exposure, the risks posed by these chemicals cannot be dealt with efficiently. Therefore, detrimental worker and consumer exposures and releases to the environment cannot be mitigated in a timely manner, resulting in continued negative consequences for human and ecosystem health.

This shortfall was highlighted in a GAO report entitled "*Toxic Substances Control Act: Legislative Changes Could Make the Act More Effective.*" The report states that, in total, EPA has reviewed only about 16 percent of the TSCA Inventory, either as new or existing chemicals. (New chemicals are evaluated through the New Chemicals Program prior to becoming part of the TSCA Inventory.) At this rate, it seems clear that EPA cannot effectively screen and manage chemical risks for the chemicals for which there are significant concerns without additional information. Adding the information collected through the IURA provides the information needed by the Agency to determine which chemical use scenarios are more likely to pose significant risks, to select chemicals for more detailed analysis, and, ultimately, to help determine which chemicals enter the risk management program.

[1]Under this scenario, the negative externality would now be identified, but this does not imply that market forces will always act to eliminate this externality.

2.1.1 Data Required to Conduct Risk Screening and Management

Currently, the process of collecting information on chemical effects and exposures to support risk management actions is a resource-intensive and time-consuming process. EPA's priority setting and resource allocation depends on the availability of exposure data that are not currently collected on a comprehensive basis. Consequently, this rule's primary goal is to enhance the quality and quantity of information about chemical uses and exposures that EPA can use to identify potential risks under TSCA and ultimately to protect the public.

EPA needs to know how many workers, consumers, and others are potentially exposed; the mechanism through which exposure occurs; and the amount and duration of exposures to assess human exposure to a chemical adequately. The Agency has systematically defined the components of exposure assessment in its Guidelines for Exposure Assessment, which discuss the information requirements for several different approaches to exposure assessment, ranging from initial risk screening to full-scale risk assessments (EPA, 1992). Specific data needs include the following:

- estimates of the number of workers potentially exposed to specific chemicals;
- information on whether a chemical substance is used in consumer products;
- information on frequency and duration of exposure or time of contact;
- information to enable EPA to sort and screen information by industry sector; and
- information on the industrial function of a chemical substance.

Table 2-1 lists the three components of exposure assessment, examples of variables affecting these components, and specific exposure-related data elements to be collected under the IURA for initial screening assessments. These data elements provide a variety of useful information for estimating potential exposures. For example, industrial process and use activity, production volume, function code, and industry sector information can aid in determining the frequency, magnitude, and duration of potential worker exposures. Similarly, consumer use information and the number of chemical processing and manufacturing sites will provide information on the nature and size of the general population that may potentially be exposed.

2.1.2 Current Risk-Screening Approach

To implement its responsibilities for managing chemical risks under TSCA, EPA identifies or screens potential chemical risks, assesses identified potential risks in more detail, and, if necessary, manages risks determined to be unreasonable. However, tens of thousands of chemicals are currently in use, and exposures can occur in many different ways. OPPT's past approaches to chemical risk screening have been primarily based on relative chemical hazard, coupled with IUR production volume data. This approach, used because large-scale, national-level data on worker and consumer use and exposure are generally not available, has proven inadequate for screening the large number of chemicals in commerce (see Box 2-1).

Table 2-1. Components of Exposure Assessments and Exposure-Related Data Elements

Component of Exposure Assessments[a]	Examples of Variables Affecting Component for Exposure Assessments	Exposure-Related Screening Data Elements in the IURA
Source and concentration of chemical substances	• Industrial process/use activity • Unit operations • Process type • Industry practices • Industrial function • Application methods • Throughput rates • Use concentrations • Physical and chemical properties • Efficiency • Control technologies • Treatment and disposal options • Ventilation design • Use of personal protective equipment • Regulations	• Production volume • Industrial process/use activities and volumes • Industry sectors • Industrial chemical function • Physical form • Maximum concentration
Population and receptor information	• Number of workers • Size of general population exposed (consumer products are assumed to have widespread potential exposures) • Time-activity patterns • Physical characteristics • Age	• Number of workers • Number of sites • Consumer use information
Frequency and duration of exposure or time of contact	• Default values are typically used (i.e., 250 days/yr, 8 hrs/day for workers)	Default values (not collected)

[a] Source: U.S. Environmental Protection Agency. 1992. "Guidelines for Exposure Assessment." Notice. *Federal Register* 57(104): 22888-22938.

EPA uses the chemical hazard/production volume approach, among others, to initially screen many chemical substances for potential risks to select candidate chemicals for inclusion in its Existing Chemicals Program (see Box 2-2). Other approaches include recommendations from the Interagency Testing Committee (ITC), the European Union, states, or environmental groups. The initial screening is designed to select chemical substances in commerce that appear to present the greatest potential risk to human health and the environment. At the close of the review, there are three possible outcomes: a testing recommendation, a recommendation for further evaluation, or closure. "Closure" may include referrals to other programs or agencies; dissemination of screening results; or the decision to discontinue further evaluation based on the chemical substance's low hazard or low risk-reduction potential, or because it will be considered as part of a broader cluster of chemical substances.

2.2 Market Failure

Under Executive Order 12866, EPA is required to identify whether the regulation addresses a significant market failure. The major types of market failure are externalities, natural monopoly, market power, and inadequate or asymmetric information. This rule deals with two types of market failure.

First, the information gathered under the rule reduces the problems associated with inadequate and asymmetric information. When affected parties have more complete information, they can make better decisions. Second, one of the most important expected outcomes of the rule is that the information gathered can be used to identify and address externalities arising from chemical production and use.

2.2.1 Externalities and the Need for Information

A defining feature of a market failure is the inequality between the social consequences of an action and a purely private perception of benefits and costs. For environmental problems resulting from market failures, this divergence between private and social perspectives is normally called an externality or external cost. Such divergences occur when the actions of one economic entity impose costs on parties that are external to, or not accounted for in, a market transaction or activity. Although many different types of environmental externalities exist, regulations under TSCA and other OPPT initiatives typically focus on those related to chemical production and use. In this area, exposure of humans and the environment to hazardous substances typically results in market outcomes that are less than optimal from a social welfare perspective. A common example would be a manufacturing process that emits some amount of a chemical while producing or using that chemical. As a result of this activity, environmental and health risks are imposed on the company's employees, the public at large, and ecosystems. These risks are created by the manufacturing site, but it is society (employees and the public) that bears the cost of these risks. When these externalities can be internalized to the parties (firms) making the decision that generate the risks, the problem can be mitigated.

Box 2-2. Current Existing Chemicals Program Review Process

Because there is no adequate current system available for screening all of the chemicals in commerce, EPA relies on various methods to determine which chemicals enter the Existing Chemicals Program review process, including referrals from the European Union, the Interagency Testing Committee (ITC), state agencies, and environmental groups. Once a chemical or group of chemicals is determined to have a potential for risk, the chemical enters the existing chemical review process. The existing chemical review process typically takes from 12 to 16 weeks and requires about 100 staff hours per chemical, although the required level of effort to complete the process may vary. Despite EPA's attempts to prioritize chemical review efforts according to the potential for risk, the current system offers no guarantee that the chemicals chosen for review necessarily pose the greatest risk. The IURA will provide EPA with more information to effectively determine which chemicals pose the greatest potential for risk.

During the review process, the Agency searches its files and public data bases for information on the chemical's effects, physical properties, production volumes, manufacturing processes, uses, releases to the environment, and other data, such as the number of workers exposed to the chemical. Because limited information is generally available, EPA uses various computer models to estimate or project certain data, such as the amounts and types of environmental releases. A further complication is that a chemical may have various potential health and environmental effects that EPA needs to consider in evaluating its risks. In addition, chemicals often have multiple uses, each of which needs to be examined to determine the amount of exposure (GAO, 1994).

Given the host of substances and potentially risky activities within OPPT's purview, the number of environmental externalities possibly requiring EPA's investigation and intervention is quite large. Because of the diverse character of the chemical industry, its products, and the uses of those products, the first crucial step in remedying market failures is to identify instances in which these externalities are likely to occur. Thus, identifying situations in which externalities are present—and where the potential risks posed by these externalities are sufficiently large as to warrant further investigation—is a key goal

of the chemical screening that EPA performs as part of its risk management activities. To improve internalization of environmental externalities, EPA must first identify these risks of concern. Information about exposure is a critical component of this screening. The information required to identify relevant externalities is not currently available to EPA's risk management process. The question thus arises: "why does the market fail to provide the information needed to identify these externalities?"

Several reasons cause this information void. One of the primary reasons is that companies have little incentive to provide information. Providing information is not costless, and providing the information may have negative consequences for the company by either dissuading customers from purchasing the product or by providing competitors with information. This lack of information provides motivation for many activities that EPA undertakes (Box 2-3 and the text below provide examples of reasons for the lack of information). EPA's mission is to act in the public's interest. In the absence of adequate information, EPA fulfills this mission by undertaking actions to correct the lack of information. The information collected by EPA permits identification of existing externalities that cause a suboptimal level of protection for the environment and the public.

Market forces encourage the provision of some types of information. For example, consumers and job seekers are able to obtain information on some types of product and job characteristics relatively easily. In particular, producers have an incentive to provide information if it encourages a potential consumer to purchase the product. Similarly, employers have an incentive to entice potential employees by highlighting attractive and safe features of the work environment. Consumers and workers can also seek out some types of relevant information that is not readily provided in the market through indirect sources such as consumer magazines and labor unions. However, the market does not readily provide all the information that consumers and workers could use to make safety decisions, or that EPA needs to determine the existence and magnitude of potential externalities.

Box 2-3. Reasons for Lack of Information

Negative incentives—Manufacturers have an incentive not to provide information that highlights the negative characteristics of the product or job for consumers or workers. Such information would lessen the attractiveness of purchasing the product or accepting employment.

Information production/dissemination costs—The production and dissemination of information has a cost that may or may not be expensive. Someone has to be willing to pay this cost for the information to be made available.

Causation difficult to establish—Often substantial distance may separate the original polluting event and subsequent human or environmental damage; frequently many possible sources exist. Moreover, often the linkages from a pollution or exposure event may be extremely numerous and hard to trace. For example, the impact of toxics released in one part of a wetland on oceanic aquatic species is difficult to determine. If establishing a chain of causation from the harm to the responsible party and event is hard, the market and even extra-market systems (such as conventional legal remedies) may not adequately address these risks.

Exposures not perceptible—If exposures to harmful substances are not perceptible when they occur, individuals may have difficulty taking action to ensure that these exposures are adequately reflected in market demands and prices.

Long time lags between exposure and effects—Long latency periods and other factors that cause harm to occur long after the exposure event can also hinder the market's attempts to establish and enforce responsibility for environmental consequences of some activities.

For example, manufacturers do not have an incentive to provide information that would dissuade consumers from purchasing the product or workers from choosing employment in the manufacturing firm. Such information might be about the safety characteristics of the product or job. In some cases, manufacturers may think that alerting consumers or workers to such characteristics, even in the context of improvements that have been made or steps that individuals can take to minimize risks, would negatively affect the attractiveness of the product or employment. Thus, they may not have incentives to provide such information, and they may have an incentive *not* to provide it.

A potential failure to provide adequate information can occur for the simple reason that information may be costly to generate and disseminate. Moreover, economies of scale may be associated with information provision, interpretation, and use. From society's point of view, the benefits of collecting the information extend beyond one person to all potential consumers of the product or to workers manufacturing the product. Even if information could be collected, it may not be in an individual's best interest to do so. Thus, government's role (in this case, EPA's) is to collect and maintain information and to interpret it to identify the externalities and determine if action is warranted to protect the public's interest.

2.3 Potential Need for Federal Regulation

2.3.1 Existing Data Sources and Data Gaps

The specific information that OPPT needs to provide more accurate preliminary screens of chemicals in commerce, to identify chemicals of concern, to identify potentially safer substitute chemicals, and to properly allocate resources and set priorities for its programs is currently not available (see Box 2-4). Ongoing chemical data collection efforts occurring within various EPA offices do not systematically or comprehensively collect chemical use and/or worker exposure data. Appendix B describes the information collected by these EPA offices, and other publicly available data.

In addition to data collected by EPA, chemical information is collected at the state level to support a variety of state and federal programs and regulations, including Emergency Planning and Community Right-to-Know Act (EPCRA), state Right-to-Know programs, state permitting requirements, and other state programs. According to EPA regional offices and state environmental agencies, chemical use and worker exposure information generally is not collected at the state level (Codina, 1996; Layne, 1996; Fried, 1996; Browning, 1996; Hope, 1996; Larmee, 1996). For example, under EPCRA §311 and §312, states collect data on the maximum and average amount of a chemical on-site for the purposes of emergency response planning. Information on total annual volume, function of the chemical, or use of the chemical, however, is not available from this source.

Although several states and other federal agencies have or are developing programs to collect information related to chemical manufacturing, processing, storage, and distribution (OSPIRG, 1993), the information is typically used to support waste reduction programs and/or emergency management plans, and is not designed to assist in ranking chemical exposure and use concerns. None of these groups collect the data needed to effectively conduct chemical risk screening at the national level.

The available commercial data sources characterizing chemical use are generally not comprehensive in nature. Such data sources include the following:

- chemical industry journals, such as *Chemical and Engineering News* and the *Chemical Marketing Reporter*;
- chemical and business directories, including the *Directory of Chemical Products* and the *Thomas Register*;
- chemical reference documents, including the *Kirk-Othmer Encyclopedia of Chemical Technology*, SRI International's *Chemical Economics Handbook*, the Freedonia Market Research database, and the Frost & Sullivan Market Intelligence database; and
- publications from chemical trade associations or groups, such as the American Chemistry Council, and the American Chemical Society.

Box 2-4. Risk-Screening Activities Lack Important Data on Exposure

Currently, EPA often must conduct its screening activities based on assumed conditions, outdated information, and incomplete data sets. For instance, EPA's major source of data on the number of workers exposed is the National Occupational Exposure Survey conducted by the National Institute for Occupational Safety and Health in the early 1980s. This survey contains estimates of the number of workers exposed nationally to over 10,000 chemicals. It also contains data such as the number of sites at which a chemical is manufactured or used. Although EPA officials recognize that the survey is somewhat outdated, it is often the only available source of data on the number of workers exposed to a particular chemical.

Exposure assessments can also be conducted using data on chemical release such as those provided by the Toxic Release Inventory (TRI). However, few release data are available for chemicals not included in the TRI, which contains estimates of annual releases to the air, water, and land for only about 600 chemicals. Many other potentially harmful chemicals are produced in large quantities. Even for the TRI chemicals, information such as the numbers of workers potentially exposed, the functions of the chemical, and the uses of the chemical is often not available. Considering the diversity of release sources, the large number of associated parameters, and the limited availability of existing data, the effort needed to perform an exposure assessment for thousands of chemicals listed on the TSCA Inventory would be enormous and would be based upon an unreasonable number of assumptions.

These sources are sometimes useful for characterizing production volume, use categories, physical form, and chemical function information. For instance, once EPA has determined that a particular chemical has a high potential risk, EPA searches these data sources for information on the chemical. However, these data sources do not provide information useful for screening large numbers of chemicals. Some of these sources provide only general chemical information that cannot be used to determine production and use at the plant level. Other sources only specify production and use information for particular companies and do not provide data on industry-wide chemical production. These sources typically lack useful information on potential worker and consumer exposures. Further information on these sources can be found in the EPA report *A Review of Existing Exposure-Related Data Sources and Approaches to Screening Chemicals: A Response to CMA* (EPA, 1998a).

Overall, it is evident that the information currently available to EPA falls short of the information needed to identify potential risks swiftly and accurately. In particular, the current IUR provides very limited information—only the volume of production—to screen chemicals for exposure. However, impacts on human health and other risks posed by a chemical depend critically on its level of exposure to the public and the environment. While exposure and production volume can be related, the correlation is not close enough to ensure an acceptable estimate of risk. Without more comprehensive data, EPA cannot adequately or accurately predict the magnitude and nature of ecosystems and human populations

potentially exposed; the concentrations, frequency, and duration of exposures; and a host of other specific factors related to potential chemical exposures.

2.3.2 Advantages of the New Information Collection

The need for EPA to properly allocate resources and set priorities for its programs has been widely recognized and documented. Two reports, the EPA Science Advisory Board's *Reducing Risk: Setting Priorities and Strategies for Environmental Protection* and the National Academy of Public Administration's *Setting Priorities, Getting Results, A New Direction for EPA*, recognize that EPA's ability to improve its priority setting and resource allocation activities has been limited by the lack of exposure data. By collecting the exposure-related data included in the IURA, the Agency will acquire the necessary information to improve identification, prioritization, and chemical risk screening capabilities.

Production volume information, supplemented by relatively scarce public sources of information, generally is not sufficient for identifying chemical exposures and human risks. This recognition motivates the revised and more-detailed data collection under the IURA. EPA anticipates that the collection of additional use and exposure information, when combined with hazard data, will provide the means to develop a better risk-based screening mechanism that will benefit workers, consumers, the general population, and the environment.

The primary goal of this rule is to enhance the quality and quantity of information about chemical uses and exposures that EPA may use to identify risks under TSCA and to protect and inform the public. The information collected under the IURA will enable EPA to better evaluate the potential risks associated with chemical production and use, and will improve EPA's consequent ability to conduct risk management activities, in a more comprehensive and timely manner. It will also enable EPA to be knowledgeable about a wider variety of chemicals and to be proactive, rather than reactive, in identifying risks.

2.3.3 Approaches to Regulation

In the case of a significant market failure, public intervention is often required to override the market directly or to configure market incentives to achieve a more socially efficient outcome. Several alternative approaches are available to address market failures and thereby correct the results of environmental externalities. These fall into the following three broad categories: command-and-control approaches, incentive-based strategies, and information-based remedies. In addition, EPA may choose to take no regulatory action, or investigate non-regulatory approaches, in response to market failures if it is determined that failures are not significant or if costs of regulatory action overwhelm benefits.

Command-and-control approaches are the most specific forms of regulation. Command-and-control approaches addressing environmental problems include product or process bans and controls, standards for the manner in which a chemical may be manufactured or used, and other measures directly mandated by EPA or other environmental authorities. Incentive-based strategies seek to alter the incentives of private sector market participants to consider environmental externalities in decisionmaking. This aim is accomplished by changing price or cost conditions related to polluting- or risk-generating activities. Incentive-based strategies include charges, subsidies, tradeable permit systems, financial assurance, and other market-related mechanisms. Information-based strategies are the third general class

of approaches to addressing environmental risks to human health and the environment. These strategies seek to indirectly alter decisions by improving the information base upon which those decisions are made.

The relative efficacy of each approach for addressing market failures depends on the specific circumstances surrounding different risk and pollution problems. Sometimes, an outright ban of products or processes, mandatory exposure controls, or other direct interventions might best achieve the goal of improved environmental protection and maximizing net benefits. In other situations, economic incentive-based strategies might be the better choice, especially when a substantial variation in the costs of pollution control exists across many sources.

In this case, improved information on chemical exposure will clearly allow EPA to more effectively and accurately identify and initially assess the extent of market failures and the resulting externalities associated with chemical exposures and risks. In addition, information disseminated to chemical producers, consumers, and the public will help achieve more efficient solutions to risk management problems specific to particular circumstances. Based on the data collected, EPA may choose to implement command and control and/or incentive-based strategies in cases that warrant regulations.

EPA also has the option of taking no regulatory action. Under a "no-action" approach, EPA would continue to rely on production volume information and public data sources to screen human health and other risks. However, EPA believes that the relatively meager body of information currently available is not sufficient to accurately identify chemical exposures and risks, and hence, that some additional information collection is required.

One alternative to a mandatory information collection rule is a voluntary survey approach under which the added information targeted under the IURA would be collected on a voluntary basis. This approach would entail EPA sending a survey to all or some portion of chemical manufacturers and allowing the manufacturers to decide what information to include in their responses**.** One such program is the voluntary Use and Exposure Information Project (UEIP). This program, jointly developed by EPA and industry, provided a method for chemical manufacturers to voluntarily send use and exposure information to OPPT for chemicals entering EPA's Existing Chemicals risk management screening assessment. In this program, manufacturers and importers voluntarily reported production volume, site location, percentage of production volume for a given use, environmental releases, worker exposure, and industrial and consumer uses for chemicals selected for the project based on their potential toxicity. Under this program, EPA was able to gain access to exposure data more quickly and avoid resorting to additional regulation.

However, despite some advantages of a purely voluntary data reporting program, the value of the additional information provided to EPA would be far lower compared with a mandatory information collection program. Information has been collected under UEIP in three groups (two in 1994 and one in 1996) for 15 to 20 chemicals per group from a total of approximately 100 facilities. Because of the voluntary nature of the program and the limited number of chemicals examined, the data were not collected for most manufactured chemicals. Therefore, data generated from this project had limited usefulness for initial risk-screening activities. No clear method exists to determine the extent to which these voluntary responses span the entire universe of relevant chemicals and their uses. Consequently, data gaps of perhaps substantial proportions would continue to exist. Moreover, incomplete surveys might not be random in the sense that risks may be higher for chemicals and uses for which surveys are

not returned. Finally, EPA would not have a systematic method to ensure quality control and timeliness of the survey responses. Because of these shortcomings, this voluntary survey alternative is unlikely to produce the volume, scope, and detail of information ultimately required by EPA.

2.4 Current IUR Requirements

2.4.1 Current Reporting Requirements

The current IUR requires chemical manufacturers and importers to submit information on certain chemical substances listed on the TSCA Inventory. Manufacturers and importers of subject chemicals must report data on production volume, plant site and chemical identification, and site-limited status for the subject chemicals. These data must be provided on a four-year reporting cycle and reflect manufacturing and importing activities over the last complete corporate fiscal year preceding the submission period. Companies can claim specific data elements as confidential business information (CBI) by using a check-box, although CBI claims for chemical identity require up-front substantiation. Firms must retain records that support their submissions for four years following the reporting period.

The number of reports[2] received under the current IUR requirements has hovered around 26,000 for each of the four reporting periods to date (i.e., 1986, 1990, 1994, and 1998). This analysis assumes that 1998 is a representative year and that reports in future years will have similar characteristics in terms of the number of reports, number of sites, etc. The reporting data from 1998 was used because it includes the most recent IUR data and presumably best reflects the current population of chemical manufacturers and importers. The next submission period is occurring in 2002 and information was not available for this analysis. In 1998, 26,365 reports on chemicals with production volumes of 10,000 pounds or greater were filed from 2,666 sites.[3]

2.4.2 Current Exemptions

The TSCA Inventory includes more than 76,000 substances, but exemptions and reporting thresholds reduce the number of TSCA chemicals reportable under the current IUR to about 8,800 discrete chemicals. The exemptions under the IUR include a low-volume threshold exemption, a small business exemption, and certain chemical substance exemptions. Chemicals produced at a manufacturing site in a volume of less than 10,000 pounds during the last corporate fiscal year preceding the submission period are exempt from reporting under the current IUR. This reporting threshold applies equally to importers and refers to a single site that contains an operating unit responsible for the import. Small businesses, as defined by TSCA §8(a), are also exempt from reporting under the current IUR requirements. Small businesses are defined for this purpose as those companies whose annual sales are less than $40 million and whose annual production volume is less than 100,000 pounds. The annual sales level is for the overall parent company, and the production volume is site-specific. Any company with annual sales less than or equal to $4 million is considered to be a small business, regardless of production

---

[2]As used in this analysis, the number of "reports" refers to the total number of individual chemical-site combinations reported nationwide. Companies generally submit one Form U per site, addressing multiple chemicals, and therefore multiple chemical "reports" per site.

[3]The total number of reports received was 26,667 from 2,675 sites, but this includes reports for chemicals with a production volume of less than 10,000 pounds that reported voluntarily. These voluntary reports were not included in calculating the costs associated with the current IUR or the IURA.

volume. The IUR also exempts certain chemical substances. These substances include polymers, microorganisms, naturally occurring substances, and inorganic chemicals. Chemicals falling into these categories are not required to be reported, regardless of production volume or small business status. Finally, chemical processors are not subject to the IUR.

2.5 Regulatory Options for Amending the IUR

After determining that a non-regulatory approach would not fulfill its needs, the Agency considered various regulatory options that would alter the IUR's scope of coverage. Three basic parameters for the options are reporting thresholds, exemptions based on the type of chemical, and reporting cycles. Within the reporting threshold parameter, two categories of reporting thresholds are used in the IURA; the two reporting thresholds determine submission of site and manufacturing data, and submission of processing and use data, respectively. Multiple options for the upper threshold are examined while all of the options raise the lower threshold. A total of eight options were analyzed and are summarized in Table 2-2.[4] Note that this table displays the differences between the options, and does not show all of the changes from the baseline. The changes from the baseline that apply to all options are presented in Section 1.

The first five options are based on different reporting thresholds for processing and use information, but include the same exemptions and a common four-year reporting cycle. Option 1b is the option selected for the final rule, and it sets the reporting threshold at 25,000 pounds for site and manufacturing data and 300,000 pounds for processing and use data.[5] Options 2 through 4 vary the threshold for processing and use data from 100,000 pounds to 1,000,000 pounds. Option 5 also varies this threshold, but does so in a staged manner such that the threshold for the first reporting cycle is 500,000 pounds and for subsequent reporting cycles it is 100,000 pounds.

Option 6 uses the same reporting thresholds as Option 2, but includes a continuation of the present full reporting exemption for inorganic chemicals. Options 7 and 8 also use the same reporting thresholds as in Option 2, but incorporate different reporting cycles. Option 7 assumes a two-year reporting cycle for all information, and Option 8 requires only one-time reporting.

2.5.1 Number of Reports Received under Different Options

Because the lower threshold is constant across all of the options, the total number of reports expected under each option is also constant with the exception of Option 6, which exempts inorganic chemicals from reporting. For all options other than Option 6, 22,260 reports for organic chemicals and 4,537 reports for inorganic chemicals are expected. For Option 6, it is expected that 22,260 organic

---

[4]Note that in an earlier analysis (EPA, 1999b), 14 options were analyzed. The correspondence between previous option numbers and current option numbers is as follows: current Options 2 through 8 were previously Options 4, 6, 7, 8, 11, 13, and 14, respectively. Option 1, the option selected for the final rule, was not included in the previous report. In all cases, the options are not identical to the previous options, due to several changes in the rule. For example, the rule now includes a full exemption from reporting for natural gas that was not included in the earlier version.

[5]Option 1 was modified between the original version of the final rule (Option 1a) and the selected final rule (Option 1b) to remove a requirement for CBI reassertion and to add an exemption for chemicals for which there is a low current interest in processing and use data.

Table 2-2. Options Considered for the IURA

Option	Thresholds		Reporting Cycles	
	Site and Manufacturing Information	Processing and Use Information	Site and Manufacturing Information	Processing and Use Information
Threshold Options				
1a - Draft Final[a]	25,000 lbs	300,000 lbs	4 yrs.	4 yrs.
1b - Selected Final[a]	25,000 lbs	300,000 lbs	4 yrs.	4 yrs.
2	25,000 lbs	100,000 lbs	4 yrs.	4 yrs.
3	25,000 lbs	500,000 lbs	4 yrs.	4 yrs.
4	25,000 lbs	1,000,000 lbs	4 yrs.	4 yrs.
5[b]	25,000 lbs	500,000 lbs/100,000 lbs	4 yrs.	4 yrs.
Reporting Exemption Option[c]				
6	25,000 lbs	100,000 lbs	4 yrs.	4 yrs.
Reporting Cycle Options				
7	25,000 lbs	100,000 lbs	2 yrs.	2 yrs.
8	25,000 lbs	100,000 lbs	one-time	one-time

[a] Option 1a represents the draft final included in the initial submission to the interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data.

[b] This option has a threshold of 500,000 pounds for processing and use information in the first reporting cycle and a threshold of 100,000 pounds for reporting this information in all future reporting cycles.

[c] Inorganic chemicals are fully exempt from reporting.

Note: Option 1b does not include CBI reassertion and does include a partial exemption for specific chemicals, as described in footnote a. All other options include CBI reassertion and do not include the partial exemption for specific chemicals.

chemical reports and no inorganic chemical reports will be received. Although the total number of reports is generally expected to remain constant across options, differences in the upper threshold lead to different numbers of full and partial reports for the various options. Table 2-3 presents the total number of full and partial reports expected for each option, and Table 2-4 details these reports by chemical type (organic or inorganic). The breakdown between full and partial form reports differs between the first reporting cycle and all future cycles because inorganic chemicals are exempt from reporting processing and use information in the first cycle but are subject to the upper threshold for reporting this information in all future cycles. Under the IURA, partial forms will be completed for 12,765 organic chemicals (including petroleum process stream chemicals), and 4,537 inorganic chemicals in the first reporting cycle. Of the partial exemption chemicals (either petroleum process stream chemicals or inorganic chemicals), 2,253 are produced at volumes of less than the 300,000 pound threshold. The partial exemption provides no incremental cost reduction for these chemicals, because the lower production volume already exempts them from completion of the full form. In the first submission period, an estimated 9,495 full forms will be completed for organic chemicals, but no full forms are required for inorganic chemicals under the selected option. In future submission periods, 12,765 partial forms will be completed for organic chemicals (including petroleum process streams) and 2,300 will be completed for inorganic chemicals. An estimated 9,495 full forms will be completed for organic chemicals, while 2,236 full forms are expected for inorganic chemicals.

Table 2-3. Number of Reports Expected for Each Option

Option	Total Number of Reports	Partial Form			Full Form		
		Threshold Level (lbs)	Number of Reports	% of Total	Threshold Level (lbs)	Number of Reports	% of Total
First Submission Period							
Baseline	26,365	10,000	26,365	100.0	N/A	0	0
1a - Draft Final[a]	26,797	25,000	17,038	63.6	300,000	9,759	36.4
1b - Selected Final[a]	26,797	25,000	17,302	64.6	300,000	9,495	35.4
2	26,797	25,000	13,851	51.7	100,000	12,946	48.3
3	26,797	25,000	18,262	68.1	500,000	8,535	31.9
4	26,797	25,000	19,745	73.7	1,000,000	7,052	26.3
5[b]	26,797	25,000	18,262	68.1	500,000	8,535	31.9
6	22,260	25,000	9,314	41.8	100,000	12,946	58.2
7	26,797	25,000	13,851	51.7	100,000	12,946	48.3
8	26,797	25,000	13,851	51.7	100,000	12,946	48.3
Future Submission Periods							
Baseline	26,365	10,000	26,365	100.0	N/A	0	0.0
1a - Draft Final[a]	26,797	25,000	14,467	54.0	300,000	12,330	46.0
1b - Selected Final[a]	26,797	25,000	15,065	56.2	300,000	11,731	43.8
2	26,797	25,000	10,418	38.9	100,000	16,379	61.1
3	26,797	25,000	16,039	59.9	500,000	10,758	40.1
4	26,797	25,000	17,941	67.0	1,000,000	8,856	33.0
5[b]	26,797	25,000	10,418	38.9	100,000	16,379	61.1
6	22,260	25,000	9,314	41.8	100,000	12,946	58.2
7	26,797	25,000	10,418	38.9	100,000	16,379	61.1
8	26,797	25,000	10,418	38.9	100,000	16,379	61.1

[a] Option 1a represents the draft final included in the initial submission to the interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data.

[b] This option would have a reporting threshold of 500,000 pounds for the full form in the first reporting cycle and 100,000 pounds for the full form in future reporting cycles.

Note: Option 1b does not include CBI reassertion and does include a partial exemption for specific chemicals, as described in footnote a. All other options include CBI reassertion and do not include the partial exemption for specific chemicals.

Sources: CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CICIS Database. 1986. Information from the Chemical in Commerce Information System Database

Table 2-4. Number of Full and Partial Reports Expected for Each Option by Chemical Type

Option	Partial Form			Full Form		
		Number of Reports			Number of Reports	
	Threshold Level (lbs)	Organic Chemicals (including Petroleum Process Stream Chemicals)	Inorganic Chemicals	Threshold Level (lbs)	Organic Chemicals (including Petroleum Process Stream Chemicals)	Inorganic Chemicals
First Submission Period						
Baseline	10,000	26,365	0	N/A	0	0
1a- Draft Final[a]	25,000	12,501	4,537	300,000	9,759	0
1b - Selected Final[a]	25,000	12,765	4,537	300,000	9,495	0
2	25,000	9,314	4,537	100,000	12,946	0
3	25,000	13,725	4,537	500,000	8,535	0
4	25,000	15,208	4,537	1,000,000	7,052	0
5[b]	25,000	13,725	4,537	500,000	8,535	0
6	25,000	9,314	0	100,000	12,946	0
7	25,000	9,314	4,537	100,000	12,946	0
8	25,000	9,314	4,537	100,000	12,946	0
Future Submission Periods						
Baseline	10,000	26,365	0	N/A	0	0
1a - Draft Final[a]	25,000	12,501	1,966	300,000	9,759	2,571
1b - Selected Final[a]	25,000	12,765	2,300	300,000	9,495	2,236
2	25,000	9,314	1,104	100,000	12,946	3,433
3	25,000	13,725	2,314	500,000	8,535	2,223
4	25,000	15,208	2,733	1,000,000	7,052	1,804
5[b]	25,000	9,314	1,104	100,000	12,946	3,433
6	25,000	9,314	0	100,000	12,946	0
7	25,000	9,314	1,104	100,000	12,946	3,433
8	25,000	9,314	1,104	100,000	12,946	3,433

[a] Option 1a represents the draft final included in the initial submission to the interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data.

[b] This option would have a reporting threshold of 500,000 pounds for the full form in the first reporting cycle and 100,000 pounds for the full form in future reporting cycles.

Note: Option 1b does not include CBI reassertion and does include a partial exemption for specific chemicals, as described in footnote a. All other options include CBI reassertion and do not include the partial exemption for specific chemicals.

Source: Appendix C.

The number of partial and full forms completed for organic, partial exemption, and inorganic chemicals varies by option. Under Options 2, 3, 4, 5, 7, and 8, the total number of reports completed is the same as under the selected option, but Option 2 would generate more full forms than the selected option while Options 3 and 4 would generate fewer full forms than the selected option. Under Option 5, there would be fewer full reports than the selected option for the first period, but more full reports in subsequent periods. There would be fewer partial reports and total reports under Option 6 because inorganic chemicals are fully exempt from reporting under this option. Under Option 7, there would be more full reports completed than under the selected option and these reports would be completed twice as often. Option 8 also generates more full reports than the selected option in the single submission period, but then provides no additional information in subsequent periods.

The expected number of sites that will report under each option for the amendments is 3,026 (2,482 sites reporting organic chemicals and 544 reporting inorganic chemicals) with the exception of Option 6, where only the 2,482 organic chemical sites are expected to report due to the inorganic chemical reporting exemption. It is expected that information will be received on a total of 8,865 discrete chemicals for each option except Option 6, for which information on only 7,748 discrete chemicals is expected. Table 2-5 presents the number of chemicals for which full and partial reports are expected to be reported, broken down by chemical type. Although information on the number of chemicals is not used to estimate industry costs, the table provides a useful comparison of the expected number of chemicals for each option. The number of chemicals that information is provided for is important because one of the main benefits of the rule is that EPA gains more detailed information on chemicals. Other things being equal, there are larger benefits to options that provide information on a larger number of chemicals.

Table 2-5. Number of Chemicals Expected to be Reported for Each Option

Option	Partial Form			Full Form		
		Number of Discrete Chemicals			Number of Discrete Chemicals	
	Threshold Level (lbs)	Organic Chemicals (including Petroleum Process Stream Chemicals)	Inorganic Chemicals	Threshold Level (lbs)	Organic Chemicals (including Petroleum Process Stream Chemicals)	Inorganic Chemicals
First Submission Period						
Baseline	10,000	8,915	0	N/A	0	0
1a - Draft Final[a]	25,000	3,771	1,117	300,000	3,977	0
1b - Selected Final[a]	25,000	3,848	1,117	300,000	3,900	0
2	25,000	2,303	1,117	100,000	5,445	0
3	25,000	4,366	1,117	500,000	3,382	0
4	25,000	5,079	1,117	1,000,000	2,669	0
5[b]	25,000	4,366	1,117	500,000	3,382	0
6	25,000	2,303	0	100,000	5,445	0
7	25,000	2,303	1,117	100,000	5,445	0
8	25,000	2,303	1,117	100,000	5,445	0
Future Submission Periods						
Baseline	10,000	8,915	0	N/A	0	0
1a - Draft Final[a]	25,000	3,771	484	300,000	3,977	633
1b - Selected Final[a]	25,000	3,848	488	300,000	3,900	629
2	25,000	2,303	272	100,000	5,445	845
3	25,000	4,366	570	500,000	3,382	547
4	25,000	5,079	673	1,000,000	2,669	444
5[b]	25,000	2,303	272	100,000	5,445	845
6	25,000	2,303	0	100,000	5,445	0
7	25,000	2,303	272	100,000	5,445	845
8	25,000	2,303	272	100,000	5,445	845

[a] Option 1a represents the draft final included in the initial submission to the interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data.

[b] This option would have a reporting threshold of 500,000 pounds for the full form in the first reporting cycle and 100,000 pounds for the full form in future reporting cycles.

Note: Option 1b does not include CBI reassertion and does include a partial exemption for specific chemicals, as described in footnote c. All other options include CBI reassertion and do not include the partial exemption for specific chemicals.

Sources: CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CICIS Database. 1986. Information from the Chemical in Commerce Information System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S.

SECTION 3

SOCIAL COSTS OF REGULATORY OPTIONS

This section analyzes the social costs associated with the IURA. Social cost analysis of regulatory actions attempts to measure the economic value of the opportunities foregone to comply with the regulation. Resources committed to producing and reporting information on the presence and use of toxic chemicals (e.g., TSCA Section 8 reporting rules) could also be productive elsewhere in the economy. Thus, the opportunity cost of devoting those resources to these prescribed activities equals their value in other uses. Some of the social cost components to consider in an economic analysis are compliance costs; government administration, monitoring, and enforcement; foregone economic surpluses; transitional costs; and indirect (long-run) efficiency costs. These components are explained in more detail in subsequent paragraphs.

Compliance costs, in general, include expenditures associated with abatement activities, waste recovery, reporting and recordkeeping, or other changes in the production process required to comply with a regulation. These costs are borne directly by the owners of the regulated entities, but they may be partly or completely passed on to other parties in society through market interactions. For the IURA, the incremental compliance costs are assumed to be limited to labor hours required to comply with additional reporting requirements.

Government administration, monitoring, and enforcement costs are borne by the taxpayers who support regulatory government agencies (such as EPA and state environmental agencies) that develop, administer, and enforce environmental regulations. Administrative and enforcement activities involve real resource expenditures that could be spent on the provision of alternative goods and services, and these activities impose social opportunity costs that must be accounted for in the economic analysis.[1]

Foregone economic surpluses are incurred when a regulation affects the production or use of goods and services traded in markets. The opportunity cost of these actions is captured in measures of producer and consumer surplus from the markets affected by the regulation. Producer and consumer surplus measures account for changes in economic behavior brought about by the compliance cost requirements, which distinguishes these measures from compliance cost measures. For instance, if the costs of compliance cause producers to raise the market price, consumers will presumably respond by reducing consumption or switching to a substitute. This foregone consumption of the regulated product leads to a reduction in consumer welfare; this reduction is measured as the change in consumer surplus. Similarly, unless producers can collectively raise the price enough to offset the compliance costs, the net price of the regulated product will fall for producers. In this case, the producers will presumably respond by reducing production or switching to a substitute output. This action entails reductions in producer welfare (profits), as measured by the change in producer surplus.

---

[1]These real resource costs are distinguished from tax transfers to or from the government, which have no net effect on social costs.

Transitional costs are costs not captured in compliance, administration, and enforcement cost measures, but that do involve resource costs resulting from the economy's transition from a pre-regulation to a regulated state. An example may be costs associated with unemployment resulting from the regulation or mandated obsolescence of otherwise useful capital. The costs of these impacts are often difficult to quantify.

Indirect (long-run) efficiency costs can potentially result from diverting resources toward environmental compliance activities. As resources are moved towards these activities, product quality, innovation, and productivity may be affected. Any negative effects on these factors add to the social cost of the regulation; positive effects reduce social costs. General equilibrium models are sometimes used to estimate the indirect impact of regulations on these elements of long-run economic efficiency.

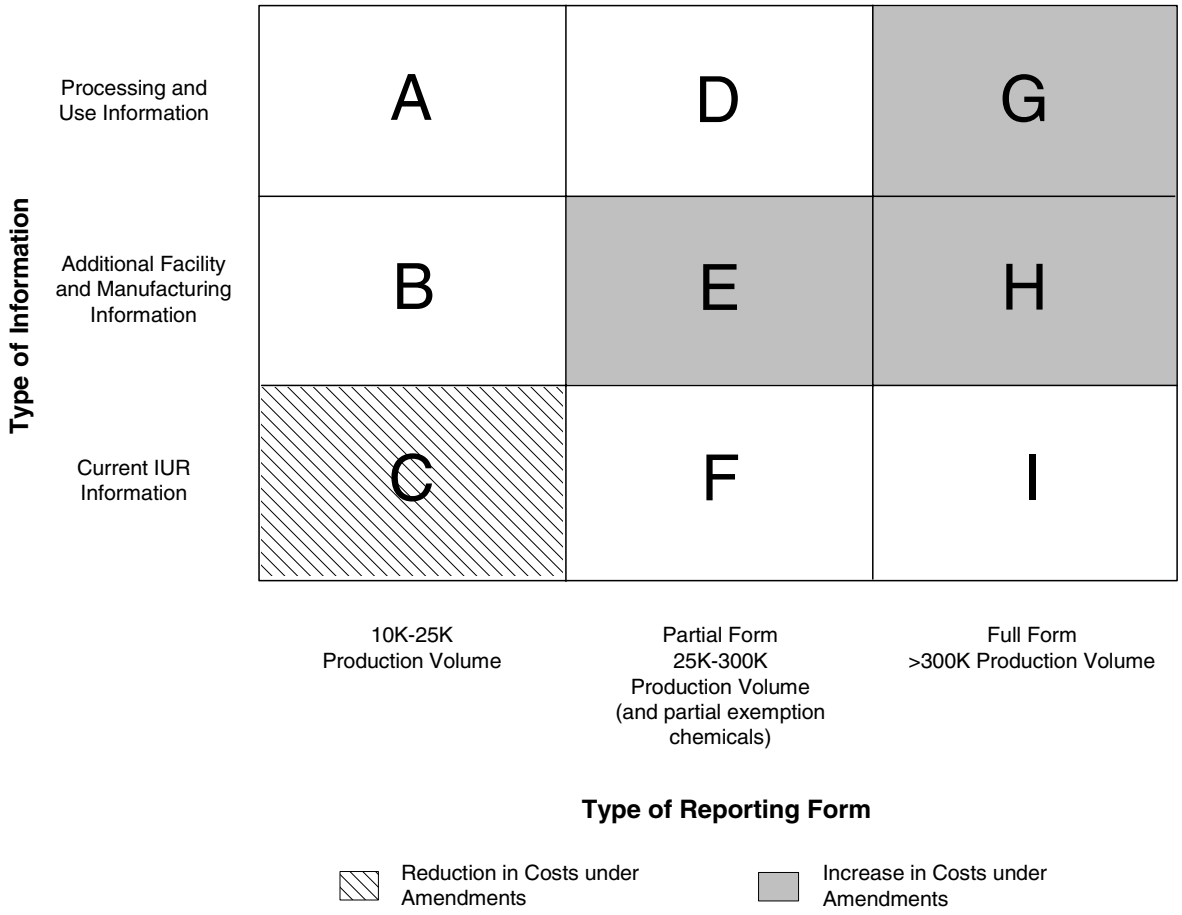
Although a consideration of market responses is required for strict consistency with economic theory, the relatively small size of the compliance costs associated with the IURA, and their lack of correspondence with output (i.e., reporting requirements are assumed not to alter firms' production), suggests behavioral responses will be minimal. Therefore, the focus of this analysis is on the first two categories: compliance costs and government administration costs.

This section presents an analysis of the increase in compliance costs borne by IURA respondents relative to the current IUR (referred to as the incremental cost of the IURA). In addition, it provides an analysis of EPA costs under the IURA. Finally, the social costs incurred as a result of the IURA are summarized.

3.1 Compliance Costs for IURA Submitters

Figure 3-1 provides a graphic representation of the allocation of IURA reporting costs expected under the amendments in relation to the current IUR. The relative costs borne by industry for reporting site and manufacturing information and for processing and use information are presented in relation to the expected number of reports at the 10,000 pound, 25,000 pound, and 300,000 pound reporting thresholds. As the figure indicates, some chemicals that are reported under the current IUR (those with a production volume of 10,000 pounds to 25,000 pounds) will not be required to report under the IURA. In addition, chemicals manufactured at a 25,000 pound or greater production volume will be required to report additional site and manufacturing information and, with certain exemptions, those with a production volume of 300,000 pounds or greater will report processing and use information, as well as the site and manufacturing information.

The Agency used a four-step methodology to estimate the incremental compliance costs of the IURA. This section describes that methodology and the data used for the compliance cost analysis. This section also explains the compliance cost calculations and summarizes the compliance costs. Finally, limitations of the analysis are discussed.



Identification of Information Reporting Costs:

A, B: Processing and use information reporting costs and the additional site and manufacturing information reporting costs required under the IURA are not incurred for production volumes of 10,000 to 25,000 pounds under either the current or amended IUR requirements.

C: Baseline reporting costs for production volumes of 10,000 to 25,000 pounds under the existing IUR requirements. These chemicals are excluded from reporting under the IURA information requirements.

D: Processing and use information reporting costs for companies completing the partial form. These costs are not incurred under either the existing or amended IUR information requirements due to either the production volume (under 300,000 pounds) or the partial exemptions.

E, H: Additional site and manufacturing information reporting costs. These costs are incurred for both full and partial forms under the IURA but are not incurred under the current IUR requirements.

F, I: Reporting costs that are incurred for all companies filing reports under both the current and amended IUR requirements.

G: Processing and use information reporting costs for companies completing the full form. These costs are incurred under the amendments but are not incurred under the existing IUR information requirements.

Incremental Costs of Amendments: E+H+G–C

Figure 3-1. Allocation of Incremental IURA Reporting Costs

3.1.1 Methodology for Compliance Cost Analysis

The following general methodology was employed for estimating the incremental compliance costs of the IURA:

- **Step 1**: Identify the tasks that sites perform to comply with reporting requirements for both the current IUR and for the IURA.[2]
- **Step 2**: Determine the unit costs for all activities identified in Step 1, based on labor requirements for managerial, technical, and clerical staff.
- **Step 3**: Determine the expected number of sites and reports filed under the current IUR and the number expected to be reported under the IURA.
- **Step 4**: Multiply the cost per form times the number of forms to determine the estimated total costs of compliance for both the current IUR and the IURA, then subtract the cost of the current IUR from the cost of the IURA to calculate the incremental costs of the amendments.

Each of these steps is outlined in more detail in the following four subsections.

3.1.1.1 Identify Tasks

Compliance with the current IUR and with the IURA requires the completion of certain steps. These steps can be broken down into compliance determination, rule familiarization, preparation and submission of reports, and recordkeeping. The amount of effort (and therefore cost) required for each of these steps varies depending on the type of chemical, company size, and the variety of uses of the chemical. The procedure for compliance with the current IUR and the IURA is as follows:

- **Compliance Determination**: For chemicals produced at or imported to a site, a determination of the need for compliance must be completed by ascertaining the following information for each chemical produced or imported at a particular site: (1) does the chemical being manufactured or imported fall into one of the categories exempt from reporting, (2) is the annual production or import volume above the reporting threshold, and (3) does the site's parent company meet the small business criteria as set forth in the TSCA §8(a) Small Manufacturer Exemption Rule (40 CFR 704.3)? This task is considered to be incurred at the site level because the majority of the time required for this task involves identifying the requirements. The next step is to determine whether any chemicals produced at the site meet these requirements. This portion of the compliance determination cost depends on the number of chemicals. For most chemicals, however, this component of the burden will be extremely small. For simplicity, this cost is considered to be a per-site cost, as opposed to a per-report cost (see Section 3.1.1.3 for more detail on the distinction between per-site and per-report costs).[3]

---

[2]The methodology for estimating the compliance costs of the IURA requires estimating the cost of complying with the existing IUR. Only the incremental costs of complying with the amendments are presented in this section. The costs of complying with the current IUR are presented in Appendix D.

[3]The incremental burden of compliance determination for chemicals produced in quantities less than 25,000 pounds is assumed to be zero. It is assumed that companies reporting under the current IUR will spend the same amount of time verifying whether the chemicals they produce in volumes between 10,000 and 25,000 pounds need to report as they did before the rule change because they will simply continue to verify whether reporting is required for all chemicals.

- **Rule Familiarization**: Once the need for compliance has been determined, sites must familiarize themselves with the rule. Sites that previously reported must become familiar with new requirements and sites new to reporting must become familiar with all requirements. This entails reading the rule, understanding the various reporting and administrative requirements, and determining the manner in which the reporting requirements will be met. The IURA adds exposure-related information to the current reporting requirements, changes the reporting cycle, and amends certain other parts of the rule.

- **Preparation and Submission of Reports**: Once a site has determined that its chemical output must be reported and has become familiar with the rule, the required information must be collected and a Form U including all of the reports from that site must be completed, reviewed, and submitted to EPA. New requirements, including chemical use and exposure information and up-front substantiation for plant site identification CBI claims are included in this task.

- **Recordkeeping**: Submitters must keep records supporting their submissions. Currently submitters are required to keep their records for four years. Under the IURA, submitters must retain records for five years.

EPA estimated the hours required for each of these tasks, including the total time needed to report and the incremental labor hours necessary to comply with the additional requirements under the IURA. These estimates are presented below.

3.1.1.2 Determine Unit Costs

To calculate costs of compliance associated with the IURA, it is necessary to estimate both the costs associated with the current requirements and costs anticipated when the IURA goes into effect. Unit costs of reporting for both the IURA and the current IUR were developed based on estimates of the wage rates and labor requirements, by labor category, for various activities. Although the development of the baseline costs of the current IUR is not shown in this section, the baseline costs are provided in Appendix D for comparison purposes.

- **Estimates of Wage Rates**: Estimates for wage rates were developed for clerical, technical, and managerial staff. A more detailed description of the method used to develop these estimates is presented below.

- **Estimates of Labor Hours**: Estimates of labor hours were divided among clerical, technical, and managerial staff for each task described above. The methodology for developing labor hour estimates is presented below. Actual estimates are presented later in this section.

Standard wage rates for managerial, technical, and clerical levels were developed from information published by the Bureau of Labor Statistics (BLS) and an analysis adopted from the *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313* (EPA, 1997a). Data used to develop basic wage rates were derived from 1993 salary information published by BLS for all goods-producing, private industries and were inflated to current dollars as described in Section 3.1.2.1. Four BLS occupation categories were analyzed: engineers, accountants, attorneys, and secretaries.

Estimates of costs for compliance determination, rule familiarization, report preparation and submission, and recordkeeping were based on previously prepared economic analyses and new EPA

estimates. New estimates were developed from an industry survey[4] in cases where previous analyses did not accurately reflect the specific reporting requirements of the IURA. The procedures used to develop the reporting burden estimates are as follows:

- review comparable reporting requirements for other rules;
- develop assumptions concerning the relationship between previous reporting burden estimates and the IURA reporting requirements and adjust the estimates accordingly;
- develop new estimates as necessary; and
- present the hours of labor required (by staff level) for each task associated with the amended and current reporting requirements. Note that the analysis of burden is segmented between organic chemicals (including petroleum process stream chemicals) and inorganic chemicals to indicate the differential impact of the changes to the IUR on the reporting requirements for each chemical type and production level threshold.

3.1.1.3 Determine Number of Forms and Reports

In 1998, the most recent IUR submission period, more than 26,000 reports, covering over 8,900 chemicals, were received (CUS Database, 2000). The reporting instrument for the IUR is the Form U. Each reporting site is only required to file one Form U, regardless of the number of reportable chemicals it manufactures or imports**.** Information such as site and company identification are common to all chemicals produced at a single site; therefore, this information need only be reported one time on Form U. Contained within the Form U are any number of individual chemical reports. The site prepares a report for each subject chemical produced at or imported to the site. If there are multiple chemicals produced at a single site, multiple reports are prepared, and the reports are submitted together as a single Form U. EPA therefore estimated some costs on a per-report basis and some on a per-site basis. Per-report costs are costs incurred through completion of the individual reports for each reportable chemical. Per-site costs are incurred one time for each site through completion of the Form U. Each site must determine whether it must comply with the IUR and then must familiarize itself with rule requirements. The costs associated with these tasks are calculated per site. For each reportable chemical, a report must be prepared and submitted and a record of it must be kept; therefore, reporting and recordkeeping costs are calculated as per-report costs. However, in calculating reporting costs, note that Part I of Form U (Site Identification Information) is common to all chemical reports and must be completed only once regardless of the number of chemical reports submitted. Therefore, to obtain per-report burden hours for Company Information and Plant Site Identification, the burden of filling out this information was divided by the number of reports submitted per Form U. Although the Form U only needs to be certified once, the labor hours required for certification were not scaled by the number of reports per Form U based on the assumption that verification of information included in the Form U must be done for each report before the certification is completed. This may potentially overstate the burden of certification if the time to certify the accuracy of the Form U is not directly proportional to the number of chemical reports submitted.

Estimates of the total number of reports expected under the IURA are determined using data compiled from EPA's Chemical Update System (CUS) and EPA's Chemicals in Commerce Information

[4]The survey and its results are presented in Appendix E.

System (CICIS). The CUS database contains information collected under the IUR for the 1986, 1990, 1994, and 1998 submission periods, and is used to generate estimates of expected reports for organic chemicals. The CICIS database is used to determine the number of inorganic chemicals likely to be reported, because these chemicals are currently exempt and therefore are not included in the CUS. The CICIS contains information collected by EPA on TSCA chemicals in commerce in the United States in 1977, including company and chemical identification, site location, manufactured or imported status, and production volume in ranges. Appendix C contains a detailed description of the analysis used to determine the expected number of reports under the amendments.

The total number of reports is broken down into those that must file full reports and those that must file partial reports because of the difference in cost between the two types of reports.[5]

3.1.1.4 Determine Total Costs of Compliance

The total industry compliance cost of reporting under both the current IUR and amendments is calculated by first determining the unit cost for each task involved in reporting and then multiplying those unit costs by the number of occurrences (i.e., reporting forms submitted or number of sites submitting reporting forms under the IURA). The costs associated with reporting under both the current IUR and amendments consist of compliance determination; rule familiarization; preparation and submission of reports, including CBI determination and substantiation; and recordkeeping. To calculate the incremental costs of the IURA, the incremental costs per unit (either per site or per report) were calculated for each task and multiplied by the number of units for that task. These costs were then added together to get the total incremental cost. It is important to note that all cost estimates are estimates of the average cost and may not represent the actual costs of all firms.

3.1.2 Data for Compliance Cost Analysis

The compliance cost analysis uses estimates of wage rates, estimates of labor hours, and estimates of the number of sites and reports.

3.1.2.1 Estimates of Wage Rates

As presented in Table 3-1, the managerial- and technical-level salaries used for the analysis are composites of the BLS average salaries for several occupation categories and levels. Weighting factors were applied to the average salaries for each of the occupation categories within the managerial and technical labor categories to develop the composite salary. The weighting factors are based on information provided by the chemical industry and chemical industry trade associations for the typical fraction of total reporting effort that is accounted for by each specific BLS occupation category (EPA, 1997a).

---

[5]The amendments include a partial exemption for petroleum process stream chemicals and for specific chemicals based on low current interest in processing and use data as well as a full exemption for certain forms of natural gas. Chemicals with a partial exemption only have to provide site and manufacturing information. They are exempt from reporting processing and use information regardless of production volume. Inorganic chemicals have a partial exemption from reporting in the first reporting cycle only. In future reporting cycles, they are subject to the same threshold for full reports as organic chemicals.

Table 3-1. Loaded Hourly Wage Rates by Labor Category

Occupation (levels)	Average Salary ($1993)	Weighting Factor	Comp. Salary[a] ($1993)	ECI Ratio 3/00:6/93[b]	Adjusted Salary ($2000)	2000 Benefits (% Salary)	2000 Overhead (% Salary)	Loaded Annual Salary ($2000)	Loaded Hourly Rate ($2000)
Managerial									
Engineer (6-8)	$93,981	10/17	$55,283						
Attorney (4-6)	$111,263	5/17	$32,724						
Accountant (5-6)	$73,528	2/17	$8,650						
Composite		17/17	$96,658	1.33	$128,555	37.6%	17.0%	$198,746	**$95.55**
Technical									
Engineer (3-8)	$74,802	5/6	$62,335						
Accountant (3-6)	$59,436	1/6	$9,906						
Composite	—	6/6	$72,241	1.23	$88,856	37.4%	17.0%	$137,194	**$65.96**
Clerical									
Secretary (1-5)	$28,850	1/1	$28,850						
Composite	—	1/1	$28,850	1.26	$36,351	39.6%	17.0%	$56,926	**$27.37**

[a] 1993 composite salaries were determined by multiplying average salaries by the weighting factor and summing across occupations.

[b] The ECI ratio measures the change in wages and salaries between June 1993 and March 2000.

Sources: U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

Bureau of Labor Statistics (BLS). 2000. Employment Cost Index. <www.bls.gov>. As obtained April 28, 2000.

The 1993 composite annual salary estimates were adjusted to first-quarter 2000 dollars using the Employment Cost Index (ECI) for white-collar occupations in private industries.[6] The 2000 adjusted, composite salaries for the managerial, technical, and clerical labor categories were then multiplied by benefits and overhead factors to estimate 2000 loaded, annual salaries. Detailed benefits data for white-collar occupations in private, goods-producing industries were used to account for the additional cost of benefits for managerial, technical, and clerical labor. The overhead factor of 17 percent is based on information provided by the chemical industry and chemical industry trade associations. The loaded annual salary was then divided by 2,080 hours (i.e., the average annual number of hours worked per year by a full-time employee) to derive the loaded, hourly wage rates used in this analysis for each labor category.

3.1.2.2 Estimates of Labor Hours

The baseline, total, and incremental costs of the IUR and amendments were developed through an analysis and comparison of the time required to report the type of information required for compliance

[6]The three labor rates were each adjusted using separate ECI categories. The clerical rate was adjusted using the Administrative Support, including Clerical Occupations data, the technical rate was adjusted using the Professional Specialty and Technical Occupations data, and the managerial rate was adjusted using the Executive, Administrative, and Managerial Occupations data.

with both the current and amended rule. The labor hours required for compliance determination, rule familiarization, and recordkeeping are based on previous EPA studies (EPA, 1990; EPA, 1997a). However, the time required by industry to prepare and submit information for each data element on Form U is unique to this rule. To examine this issue, the Agency developed a survey to assess the labor hours required to complete each section of the amended Form U. The survey was administered to 81 chemical manufacturers in the spring/summer of 1996.[7] Table 3-2 presents the estimates of reporting burden for each section of the revised Form U as determined from the survey (see Appendix E).[8] For chemicals produced at production volumes of 25,000 to 300,000 pounds and for chemicals meeting the partial exemptions, only Parts I and II of the revised Form U must be completed.

Survey respondents provided low and high estimates of labor hours required to complete each task for each of the three staff levels. These estimates are weighted, based on company size, to provide an average low and high burden estimate that reflects the range of companies expected to report under the amendments. The estimates in Table 3-2 are the foundation of the estimates of baseline, total, and incremental costs of preparing and submitting reports. These costs are presented in Section 3.1.3.

It is important to note that, although the IURA only requires that industry report "readily available" information for downstream processing and use information, the survey that respondents completed did not mention this standard. Thus, survey respondents were reporting burden estimates assuming a higher standard of information than EPA will require. In addition, the UEIP program, which asked respondents to report chemical information very similar to that required by the IURA, also asked respondents to report the time spent preparing the UEIP form for submission (EPA, 1997b). Companies reported a median burden of 8 hours per chemical report, with a mean of 12 hours per chemical report. Both of these factors indicate that the burden estimates derived from the survey may overestimate the actual burden.

3.1.2.3 Estimates of the Number of Sites and Reports

The number of reports expected and the number of sites filing those reports under both the baseline and the amended IUR are estimated based on the CUS and CICIS databases. Table 3-3 displays the number of reports and sites expected under baseline conditions and under the amendments to the IUR. This information is used to aggregate the unit costs to reflect the population of affected firms.

3.1.3 Compliance Cost Calculations

The costs of compliance under the IURA are estimated in this section. Incremental unit costs are presented based on the four steps for compliance (see Section 3.1.1.1): compliance determination, rule familiarization, report preparation and submission, and recordkeeping. Costs were estimated as either per-site or per-report, depending on the way the costs are incurred. Compliance determination and rule familiarization were estimated as per-site costs, while report preparation and submission and

[7]The contents, administration, and results of the survey are described in detail in Appendix E.

[8]Please note that the draft version of the revised Form U on which the industry survey is based was different than the draft revised Form U presented in Appendix A. Thus, in some cases, adjustments were necessary to use the survey data to estimate burden to comply with the new form.

Table 3-2. Estimated First-Year Industry Reporting Burden for Sections of Revised Form U (hours per section for each report)

Task	Clerical Hours	Technical Hours	Managerial Hours	Total
Part I. Site Identification Information[a]	**0.54–0.99**	**0.91–0.98**	**1.01–1.09**	**2.46–3.06**
I. Certification	0.46–0.89	0.81–0.89	0.97–1.05	2.25–2.82
II. Company Information				
Company Name, Contact, Address	0.03–0.04	0.04–0.04	0.02–0.02	0.09–0.10
D&B Number, Mailing Address				
III. Plant Site Identification				
Plant Name, D&B Number, Address	0.04–0.05	0.06–0.06	0.02–0.02	0.12–0.14
Mailing Address				
Part II. Manufacturing Information	**1.52–1.57**	**7.18–10.38**	**2.35–4.64**	**11.05–16.59**
I. Chemical Identification				
II. (Other) Manufacturing Information				
Site Limited	0.49–0.55	1.97–2.59	0.28–0.84	2.75–3.98
Activity				
Production Volume (lbs)				
Chemical Identification Up-front CBI Substantiation	0.26–0.26	1.08–1.82	0.48–1.05	1.82–3.13
Plant Site Up-front CBI Substantiation	0.12–0.12	0.54–1.12	0.23–0.79	0.88–2.03
Total Number of Workers	0.21–0.21	1.13–1.73	0.29–0.88	1.63–2.82
Maximum Concentration	0.44–0.44	2.46–3.12	1.07–1.07	3.98–4.64
Physical Form, Percent of Production Volume[b]	—	—	—	—
Part III. Processing and Use Information	**8.70–9.98**	**51.21–55.39**	**18.99–20.25**	**78.91–85.62**
I. Industrial Processing and Use Exposure Related Data	***7.99–9.27***	***46.32–49.96***	***17.53–18.66***	***71.84–77.89***
Determination of Applicability	0.15–0.15	1.13–1.24	0.32–0.35	1.60–1.74
Industrial Function Category	2.17–2.80	5.02–5.36	2.43–2.43	9.63–10.59
Function Code	0.22–0.22	1.04–1.16	0.46–0.47	1.71–1.85
Percent Production Volume	1.45–1.45	11.36–12.17	5.78–6.63	18.59–20.26
Total Number of Processing and Use Sites	1.56–2.14	10.17–11.34	4.11–4.18	15.84–17.66
Total Number of Potentially Exposed Workers	2.44–2.51	17.61–18.69	4.41–4.60	24.46–25.79
II Commercial and Consumer End-Use Exposure Related Data	***0.71–0.71***	***4.89–5.43***	***1.47–1.59***	***7.07–7.73***
Determination of Applicability	0.17–0.17	1.07–1.13	0.28–0.31	1.52–1.61
Identification of Product Category/Children's Use	0.17–0.17	0.92–1.05	0.28–0.30	1.37–1.53
Percent Production Volume	0.24–0.24	1.40–1.56	0.51–0.55	2.15–2.35
Maximum Concentration by Category	0.13–0.13	1.51–1.69	0.39–0.42	2.03–2.25
Total Hours for Report Preparation and Submission				
Partial Form	**2.06–2.56**	**8.09–11.36**	**3.37–5.73**	**13.51–19.65**
Full Form	**10.76–12.54**	**59.30–66.75**	**22.36–25.98**	**92.42–105.27**

Notes: 1. Shaded area represents current requirements; the unshaded area represents the additional requirements of the IURA.
2. The sum of the components under a particular information category may not equal total due to independent rounding.

[a] The burden associated with determining site identification information has been adjusted to account for the additional information required under the IURA. The baseline burden associated with providing site identification information is presented in Table D-3.

[b] The burden associated with physical form reporting is subsumed within the chemical identification reporting estimate above.

Sources: U.S. Environmental Protection Agency. April 14, 1994. *Regulatory Impact Analysis of Amendments to Regulations for TSCA Section 5 Premanufacture Notifications*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.
Appendix D.
Appendix E.

Table 3-3. Estimated Number of Sites, Reports, and Discrete Chemicals by Chemical Type[a]

Type of Chemical	Number of Sites	Number of Reports		Number of Discrete Chemicals[b]	
		Partial	Full	Partial	Full
Organic Chemicals (including Petroleum Process Stream Chemicals)					
Baseline	2,666	26,365	0	8,915	0
IURA	2,482	12,765	9,495	3,848	3,900
Inorganic Chemicals					
Baseline	0	0	0	0	0
IURA					
First Reporting Cycle	544	4,537	0	1,117	0
Future Reporting Cycles	544	2,300	2,236	488	629

[a] Petroleum process stream chemicals and certain specifically listed chemicals do not have to report processing and use information regardless of production volume. Inorganic chemicals do not have to report processing and use information in the first reporting cycle, but in all future cycles are subject to the same 300,000 pound threshold for reporting this information as organic chemicals.

[b] These columns refer to the number of discrete chemicals for which partial reports and full reports are submitted.

recordkeeping were estimated as per-report costs. The incremental unit costs were then combined with the numbers of reports and sites to estimate the cost of compliance in the first reporting cycle and in future reporting cycles. From these values, the net present value of the costs and the annualized cost over a 20-year period were calculated.

3.1.3.1 Labor Hours Required for Compliance Tasks

The labor requirements for compliance determination under the amendments are the same as the requirements under the current IUR. Essentially, each site incurs costs to determine whether compliance is necessary. Therefore, the cost of compliance determination attributable to the amendments is zero for those sites already reporting under the current IUR. For sites not reporting under the current IUR (such as inorganic chemical companies), the incremental labor requirement is estimated to be 1 to 4 hours of technical labor to review production and import data for all chemicals and determine whether compliance is necessary. These estimates are presented as a range to reflect variation in the reporting community. Sites that produce fewer chemicals may only need 1 hour to determine compliance, while sites that produce numerous chemicals may require up to 4 hours (EPA, 1990). The burden of compliance determination is estimated to remain constant for first and future cycle reporting, given the length of the reporting cycles and the potential for changes in a site's chemical output over that time period. Table 3-4 presents the incremental hours required for compliance determination by chemical type for the first reporting cycle and future reporting cycles.

Table 3-4. Incremental Labor Hours for Compliance Determination (hours per site)

	Clerical		Technical		Managerial		Total	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
First Reporting Cycle								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
PV < 25K lbs[a]	0	0	0	0	0	0	0	0
PV ≥ 25K lbs[b]	0	0	0	0	0	0	0	0
Inorganic Chemicals								
PV < 25K lbs[a]	0	0	0	0	0	0	0	0
PV ≥ 25K lbs[b]	0	0	1	4	0	0	1	4
Future Reporting Cycles								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
PV < 25K lbs[a]	0	0	0	0	0	0	0	0
PV ≥ 25K lbs[b]	0	0	0	0	0	0	0	0
Inorganic Chemicals								
PV < 25K lbs[a]	0	0	0	0	0	0	0	0
PV ≥ 25K lbs[b]	0	0	1	4	0	0	1	4

[a] As compliance determination is a per-site cost, this only applies if all chemicals produced at a site that previously reported under the IUR are manufactured or imported in quantities of less than 25,000 pounds.

[b] This burden applies for sites with at least one reportable chemical manufactured or imported in a volume of 25,000 pounds or greater

Sources: U.S. Environmental Protection Agency. February 1990. *Economic Analysis for the TSCA Inventory Update Final Rule*. Office of Toxic Substances, Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

Once a site determines that reporting is required under the IURA, it is necessary for one or more individuals at the site to become familiar with the rule. Rule familiarization entails reading the rule, understanding the various reporting and administrative requirements, and determining the manner in which the reporting requirements will be met.

EPA estimates that rule familiarization for the amendments will require between 16 and 18 additional hours of technical labor and 6 to 8 additional hours of managerial labor relative to the baseline in the first reporting cycle for sites already reporting under the current IUR. For sites new to reporting (such as those reporting inorganic chemicals), EPA estimates that between 18 and 20 hours of technical

labor and 8 to 10 hours of managerial labor are required.[9] Table 3-5 provides the incremental labor required for rule familiarization. These estimates are based on EPA's estimate that rule familiarization for the TRI requirements requires an average of 22.5 hours of technical review and 12 hours of managerial review (EPA, 1997a). The scope of the reporting requirements under the TRI program is similar to the IURA. However, the requirements under the TRI program are more complicated; therefore, the burden estimate for the IURA should be slightly lower. It is assumed, therefore, that the time required for familiarization with the IURA will be reduced by 2.5 to 4.5 hours of technical time and 2 to 4 hours of managerial time relative to the estimates developed for rule familiarization with the TRI requirements.

Table 3-5. Incremental Labor Hours Required for Rule Familiarization (hours per site)

	Clerical		Technical		Managerial		Total	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
First Reporting Cycle								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
PV < 25K lbs[a]	0	0	–2	–2	–2	–2	–4	–4
PV ≥ 25K lbs[b]	0	0	16	18	6	8	22	26
Inorganic Chemicals								
PV < 25K lbs[a]	0	0	0	0	0	0	0	0
PV ≥ 25K lbs[b]	0	0	18	20	8	10	26	30
Future Reporting Cycles								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
PV < 25K lbs[a]	0	0	–2	–2	–2	–2	–4	–4
PV ≥ 25K lbs[b]	0	0	0	0	0	0	0	0
Inorganic Chemicals								
PV < 25K lbs[a]	0	0	0	0	0	0	0	0
PV ≥ 25K lbs[b]	0	0	2	2	2	2	4	4

[a] As compliance determination is a per-site cost, this only applies if all chemicals produced at a site that previously reported under the IUR are manufactured or imported in quantities of less than 25,000 pounds.

[b] This burden applies for sites with at least one reportable chemical manufactured or imported in a volume of 25,000 pounds or greater.

Sources: U.S. Environmental Protection Agency. February 1990. *Economic Analysis for the TSCA Inventory Update Final Rule*. Office of Toxic Substances, Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

[9]This is because the entire burden of rule familiarization is incremental for those sites that did not have to report in the past.

In future reporting cycles, the burden of rule familiarization under the amendments is estimated to be equal to the burden under the current IUR. For sites currently reporting, there is no incremental burden associated with the amendments as these parties will have been required to refamiliarize even without the amendments. For sites new to reporting, the refamiliarization burden is estimated to be 2 hours of technical labor and 2 hours of managerial labor. EPA has assumed that the burden of rule familiarization is incurred in both first- and future-cycle reporting because of the length of the reporting cycles. EPA recognizes, however, that the burden of familiarization in future cycles is likely to be significantly less than in the initial cycle.

Once a site has determined that its chemical output must be reported and has become familiar with the rule, the required information must be collected and a Form U must be completed, reviewed, and submitted to EPA. Burden and cost estimates are associated with this process. A more detailed description of the survey results on which these burden estimates are based is provided in Appendix E.

The current IUR requires the provision of certain basic production and manufacturer identification information. The costs associated with these data elements comprise the baseline cost of preparation and reporting. The amendments add requirements for information related to worker exposure and chemical use. The costs associated with these additional data elements comprise the costs of the rule. Box 3-1 presents these additional data requirements. Section 1.2 provides a more detailed discussion.

Estimates for the amount of time required to complete and submit the amended Form U are developed from the results of the survey described in Appendix E. Survey results were weighted based on company size to reflect the universe of companies expected to report under the amendments. As described previously in this report, submitters of certain categories of chemicals complete a partial reporting form, reporting only the site and manufacturing information. These categories of chemicals are those with annual production volumes of 25,000 to 300,000 pounds, petroleum process stream chemicals, certain specifically listed chemicals for which there is low current interest in processing and use data, and inorganic chemicals in the first reporting cycle. The remaining chemicals subject to IURA reporting, with annual production volumes of 300,000 pounds or greater, must complete the full form, which requires reporting of additional information on industrial processing and use and consumer and commercial use.

Up-front CBI substantiation burdens are accounted for as separate items, as reported in Table 3-2. The burden of complying with these requirements and the frequency of CBI claims is discussed further in Box 3-2.

It is assumed that the burden of reporting information on Form U changes between the first cycle and future cycles. Unit costs for report preparation and submission in future reporting cycles are expected to be lower than unit costs attributed to reporting in the first cycle because of efficiencies achieved through the establishment of compliance processes, the availability of data from previous reporting cycles, and familiarity with reporting requirements. The efficiency gained from repeated reporting varies based on the types of information reported and whether that information changes significantly from reporting cycle to reporting cycle.

Box 3-1. Comparison of Data Elements for Reporting Under the Current and Amended IUR

Baseline Data Elements

Certification
- signature
- date
- name and title of the representative responsible for the accuracy of the information provided

Company Information
- company name
- technical contact name
- company street address
- telephone number

Plant Site Identification
- plant site name
- Dun & Bradstreet number
- plant site street address

Chemical Specific Information
- CAS number or other identifying number
- ID code
- chemical name
- site-limited status (yes or no)
- activity (manufacturing or import)
- production volume

Confidential Business Information
- up-front substantiation for chemical identity CBI claims

Additions under IURA

Company Information
- company Dun & Bradstreet number
- technical contact mailing address
- company mailing address
- e-mail address

Plant Site Identification
- plant site county location

Manufacturing Information
- confidentiality status of the production volume range (yes/no)
- number of workers potentially exposed during manufacturing (in ranges)
- physical form(s) of the chemical with associated percent production volumes
- maximum concentration of the chemical when sent off-site (in ranges)

Industrial Processing and Use Exposure Related Data
- provision of information regarding processing and use for the chemical, including processing or use codes, five-digit NAICS codes, industrial function categories, percentages of production volume, number of sites (in ranges) and number of potentially exposed workers (in ranges)

Commercial and Consumer End-Use Exposure Related Data
- provision of commercial/consumer end-use categories
- identification of products intended for children's use
- percentage production volume
- maximum concentration of the chemical in the commercial/consumer end use

Confidential Business Information
- up-front substantiation of plant site identification CBI claims

Box 3-2. Burden of Complying with CBI Substantiation Requirements

The calculations used to develop CBI compliance costs for the economic analysis (EA) are based on information from an industry survey (ICF, 1996). As derived from the survey, Table 3-2 presents typical burden associated with compliance for various CBI substantiation issues attributable to the IURA. Using the wage rates presented in Table 3-1, the costs of up-front CBI substantiation range from $185 to $380, as compared to $125 to $227 under the current IUR requirements because of the additional requirement to provide up-front substantiation for plant site information. This results in incremental costs of between $60 and $153. Companies that indicated no CBI claims were estimated to have zero compliance costs for each appropriate element.

Costs of CBI substantiation for an individual company claiming CBI status for chemical identification and plant site identification would be higher than the average values used in the analysis if companies that do not claim CBI are excluded. Using only the nonzero entries, the cost of CBI compliance ranges from $204 to $360 for the baseline scenario and from $363 to $738 under the amendments. Based on these values, the incremental cost of meeting CBI-related requirements is estimated to be between $159 and $378, or about twice as much as above.

It is worth noting that, historically, companies have claimed information CBI less often than survey responses suggested. Information from the CUS database for the 1986, 1990, and 1994 submission periods (1998 data on CBI claims were unavailable for analysis) indicates significantly lower percentages of CBI claims for each type of data. According to the CUS database, the fraction of companies claiming CBI status for chemical identification and plant site identification was 3 percent and 20 percent, respectively. Survey respondents indicated that chemical identification and plant site identification would be claimed confidential by 58 percent and 36 percent of reporting companies, respectively. The difference between the percentage of companies claiming CBI as derived from the CUS database and the percentage indicated by the survey data suggests that survey respondents may have been concerned about providing detailed information on uses and, hence, were conservative in their estimates of the frequency of CBI claims. EPA is aware of companies' potential reluctance to disclose such data and has elected, therefore, to ask for some information (e.g., production volume) in ranges to reduce potential confidentiality concerns. In particular, by adding check boxes for production volume range information and using this information for analysis and in public reports, EPA expects to reduce companies' confidentiality concerns.

Because of the considerations identified here, the costs presented in this analysis may tend to overestimate the number of CBI claims and, therefore, the average cost of CBI substantiation, both under the baseline and the amendment.

Based on these assumptions and a cost analysis for a similar reporting rule,[10] scaling factors are developed for each section of the reporting form under the IURA. These scaling factors, presented in Table 3-6, are applied to the report preparation and submission burden in each reporting cycle following the first. Table 3-7 provides estimates of the incremental labor required for report preparation and submission.

The current IUR requires that sites maintain records of reported information for at least four years from the effective date of the reporting period. The quantified costs associated with these current recordkeeping requirements consist of the costs of labor to compile and maintain collected information. Sites may maintain records such as invoices, receiving tickets, and incident and operating logs. EPA assumes that the average burden of recordkeeping under the amendments will be somewhat greater than

[10]Analysis is entitled *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313* (EPA, 1997a).

Table 3-6. Scaling Factors for Unit Cost of Preparation and Submission of Reports in Future Reporting Cycles Under the IURA

Part-Section of Reporting Form	Description of Information	Incurred Percent of Initial Cost		Comments
		Two-Year Reporting Cycle	Four-Year Reporting Cycle	
Site Identification and Manufacturing Information				
I-I	Certification	100	100	No reduction expected.
I-II	Company Information	20	20	Technical contact may change, but other information unlikely to change.
I-III	Plant Site Identification	20	20	Information unlikely to change.
II-I	Chemical Identification	20	20	Information unlikely to change.
II-II	Manufacturing	70	80	Information may change.
Processing and Use Information				
III-I	Industrial Processing and Use Exposure Related Data	70	80	Information may change.
III-II	Commercial and Consumer End-Use Exposure Related Data	70	80	Information may change.

the burden under the current IUR because it is likely submitters will maintain additional records, and the records must be maintained for five years—one year longer than the current requirements. It is expected that recordkeeping of files is an on-going activity and that the cost associated with maintaining these records will be constant for each reporting cycle. Table 3-8 provides the labor required to comply with this portion of the regulation.

Table 3-7. Incremental Labor Hours for Report Preparation and Submission (hours per report)

	Clerical ($27.37/hr)		Technical ($65.96/hr)		Managerial ($95.55/hr)		Total	
	Low	High	Low	High	Low	High	Low	High
First Reporting Cycle								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
Form U Part								
I. Site Information	0.17	0.30	0.01	0.01	0.00	0.00	0.18	0.31
II. Manufacturing Information	0.77	0.77	4.13	5.97	1.59	2.75	6.48	9.48
III. Processing and Use Information	8.70	9.98	51.21	55.39	18.99	20.25	78.91	85.62
Incremental Hours by Labor Category								
PV < 25K lbs	–1.13	–1.51	–3.95	–5.39	–1.78	–2.98	–6.86	–9.87
Partial Form	0.93	1.06	4.14	5.98	1.59	2.75	6.66	9.79
Full Form	9.63	11.04	55.35	61.37	20.58	23.00	85.57	95.42
Inorganic Chemicals								
Form U Section								
I. Site Information	0.54	0.99	0.91	0.98	1.01	1.09	2.46	3.06
II. Manufacturing Information	1.52	1.57	7.18	10.38	2.35	4.64	11.05	16.59
III. Processing and Use Information	8.70	9.98	51.21	55.39	18.99	20.25	78.91	85.62
Incremental Hours by Labor Category								
PV < 25K lbs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Partial Form	2.06	2.56	8.09	11.36	3.37	5.73	13.51	19.65
Full Form	10.76	12.54	59.30	66.75	22.36	25.98	92.42	105.27
Future Reporting Cycles								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
Form U Section								
I. Site Information	0.14	0.26	0.00	0.00	0.00	0.00	0.14	0.26
II. Manufacturing Information	0.61	0.61	3.30	4.77	1.27	2.20	5.19	7.59
III. Processing and Use Information	6.96	7.98	40.97	44.31	15.19	16.20	63.13	68.50
Incremental Hours by Labor Category								
PV < 25K lbs	–1.13	–1.51	–3.95	–5.39	–1.78	–2.98	–6.86	–9.87
Partial Form	0.75	0.87	3.30	4.78	1.27	2.20	5.32	7.84
Full Form	7.71	8.85	44.28	49.09	16.46	18.40	68.45	76.34
Inorganic Chemicals								
Form U Section								
I. Site Information	0.52	0.96	0.90	0.98	1.01	1.09	2.43	3.03
II. Manufacturing Information	1.37	1.42	6.35	9.18	2.04	4.09	9.76	14.70
III. Processing and Use Information	6.96	7.98	40.97	44.31	15.19	16.20	63.13	68.50
Incremental Hours by Labor Category								
PV < 25K lbs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Partial Form	1.88	2.38	7.26	10.16	3.05	5.18	12.18	17.72
Full Form	8.84	10.36	48.23	54.47	18.24	21.38	75.31	86.22

Table 3-8. Incremental Labor Hours for Recordkeeping (hours per report)

	Clerical		Technical		Managerial		Total	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
First Reporting Cycle								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
PV <25K lbs	–0.5	–1	–1	–2	–0.5	–1	–2	–4
Partial Form	0.5	1	1	2	0.5	1	2	4
Full Form	0.5	1	1	2	0.5	1	2	4
Inorganic Chemicals								
PV <25K lbs	0	0	0	0	0	0	0	0
Partial Form	1	2	2	4	1	2	4	8
Full Form	1	2	2	4	1	2	4	8
Future Reporting Cycles								
Organic Chemicals (including Petroleum Process Stream Chemicals)								
PV <25K lbs	–0.5	–1	–1	–2	–0.5	–1	–2	–4
Partial Form	0.5	1	1	2	0.5	1	2	4
Full Form	0.5	1	1	2	0.5	1	2	4
Inorganic Chemicals								
PV <25K lbs	0	0	0	0	0	0	0	0
Partial Form	1	2	2	4	1	2	4	8
Full Form	1	2	2	4	1	2	4	8

3.1.3.2 Incremental Costs of Compliance Tasks under IURA

The incremental costs of compliance with the IURA are presented for two categories of reporting at the site level (production volume less than 25,000 pounds or production volume greater than/equal to 25,000 pounds) and for three categories of reporting at the report level (production volume less than 25,000 pounds, partial Form U reporting, and full Form U reporting) and for two types of chemicals (organic and inorganic).[11] Tables 3-9 through 3-12 provide the incremental costs per unit associated with the four tasks required under the IURA. All industry compliance costs are assumed to be incurred in the year in which reporting occurs.

[11]Chemicals with production volumes less than 25,000 pounds are denoted by "PV<25K lbs," chemicals with production volumes of 25,000 to 300,000 pounds and chemicals meeting the partial exemption requirements are denoted by "Partial Form," and chemicals with production volumes greater than or equal to 300,000 pounds that do not qualify for an exemption are denoted by "Full Form."

Table 3-9. Incremental Costs of Compliance Determination Per Site (2000$)

Type of Chemical	Per-Site Cost			
	First Reporting Cycle		Future Reporting Cycles	
	Low	High	Low	High
Organic Chemicals (including Petroleum Process Stream Chemicals)				
PV < 25K lbs[a]	$0	$0	$0	$0
PV ≥ 25K lbs[b]	$0	$0	$0	$0
Inorganic Chemicals				
PV < 25K lbs[a]	$0	$0	$0	$0
PV ≥ 25K lbs[b]	$66	$264	$66	$264

[a] As compliance determination is a per-site cost, this only applies if all chemicals produced at a site that previously reported under the IURA are manufactured or imported in quantities of less than 25,000 pounds.

[b] This burden applies for sites with at least one reportable chemical manufactured or imported in a volume of greater than 25,000 pounds.

Table 3-10. Incremental Costs of Rule Familiarization Per Site (2000$)

Type of Chemical	Per-Site Cost			
	First Reporting Cycle		Future Reporting Cycles	
	Low	High	Low	High
Organic Chemicals (including petroleum Process Stream Chemicals)				
PV < 25K lbs[a]	–$323	–$323	–$323	–$323
PV ≥ 25K lbs[b]	$1,629	$1,952	$0	$0
Inorganic Chemicals				
PV < 25K lbs[a]	$0	$0	$0	$0
PV ≥ 25K lbs[b]	$1,952	$2,275	$323	$323

[a] As compliance determination is a per-site cost, this only applies if all chemicals produced at a site that previously reported under the IURA are manufactured or imported in quantities of less than 25,000 pounds.

[b] This burden applies for sites with at least one reportable chemical manufactured or imported in a volume of greater than 25,000 pounds.

Table 3-11. Incremental Costs of Report Preparation and Submission Per Report (2000$)

Type of Chemical	First Reporting Cycle		Future Reporting Cycles	
	Low	High	Low	High
Organic Chemicals (including Petroleum Process Stream Chemicals)				
PV < 25K lbs	$0	$0	$0	$0
Partial Form	$450	$686	$360	$549
Full Form	$5,881	$6,547	$4,705	$5,238
Inorganic Chemicals				
PV < 25K lbs	$0	$0	$0	$0
Partial Form	$911	$1,367	$821	$1,230
Full Form	NA	NA	$5,166	$5,919

Table 3-12. Incremental Costs of Recordkeeping per Report (2000$)

Type of Chemical	First Reporting Cycle		Future Reporting Cycles	
	Low	High	Low	High
Organic Chemicals (including Petroleum Process Stream Chemicals)				
PV < 25K lbs	–$127	–$255	–$127	–$255
Partial Form	$127	$255	$127	$255
Full Form	$127	$255	$127	$255
Inorganic Chemicals				
PV < 25K lbs	$0	$0	$0	$0
Partial Form	$255	$510	$255	$510
Full Form	$255	$510	$255	$510

3.1.4 Summary of Compliance Costs

The total costs to industry of the IURA are estimated for the first reporting cycle and for future reporting cycles in constant 2000 dollars. Total costs were calculated based on the unit costs and the number of reports and sites estimated earlier in this section. These costs were developed based on costs for each type of chemical (i.e., organic chemicals, or inorganic chemicals) and for the two report types (full or partial form, based on production volume and exemption status).

3.1.4.1 Compliance Costs under Amendments

Incremental costs for the amendments were developed by combining information from Tables 3-3, 3-9, 3-10, 3-11, and 3-12.[12] These costs are presented for organic chemicals and inorganic chemicals in Tables 3-13 and 3-14, respectively. Table 3-15 provides the total incremental cost associated with the IURA and Table 3-16 presents the total incremental burden hours associated with the IURA.

Because the benefits resulting from the regulation will not occur simultaneously with the costs, it is necessary to discount the future streams of costs and benefits before comparing them. The time horizon over which costs and benefits are discounted in this analysis is 20 years. There is considerable debate in the economics discipline whether to use the social rate of time preference or the rate of return on investment when discounting. The debate between using a rate of return on investment capital and the consumption rate of return has focused on whether investment or consumption is being displaced by compliance requirements, although recent research suggests that in an open economy, the supply of investment funds may be sufficient to prevent any investment displacement. The issues involving the appropriate discount rates and procedures are complex and are not likely to be resolved soon. Much of the recent economics literature summarizing the discounting debate concludes that it is appropriate to use either the social rate of time preference or the rate of return on investments; there is not much difference between the rates. For example, Moore and Viscusi (1990) find no evidence that the rate of time preference for environmental-related health effects differs from financial rates of return and cite evidence that a 2 percent rate is appropriate. Lind (1990) recommends a range of 1 to 3 percent, and Freeman (1993) recommends 2 to 3 percent. Based on this information, this analysis primarily uses a 3 percent discount rate in real terms (i.e., after adjusting for inflation).[13] The results of an analysis using a 7 percent discount rate are also presented. The basic guidance on discount rates for regulatory and other analyses is provided in OMB Circular A-94. The Circular A-94 rate is 7 percent, also in real terms. Table 3-17 shows the flow of compliance costs over a 20-year period, the present value of the costs, and the annualized cost for both 3 percent and 7 percent discount rates.

3.1.4.2 Compliance Costs under Regulatory Options

The costs associated with the alternative reporting options for the IURA are presented in Table 3-18 using both 3 percent and 7 percent discount rates. Industry costs for the alternative threshold options may be either higher or lower than the selected option depending on whether the upper threshold is higher or lower than 300,000 pounds. For thresholds above 300,000 pounds, the total costs are lower than the selected option, and for thresholds below 300,000 pounds, the total costs are higher than for the selected option. The costs will be lower under Option 6 than the selected option because inorganic chemicals would not have to report any information under this option. Option 7 increases present value of the costs because the information is collected more frequently. Option 8 has a much lower present value of costs than any other option because information is collected only once under this option.

---

[12]Table 3-3 presents the estimated number of reports and reporting sites under the amendments. The estimates in this table were used to develop the incremental costs associated with each compliance task in Tables 3-9 through 3-12 and industry-wide incremental costs of the IURA in Tables 3-13 through 3-15.

[13]Further discussion of the approach used to develop the appropriate discount rate is presented in Appendix F.

Table 3-13. Summary of Incremental Costs of IURA for Organic Chemicals (2000$)

	Unit of Analysis	Cost per Unit		Number of Units	Total Cost	
		Low	High		Low	High
First Reporting Cycle						
Baseline						
Compliance Determination	Site	65.96	263.84	2,666	175,848	703,392
Rule Familiarization	Site	323.02	323.02	2,666	861,178	861,178
Report Preparation and Submission	Report	461.51	681.09	26,365	12,167,554	17,956,675
Recordkeeping	Report	127.42	254.84	26,365	3,359,352	6,718,705
Total Baseline Cost					16,563,933	26,239,949
With Amendments						
Compliance Determination	Site	65.96	263.84	2,482	163,710	654,839
Rule Familiarization	Site	1,951.66	2,274.68	2,482	4,844,032	5,645,766
Report Preparation and Submission						
Partial report	Report	911.38	1,366.70	12,765	11,633,801	17,445,878
Full report	Report	6,342.41	7,228.54	9,495	60,221,208	68,634,970
Recordkeeping	Report	254.84	509.67	22,260	5,672,661	11,345,322
Total Cost with Amendments					82,535,412	103,726,775
Incremental Cost					**65,971,480**	**77,486,825**
Future Reporting Cycles						
Baseline						
Compliance Determination	Site	65.96	263.84	2,666	175,846	703,385
Rule Familiarization	Site	323.02	323.02	2,666	861,169	861,169
Report Preparation and Submission	Report	461.51	681.09	26,365	12,167,663	17,956,836
Recordkeeping	Report	127.42	254.84	26,365	3,359,382	6,718,765
Total Baseline Cost					16,564,061	26,240,155
With Amendments						
Compliance Determination	Site	65.96	263.84	2,482	163,710	654,839
Rule Familiarization	Site	323.02	323.02	2,482	801,734	801,734
Report Preparation and Submission						
Partial report	Report	821.20	1,229.93	12,794	10,482,671	15,700,042
Full report	Report	5,166.03	5,919.40	9,466	49,051,437	56,204,726
Recordkeeping	Report	254.84	509.67	22,260	5,672,661	11,345,322
Total Cost with Amendments					66,172,212	84,706,662
Incremental Cost					**49,608,280**	**58,466,712**

Table 3-14. Summary of Incremental Costs of IURA for Inorganic Chemicals (2000$)

	Unit of Analysis	Cost per Unit		Number of Units	Total Cost	
		Low	High		Low	High
First Reporting Cycle						
Baseline						
Compliance Determination	Site	0.00	0.00	0	0	0
Rule Familiarization	Site	0.00	0.00	0	0	0
Report Preparation and Submission	Report	0.00	0.00	0	0	0
Recordkeeping	Report	0.00	0.00	0	0	0
Total Baseline Cost					0	0
With Amendments						
Compliance Determination	Site	65.96	263.84	544	35,885	143,540
Rule Familiarization	Site	1,951.66	2,274.68	544	1,061,810	1,237,550
Report Preparation and Submission						
Partial report	Report	911.38	1,366.70	4,537	4,134,623	6,200,220
Full report	Report	6,342.41	7,228.54	0	0	0
Recordkeeping	Report	254.84	509.67	4,537	1,156,104	2,312,207
Total Cost with Amendments					6,388,422	9,893,518
Incremental Cost					**6,388,422**	**9,893,518**
Future Reporting Cycles						
Baseline						
Compliance Determination	Site	0.00	0.00	0	0	0
Rule Familiarization	Site	0.00	0.00	0	0	0
Report Preparation and Submission	Report	0.00	0.00	0	0	0
Recordkeeping	Report	0.00	0.00	0	0	0
Total Baseline Cost					0	0
With Amendments						
Compliance Determination	Site	65.96	263.84	544	35,885	143,540
Rule Familiarization	Site	323.02	323.02	544	175,740	175,740
Report Preparation and Submission						
Partial report	Report	821.20	1,229.93	2,252	1,888,980	2,829,152
Full report	Report	5,166.03	5,919.40	2,284	11,553,261	13,238,101
Recordkeeping	Report	254.84	509.67	4,537	1,156,104	2,312,207
Total Cost with Amendments					14,809,970	18,698,741
Incremental Cost					**14,809,970**	**18,698,741**

Table 3-15. Total Incremental Costs of IURA (million 2000$)

	First Reporting Cycle Total Cost		Future Reporting Cycles Total Cost	
	Low	**High**	**Low**	**High**
Baseline				
Organic Chemicals (including Petroleum Process Stream Chemicals)	16.6	26.2	16.6	26.2
Inorganic Chemicals	0.0	0.0	0.0	0.0
Total Baseline Cost	16.6	26.2	16.6	26.2
With Amendments				
Organic Chemicals (including Petroleum Process Stream Chemicals)	82.5	103.7	66.2	84.7
Inorganic Chemicals	6.4	9.9	14.8	18.7
Total with Amendments	88.9	113.6	81.0	103.4
Total Incremental Cost	**72.4**	**87.4**	**64.4**	**77.2**

3.1.4.3 Average Compliance Costs per Site

The average incremental compliance costs per site for organic chemicals manufacturers and inorganic chemical manufacturers are presented in Tables 3-19 and 3-20, respectively.[14] The number of reports per site is based on the CUS database for organic chemicals and on the relationship between organic and inorganic chemicals from the CICIS database. The distribution of reports between partial and full is based on the percentage of reports expected to be partial and full under the IURA calculated from Table 2-4. The incremental cost for an average organic chemical site is expected to be $27,034 to $31,939 in the first reporting cycle and to decrease in future reporting cycles to $20,441 to $24,276. The cost for an average inorganic site is expected to be around $11,742 to $18,185 in the first reporting cycle and then to increase to $27,222 to $34,369 in future reporting cycles because they will no longer have a partial exemption for reporting processing and use information.

3.1.5 Limitations of the Compliance Cost Analysis

A number of uncertainties result from the approach and methodology used to model the industry costs associated with the IURA. Some of these uncertainties may lead to underestimates or overestimates of quantified industry costs. The following points discuss some uncertainties that could significantly affect the results of the analysis:

[14]It is assumed here that a site either produces organic chemicals (including petroleum stream chemicals) or inorganic chemicals, but not both.

Table 3-16. Total Incremental Burden Hours of IURA (thousands of hours)

	First Reporting Cycle Total Burden Hours		Future Reporting Cycles Total Burden Hours	
	Low	**High**	**Low**	**High**
Baseline				
Organic Chemicals (including Petroleum Process Stream Chemicals)	249.0	389.5	249.0	389.5
Inorganic Chemicals	0.0	0.0	0.0	0.0
Total Baseline Burden	249.0	389.5	249.0	389.5
With Amendments				
Organic Chemicals (including Petroleum Process Stream Chemicals)	1,206.0	1,512.8	972.1	1,242.7
Inorganic Chemicals	94.1	143.9	217.3	274.2
Total with Amendments	1,300.2	1,656.8	1,189.4	1,517.0
Total Incremental Burden	**1,051.2**	**1,267.3**	**940.4**	**1,127.4**

- Although the IURA only requires that industry report "reasonably ascertainable" information for most data elements and "readily available" information for downstream processing and use information, the industry survey (ICF, 1996) that respondents completed did not mention these standards. Thus, survey respondents were reporting burden estimates assuming a higher standard of information than EPA will require.

- The analysis may overestimate the costs of compliance for smaller companies. According to the survey (ICF, 1996) (see Appendix E), the average cost of preparing and submitting a partial report for a large company is $1,100 to $1,855, for a medium company is $784 to $833, and for a small company is $521 to $537.[15] For a full report, the average cost is between $7,158 and $8,635 for a large company, between $9,744 and $10,092 for a medium company, and between $3,110 and $3,192 for a small company. The burden estimates for completion of the other tasks associated with compliance may also be more appropriate for a typical large company. Large companies may have to coordinate various levels of management and technical personnel to prepare the required information, while smaller companies are likely to have less variation in their chemical output and use and a more contained managerial and technical staff. Given the differences between small and large companies, the unit cost estimates presented in this analysis are probably somewhat high for a typical small company.

- It is likely that the cost of supplying the processing and use information for a smaller-volume chemical with few uses is lower than for a larger-volume and widely-used chemical. For example, if compliance costs for a small-use, low-volume chemical are one-third of the

[15]As discussed in Appendix E, small companies were identified as having annual sales less than $40 million, medium-sized companies as having annual sales greater than $40 million and less than or equal to $200 million, and large companies as having annual sales greater than $200 million. Small businesses that manufacture less than 100,000 pounds of a reportable chemical in a reporting year are exempt from all reporting.

compliance costs for a larger-volume, multi-use chemical, a substantial drop in the total expected costs is possible. Although this analysis attempts to account for this by scaling the burden estimates reported in the industry survey according to company size categories, the unit costs of compliance presented in this analysis are averages and not intended to represent these two quite different scenarios.

- The scaling factors that have been applied to future unit costs are based on an assumed reduction in reporting burden in future reporting cycles. These factors may be high if information for many of the reportable chemicals does not change significantly over time, resulting in overestimates of the industry reporting burden. Conversely, these factors may be too low if changes to the industry are greater than expected or if there is a large turnover in companies reporting or chemicals being reported.

- Insufficient data exist to determine how many sites currently subject to reporting will be affected by removing the exemption on inorganic chemicals. It is assumed that, in response to this change, there will be an increase in the number of sites reporting, rather than an increase in the number of chemicals reported per site. This assumption may overestimate the total cost of the rule but underestimate the per-site cost.

- The analysis assumes that a site only submits one type of report (i.e., full form or partial form). In reality, it is likely that sites will submit both full and partial forms. This assumption may significantly over- or underestimate the costs of compliance for a given site, depending on the particular mix of report types.

Table 3-17. Flow of Compliance Costs Over the Next 20 Years (million 2000$) Under Amendments

Year	Cost	
	Low	High
1	72.4	87.4
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	64.4	77.2
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0
9	64.4	77.2
10	0.0	0.0
11	0.0	0.0
12	0.0	0.0
13	64.4	77.2
14	0.0	0.0
15	0.0	0.0
16	0.0	0.0
17	64.4	77.2
18	0.0	0.0
19	0.0	0.0
20	0.0	0.0
3 Percent Discount Rate		
PV	258.0	309.8
Annualized	17.3	20.8
7 Percent Discount Rate		
PV	195.7	235.1
Annualized	18.5	22.2

3.2 Agency Costs

This section provides an analysis of the costs associated with the IURA expected to be incurred by taxpayers to support EPA efforts in establishing and maintaining IURA data. The activities associated with the IURA and the attendant costs are discussed below. This section presents the methodology for Agency cost analysis and a description of Agency tasks. It also provides the calculations used to develop Agency cost estimates. Agency costs are summarized as well.

Table 3-18. Incremental Net Present Values and Annualized Industry Costs of Amendment Options (million 2000$)

Option	First-Year Cost		Net Present Value[a]		Annualized Cost	
	Low	High	Low	High	Low	High
3 Percent Discount Rate						
Threshold Options						
1a - Draft Final[b]	$73.8	$88.9	$289.1	$346.0	$19.4	$23.3
1b - Selected Final[b]	$72.4	$87.4	$258.0	$309.8	$17.3	$20.8
2	$91.1	$103.1	$362.3	$410.3	$24.4	$27.6
3	$67.2	$77.3	$260.7	$300.6	$17.5	$20.2
4	$59.1	$68.6	$226.4	$263.6	$15.2	$17.7
5	$67.2	$77.3	$339.0	$385.2	$22.8	$25.9
Reporting Exemption Option						
6	$84.7	$94.7	$292.5	$328.8	$19.7	$22.1
Reporting Cycle Options						
7	$91.1	$103.1	$706.3	$800.0	$47.5	$53.8
8	$91.1	$103.1	$88.5	$100.1	$5.9	$6.7
7 Percent Discount Rate						
Threshold Options						
1a - Draft Final[b]	$73.8	$88.9	$217.3	$260.2	$20.5	$24.6
1b - Selected Final[b]	$72.4	$87.4	$195.7	$235.1	$18.5	$22.2
2	$91.1	$103.1	$278.6	$325.0	$26.3	$30.7
3	$67.2	$77.3	$196.1	$226.1	$18.5	$21.3
4	$59.1	$68.6	$170.5	$198.5	$16.1	$18.7
5	$67.2	$77.3	$249.5	$283.8	$23.6	$26.8
Reporting Exemption Option						
6	$84.7	$94.7	$222.6	$250.0	$21.0	$23.6
Reporting Cycle Options						
7	$91.1	$103.1	$511.8	$579.6	$48.3	$54.7
8	$91.1	$103.1	$85.2	$96.3	$8.0	$9.1

[a] NPV determined for a 20-year period.

[b] Option 1a represents the draft final option included in the initial submission for interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data for those chemicals. All options other than 1b include CBI reassertion and do not include the partial exemption for specific chemicals.

Table 3-19. Average Incremental Compliance Costs per Site for Organic Chemicals (2000$)

	Unit of Analysis	Cost per Unit		Number of Units	Total Cost	
		Low	High		Low	High
Baseline						
Compliance Determination	Site	$65.96	$263.84	1.0	$66	$264
Rule Familiarization	Site	$323.02	$323.02	1.0	$323	$323
Report Preparation and Submission	Report	$461.51	$681.09	9.9	$4,564	$6,736
Recordkeeping	Report	$127.42	$254.84	9.9	$1,260	$2,520
Total Baseline Cost					$6,213	$9,843
First Reporting Cycle						
Compliance Determination	Site	$65.96	$263.84	1.0	$66	$264
Rule Familiarization	Site	$1,951.66	$2,274.68	1.0	$1,952	$2,275
Report Preparation and Submission						
Partial report	Report	$911.38	$1,366.70	5.1	$4,687	$7,029
Full report	Report	$6,342.41	$7,228.54	3.8	$24,263	$27,653
Recordkeeping	Report	$254.84	$509.67	9.0	$2,286	$4,571
Total Cost in the First Reporting Cycle					$33,254	$41,792
Incremental Cost in First Reporting Cycle					$27,034	$31,939
Future Reporting Cycles						
Compliance Determination	Site	$65.96	$263.84	1.0	$66	$264
Rule Familiarization	Site	$323.02	$323.02	1.0	$323	$323
Report Preparation and Submission						
Partial report	Report	$821.20	$1,229.93	5.1	$4,223	$6,326
Full report	Report	$5,166.03	$5,919.40	3.8	$19,763	$22,645
Recordkeeping	Report	$254.84	$509.67	9.0	$2,286	$4,572
Total Cost in Future Reporting Cycles					$26,661	$34,128
Incremental Cost in Future Reporting Cycles					$20,441	$24,276

Table 3-20. Average Incremental Compliance Costs per Site for Inorganic Chemicals (2000$)

	Unit of Analysis	Cost per Unit		Number of Units	Total Cost	
		Low	High		Low	High
Baseline						
Compliance Determination	Site	—	—	0.0	—	—
Rule Familiarization	Site	—	—	0.0	—	—
Report Preparation and Submission	Report	—	—	0.0	—	—
Recordkeeping	Report	—	—	0.0	—	—
Total Baseline Cost					—	—
First Reporting Cycle						
Compliance Determination	Site	$65.96	$263.84	1.0	$66	$264
Rule Familiarization	Site	$1,951.66	$2,274.68	1.0	$1,952	$2,275
Report Preparation and Submission						
Partial report	Report	$911.38	$1,366.70	8.3	$7,600	$11,396
Full report	Report	—	—	0.0	—	—
Recordkeeping	Report	$254.84	$509.67	8.3	$2,125	$4,250
Total Cost in the First Reporting Cycle					$11,742	$18,185
Incremental Cost in the First Reporting Cycle					$11,742	$18,185
Future Reporting Cycles						
Compliance Determination	Site	$65.96	$263.84	1.0	$66	$264
Rule Familiarization	Site	$323.02	$323.02	1.0	$323	$323
Report Preparation and Submission						
Partial report	Report	$821.20	$1,229.93	4.2	$3,472	$5,200
Full report	Report	$5,166.03	$5,919.40	4.1	$21,236	$24,332
Recordkeeping	Report	$254.84	$509.67	8.3	$2,125	$4,251
Total Cost in Future Reporting Cycles					$27,222	$34,369
Incremental Cost in Future Reporting Cycles					$27,222	$34,369

3.2.1 Overview of and Methodology for Determining Agency Costs of Reporting

This section describes the assumptions and general methodology employed for estimating Agency costs associated with both the current IUR and the IURA. The expected costs include costs attributable to systems development, document processing, contract oversight and management, and publication of forms and materials. Costs related to using the data are not included. The following methodology for developing estimated costs for the IURA was used:

- **Step 1**: Identify the tasks performed for both the current IUR and the IURA.
- **Step 2**: Determine the costs for each activity under the current IUR and the IURA
- **Step 3**: Determine the estimated total costs for the current IUR and the IURA.
- **Step 4**: Subtract the estimated cost of the current IUR from the estimated cost of the amendments to find the incremental change in Agency costs.

Additionally, in developing the cost estimates for determining Agency burden, activities associated with one-time events are distinguished from costs incurred annually. This distinction is considered throughout the discussion of individual tasks and is handled directly in the presentation of Agency costs.

The Agency tasks required for processing submissions under the current IUR include database systems development, Form U processing, document development, and mailings and other informational activities:

- **Database Systems Development and Maintenance**: The Agency is responsible for having adequate information systems in place to support the CUS that serves as the primary data storage medium for IUR collections. For the 1994 collection period, the Agency incurred capital expenses associated with redeveloping CUS for operation on a PC LAN environment, replacing the CBI mainframe environment of the past. Systems development is a one-time cost for the current IUR.

  File servers with appropriate backup are used to contain the IUR databases. In addition, IUR data are tracked via the correspondence tracking system used by the Confidential Business Information Tracking System (CBITS) located within the Confidential Business Information Center (CBIC). Hence, a portion of the CBIC overhead is attributable to IUR.

  The Agency has plans to improve the quality control of these databases. These plans range from the development of computer programs to check information against previously submitted information and to look for abnormalities in the submitted data to the use of electronic submissions to increase the speed and accuracy of adding information to the database. The costs of these improvements are not included in this analysis because the Agency plans to make these changes regardless of the status of these amendments.

  Additional costs associated with recordkeeping include purchasing and maintaining file cabinets and office space to store accumulated records. Estimates of the costs attributable to these activities have not been developed because costs are expected to result from both current IUR and IURA requirements and because these costs are expected to be small.

- **Guidance Document Development**: The Agency is responsible for developing guidance for the IUR to assist reporters in complying with IUR requirements. The guidance documents usually are developed by a contractor with oversight by Agency personnel. The costs associated with guidance document development are discussed below under both extramural tasks and tasks performed by Agency personnel.

- **Form U Processing**: The Agency is responsible for handling processing of IUR submissions. This activity includes developing standard operating procedures and documentation for all stages in the IUR document life cycle, document receipt and tracking, data input, quality control, file and database maintenance, information security, CBI aggregation policy, data dissemination, and staff training. Agency personnel and contractors perform the various tasks associated with document processing.

- **Mailings and Other Informational Activities**: The Agency undertakes the publication and printing of the IUR form and other miscellaneous materials. In addition, the Agency is responsible for providing the TSCA Hotline with standardized responses for frequently asked questions; preparing mailings, mailing lists, and labels; and developing outgoing informational materials.

3.2.2 Agency Cost Calculations

The Agency incurs costs associated with the IUR that are attributable to the task areas described above. Costs for tasks in these categories can be divided into those performed by Agency personnel, those performed by contractors, and additional tasks. The incremental costs of these three components under the amendments to the IUR are presented. The costs associated with developing a database system and a guidance document are assumed to be one-time costs.

3.2.2.1 Agency Costs Under the IURA

Agency tasks that must be performed under the IURA consist largely of an expanded effort for tasks already undertaken for the current IUR. Thus, the task descriptions presented in Section 3.2.1 generally do not change. However, the magnitude of any specific task may change. One change worthy of explanation involves database systems development and maintenance.

In addition to the tasks identified for this category under Section 3.2.1, the IURA will require that the database be expanded to handle the additional reporting requirements of the IURA. The cost estimate for the IURA accounts for further expenses associated with expanding the database system. Recreating the CUS entails the following tasks:

- procurement of new hardware and software;
- contractor-supported programming for database redesign;
- development of new input modules to facilitate scanning and text recognition of paper versions; these modules include a manual data entry module, an electronic (ASCII) version of the form, and subsequent upload modules;
- creation of retrieval modules that standardize reports; and
- incorporation of CBI protection into the system's design.

A change in the magnitude of each task described in Section 3.2.1 is reflected in the number of Agency personnel or contractors required and/or in the incremental cost.

The cost of tasks performed by Agency personnel is estimated using the number of FTEs and the GS-level required to perform each task. The salary rates are taken from the 2000 General Schedule Locality Rates of Pay for Washington-Baltimore, DC-MD-VA-WV from the U.S. Office of Personnel

Management (OPM, 2000). The salary rates are presented by GS-level and Step. For this analysis, a Step 3 is assumed for all FTEs.

The IURA are expected to result in an additional FTE (GS-12 at a salary of $54,618) to perform quality control of data entry and an incremental FTE (GS-13 at a salary of $64,949) to perform data processing, systems development, and contract oversight and management, relative to the current IUR. The cost of tasks performed by these personnel for the IURA is estimated to amount to incremental salary costs of $119,567. Once fringe benefits and overhead are added, this represents incremental annual costs of $197,250 (IMD, 1996; EPA, 1996b; EPA, 1997a). The development of a guidance document for the amended IUR will require 0.5 FTE, GS-13 at a total cost of $53,573 with benefits and overhead included. The cost of developing the guidance document is a one-time cost.

Extramural tasks will also require more labor. For the IURA, document receipt and tracking and data entry will increase by approximately $42,318; the backup systems operations cost will double, causing an incremental cost of $26,449. Hence, the annual incremental cost of extramural activities for the IURA is estimated to be about $68,767. Compared to the current systems development and hardware/software costs, the one-time costs of hardware and software acquisition, systems development, and the development of a new guidance document will require a one-time incremental cost of approximately $214,763. This incremental cost is the one-time cost for conducting the necessary systems and hardware/software upgrades to handle submissions under the IURA (IMD, 1996; EPA, 1996b).

Additional tasks associated with the IURA include publication and printing of forms and materials, provision of supplies and materials for the hotline, staffing, and costs associated with mailings. IURA informational materials that will need to be printed include guidance documents, policy letters, and current and past forms. As with the current IUR, the TSCA Hotline staff (contractor) is responsible for responding to phone calls, faxes, letters, and e-mail regarding questions about the IURA and requests for materials. In addition, the Hotline staff performs all activities associated with mailing requested materials and bulk mailings.

Under the IURA, it is estimated that the incremental costs of providing forms and materials will be approximately $4,232. In addition to these costs, it is anticipated that the costs associated with operating the TSCA Hotline to handle IURA-related calls will increase by $31,738 in the first year of reporting under the amendments. No incremental costs are expected in the future because it is estimated that the annual Hotline cost associated with the IURA will return to the original cost of this activity under the current IUR. The cost associated with preparing mailings under the IURA is estimated to increase by $5,396 in the first year, based on approximately 3,400 more mailings than the current IUR at $1.59 each for a peak period of 6 months and then a return to the current rate of mailings for the remainder of the year. Thus, the annual incremental costs of preparing mailings under the IURA is estimated to be zero in future cycles.

Under the IURA, the one-time costs of the amendments are all assumed to be incurred in the first reporting cycle. Recurring costs will be incurred in the first and all future reporting cycles. Therefore, the incremental costs for additional tasks under the IURA is approximately $270,249 in future reporting cycles, while the incremental costs estimated for the first reporting cycle are calculated by summing the recurring costs and the one-time costs, which yields $575,719 (EPA, 1996g; EPA, 1998b). These incremental costs are summarized in Tables 3-21 and 3-22. The flow of Agency costs over a 20-year

period is displayed in Table 3-23 along with the net present value of these costs and the annualized cost to the Agency using both a 3 percent discount rate and a 7 percent discount rate.

3.3 Social Cost Summary

The total social cost associated with the IURA includes both the compliance costs borne by the affected firms and the government administration, monitoring, and enforcement costs borne by taxpayers. The IURA involves real resource expenditures for both firms and the government, causing social opportunity costs in both cases. Because the costs to the government are assumed not to vary with the quantity of reports, this cost is constant across all options. Table 3-24 summarizes the total social cost associated with the IURA across all of the regulatory options.

Table 3-21. Estimated Incremental Agency Costs for the IURA (recurring every four years)

Task	IURA Costs
Tasks Performed by Agency Personnel	
Quality Control of Data Entry	$90,103 (1 FTE, GS-12)
Data Processing, Systems Development, and Contract Oversight & Management	$107,146 (1 FTE, GS-13)
Subtotal	**$197,250**
Extramural Tasks (contractor)	
Document Receipt & Tracking and Data Entry	$42,318
Backup Systems Operations	$26,449
Subtotal	**$68,767**
Additional Tasks	
Publication and Printing Forms & Materials	$4,232
Subtotal	**$4,232**
Total Annual Cost	**$270,249**

Note: All costs associated with FTEs include 41 percent fringe benefits and 17 percent overhead.

Sources: U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

Information Management Division (IMD). 1996. Questions for Branches within OPPT with Responsibility for IUR Data Collection, Processing, and Storage. Information Management Division, U.S. Environmental Protection Agency, Washington, DC.

U.S. Environmental Protection Agency. August 29, 1996d. Transcribed Telephone Conversation with Ruth Heikkinen on Hotline and Mailing Costs, Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. August 26, 1998b. 1994 IUR. Memorandum from Rob Esworthy, U.S. Environmental Protection Agency, to Susan Krueger, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency.

Office of Personnel Management (OPM). 2000. "2000 General Schedule Locality Notes of Pay for Washington-Baltimore, DC-MD-VA-WV." <http://www.opm.gov/oca/2000tbls/GSannual/html/GSDCB.HTM> As obtained on May 30, 2000.

Table 3-22. Estimated Incremental One-Time Agency Costs for the IURA

Task	IURA Costs
Tasks Performed by Agency Personnel	
Guidance Document Development	$53,573 (0.5 FTE, GS-13)
Subtotal	**$53,573**
Extramural Tasks (contractor)	
Systems Development	$100,505
Hardware & Software	$8,464
Guidance Document Development	$105,794
Subtotal	**$214,763**
Additional Tasks	
Hotline[a]	$31,738
Mailing[a]	$5,396
Subtotal	**$37,134**
Total One Time Cost	**$305,470**

Note: All costs associated with FTEs include 41 percent fringe benefits and 17 percent overhead.

[a] These costs are the costs that will be incurred in the first reporting cycle under the IURA. No incremental costs are expected for these tasks in subsequent cycles.

Sources: U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

Information Management Division (IMD). 1996. Questions for Branches within OPPT with Responsibility for IUR Data Collection, Processing, and Storage. Information Management Division, U.S. Environmental Protection Agency, Washington, DC.

U.S. Environmental Protection Agency. July 30, 1996b. IUR Amendments—Agency Costs Question. Memorandum from Ward Penberthy to Susan Krueger, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency.

Office of Personnel Management (OPM). 2000. "2000 General Schedule Locality Notes of Pay for Washington-Baltimore, DC-MD-VA-WV." <http://www.opm.gov/oca/2000tbls/GSannual/html/GSDCB.HTM>. As obtained on May 30, 2000.

Table 3-23. Flow of Agency Costs Over the Next 20 Years (2000$) under Amendments

Year	Cost
1	$575,719
2	$0
3	$0
4	$0
5	$270,249
6	$0
7	$0
8	$0
9	$270,249
10	$0
11	$0
12	$0
13	$270,249

Year	Cost
14	$0
15	$0
16	$0
17	$270,249
18	$0
19	$0
20	$0
3 Percent Discount Rate	
Present Value	**$1,346,774**
Annualized Cost	**$90,524**
7 Percent Discount Rate	
Present Value	**$1,075,434**
Annualized Cost	**$101,513**

Table 3-24. Measures of Incremental Social Costs (both Industry and Agency Costs) Associated with Amendment Options (million 2000$)

Option	First-Year Cost		Net Present Value[a]		Annualized Cost	
	Low	High	Low	High	Low	High
3 Percent Discount Rate						
Threshold Options						
1a - Draft Final[b]	74.4	89.5	290.4	347.3	19.5	23.3
1b - Selected Final[b]	72.9	88.0	259.4	311.1	17.4	20.9
2	91.7	103.7	363.6	411.6	24.4	27.7
3	67.7	77.8	262.1	302.0	17.6	20.3
4	59.7	69.1	227.7	264.9	15.3	17.8
5	67.7	77.8	340.4	386.5	22.9	26.0
Reporting Exemption Option						
6	85.3	95.2	293.9	330.1	19.8	22.2
Reporting Cycle Options						
7	91.7	103.7	708.7	802.3	47.6	53.9
8	91.7	103.7	89.0	100.7	6.0	6.8
7 Percent Discount Rate						
Threshold Options						
1a - Draft Final[b]	74.4	89.5	218.3	261.2	20.6	24.7
1b - Selected Final[b]	72.9	88.0	196.8	236.2	18.6	22.3
2	91.7	103.7	273.0	309.0	25.8	29.2
3	67.7	77.8	197.2	227.2	18.6	21.4
4	59.7	69.1	171.6	200.0	16.2	18..8
5	67.7	77.8	250.6	284.8	23.6	26.9
Reporting Exemption Option						
6	85.3	95.2	223.7	251.1	21.1	23.7
Reporting Cycle Options						
7	91.7	103.7	513.5	581.3	48.5	54.9
8	91.7	103.7	85.7	96.9	8.1	9.1

[a] NPV determined for a 20-year period.

[b] Option 1a represents the draft final option included in the initial submission for interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data for those chemicals. All options other than 1b include CBI reassertion and do not include the partial exemption for specific chemicals.

SECTION 4

THE BENEFITS OF THE IURA

As discussed in Section 2, neither EPA nor the public has access to the information that is needed to most effectively and accurately identify chemical risks from production or use in the United States. Screening chemicals according to these potential risks is an essential first step in developing and prioritizing risk management activities. Effective risk screening depends critically on the ability to characterize chemical uses and to predict potential exposures; however, current screening activities are greatly hampered by their reliance on production volume estimates and on relatively scarce public sources of information. This rule will benefit society by filling this information void and contributing to better assessments of potential risks and risk management decisions.

Currently, the IUR is one of EPA's most important tools for meeting its mandate (under TSCA) to manage the risks resulting from chemical production and use in the United States. It is EPA's most comprehensive source of data on the chemical industry, and it is used in almost all of OPPT's risk screening and management programs. However, the IUR data in their current form are limited, and this in turn limits EPA's effectiveness in meeting its TSCA mandate. The amendments will reduce many of these data constraints and, as a result, improve the effectiveness of EPA's chemical risk management programs.

Most importantly, the new IUR rule will require the collection and compilation of additional manufacturing, processing, use, and exposure-related information. This additional information will allow EPA to more accurately assess human and ecosystem exposures to specific chemicals, including the concentrations, frequency, and durations of these exposures. With this additional information, EPA will be able to better screen chemicals to identify whether additional risk assessment and management steps are needed. By enhancing the data supplied to EPA's risk-screening programs, EPA expects to more effectively and expeditiously reduce the risks posed by chemicals. Ultimately, enhancing the risk screening process will have positive consequences for human and ecosystem health, and will use EPA's and society's resources more efficiently.

Additional benefits will accrue from changes in reporting requirements that will improve consistency and compatibility with other EPA databases. EPA also expects more publicly available non-CBI information and an increased ability to anticipate industry trends, particularly for chemicals about which EPA has concerns. Finally, in an effort to better target information-gathering efforts, the rule removes one reporting exemption while adding reporting exemptions in other areas.

The social benefits resulting from the IURA are qualitatively discussed in this section. Unfortunately, quantitative estimates of these benefits are not feasible due to data limitations. This section first defines a conceptual framework for evaluating the benefits of public information-based programs such as the IURA. The section then applies this framework to identify and describe the types of benefits that will accrue from the different components of the rule.

4.1 Benefits of Information-Based Policies

In assessing the benefits of information-based policies such as this rule, it is important to identify the primary ways through which the public provision of information yields benefits for society. In general, increasing the amount and quality of publicly available information has two effects:

- It reduces the costs of making decisions.
- It improves the expected outcomes of these decisions.

In the first case, policies that make new information about toxic substances available to the public (including EPA) can serve to replace other information-gathering, management, and dissemination activities related to toxic substances. In so doing, they allow information users (i.e., decisionmakers) to avoid some of the time and resource costs devoted to these activities. In effect, they increase the efficiency of the decisionmaking process.

In the second case, information-based policies contribute to better decisions, by redirecting resources towards their most highly-valued uses. With incomplete information regarding toxic substances, public and private decisionmakers are not able to adequately assess the benefits and costs of actions that involve these substances. For example, EPA decisions regarding whether, when, and how to target chemicals for further risk-assessment can be misdirected if basic risk-screening information is not available or adequate. Improved information can therefore help lead to more socially optimal reductions in risks to humans and the environment because EPA can better direct its limited resources toward higher-priority risks.

As discussed in more specific terms in the remainder of this section, the rule will generate both kinds of benefits. First, it will reduce EPA's (and other decisionmakers') reliance on other databases and information sources that are ill-suited and inadequate for accurately and efficiently characterizing the risks associated with the thousands of chemicals in commerce that need to be evaluated. As discussed in previous sections, EPA will bear additional costs for collecting and managing the new IUR data; however, by providing more reliable and complete data on chemical uses and exposures, the rule will also allow EPA to save time and resources in screening chemicals and in developing risk management priorities. Furthermore, by improving the consistency and compatibility of IUR data relative to other datasets used in evaluating chemical risks, the rule will reduce the costs of using the IUR data themselves.

Second, it will allow EPA to better prioritize its risk management activities—to move more quickly in addressing chemicals that pose relatively high risks (and/or relatively low risk-management costs).

In assessing the benefits of information-based policies, it is also important to distinguish between and identify

- who uses the information,
- how the information is used, and
- who benefits (or loses) from these uses.

These distinctions emphasize that the ultimate beneficiaries of these policies will extend well beyond those who disseminate the information or who use it in their own decisionmaking. In the case of this rule,

EPA will be the primary user of the new information, although other public and private organizations, in particular those with interests in managing chemical risks, will also use the data. The information is expected to be applied and disseminated by these users in a number of ways; however, it will primarily serve to reduce the costs of screening and managing chemical risks and to improve risk management decisions.

The American public will be the ultimate beneficiaries of the amended IUR. By lowering the cost of decisionmaking in the public sector, the rule will free up resources for other public or private uses. Similar gains will also result from cost savings in private-sector decisionmaking. By improving risk management decisions, the rule will also help to better target risk management activities to the areas where the net benefits (i.e., risk reductions net of control costs) are expected to be the largest.

4.2 Benefits from Processing and Use Data

The processing and use data collected through these amendments will fill an important information void. Currently, EPA and the general public, including other public and private organizations, have very limited access to this type of data[1]. Processing and use data will most importantly allow EPA to improve its chemical screening and risk management activities. The Agency will be able to more quickly and efficiently identify the chemicals posing the greatest potential risks and to more effectively prioritize, design, and implement chemical management programs. EPA will also be able to disseminate this previously unavailable (non-CBI) information and to make its findings, based on analyses of these data, available to other agencies and the public. This will promote better risk management decisions by these groups as well.

In addition to supporting the specific programs mentioned below, it must be emphasized that IUR data provide the informational foundation for a wide variety of OPPT analyses and decisions. The additional data collected through the IURA will further enhance this role. The IUR is EPA's primary window into the chemical industry, the industry OPPT is charged with regulating under TSCA. The use of current IUR data on a daily basis to answer a myriad of questions is widespread within EPA and within OPPT specifically. With expanded information available on many chemicals, the quality of various EPA actions will improve accordingly. A recent example of how expanded IUR data would be valuable for use on a more as-needed basis is presented in Box 4-1.

As shown in Table 4-1, EPA has considered different chemical production thresholds above which facilities will be required to submit processing and use information under the IUR. These thresholds vary across options from 100,000 pounds to 1 million pounds per year; however, the selected option will require reporting for chemicals with production volumes above 300,000 pounds. Clearly, the amount of information collected would be greater with lower thresholds because more facilities and more chemicals would exceed the threshold.

[1]Appendix B describes databases and literature sources commonly reviewed by EPA.

Box 4-1. An Example of How the Amended IUR Data can be Useful in Supporting EPA's Day-to-Day Operations

In late 1999, a chemical importer received a shipment of zinc-sulfate from China that was contaminated with cadmium. The zinc sulfate was distributed as a raw material for the production of fertilizer and animal feed in Washington, California, and Idaho. Such use could result in occupational exposure to workers producing agricultural products, or even in consumer or livestock exposures from food or animal feed. Cadmium exposure can cause flulike symptoms and has been linked to lung cancer and kidney disease. If EPA had the type of processing and use information that will be collected under the IURA, the Agency would have been able to identify and contact potential importers and downstream users of the chemical sooner and thus contain the potential exposures more quickly. As it was, the Agency was forced, at least in part, to rely on data from the U.S. Customs Service. This process was time-consuming because the Customs Service generally does not divulge this type of information.

Table 4-1. Options Considered for the IURA

	Thresholds		Reporting Cycles	
Option #	**Site and Manufacturing Information**	**Processing and Use Information**	**Site and Manufacturing Information**	**Processing and Use Information**
Threshold Options				
1a - Draft Final[a]	25,000 lbs	300,000 lbs	4 yrs.	4 yrs.
1b - Selected Final[a]	25,000 lbs	300,000 lbs	4 yrs.	4 yrs.
2	25,000 lbs	100,000 lbs	4 yrs.	4 yrs.
3	25,000 lbs	500,000 lbs	4 yrs.	4 yrs.
4	25,000 lbs	1,000,000 lbs	4 yrs.	4 yrs.
5	25,000 lbs	500,000 lbs/100,000 lbs	4 yrs.	4 yrs.
Reporting Exemption Option[b]				
6	25,000 lbs	100,000 lbs	4 yrs.	4 yrs.
Reporting Cycle Options				
7	25,000 lbs	100,000 lbs	2 yrs.	2 yrs.
8	25,000 lbs	100,000 lbs	one-time	one-time

[a] Option 1a represents the draft final option included in the initial submission for interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data for those chemicals. All options other than 1b include CBI reassertion and do not include the partial exemption for specific chemicals.

[b] Inorganic chemicals are fully exempt from reporting.

As discussed below, it is very difficult to quantify and monetize the benefits of this additional information; however, historical data on IUR submissions do allow rough approximations of how the number of chemicals reported would vary under alternative thresholds. EPA estimates that the number of chemicals with reported processing and use data in the first reporting cycle will be roughly 5,450 chemicals under a 100,000 pound threshold. The number will decrease by about 28 percent to about 3,900 chemicals under the selected option of 300,000 pounds, and to about 2,700 chemicals with a 1 million pound threshold. Eliminating the exemption on inorganic chemicals in future reporting cycles will further increase the number of chemicals reporting processing and use data. For the 100,000, 300,000 and 1 million pound thresholds, EPA estimates that processing and use data would be reported for 850, 630, and 440 inorganic chemicals, respectively. In choosing the 300,000 pound threshold, EPA has concluded that this will provide the optimal balance between achieving its information needs and not imposing overly burdensome reporting requirements on IUR submitters. Collection of this level of data will provide valuable input to risk-screening activities, streamlining EPA's efforts to correctly identify chemicals needing further review and subsequently improving later risk management efforts.

The following sections review EPA's current risk-screening programs and chemical management programs conducted through OPPT. They describe how these programs will use the enhanced information and how the public will gain. They also describe how other programs and other agencies can use the information to benefit the general public.

4.2.1 Benefits through OPPT Risk-Screening and Management Programs

OPPT has a multifaceted approach to managing chemical risks. Chemicals enter OPPT's system primarily through a request by the Interagency Testing Committee or a request by the public. The chemicals then go through one of several more detailed screening programs, such as the Use Cluster Scoring System (UCSS). Depending on the outcome of these screening processes, the next step may include entering one of EPA's risk management programs. Each of these phases and the benefits derived from the new processing and use information are examined below.

4.2.1.1 Risk-Screening Programs

Risk screening is a critical first step in prioritizing chemicals for further evaluation and for risk management. By design, it is less detailed and data-intensive than risk assessment, but nonetheless it requires adequate information for comparing potential risks across a large group of chemicals. Ideally, such information would include a characterization of the chemical's toxicity as well as indicators of human and ecosystem exposures to the chemical, including the level of exposure and the size of the exposed population. In these efforts, OPPT currently relies primarily on a combination of chemical hazard (to the extent that it is known) and production volume information to evaluate potential chemical risks. Unfortunately, production volume estimates are at best a very rough proxy for exposure. A more useful and complete characterization of exposure would include, for example, information on the number of potentially exposed workers and consumers, types of products and uses, the number of use sites, and ambient and production stream concentrations of the chemical. As described in Box 4-2, the IURA will make additional information of this type available, thereby enhancing the effectiveness and efficiency of EPA's chemical risk-screening programs.

Box 4-2. EPA Tools to Evaluate and Manage Chemical Risk

Risk Screening. OPPT screens chemicals on the TSCA Inventory to identify potential risks and determine whether more detailed assessments should be undertaken. With the data currently available, EPA does not have the information needed to effectively and systematically screen some of the chemicals on the inventory. Data collected as a result of the IURA will improve the Agency's ability to screen chemicals in commerce, allowing the Agency to focus its chemical screening programs and to identify potentially risky situations earlier than otherwise possible. Then EPA could expend resources more efficiently and reduce the number of occasions where resources are allocated for assessment of chemicals that ultimately pose low risk.

Existing Chemicals Review Program. The Existing Chemicals review program conducts detailed analyses of potentially high-risk chemicals and develops strategies to reduce or eliminate the exposure risks. Chemicals are first screened to identify those that (1) require additional testing, (2) present potentially significant risk-management concerns, or (3) do not currently require further review. Processing and use data collected through the IURA will contribute to this risk management program in several ways. First, improved screening prior to review will lead to a quicker identification of chemicals of concern and more appropriate entry into EPA's chemical management programs. Second, the IURA will provide readily obtainable initial processing and use information for these chemicals, significantly improving the efficiency and effectiveness of screening. Finally, by effectively weeding out the lower-risk chemicals sooner, EPA will be able to focus efforts on higher-risk chemicals.

Use Cluster Scoring System (UCSS). UCSS identifies potential risks of chemical substances used in similar applications, or "use clusters." This system enables the Agency to view the risks of a given chemical substance in the context of the risks presented by related products on the market and allows the Agency to establish regulatory review priorities for those use clusters. However, some of the UCSS data sources are outdated and estimating methodologies are speculative. The IURA will create a database providing additional information that will allow the Agency to provide more accurate screening-level estimates for use clusters, targeting Agency programs to areas currently needing attention. The IURA will also enable the Agency to more easily conduct broader chemical screening analyses across several industries.

Existing Chemicals Testing. TSCA §4 empowers EPA to require manufacturers and processors of chemicals to test the chemicals they manufacture and process to obtain hazard data necessary to assess the chemical's risks. EPA must make findings under either §4(a)(1)(A) ("A" finding) or §4(a)(1)(B) ("B" finding) before testing may be required of manufacturers or processors. The A finding permits EPA to require testing on a "may present" risk basis; the B finding can be made on an exposure basis. For the B finding, processing and use data will be a critical input when no hazard data are available to indicate a chemical's toxicity. In addition, OPPT uses the Master Testing List (MTL) of chemicals identified by the Agency as having inadequate data for health and/or environmental risk assessments. OPPT uses the MTL to establish priorities for chemical testing, keep the public informed, and solicit input from industries on specific chemical exposure and risk assessment needs and encourage them to perform testing. The IURA data will enable EPA to better target testing needs to situations in which potential exposures are known to occur, thereby increasing the efficiency of efforts in these programs and facilitating earlier completion of critical testing needs.

High Production Volume (HPV) Chemical Challenge Program. This is a voluntary program designed to encourage manufacturers and importers of high production volume chemicals—those manufactured in or imported into the United States in amounts equal to greater than 1 million pounds per year—to provide basic toxicity information to the public. HPV chemicals are identified through information collected under the IUR and are publicly listed. The current HPV Challenge Program Chemical List consists of all the HPV chemicals reported during the 1990 IUR submission period, but information from subsequent submission periods may be used to expand this list. The expansion of the IUR reporting requirements, particularly the inclusion of inorganic chemicals, will therefore support the HPV program goals and help to increase the amount of information available to the public on these chemicals. The IURA exposure-related data can put HPV Challenge data in context, generating a better notion of potential risks associated with HPVs.

(continued)

Box 4-2. EPA Tools to Evaluate and Manage Chemical Risk (continued)

Screening Information Data Set (SIDS). SIDS is a voluntary program, conducted under the auspices of the OECD, which allows member countries to share the burden of testing internationally traded large production volume chemicals. The U.S. is responsible for testing of 25 percent of the chemicals identified for the program. The information needed is collected by industry sponsors; however, the data elements collected may not be consistent across sponsors, and some companies may not participate in developing information. The IURA will provide many key needs for exposure data and will provide a consistent database of information from manufacturers and importers. This information will increase the program's efficiency by helping to identify chemicals requiring additional testing or assessment while excluding those with low domestic exposure. A better exposure database will also improve evaluation of potential risk in the assessment reports prepared at the end of the SIDS process.

Design for the Environment (DfE). EPA's Design for the Environment (DfE) program incorporates principles and strategies from both the Existing Chemicals review program and the UCSS, by focusing on specific chemical uses and establishing partnerships with industry to develop voluntary long-range plans for risk management. The exposure-related data collected through the IURA will help to identify use cluster candidates for this program. It will also provide the initial assessment of exposures and help identify potential substitutes and could be used to assist in ranking activities, identifying high-risk areas, and developing realistic approaches for reducing risk.

EPA screens chemicals for potential chemical risks by completing an initial review. This initial review is designed to select the chemical substances that raise particular concern regarding the risks they present to human health and the environment. OPPT's initial risk screening is a review and analysis of any readily available chemical hazard data and exposure information to evaluate potential risks to human health and the environment from these chemicals. These evaluations are used to support basic risk management decisions, which can lead to more detailed assessments and, ultimately, to voluntary and/or regulatory actions. The initial reviews are often more qualitative than quantitative and are typically eclectic rather than formulaic: the extent and the actual process of the review depends on available information as well as available time and resources. Further, the initial screening typically is broad in scope and shallow in depth. For example, one initial review might be conducted for a chemical or group of chemicals with substantial hazard information covering a number of adverse effect endpoints (such as cancer, reproductive problems, mutations, or mortality) but little exposure data, while another might involve hazard data on only one endpoint, but with exposure data usually associated with other endpoints. As a result, considerable scientific judgment must be used to assess the chemicals, decide which, if any, require more detailed review, and account for a great deal of uncertainty in the analysis. This uncertainty usually is due to a lack of current hazard data or, more frequently, exposure data, as well as questions about data reliability.

At the close of the initial review, three possible outcomes may occur: a testing recommendation, a recommendation for further evaluation, or closure. "Closure" may include referrals to other programs or agencies, dissemination of initial review results, or a decision to discontinue further review based on the chemical's low hazard or low risk potential, or because it will be considered for regulatory control as part of a broader cluster of chemical substances.

Effective risk screening and risk management depend on both exposure information and hazard information. The exposure-related information reported under the IURA, in combination with hazard

information, such as that developed under TSCA Section 4 test rules or the High Production Volume Challenge Program, will allow the Agency to effectively screen and prioritize chemicals based on potential risk.

EPA's Existing Chemicals Program is currently evaluating risks from indoor air pollutants, high-release chemical substances listed on the TRI, persistent bioaccumulators, and high production volume chemicals. While past approaches to priority setting have been primarily based on relative chemical hazards and production volume as a simple surrogate for exposure, EPA has increased its emphasis on the exposure component of risk screening and assessment. EPA also believes it is appropriate to develop a more systematic and comprehensive approach to the prioritization process. The new exposure-related information that will be reported under this amended rule is necessary to allow more efficient and effective chemical risk screening.

The additional information required by the rule will specifically include the following features and uses:[2]

- **Number of Potentially Exposed Workers**: Estimates of the number of workers potentially exposed to specific chemicals will be used to clearly understand the potential magnitude of occupationally-exposed populations. The number of workers is combined with the chemical function, the chemical form, the chemical concentration, and other information to develop exposure scenarios and estimates of occupational exposures.

- **NAICS Code**: The NAICS code enables EPA to sort and screen information by industry sector. Specific industry sectors often have particular ways in which they handle, use, or manage chemicals; these ways affect the potential for exposures. As part of the risk-screening process, EPA can also identify those industries that might be good candidates for early involvement in risk assessment and risk management activities, as well as pollution prevention.

- **Function Code**: The industrial function of a chemical substance can be an important indicator of potential chemical exposures to the workers, the environment, and the general population. It will also be useful for estimating the potential magnitude, frequency, and duration of exposure.

- **Commercial or Consumer End Uses**: Information on the use of chemicals in commercial and consumer end-use categories will be used to estimate the potential exposure. Generally, these populations are regarded as large and less informed and disciplined regarding exposure-control measures.

- **Maximum Concentration**: Information on the maximum concentration of a chemical as sent off-site or as used for commercial or consumer purposes will be used to estimate the upper limits to potential levels of exposure.

- **Number of Sites**: Information on the number of sites where a chemical is manufactured or used will provide information on the number of communities or ecosystems potentially exposed.

---

[2]Additional details on the usefulness of this information can be found in the EPA (1996c) report entitled *Inventory Update Rule (IUR) Amendment Technical Support Document: Exposure-Related Data Useful for Chemical Risk Screening, Volume I.*

4.2.1.2 Risk Management Programs

Better risk screening ultimately generates opportunities for improved risk management by EPA and other entities. Most importantly, it improves the setting of priorities for risk management activities by helping to distinguish between relatively high risk and low risk chemicals. The IURA may also provide EPA and other risk management entities with information that will allow them to better evaluate alternative risk management strategies for high priority chemicals. Box 4-2 also presents OPPT risk management programs that might benefit from the greater scope and depth of the new IURA data, including the Existing Chemicals review process and various pollution prevention, risk reduction, and chemical testing programs, such as the Design for the Environment (DfE), and the Chemical Testing Program. EPA expects that the exposure data collected through the IURA also will be useful to a variety of other OPPT programs or initiatives, especially the New Chemicals Program.

4.2.1.3 Benefits from Cost Savings Associated with Screening Activities

The IURA will reduce the average time and other Agency resources spent per chemical in the screening processes. Because the current IUR lacks exposure-related data beyond estimates of production volume, OPPT must rely on a variety of other data sources to develop better indicators or estimates of exposure. As described in more detail in Section 2 and Appendix B, these alternative sources, such as PAIR, TRI, and NOES, are ill-suited for this task, primarily because their coverage of chemicals and/or manufacturers is limited or because the data have only been collected on a one-time basis. The processing and use information required by the IURA will address these limitations. It will decrease OPPT's reliance on alternative data sources that are less complete, reliable, and up-to-date and are therefore more costly to use. Although EPA will bear some additional costs in collecting and managing the IURA exposure and use data, overall the rule is expected to greatly reduce the time and effort required of EPA to collect and process data or to develop exposure estimates for screening purposes.

Resources will be saved by streamlining the screening process and more quickly eliminating chemicals from further consideration. In this way the Agency avoids the time and other resource costs that would otherwise be needed to further evaluate them. Some of these savings can be roughly estimated by examining the TSCA Inventory and screening needs. The Inventory and Inventory Update processes provide production volume information for chemicals that is then used to further screen chemicals for exposure risks. Based on these data, EPA has decided that further information is not a priority at this time for a large portion of the 76,000 chemicals on the TSCA Inventory. However, for about 10 to 15 percent of those chemicals, additional information is required to adequately assess the potential risks. This amendment will collect manufacturing-level information on 8,900 of these chemicals and ultimately provide detailed processing and use for approximately 4,500 of these 8,900 chemicals. By allowing EPA to screen these chemicals more effectively, the IURA will save resources by reducing the number of chemicals requiring more-detailed evaluations. Assuming, as per Box 2-2 (see Section 2), that these activities require 100 hours per chemical, reducing the number of chemicals that proceed through the screening process could result in savings of many FTEs over time. For example, if, as a result of this new information, the number of chemicals entering Existing Chemicals Review is reduced from 6,000 to 3,000, savings of 300,000 hours or 144 FTEs would result.

The information required by the IURA will reduce OPPT's reliance on unsuitable data sources and allow it to more quickly and more cost-effectively make these screening determinations. As a result,

a larger number of chemicals per year can be reviewed, and ultimately the time and resources spent evaluating all chemicals of concern can be reduced. The public will ultimately benefit from this more efficient use of EPA's resources. In other words, IURA data will help free up resources for other EPA activities (including additional chemical risk screening and management).

4.2.1.4 Benefits from Improved Risk Screening and Risk Management Decisions

The chemical processing and use information required by the rule will contribute to better decisionmaking and priority setting in OPPT's risk-screening and risk management programs. Under ideal circumstances (i.e., full information), OPPT would be able to completely sort chemicals and prioritize risk management activities according to where the net benefits of these activities are the highest. That is, it would be able to (1) identify the chemicals that pose relatively high potential risks to humans and ecosystems (and/or relatively low costs of control), and (2) target these chemicals for regulation or other forms of control. Although the rule will not provide full information regarding all chemical risks, it will significantly improve the information available for making these judgments. Compared to the current situation, the new rule will result in larger net benefits to society from OPPT's risk-screening and management programs.

For example, between 1990 and 1994, 1,924 chemicals were identified as candidates for the EPA's RM1 screening process. Of these, 561 chemicals—an average of 112 chemicals per year—proceeded through RM1 and were either recommended for further testing, for further risk management, or for closure. The RM1 process was primarily informed by hazard (test) data as opposed to hazard data coupled with actual exposure scenarios. This critical lack slowed the RM1 screening process considerably. RM1 screening was discontinued in 1998 due to the fact that the Agency felt its resources could be used more effectively in other risk management programs. Existing chemicals review continues under other TSCA programs, but none provide the wide coverage that will be necessary to effectively screen the large numbers of chemicals for which EPA is required to manage risks. With data from the IURA, such screening can proceed, and EPA's mandate to manage chemical risks can be fulfilled more effectively.

The IURA will improve the Agency's ability to identify potentially high risk chemicals or chemical uses and, when appropriate, to accelerate risk assessment and management activities in these areas. Under current conditions, inadequate chemical-specific information may be delaying or even precluding actions on potentially high risk chemicals. Similarly, new exposure and use information will assist the Agency in identifying relatively low risk chemicals or chemical uses. As a result, these chemicals will receive lower priority, allowing the Agency to delay or even completely avoid projects that lead to relatively small risk reductions relative to their costs.

Therefore, the IURA will prioritize risk management activities to favor those that are expected to provide the largest *net benefits* for society. That is, it will help EPA to distinguish the risk management projects that have the highest returns (i.e., the largest risk reduction) net of the costs they impose on society. As a result, the availability of new exposure and use information should lead to tangible reductions in mortality, morbidity, and ecosystem damages. Compared to a baseline situation without the rule, high-risk exposures will be identified and controlled earlier. And, although controls on some relatively low-risk exposures may be delayed, the *net* impact will be to reduce the incidence of fatal and nonfatal illnesses and to reduce damages to ecosystems.

The IURA can also help in other ways to identify the risk management activities with the highest expected net benefits. In addition to helping identify which chemicals should receive higher priority, the information may also be useful in selecting the most appropriate risk management strategies for high priority chemicals. For example, a better understanding of the extent and types of uses for a chemical can help to determine whether an information disclosure approach is adequate or whether more proactive regulatory actions are needed. Also, the IURA data will provide information that will help in assessing the *costs* of managing chemical risks. For instance, information on downstream uses can be used to evaluate the market demand for the chemical and the market adjustments that will occur as a result of risk management activities. In other words, this information can also help to distinguish between more and less costly risk management actions.

Ideally, assessing the present value of the net benefits of the rule would involve the following steps. The first step would be to determine "baseline" conditions. This step involves projecting when specific risk management activities would be undertaken in the absence of the new rule and estimating the annual net benefits to society (i.e., the value of risk reductions net of their control costs) associated with each of these activities. The present value of net benefits under baseline conditions can then be calculated by discounting all future net benefits of baseline activities to the present and aggregating across all activities and future years. The second step would be to determine conditions with the new rule. This step involves estimating the revised timing and net benefits of activities that would occur using the new exposure and use information and then duplicating the present value net benefit calculation for these activities. The third step would be to calculate the incremental present value of the rule. This value is simply the difference between the present value calculations of the first two steps (i.e., with and without the rule). The incremental benefits of the rule arise because the activities with the largest annual net benefits—in particular, those with the largest risk reductions—would be undertaken sooner and would therefore generate benefits that accrue over a longer period than under the baseline scenario.

Data limitations, however, make this ideal approach difficult to implement. First, even for baseline conditions, determining how risk management activities will be prioritized is very difficult. Second, estimating the net benefits of management activities under either scenario is even more difficult, precisely because detailed information on exposures and risks is currently lacking for many chemicals.

4.2.2 Benefits to Non-OPPT Risk Management Programs

In addition to OPPT, other public and private organizations are actively involved in managing chemical risks. These organizations include other EPA programs, the Occupational Health and Safety Administration (OSHA), the National Institute of Occupational Safety and Health (NIOSH), the Consumer Product Safety Commission (CPSC), Department of Defense (DoD), state and local governments, and the private sector. Given the large number of chemicals and potential exposure scenarios at the industrial, occupational, and consumer level, these organizations also require more complete use and exposure-related information to effectively and efficiently manage chemical risks. In addition, EPA will provide analyses of the IURA information and anticipates that other organizations will use the results. Through efforts made by these various stakeholders, the data to be collected under the IURA could be used to further benefit society (in addition to the gains from OPPT programs) by contributing to more effective and efficient management of chemical risks.

4.2.2.1 Other Federal Risk Management Programs

Federal efforts other than OPPT's will also benefit from new exposure information for IURA chemicals. For example, OSHA currently manages occupational exposure to chemicals by setting a variety of chemical and personal protection standards, by requiring preparation of emergency response and process safety management plans and by requiring provision of health and safety data to workers for chemicals used in the workplace. OSHA will be able to use the IURA data to identify chemicals with large numbers of potentially exposed workers or with uses that suggest greater exposure potential. The IURA information could increase OSHA's ability to manage chemical hazards, exposures, and risks in occupational settings.

NIOSH will also benefit from the updated exposure-related information collected under the IURA. Currently, the exposure information that NIOSH uses to determine occupational safety and health in businesses nationwide is primarily based on outdated information collected under the National Occupational Exposure Survey (NOES). Completed in 1983, NOES collected information such as plant site location, plant site SIC, information on the plant site's occupational safety and health programs, occupational titles of workers potentially exposed, the number of employees per occupational title, information on process steps, and trade names of products. NIOSH could use IURA data in place of the NOES data to identify chemicals with large numbers of potentially exposed workers or with uses that suggest greater exposure potential.

CPSC also could directly use the new data in conducting its exposure and risk assessment activities (screening consumer products for chemical hazards). The primary risk information used by CPSC to screen chemical hazards is information obtained from a network of hospital emergency rooms, and this information is limited to injuries and illnesses resulting from acute exposures only. Information identifying the chemicals used in consumer products is not readily available to CPSC at this time. The IURA will provide a source of reliable information on the chemicals used in consumer products, enabling CPSC to identify the chemicals used in consumer products and, with consideration of hazard data, to identify chemical–consumer use situations presenting greater potential risk. The information could improve CPSC's ability to meet its program objective of protecting the public from chemical hazards in consumer products.

4.2.2.2 State and Local Programs

The IURA data will also help state and local authorities with rulemaking, information collection, and voluntary program activities. Because state and local governments must address chemicals, use patterns, and exposure scenarios that may be unique or isolated, state and local agency access to the enhanced data will assist in identifying situations that pose potentially high risks for individual states or locations within those states. The information added to the IUR includes county data, which will enable states to identify which counties are likely to have specific issues or which counties may have multiple chemical problems. The additional data also could be used to assist with setting goals, targeting actions, and developing or expanding pollution prevention activities. Several state environmental protection agencies, including those in Illinois, Georgia, California, and New Jersey, have expressed interest in having access to data collected by OPPT, and to results of risk screening conducted by OPPT.

4.2.2.3 Nongovernmental Organization (NGO) Initiatives and Private-Sector Stewardship

Many private-sector organizations have a strong interest in reducing risks and providing leadership in preventing pollution while still maintaining productive economic enterprises. These organizations can better meet these objectives by developing a better understanding of how chemicals are used in general. This will allow them to more effectively manage risks and participate in community, regional, and national priority setting for chemicals.

The publicly available (non-CBI) information provided by the IURA will support activities typically undertaken by NGOs, such as tracking industry trends, organizing grassroots involvement in risk-based decisionmaking, and conducting outreach and educational programs. These organizations could use the new data to identify and establish priorities for risks; to evaluate chemicals and chemical use patterns to determine areas of concern; to identify and promote pollution prevention opportunities; and to focus pollution prevention, public outreach, and education initiatives and activities.

Industry can use the amended IUR information to improve corporate product stewardship programs through access to use information reported by multiple companies. The ACC's Responsible Care Program is one example of a corporate product stewardship program that could use this information. Currently, the ACC cites "emission reductions as measured by TRI" and a growth in the number of Community Advisory Panels as strengths in its Responsible Care Program. Use information supplied through IURA could be used to further strengthen this program. The Responsible Care Program requires companies to take responsibility for their products from cradle to grave, which requires an understanding of how their product is being used not only by their customers, but further down the chain. Despite this private effort, some companies have told EPA that they do not know how their chemicals are used. Non-CBI information provided by multiple companies could give an individual company a better understanding of the downstream uses of its product, therefore enabling more effective implementation of the Responsible Care concepts.

4.3 Benefits Due to Changes in CBI Reporting

A second category of benefits attributable to the IURA stems from changes in the requirements for claiming information as CBI; these changes are expected to enhance the utility of the data and the public's access to that data. The increased data availability will ultimately benefit the public by allowing them to better evaluate (and if necessary react to) public-sector risk management decisions and to make more informed risk management decisions of their own. Two basic changes will occur.

First, EPA is proposing to add a requirement to provide upfront substantiation for site identification, as well as retaining the existing requirement for upfront substantiation for chemical identity. EPA has found that, in the past, CBI claims have been made for site identification when that information has already been made public through the reporting requirements under EPCRA and other public documents. This requirement will discourage such erroneous claims.

Second, under the rule, submitters can claim a non-CBI status for production volume information in ranges while continuing to claim specific production volume as CBI. As was the case in the original TSCA Inventory, this change is expected to reduce claims because, although some submitters may continue to claim production volume information in ranges as CBI, it is expected that other submitters will not feel the need to claim this information as confidential.

While the Agency will be collecting a greater volume of data through the IURA, much of which will be CBI, EPA expects these changes to reduce the percentage of that data incorrectly claimed as CBI. This will increase the amount of information available to the public, which has several benefits. The Agency will be able to discuss and explain its actions and decisions more publicly. Currently, support for Agency decisions is often CBI, and cannot therefore be included in any publicly available support document. The public will be better informed and better able to provide comment on Agency actions, such that the Agency will ultimately be in an improved position to incorporate the public's preferences and concerns in its decisions. Second, the Agency will be able to provide other public and private organizations and individuals with better information for making their own decisions. These information-based benefits are discussed in more detail in earlier parts of this section and center around the fact that increasing the amount of information available to the public allows for improved understanding of potential exposure and risk concerns, and thus more effective and efficient risk management.

4.4 Benefits of Changing Reporting Exemptions

A third category of expected benefits of the IURA relates to changes in exemptions for certain inorganic, petroleum process stream, and natural gas chemicals as well as certain chemicals for which EPA has determined there is little current interest in processing and use data.

One major change is that inorganic chemicals will no longer be exempt from IUR reporting requirements. Inorganic chemicals will file partial reports in the first reporting period and full reports thereafter. The inorganic chemical exemption was originally developed based on EPA's belief that the hazard potential of many inorganic chemicals was relatively well-established and therefore production information was not needed. Recent findings have brought EPA to the conclusion that hazard information alone is not enough to protect human health and the environment—basic information for inorganic chemicals is also needed. The partial exemption for inorganic chemicals in the first reporting period will allow firms to become accustomed to IURA reporting.[3]

It is estimated that removing the production volume exemption for inorganic chemicals will make site manufacturing data available for an additional 1,100 chemicals in the first IURA reporting cycle, and it will make processing and use data available for 629 of these chemicals (with production volumes greater than 300,000 pounds) in future cycles. This information will allow OPPT to avoid some of the current costs involved in conducting risk screening and developing management activities for those chemicals. It will also improve EPA's ability to prioritize and make risk management decisions about this class of chemicals that heretofore have been difficult or, in some cases, not possible. As is the case with the other extensions of IUR reporting, the public will ultimately benefit from this exemption through lower public-sector costs and through risk management activities that will be better targeted to areas where the risk reductions and net benefits to society are the greatest.

A second type of exemption that is being instituted by EPA is a partial exemption for petroleum process stream chemicals and specific chemicals for which there is little current interest in processing and use information. The partial exemption exempts these chemicals from the processing and use reporting requirements that apply to other chemicals. Relative to baseline conditions, there will be no specific

[3]Under Option 6, inorganic chemicals would maintain their full exemption from both site and manufacturing information and from processing and use information. Consequently, for Option 6, no benefits (relative to the baseline situation) would be associated with the modifications to the inorganic chemical exemption.

benefits or costs associated with this exemption. It will, in effect, maintain the status quo for these chemicals since they (and all other chemicals) are currently exempt from such reporting. The partial exemption is being maintained for petroleum process streams because they tend to be complex chemical combinations with variable constituents and for those chemicals for which there is relatively little current interest in processing and use information.[4]

A third exemption that is being instituted is to exclude certain forms of natural gas (six chemical substances in total) from all IURA reporting, including both production volume information and processing and use data. In the 1998 reporting period, reports on these chemicals accounted for roughly 4 percent of all IUR reports submitted. Compared to baseline conditions, this will result in less information being available to evaluate these chemicals. Although this will partially reduce the information-based benefits of the rule, EPA expects this effect to be small because most of EPA's and other IURA users' needs with regard to these chemicals can be met with previously collected IUR information or other publicly available information.

4.5 Benefits of Administrative Changes

A separate source of benefits from the IURA stems from changes to several administrative requirements, each of which will facilitate data exchange and increase data comprehensiveness. Overall, the administrative changes will enhance the utility of the data by allowing linkages between various Agency databases. In addition, the time frame changes for IURA reporting will make the data more internally consistent and more compatible with other EPA reporting requirements. As with the other changes to IUR reporting, the public will ultimately benefit through lower public-sector costs and through more efficiently targeted risk management activities that will increase net benefits to society.

The major administrative change which will shift the reporting year from fiscal year to calendar year for all reporting sites will help to standardize the information collected across IURA submitters and with respect to other reporting initiatives. For instance, a calendar year reporting year will correspond with the TRI reporting period, enhancing the Agency's ability to develop linkages between the two databases. This will lower analysis costs for the Agency and allow for more accurate assessments of chemical releases, exposures, and risks.

4.6 Benefits From Changes to Reporting Thresholds

There are two reporting thresholds in these amendments—a reporting threshold for site and manufacturing information (e.g., site location and information associated with producing the chemical) and a reporting threshold for processing and use data (e.g., numbers of exposed employees at use sites, number of use sites, percentage of production volume). The reporting threshold options considered by EPA are presented in Table 4-1.

As discussed previously in this section, relative to conditions without the IURA, each of the threshold options for *processing and use* data—100,000, 300,000, and 1 million pounds—would increase the amount of information available for evaluating potential chemical risks. This would be particularly true after the first submission period for IURA reporting when processing and use data on inorganic

[4]The list of chemicals that fall under the low current interest exemption is subject to revision as information needs change over time.

chemicals would also be reported. Lower thresholds would provide relatively more information and thus more benefits. These benefits are discussed qualitatively in Section 4.2.

In contrast, the threshold for *site and manufacturing* data under all of the options (25,000 pound production volume per year) is higher than the current threshold (10,000 pounds). This will decrease the amount of chemical information available. With this change, benefits will decrease because EPA risk managers will no longer have access to current data on lower-volume chemicals (i.e., those produced between 10,000 and 25,000 pounds).

In considering the threshold levels, EPA balanced information needs and associated benefits with the cost of the information. EPA has determined that the selected threshold levels provide the level of data necessary to provide EPA with the information necessary to screen the thousands of larger-volume chemicals, develop risk management initiatives, and track changes in the marketplace (and therefore in exposure scenarios) while not unduly burdening industry.

Based on historical IUR data regarding the number of report submissions and taking into account the changes in exemptions included in the IURA (addition of inorganic chemicals), information on approximately 10,400 chemicals will be reported if the current 10,000 pound threshold were maintained. It is estimated that, by increasing the reporting threshold to 25,000 pounds, information on approximately 15 percent fewer chemicals—approximately 8,900 in total—will be collected. This loss of data will potentially affect EPA's ability to undertake risk screening activities, as well as the preparation of certain important analyses, including use, substitutes, and use cluster analyses. Although increasing this threshold will exclude lower volume chemicals (which are generally assumed to be less of a risk concern than those produced in larger volumes), information on these chemicals can often provide useful data for evaluating the availability of substitutes for larger production chemicals. In addition, acquiring information on lower-volume chemicals from alternative sources (if any exist) can be particularly costly, because information on these chemicals is much less likely to be publicly available than for high volume chemicals.

Consequently, by increasing this reporting threshold, information that would help to reduce exposures and risks may become more costly to attain or may simply no longer be available to OPPT. The public will ultimately lose, either through higher public-sector costs or through less socially optimal outcomes from risk management decisions. It is expected, however, that reductions in societal benefits associated with a change from 10,000 pounds to 25,000 pounds for site and manufacturing data will not be significant compared to the gains from the selected thresholds for processing and use data. EPA chose this threshold level to lessen the increased burden on submitters; however, in doing so it recognizes that information on the lower-volume chemicals can be particularly useful and may find it necessary to collect this information in the future.

4.7 Benefits From Alternative Reporting Cycle Options

The baseline reporting cycle, which requires IUR submissions every four years, is being retained under the selected option. Therefore, relative to baseline conditions, no specific benefits will result from this aspect of the rule.

EPA considered two alternatives to this cycle. The first alternative, referred to as Option 7 in Table 4-1, would require all information to be reported every two years. Past experience with data

reported under the IUR has demonstrated the dynamic nature of the chemical industry (there was a change of about 30 percent of the chemicals reporting in 1990 when compared to 1994). This provides a strong indication that more frequent reporting would provide EPA and others with more accurate and more up-to-date information to support risk-screening and management activities. However, EPA has concluded that the four-year cycle is sufficient for its current needs, and that the two-year cycle would not provide enough additional benefit to justify the additional reporting expense to industry. A second alternative, considered under Option 8, would require one-time reporting. While this option reduces costs significantly, it does not allow EPA to develop a stream of information over time to assess risks on an ongoing basis, and the information would quickly become out-of-date.

SECTION 5

BENEFIT-COST ANALYSIS, COST-EFFECTIVENESS COMPARISONS, AND RATIONALE FOR THE SELECTED OPTION

EPA performs benefit-cost analyses of potential regulatory actions to select the option that offers the highest benefit-cost tradeoff and to ensure that the social benefits of the selected option outweigh its social costs. For the IURA, however, the benefits of the rule are difficult to quantify and monetize. As a result, EPA has used a cost-effectiveness criterion to compare regulatory options.

Cost-effectiveness typically describes the cost per discrete unit of a quantified, but not monetized, benefit. It measures the relative efficiency of regulatory options in achieving different levels of the targeted outcome. The cost-effectiveness measure is generally calculated by dividing the costs of a regulatory option by the estimated number of targeted outcomes achieved. For environmental regulations, cost-effectiveness can often be expressed by measures such as the cost per life saved or the cost per illness avoided by the option. However, as described in Section 4, the targeted outcome of information rules—improvement in welfare from better decisionmaking—is not easily quantified. Therefore, for this analysis, the "effectiveness" of each option is characterized by the quantity of different types of IURA data collected (partial forms, full forms). Because it is not meaningful to sum across all partial and full forms collected across different chemicals to come up with a single measure of effectiveness, EPA does not estimate costs on a per-unit basis in this assessment. Rather, the array of information provided and the costs of each option are presented and compared.

The remainder of this section presents, first, the information provided by and costs of the selected final option for amending the IUR. The selected approach provides the benchmark against which all nonselected regulatory options can be compared. Those comparisons are discussed in the subsection that follows the assessment of the selected option. The section concludes with a summary justifying the selected option on benefit-cost criteria.

5.1 Benefits and Costs of the Selected Option

As discussed in Section 2, the regulatory options for amending the IUR vary along several dimensions. Of particular relevance is the chemical production threshold, which determines when producers must report only site and manufacturing data (partial form) and when they must report processing and use data (full form). Other dimensions of the regulation include the length of the reporting cycle and the allowance of reporting exemptions for various classes of chemicals.

The selected approach for the IURA, Option 1b[1], requires subject chemicals to be reported if they are produced or imported in quantities of 25,000 pounds per year or more. For those chemicals produced or imported at a volume greater than or equal to 25,000 pounds but less than 300,000 pounds, only the

[1]Option 1a represents the draft final option included in the initial submission for interagency review. Option 1b is the final option that was promulgated. EPA removed a a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data for those chemicals.

partial form (site identification and manufacturing information) will be required. For chemicals produced at a production volume greater than or equal to 300,000 pounds, with the exception of partially exempt chemicals, the submitter will be required to submit the full form, providing use and exposure information in addition to the site identification and manufacturing information.

Table 5-1 summarizes the information obtained and costs of the selected option (1b). It is estimated that approximately 26,800 forms will be submitted under the IURA. In the first submission period, about 9,500 (35 percent) will be full forms including both current IUR data (site and manufacturing) and IURA (use and exposure) data. As described in Section 4, the information provided in the IURA forms can enhance social welfare by improving the foundation for public and private decisionmaking related to risk management and by reducing the cost of obtaining information to support these decisions from other sources. The roughly 17,300 remaining forms (65 percent) will be partial forms reporting only site and manufacturing data. The proportion of full forms rises in future reporting cycles as inorganic chemicals become fully reportable under the IURA. In future cycles, about 11,700 reports (44 percent) are expected to be full reports and approximately 15,100 (56 percent) will be partial reports.

Table 5-1. Benefits and Costs of the Selected Option (Option 1b)

Number of Reports Filed					
First Submission Period			**Future Reporting Cycles**		
Total	**Partial**	**Full**	**Total**	**Partial**	**Full**
26,797	17,302	9,495	26,797	15,065	11,731
Value of Information in Reports Filed					
Use and exposure data support better government decisionmaking in prioritizing risk management objectives Consolidated data source reduces government costs for risk screening Public access to otherwise unavailable exposure data can improve household risk management decisions and enable nongovernmental actions Better risk screening and management improves welfare by reducing human and ecosystem exposures to harmful chemicals and/or averting expenditures					
Annualized Costs (million 2000$)					
Compliance		**Agency**	**Total**		
Low	**High**		**Low**	**High**	
3 Percent Discount Rate					
17.3	20.8	0.1	17.4	20.9	
7 Percent Discount Rate					
18.5	22.2	0.1	18.6	22.3	

The estimated total annualized social costs of the IURA range from $17.4 to $20.9 million per year over the first 20 years of the rule using a 3 percent discount rate and $18.6 to $22.3 million based on a 7 percent discount rate. Details on the timing of these costs and their net present value are presented in Section 3. Almost all of this total is in the form of costs to private parties for complying with the

additional informational requirements of the IURA. The remainder (approximately $90,500 per year, annualized using a 3 percent discount rate) is borne by taxpayers, who finance the expenditures by EPA to periodically administer the data collection. Additional social costs, in the form of labor and capital dislocation, are not quantified here but are expected to be transitory and relatively small.

5.2 Comparing the Benefits and Costs of Regulatory Alternatives to the Selected Option

Several other regulatory options were considered in developing the IURA. Table 5-2 reports the differences between the alternative regulatory options and the selected final option in the number and type of reports submitted, the nature of information provided, and the annualized cost of compliance and administration.

Several of the options proposed a lower threshold for use and exposure data (100,000 pounds) than the selected option (300,000 pounds). Lowering the threshold would expand the collection of use and exposure data by increasing the number of full reports by about 3,200 forms in the first submission period and just over 4,000 forms in future reporting cycles, but it would increase the annualized costs of the effort by $4.3 to $4.9 million (about one-quarter). Option 6 is similar to Option 2 in lowering the threshold to 100,000 pounds, but it exempts inorganic chemicals from any reporting requirements. This reduces incremental costs relative to the selected option (1b), but essentially eliminates all information on inorganic chemicals. Option 7 lowers the use and exposure data threshold and requires biennial reporting. This option raises the costs of the rule substantially, more than doubling the cost of the selected final option. Alternatively, Option 8 lowers the threshold to 100,000 pounds, but information will be reported only once. This lowers annualized costs substantially but foregoes all future updates to this information, thereby greatly constraining future risk screening and management actions.

A couple of the options examine thresholds higher than 300,000 pounds for use and exposure data. Option 3 raises the threshold to 500,000 pounds, which lowers costs by about 9 to 13 percent relative to the selected option, but reduces use and exposure data for over 1,200 chemical streams of between 300,000 and 500,000 pounds. Option 4 considers raising the threshold further to 1,000,000 pounds, which lowers costs further (22 to 24 percent lower than the selected option) but loses use and exposure data on several thousand chemical streams in the 300,000 to 1,000,000 pound range. Finally, Option 5 considers raising the threshold from 300,000 pounds to 500,000 pounds in the first reporting cycle but lowering the threshold to 100,000 pounds in all future cycles. When compared with the selected final option, the higher first-year threshold gives some cost relief initially, but the overall annualized cost of that option is about 11 to 17 percent higher than the selected option.

5.3 Benefit-Cost Summary

5.3.1 Rationale for Selecting Option 1b

Option 1b is among the most cost-effective options considered at the preliminary and final stages of the rulemaking process. That is, it has low incremental costs for the number of full and partial forms that will be submitted. First, its minimum reporting threshold (i.e., the level at which a partial form is required) is 25,000 pounds and not 10,000 pounds, as with the current IUR. EPA recognizes that the IURA expands industry burden, and by forgoing data on these lower-volume chemicals, the Agency will mitigate the increase. Of course, this comes at the cost of potentially valuable data on lower-volume chemicals. Second, Option 1b collects full information for chemicals in excess of 300,000 pounds of

Table 5-2. Incremental Benefits and Costs of Regulatory Alternatives (Relative to Selected Final Option 1b)

Difference in Number of Reports Filed						
	First Reporting Cycle			**Future Reporting Cycles**		
Option	**Total**	**Partial**	**Full**	**Total**	**Partial**	**Full**
1a[a]	0	–264	264	0	–599	599
2	0	–3,480	3,480	0	–4,628	4,628
3	0	931	–931	0	993	–993
4	0	2,414	–2,414	0	2,895	–2,895
5	0	931	–931	0	–4,628	4,628
6	–4,537	–8,017	3,480	–4,537	–5,732	1,196
7	0	–3,480	3,480	0	–4,628	4,628
8	0	–3,480	3,480	0	–4,628	4,628

Option	**Difference in Nature of Information Collected**
1a	Gain processing and use data on selected chemicals for which there is a low current interest in such data.
2	Gain processing and use data on chemicals with volumes of 100–300K
3	Lose processing and use data on chemicals with volumes of 300–500K
4	Lose processing and use data on chemicals with volumes of 300K–1MM
5	First cycle: Lose processing and use data on chemicals with volumes of 300–500K Future cycles: Gain processing and use data on chemicals with volumes of 100–300K
6	Inorganic: No reporting requirements All other: Gain processing and use data on chemicals with volumes of 100–300K
7	Information reported more frequently (every two years) Gain processing and use data on chemicals with volumes of 100–300K
8	Information reported only once Gain processing and use data on chemicals with volumes of 100–300K

Difference in Total Annualized Cost (million 2000$)		
Option	**Low**	**High**
1a	+2.1	+2.5
2	+7.1	+6.9
3	+0.3	-0.5
4	-2.0	-3.0
5	+5.6	+5.2
6	+2.5	+1.4
7	+30.3	+33.1
8	-11.3	-14.0

[a] Option 1a represents the draft final option included in the initial submission for interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data for those chemicals. All options other than 1b do include CBI reassertion and do not include the partial exemption for specific chemicals.

production. Again, while EPA would prefer to have full reporting data on *all* chemicals, the Agency also recognizes the need to limit industry burden, and believes that a 300,000 pound threshold for processing and use information balances the Agency's informational needs with the cost to industry. Other options for cutting the cost of the rule, such as raising the thresholds higher (500,000 and 1,000,000 pounds respectively) and requiring only one-time reporting, were judged to involve the loss of too much valuable information on current and future use and exposure data to justify the cost savings. Option 1a has the same reporting thresholds as the selected option, but would not exempt chemicals in which there is little current interest in processing and use data from providing that data as is done under Option 1b. In addition, Option 1a would require CBI reassertion (as would each of the options other than 1b). Although Option 1a would provide additional processing and use information relative to the selected option, the additional data would concern chemicals for which there is relatively little current interest in this information. Therefore, it was determined that the cost to industry for reporting processing and use information for these specific chemicals would likely exceed the benefits.[2] In addition, although a requirement for CBI reassertion would help to make information collected under the IURA more available to the public, this requirement was judged to impose an excessive burden on industry. Thus, although strict quantification of the selected option's benefits is not possible, the Agency has judged Option 1b to be the most cost-effective option considered for amending the IUR.

5.3.2 Economic Rationale for the IURA: Positive Net Benefits of the Selected Option

In performing economic analysis of regulatory actions, EPA considers whether the benefits of the action are likely to justify its costs. As indicated throughout this report, the benefits of amending the IUR are difficult to quantify and monetize. The inability to monetize benefits impedes direct comparison to costs and calculation of net benefits. Nonetheless, EPA believes that the benefits of the additional information collected in the IURA fully justify the costs of the collection effort.

The benefits of the IURA are characterized in Section 4 and briefly restated here. EPA will use the information collected under this rule to screen chemicals based on relative risk, set risk-assessment priorities among chemical substances of potential concern, and support EPA's pollution prevention and environmental protection activities. The data collected through these amendments will help to determine potential risks, identify opportunities for safer substitutes, target specific population groups, and evaluate the need for risk management. The data will allow EPA to better focus its programs and use resources more efficiently. Currently, the lack of nationwide information related to chemical production and use prevents the Agency from screening large numbers of chemicals in a timely manner. The IURA data are critical if EPA is to meet its obligations under TSCA.

EPA has made every reasonable effort to estimate the cost burden of the rule for the regulated community, and to use that information to modify the rule's requirements to avoid situations that impose higher costs for lower information benefits. For instance, the selected option's reporting threshold for use and exposure data (300,000 pounds) is higher than other options considered. Moreover, the minimal reporting threshold has also been raised from 10,000 to 25,000 pounds. The selected option also establishes a partial exemption for inorganic chemicals in the first reporting cycle; establishes partial exemptions for petroleum process stream chemicals and for specific chemicals for which there is a low

[2]The list of chemicals exempt from reporting processing and use information due to low current interest in that data may change over time as the Agency's interest in that information changes.

current interest in processing and use data; establishes a full exemption for certain forms of natural gas; requires only the reporting of known or reasonably ascertainable site and manufacturing information and readily obtainable processing and use information; removes the proposed CBI reassertion requirement; and allows submitters to report much of the information in ranges. These changes lower the costs of compliance, without greatly diminishing the amount and quality of information for risk screening, prioritization, and management.

SECTION 6

SMALL ENTITY AND ENVIRONMENTAL JUSTICE IMPACT DETERMINATIONS

The Regulatory Flexibility Act of 1980 requires federal agencies to assess the effects of regulations on small entities (P.L. 96-354). The Act requires agencies to evaluate final rulemakings to determine if a Final Regulatory Flexibility Analysis (FRFA) is necessary. If the regulation will result in significant impacts on a substantial number of small entities, the Agency must examine alternatives that may reduce adverse economic effects on significantly affected entities. The Regulatory Flexibility Act was amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996. This section examines the effect of the IURA on small entities.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that each federal agency examine the effect of its regulations on minority and low-income populations and address disproportionately high and adverse human health or environmental effects. This section examines the effect of the IURA on minority and low-income populations.

6.1 Small Entity Analysis

The term "small entities" includes small businesses, small not-for-profit organizations, and small governmental jurisdictions, but since not-for-profit organizations and governmental jurisdictions will not be affected by this rule, "small entity" in this analysis is synonymous with small business. For the IURA, small businesses are limited to small chemical manufacturers and importers.[1] Section 604 of the Regulatory Flexibility Act requires the Agency to either certify that the regulatory action will not have a significant economic impact on a substantial number of small entities or prepare a FRFA. The basis for determining that there is no significant economic impact is explained below.

6.1.1 Determination of the Number of Small Businesses

To determine the number of small businesses affected by the IURA, the Agency needs to define small businesses as used in this report and to develop the methodology for determining the number of small businesses expected to report under the IURA.

6.1.1.1 Definition of a Small Business

The definition of small businesses under TSCA §8(a) includes firms whose annual sales are less than $40 million and that produce less than or equal to 100,000 pounds of a regulated substance at a single manufacturing site. Firms that generate $4 million or less in annual sales are considered small businesses regardless of production volume (40 CFR 704.3). For purposes of this analysis, it is assumed

[1]Because the amendments intend to collect information from manufacturers and importers only, small businesses that only process or distribute chemicals or products but do not manufacture or import the chemicals will not be affected.

that any firm with sales less than or equal to $40 million is small, regardless of production volume.[2] This assumption may tend to overestimate the number of small businesses affected because it includes entities that may not meet all small business requirements under TSCA §8(a).

6.1.1.2 Number of Small Businesses

The existing IUR exempts small businesses from reporting; this exemption, as defined in TSCA §8(a), is maintained in the IURA. However, there are three primary reasons why a small business as defined in this analysis (sales less than $40 million) would report under the IURA. Either the business produces a chemical in a volume of greater than 100,000 pounds, the chemical it produces is subject to an action under TSCA §4, 5(b)(4), 5(e), or 6, or it is reporting voluntarily. The expected number of small businesses reporting under the IURA was estimated according to the following methodology. First, the expected number of businesses producing organic chemicals that will be required to report was estimated based on information in the CUS database. Second, the expected number of businesses producing inorganic chemicals that will be required to report was estimated based on the number of businesses producing organic chemicals. Because the CUS contains no data for inorganic chemicals, the number of businesses producing inorganic chemicals that are expected to report was estimated based on the relationship between the number of organic chemicals and inorganic chemicals identified in the CICIS database (1986) maintained by EPA. Together, these two estimates represent the number of small businesses affected.

Organic Chemicals (including Petroleum Process Stream Chemicals). To determine the number of small businesses producing organic chemicals that may be affected by the rule, annual sales information was sought for the 758 companies that submitted production volume and company identification information for the IUR in 1994 (CUS Database, 1996; CUS Database, 1997). Of these companies, information on parent company annual sales was obtained for 627 companies from the Thomas Register (1990), Dun & Bradstreet (1996; 1992), and *Ward's Business Directory* (Gale Research, 1996). Annual sales data were unavailable for the remaining 131 companies.

There were several reasons why information for these remaining companies was unavailable. First, these businesses may be too small to be listed in the directories consulted. Second, the IUR database may be out of date because it is based on TSCA reporting for 1994 (e.g., some companies may have gone out of business or changed hands since the information was reported). Finally, certain companies may have requested to be removed from, or may have declined to provide information to, the various directories.

Because the missing company information could not be obtained, these companies have been allocated to the small, medium, and large size categories according to two methodologies. In the first approach, each of the remaining 131 companies was distributed according to the relative distribution established for the 627 companies for which data were available. The second approach placed all 131 companies in the small business category based on the assumption that these companies were too small to be listed. Table 6-1 presents company size information for the estimated 758 parent companies that submitted IUR information in 1994. The table identifies the proportion of small, medium, and large companies, as defined by annual sales, that are likely to be affected by the rule. As the table indicates, a

[2]It is important to note that the $40 million level is for parent company sales, not individual site sales.

Table 6-1. Size of Manufacturing Companies Producing Organic Chemicals Based on Annual Sales Information

Company Size Based on Annual Sales[a]	Basis[b]		Method 1: Allocated by Proportions[c]		Method 2: Allocated as Small Businesses[d]	
	Companies		Companies		Companies	
	Number	Percent	Number	Percent	Number	Percent
Small (annual sales less than or equal to $40 million)	132	21	159	21	263	35
Medium (annual sales greater than $40 million and less than or equal to $200 million)	133	21	159	21	133	18
Large (annual sales greater than $200 million)	362	58	440	58	362	48
Total	627	100	758	100	758	100

[a] Annual sales are for the parent company, when applicable.

[b] The actual breakdown by size of the 627 companies that reported for the IUR in 1994 for which company sales data were available.

[c] The estimated breakdown by size of all 758 companies that reported for the IUR in 1994 if the sizes of the 131 companies for which sales data were unavailable are assumed to be in the same proportion as the sizes of the companies for which sales data were available.

[d] The estimated breakdown by size of all 758 companies that reported for the IUR in 1994 if all of the 131 companies for which sales data were unavailable are assumed to be small businesses.

Sources: Gale Research Inc. 1996. *Ward's Business Directory of U.S. Private and Public Companies 1996*. New York: Gale Research Inc.

Dun & Bradstreet. 1996. Dun's Market Identifiers Database. Parsippany, NJ: Dun & Bradstreet Information Services.

Dun & Bradstreet. 1992. *Million Dollar Directory: America's Leading Public and Private Companies, Top 50,000 Companies*. Murray Hill, NJ: Dun & Bradstreet Information Services.

Thomas Register. 1990. *1990 Thomas Register of American Manufacturers*. Vols. 15 and 16. New York: Thomas Publishing Company.

CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CUS Database. 1997. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

range of between 21 percent and 35 percent of the regulated community may be considered small (i.e., annual parent company sales less than or equal to $40 million).

Inorganic Chemicals. EPA next accounted for businesses that will submit inorganic chemical reports under the IURA. The number of these *businesses* was estimated indirectly based on the projected number of *reports* for organic chemicals and inorganic chemicals under the IURA, as reported in Section 3. EPA assumed that the ratio of the number of *businesses* reporting for inorganic chemicals to the number of *businesses* reporting for organic chemicals, based on the CUS database, was the same as the

ratio of the number of *reports* for inorganic chemicals (based on the CICIS database) to the number of *reports* for organic chemicals. In other words,

> Number of Inorganic Businesses = (Number of Inorganic Reports/Number of Organic Reports) × (Number of Organic Businesses)
>
> Number of Inorganic Businesses = (4,502/16,576) × 758
>
> Number of Inorganic Businesses = 206

Based on the analysis of sales information for small businesses producing organic chemicals, the number of inorganic businesses can be broken down into small, medium, and large companies. Using the percentages derived through the proportional allocation method and presented in Table 6-1, the breakdown of inorganic businesses is calculated as 120 large companies, 43 medium companies, and 43 small companies. Using the percentages derived through the second method, placing all companies for which information was unavailable into the small business category, the breakdown of inorganic businesses is calculated as 98 large companies, 36 medium companies, and 72 small companies.

Total Number of Small Businesses. The total number of businesses submitting reports for organic and inorganic chemicals combined is estimated to be 964 businesses. Under the proportional allocation method, there are estimated to be 560 large, 202 medium, and 202 small businesses. Under the small business allocation method, there are estimated to be 460 large, 169 medium, and 335 small businesses. However, 964 may be an overestimate of the total number of businesses expected to report under the IURA because it is possible that some businesses will submit a Form U for both organic chemicals and inorganic chemicals. These companies would be double counted, once as an inorganic chemical business and once as an organic chemical business, according to the approach presented in this analysis.

6.1.2 Estimation of Impacts

The Regulatory Flexibility Act does not explicitly define "significant economic impact on a substantial number" of small entities. The criterion used in this analysis to determine the impact on small businesses is the annualized compliance cost of the rule as a percentage of sales.

The Regulatory Flexibility Act requires that EPA consider only the effects of the IURA (i.e., the amendment to the existing rule). Throughout the development of the estimates, two assumptions were used:

- Each site producing organic chemicals submits an average of 9.0 reports, and each site producing inorganic chemicals submits an average of 8.3 reports (CUS Database, 2000).
- Each small business has one site (see Appendix E).

This section also presents a sensitivity analysis examining the impact on costs if more than one site per small business is assumed.

6.1.2.1 Cost-to-Sales Ratios for Small Businesses

Based on the proportion of organic chemical reports in the entire IURA population that are expected to be full reports, this analysis assumed that 42.7 percent of the reports filed by small organic chemical companies will be full reports and 57.3 percent will be partial reports in both the first reporting

cycle and all future reporting cycles. For inorganic chemicals, there is a difference in the distribution among full and partial reports between the first reporting cycle and future reporting cycles. In the first reporting cycle, all of the reports filed on inorganic chemicals will be partial reports because of the partial exemption that inorganic chemicals have been granted for the first reporting cycle. In future cycles, 49.3 percent of inorganic chemical reports are expected to be full reports and 50.7 percent are expected to be partial reports based on the percentage of all inorganic reports that are estimated to be full reports. Using the percentage of full reports in the overall database in this manner is likely to overstate the percentage of full reports filed by small companies to some extent because small companies are presumably more likely to produce below the 300,000 pound threshold for reporting processing and use information than an average company.

The values in Tables 3-19 and 3-20 provide the average incremental costs of compliance with the IURA per site. For organic chemicals, the average incremental cost of compliance with the amendments is estimated to be $27,034 to $31,939 in the first reporting cycle. Dividing this cost by the average annual sales of $17.6 million, the average cost-to-sales ratio is 0.15 to 0.18 percent for these small businesses in the first submission period. Based on the estimated costs in future submission periods of $20,441 to $24,276, the cost-to-sales ratio is 0.12 to 0.14 percent. For inorganic chemicals, the average incremental cost of compliance with the IURA is estimated to be $11,742 to $18,185 in the first reporting cycle and $27,222 to $34,369 in future reporting cycles (note that the baseline cost for inorganic chemicals is zero). Dividing these costs by the average annual sales of $17.6 million, the average cost-to-sales ratio for small inorganic chemical businesses reporting under the IURA is approximately 0.07 to 0.10 percent in the first reporting cycle and 0.15 to 0.20 percent in future reporting cycles. Table 6-2 summarizes the results of the small business analysis for an average small company.

This analysis provides information about the average case for a small company, but there may be some significant variation in annual sales among small companies. However, for a firm to have a cost-to-sales ratio larger than 1 percent, sales would have to be less than $3.5 million even for the highest average cost per site presented in Tables 3-19 and 3-20. As mentioned above, firms with sales of $4 million or less are considered small businesses regardless of production volume (40 CFR 704.3). Therefore, companies small enough to have a cost-to-sales ratio greater than 1 percent will generally be exempt from reporting under the IUR and thus will not be significantly affected by the amendments.

This analysis assumed that there is, on average, one site per company for small businesses. Table E-6 indicates that small businesses manufacture a given chemical at a mean of 1.2 sites. While this is not the same as the number of sites per company because it is possible that a company could manufacture different chemicals at different sites, it is indicative of the number of sites that a company is likely to own. Although the average number of sites per chemical is 1.2, this number is based on 20 respondents to the survey, one of which indicated 4 sites while the remainder indicated 1 site. Therefore, although the average number of sites per company is indeed 1.2, 1.0 is the indicative value for the representative company. Even though the assumption of 1 site per small business may tend to marginally underestimate the number of sites per company, it is important to note that small businesses would have to average between 4 and 14 sites per company for a cost greater than 1 percent of annual sales to be incurred for the typical company.

Table 6-2. Effect of IURA on Small Businesses

	Organic Chemical Reporters		Inorganic Chemical Reporters	
	Number Affected	**Percentage of Sales**	**Number Affected**	**Percentage of Sales**
First Reporting Cycle				
Allocated by Proportions	159	0.15–0.18	43	0.07–0.10
Allocated as Small Businesses	263	0.15–0.18	72	0.07–0.10
Future Reporting Cycles				
Allocated by Proportions	159	0.12–0.14	43	0.15–0.20
Allocated as Small Businesses	263	0.12–0.14	72	0.15–0.20

Sources: CICIS Database. 1986. Information from the Chemical in Commerce Information System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CUS Database. 1997. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

Gale Research Inc. 1996. *Ward's Business Directory of U.S. Private and Public Companies 1996*. New York: Gale Research Inc.

Dun & Bradstreet. 1996. Dun's Market Identifiers Database. Parsippany, NJ: Dun & Bradstreet Information Services.

Dun & Bradstreet. 1992. *Million Dollar Directory: America's Leading Public and Private Companies, Top 50,000 Companies*. Murray Hill, NJ: Dun & Bradstreet Information Services.

Thomas Register. 1990. *1990 Thomas Register of American Manufacturers*. Vols. 15 and 16. New York: Thomas Publishing Company.

In addition, even if the assumption of 1 site per small business slightly underestimates the number of sites per company, another assumption used in the analysis may tend to overestimate costs, which limits the potential for underestimation of impacts. Specifically, the estimated number of reports (9.0 for organic and petroleum stream chemicals and 8.3 for inorganic chemicals) per site used in the analysis may be an overestimate of the expected number of reports per site for small businesses because small businesses tend to produce fewer chemicals per site (ICF, 1996). However, to determine the impact of assuming that a typical small business has the same number of sites as an average company, the analysis was repeated using an assumption of 2.3 sites per small business. This is the average number of sites per chemical for all survey respondents (ICF, 1996).

Table 6-3 provides the cost of reporting under the IURA, assuming 2.3 sites per small business. The average cost-to-sales ratio for a small business is still well below 1 percent of the annual sales for an average small business. Therefore, typical small businesses will not experience a significant economic impact from the changes to the rule.

Table 6-3. Effect of IURA on Small Businesses Assuming Two Sites Per Small Business

	Organic Chemical Reporters		Inorganic Chemical Reporters	
	Number Affected	Percentage of Sales	Number Affected	Percentage of Sales
First Reporting Cycle				
Allocated by Proportions	159	0.35–0.42	43	0.15–0.24
Allocated as Small Businesses	264	0.35–0.42	72	0.15–0.24
Future Reporting Cycles				
Allocated by Proportions	159	0.27–0.32	43	0.36–0.45
Allocated as Small Businesses	264	0.27–0.32	72	0.36–0.45

Sources: Gale Research Inc. 1996. *Ward's Business Directory of U.S. Private and Public Companies 1996*. New York: Gale Research Inc.

Dun & Bradstreet. 1996. Dun's Market Identifiers Database. Parsippany, NJ: Dun & Bradstreet Information Services.

Dun & Bradstreet. 1992. *Million Dollar Directory: America's Leading Public and Private Companies, Top 50,000 Companies*. Murray Hill, NJ: Dun & Bradstreet Information Services.

Thomas Register. 1990. *1990 Thomas Register of American Manufacturers*. Vols. 15 and 16. New York: Thomas Publishing Company.

CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CUS Database. 1997. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

6.2 Environmental Equity/Justice

Executive Order 12898 requires that all federal agencies address the issue of environmental justice by identifying and revising programs, policies, and activities that may disproportionately and adversely affect the health of minority or low-income populations or their environments.

Because the IURA is an information collection exercise, there are no associated negative environmental equity issues. Instead, the information that will become available through the rule will enable the Agency to target educational, regulatory, or enforcement activities towards industries or chemicals that pose the greatest risks and/or to target programs for geographic areas that are at the highest risk. Thus, the information to be gathered under the IURA will help EPA make decisions that will benefit potentially at-risk communities, some of which may be disadvantaged.

To illustrate the way in which information to be collected under the IURA will benefit minority and economically disadvantaged people and communities, the social and economic characteristics of populations potentially affected by the amendments were compared with the social and economic characteristics of the total population of the United States. Populations potentially affected by the amendments were assumed to be those located in geographic areas with a large number of reports submitted under the IUR.[3] A significant portion of low-income and minority communities are located in these areas. Specifically, of the 121.2 million people who lived within 10 miles of an IUR site (49 percent of the 1990 U.S. population), almost 38 million (30 percent) were minorities. This is a larger proportion of minorities than in the United States, overall, where minorities comprise about 20 percent of the population (approximately 49 million minority individuals out of the total 1990 U.S. population of 248.7 million). Roughly 24 million (20 percent) of the people living within 12 miles of an IUR site were at or below 150 percent of the poverty level. This is consistent with the census figure of 52.5 million (21 percent) individuals at or below 150 percent of the poverty level nationwide (U.S. Census, 1990).

The information to be collected through the IURA will allow EPA to focus risk-screening and assessment activities on chemicals with high exposure profiles and risks. Additionally, because the IURA data will allow EPA and others to view chemical exposures and uses on a regional or local level, analyses might be undertaken that will benefit disadvantaged groups. Specific activities to benefit these groups could include information dissemination, community awareness, exposure mitigation, pollution prevention, outreach and educational programs, and consumer protection programs. In addition, non-CBI IURA data will be publicly available to groups such as NGOs, private-sector stewardship programs, other federal programs such as OSHA and CPSC, and other federal and state government agencies, resulting in worker- or consumer-oriented programs or local, state, and regional programs targeting disadvantaged groups.

Additionally, as discussed in Section 4, the information collected under the IURA will aid in targeting potential health and ecosystem risks. Minority and economically disadvantaged groups will benefit from these potential risk reductions even if programs specifically targeting disadvantaged people do not exist. Because the production volume information currently available to EPA is not always sufficient for identifying chemical exposures and human risks, better compilation of use and exposure data will enable EPA to predict more accurately the magnitude and nature of ecosystem and human population exposure. This better information on uses and exposures will potentially benefit minority and economically disadvantaged groups by alerting them to potential chemical exposures in their workplaces and communities.

In addition, the availability of better information will also enable EPA to conserve resources and focus efforts on chemicals that pose higher risks, and thereby potentially more effectively and expeditiously reduce the risks posed by these chemicals. For example, worker exposure information will be used to develop priorities and to identify chemicals or uses that require a more detailed risk screening or assessment. The rapid identification of potentially high-risk situations will also allow for more timely and efficient identification and development of safer substitutes and alternative chemicals, processes, and technologies, thereby benefitting all potentially exposed employees (including disadvantaged ones) that work at chemical manufacturing, importing, and processing sites. Although programs and safety

[3]A "large number of reports" is defined here as 100 or more reports from an IUR submitting site.

measures may not be targeted to a specific subset of workers, disadvantaged people employed at these sites will benefit from EPA's and others' improved ability to target risks and thereby more efficiently implement the programs and safety measures necessary to reduce these risks.

REFERENCES

Bureau of Labor Statistics (BLS). April 5, 1997. Transcribed telephone conversation with Wayne Shelley, Office of Compensation Levels and Trends, Bureau of Labor and Statistics, Washington, DC.

Bureau of Labor Statistics (BLS). 2000. Employment Cost Index. <www.bls.gov>. As obtained April 28, 2000.

Browning, Adam. TRI Coordinator, U.S. Environmental Protection Agency, Region 9. March 8, 1996. Transcribed telephone conversation with Ellie Stewart, ICF Incorporated, Washington, DC.

CICIS Database. 1986. Information from the Chemical in Commerce Information System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

Codina, Thelma, Pesticides and Toxics Branch, U.S. Environmental Protection Agency, Region 5. March 7, 1996. Transcribed telephone conversation with Ellie Stewart, ICF Incorporated, Washington, DC.

CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CUS Database. 1997. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

Dun & Bradstreet. 1992. *Million Dollar Directory: America's Leading Public and Private Companies, Top 50,000 Companies*. Murray Hill, NJ: Dun & Bradstreet Information Services.

Dun & Bradstreet. 1996. Dun's Market Identifiers Database. Parsippany, NJ: Dun & Bradstreet Information Services.

Executive Office of the President (EOP). 1997. *North American Industry Classification System: United States, 1997*. Washington, DC: Executive Office of the President, Office of Management and Budget.

Federal Register. December 23, 1977. 42 FR 64572.

Federal Register. June 12, 1986a. 51 FR 21438.

Federal Register. June 12, 1986b. 51 FR 21447.

Freeman, A. Myrick III. 1993. *The Measurement of Environmental and Resource Values: Theory and Methods.* Washington, DC: Resources for the Future.

Fried, Fred. March 7, 1996. Toxics Release Inventory Program, U.S. Environmental Protection Agency, Region 8. Transcribed telephone conversation with Ellie Stewart, ICF Incorporated, Washington, DC.

Gale Research Inc. 1996. *Ward's Business Directory of U.S. Private and Public Companies 1996.* New York: Gale Research Inc.

General Accounting Office (GAO). September 26, 1994. *Toxic Substances Control Act: Legislative Changes Could Make the Act More Effective.* General Accounting Office, RCED-94-103. <www.gao.gov>.

Glynn, John, Department of Energy, Washington DC. June 26 and July 16, 1996. Transcribed telephone conversations with Ellie Stewart, ICF Incorporated, Washington, DC.

Hope, Walter, Department of Environmental Protection. March 7, 1996. Transcribed telephone conversation with Ellie Stewart, ICF Incorporated, Washington, DC.

ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

Information Management Division (IMD). 1996. Questions for Branches within OPPT with Responsibility for IUR Data Collection, Processing, and Storage. Information Management Division, U.S. Environmental Protection Agency, Washington, DC.

Kolb, Jeffrey A., and Joel D. Scheraga. 1990. "Discounting the Benefits and Costs of Environmental Regulations." *Journal of Policy Analysis and Management* 9(3):381-390.

Larmee, Stan, Chemical Release Information Division, New Jersey Department of Environmental Protection. March 8 and March 11, 1996. Transcribed telephone conversation with Ellie Stewart, ICF Incorporated, Washington, DC.

Layne, Warren, Toxics Section, U.S. Environmental Protection Agency, Region 6. March 7, 1996. Transcribed telephone conversation with Ellie Stewart, ICF Incorporated, Washington, DC.

Lind, Robert C. 1990. "Reassessing the Government's Discount Rate Policy in Light of New Theory and Data in a World Economy with a High Degree of Capital Mobility." *Journal of Environmental Economics and Management* 18:S-8-S-28.

Massachusetts Department of Environmental Protection (MADEP). 1995. *Toxics Use Reduction: 1994 Reporting Package.* Boston: Massachusetts Department of Environmental Protection, Bureau of Waste Prevention.

McBride, Allan, Office of Solid Waste and Emergency Response (OSWER), U.S. Environmental Protection Agency. April 1, 1996. Transcribed telephone conversation with Julie Bedford, ICF Incorporated, Washington, DC.

Moore, Michael J., and W. Kip Viscusi. 1990. "Discounting Environmental Health Risks: New Evidence and Policy Implications." *Journal of Environmental Economics and Management* 18:S-51-S-62.

National Academy of Public Administration. April 1995. *Setting Priorities, Getting Results: A New Direction for EPA.* Washington, DC: National Academy of Public Administration.

Office of Personnel Management (OPM). 2000. "2000 General Schedule Locality Notes of Pay for Washington-Baltimore, DC-MD-VA-WV." <http://www.opm.gov/oca/2000tbls/GSannual/html/GSDCB.HTM> As obtained on May 30, 2000.

Oregon State Public Interest Research Group (OSPIRG). November 1993. Breaking the Chemical Dependency: The First Data on Oregon's Industrial Toxics Use. Prepared by the Oregon State Public Interest Research Group, Portland, Oregon.

Rozell, David K, and Roy W. Brower. 1993. "Pollution Prevention Facility Planning: The Oregon Experience." *Pollution Prevention Review* 3(3):277-283.

Rubin, Steve. Office of Wastewater Enforcement and Compliance, Office of Water, U.S. Environmental Protection Agency. March 20, 1996. Transcribed telephone conversation with Julie Bedford, ICF Incorporated, Washington, DC.

Science Advisory Board. September 1990. *Reducing Risk: Setting Priorities and Strategies for Environmental Protection.* U.S. Environmental Protection Agency.

Strasler, Eric, Office of Water, Office of Science and Technology, Engineering and Analysis Division, U.S. Environmental Protection Agency. March 23, 1996. Transcribed telephone conversation with Julie Bedford, ICF Incorporated, Washington, DC.

Thomas Register. 1990. *1990 Thomas Register of American Manufacturers*. Vols. 15 and 16. New York: Thomas Publishing Company.

U.S. Census. 1990. *1990 Census of Population and Housing*. U.S. Department of Commerce, Economics and Statistics Administration Bureau of the Census, <http://venus.census.gov/cdrom/lookup/885912463>. Washington, DC.

U.S. Environmental Protection Agency. February 1990. *Economic Analysis for the TSCA Inventory Update Final Rule*. Office of Toxic Substances, Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. 1992. "Guidelines for Exposure Assessment." Notice. *Federal Register* 57(104): 22888-22938.

U.S. Environmental Protection Agency. April 14, 1994. *Regulatory Impact Analysis of Amendments to Regulations for TSCA Section 5 Premanufacture Notifications*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

U.S. Environmental Protection Agency. 1996a. *Access EPA*. Office of Information Research Management, U.S. Environmental Protection Agency, Chapter 5.

U.S. Environmental Protection Agency. July 30, 1996b. IUR Amendments—Agency Costs Question. Memorandum from Ward Penberthy to Susan Krueger, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency. July 19, 1996c. *Inventory Update Rule (IUR) Amendment Technical Support Document: Exposure-Related Data Useful for Chemical Risk Screening, Volume I*. Prepared for Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. August 29, 1996d. Transcribed Telephone Conversation with Ruth Heikkinen on Hotline and Mailing Costs, Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

U.S. Environmental Protection Agency. 1997b. UEIP-ICR Database. Summary table.

U.S. Environmental Protection Agency. 1998a. A *Review of Existing Exposure-Related Data Sources and Approaches to Screening Chemicals:* A *Response to CMA*. Economic and Policy Analysis Branch, Economics, Exposure, and Technology Division.

U.S. Environmental Protection Agency. August 26, 1998b. 1994 IUR. Memorandum from Rob Esworthy, U.S. Environmental Protection Agency, to Susan Krueger, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency. March 1, 1999a. *Economic Analysis of Proposed Amendments to the TSCA Section 8 Inventory Update Rule*. Washington, DC: U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency. July 29, 1999b. *Economic Analysis of Proposed Amendments to the TSCA Section 8 Inventory Update Rule, March 1, 1999*. Addendum, Executive Summary, and Summary. Washington, DC.

APPENDIX A

DRAFT REPORTING FORM

FOR THE IURA

(IMPORTANT: Type only, read instructions before completing form)

U.S. Environmental Protection Agency

Washington, DC 20460
Partial Updating of TSCA Inventory Data Base
Production and Site Report
(Section8(a) Toxic Substances Control Act, 15 U.S.C 2607)

FORM U **2006**

Report Number	
Mark "X" here if this is a revision to the previous report	
Previous Report Number	

PART I. SITE IDENTIFICATION INFORMATION

SECTION I. CERTIFICATION

Certification Statement: I hereby certify to the best of my knowledge and belief that (1) all information entered on this form is complete and accurate; and (2) the confidentiality statements at the end of this form are true and correct as to that information for which I have asserted a confidentiality claim.

1.1 Signature	1.2 Date signed	1.3 Name	
		1.4 Official Title	

SECTION II. PARENT COMPANY AND TECHNICAL CONTACT INFORMATION

2.1 Parent Company Name			
2.2 Parent Company Dun & Bradstreet Number		2.3 Technical Contact Name	
2.4 Technical Contact Telephone (w/ Area Code)		2.5 Technical Contact Email Address	

Technical Contact Mailing Address

2.11 Technical Contact Address (Line 1)					
2.12 Technical Contact Address (Line 2)					
2.13 City		2.14 State		2.15 Zip Code	

SECTION III. PLANT SITE IDENTIFICATION

3.1 Plant Site Name			
3.2 Plant Site Dun & Bradstreet Number		EPA Facility Identification Number (for Agency Use Only)	
3.3 Street Address (Line 1)			
3.4 Street Address (Line 2)			
3.5 City		3.6 County / Parish	
3.7 State		3.8 Zip Code	

REPORT NUMBER

PART II. MANUFACTURING INFORMATION

SECTION I. CHEMICAL IDENTIFICATION

CBI*

1.1 Chemical Identifying Number		1.2 ID Code	
1.3 Chemical Name			

SECTION II. MANUFACTURING INFORMATION

2.1 Company Information	CBI	2.2 Plant Site Identity *	CBI	2.3 Site limited (Y/N)		CBI	2.4 Activity (M, I or both)		CBI	2.5 Production Volume Range		CBI

2.6 Production Volume (LB)		CBI	2.7 Number of Workers (code)		CBI	2.8 Maximum Concentration (code)		CBI

	a. Physical Form		b. Percent of Production Volume in each Physical Form	
	Check All That Apply	CBI	Percent	CBI
2.9 Dry Powder				
2.10 Pellets or Large Crystals				
2.11 Water or Solvent Wet Solid				
2.12 Other Solid				
2.13 Gas or Vapor				
2.14 Liquid				

PART III. PROCESSING AND USE INFORMATION

Complete Part III, section I and II **only** if the production volume noted in Part II, Section II 2.6 is greater than or equal to 300,000 lb/year

SECTION I. INDUSTRIAL PROCESSING AND USE DATA

N/A

	a. Type of Process or use		b. (5-digit) NAICS		c. Industrial Function Category		d. % Production Volume		e. Number of Sites		f. Number of Workers	
	Code	CBI	Code	CBI	Code	CBI	Code	CBI	Code	CBI	Code	CBI
1.1												
1.2												
1.3												
1.4												
1.5												
1.6												
1.7												
1.8												
1.9												
1.10												

SECTION II. COMMERCIAL & CONSUMER END-USE EXPOSURE RELATED DATA

N/A

	a. Commercial and Consumer Product Category		b. Use in Children's Product		c. Percent Production Volume associated with each category		d. Maximum Concentration associated with each category	
	Code	CBI	Y/N/?	CBI	Percent	CBI	Code	CBI
2.1								
2.2								
2.3								
2.4								
2.5								
2.6								
2.7								
2.8								
2.9								
2.10								

*Substantiation required for CBI claims on chemical identity and plant site identity.

APPENDIX B

CURRENT DATA COLLECTION

A number of chemical data sources maintained by EPA and other federal and state agencies, as well as publicly available databases, contain limited information on production, processing, emissions, and other chemical data. However, these sources generally do not contain the type of chemical processing and use data necessary for EPA to conduct more effective chemical risk screening. The more detailed collection of chemical processing and use information under the IURA will provide EPA with the means to better determine those chemicals with the greatest potential for risk and thereby conduct more effective risk management activities. This appendix describes the information available in each of the currently available sources as compared to the data to be collected under the IURA. Additional information can be found in *A Review of Existing Exposure-Related Data Sources and Approaches to Screening Chemicals: A Response to CMA* (EPA, 1998a).

B.1 Air Programs and Datasets

- The **Office of Air Quality Planning and Standards (OAQPS)** maintains the Aerometric Information Retrieval System (AIRS), a national repository for information on seven types of airborne pollution in the United States. The AIRS Facility Subsystem (AFS), one of the four AIRS components, is used to track point source emissions and compliance data from industries. Information collected includes plant compliance summaries, emissions by SIC code, and the extent and distribution of emissions (EPA, 1996a). This collection focuses on air emissions and does not contain information on specific chemical production volume, uses, or worker exposure scenarios.

- The **Office of Air and Radiation (OAR)** tracks chemical use, hazard, and risk information for approximately 150 chemicals that are replacements for ozone-depleting substances (ODS). The information is collected under the Significant New Alternatives Policy (SNAP) Program. This data set does not collect the more-detailed chemical exposure and use information called for by the IURA.

B.2 Solid and Hazardous Waste Programs and Datasets

- The **Office of Solid Waste and Emergency Response (OSWER)** manages the Biennial Reporting System (BRS). The BRS data describe the aspects of, and monitor the trends in, hazardous waste generation, management, and minimization for RCRA large-quantity generators and for treatment, storage, and disposal facilities subject to RCRA permitting requirements. Although the data set contains information on the chemical constituents in hazardous waste from the paint, petroleum, and pesticides industries (EPA, 1996a; McBride, 1996), it does not contain information on specific chemical use, worker exposure scenarios, production volumes, or production locations.

- The **Office of Emergency and Remedial Response (OERR)** is responsible for compiling the Oil and Hazardous Material Technical Assistance Data System (OHMTADS), which contains information on hazardous substances including chemical name, physical/chemical properties, lists of regulations covering production and use data, safety and toxicity data, and response information (EPA, 1996a) for large volume industrial chemicals transported in bulk quantities. This data set does not contain the data to be collected under the IURA.

- The **Office of Solid Waste (OSW)** maintains the Resource Conservation and Recovery Information System (RCRIS), a national system supporting the Resource Conservation and Recovery Act (RCRA) program. This system tracks events and activities related to facilities that generate, transport, treat, store, or dispose of hazardous waste (EPA, 1996a); however, the dataset does not collect detailed chemical use or exposure information at the level called

for by the IURA. Additionally, RCRA reporting does not account for chemicals used within a facility that are not disposed of or treated as hazardous waste.

B.3 Water Programs and Datasets

- The **Office of Ground Water and Drinking Water (OGWDW)** maintains the Federal Reporting Data System (FRDS), a repository of information about Public Water Supplies (PWS) and their compliance with requirements of the Safe Drinking Water Act (SDWA) of 1986 (EPA, 1996a). This database does not include chemical exposure, end use, manufacturer, or production information as would be required under the IURA.

- The **Office of Water (OW)** compiles the Permit Compliance System (PCS), a computerized management information system containing data on National Pollutant Discharge Elimination System (NPDES) permit-holding facilities. Each permit record contains information that identifies permits, pollutant discharge limits, pollutants discharged in wastewater, and facility compliance schedules and violations. This database only contains industry-specific information about the amount and type of chemicals discharged from various manufacturing and service industries, not information on site-specific chemical production, worker exposure, or chemical end use (Rubin, 1996; Strasler, 1996; EPA, 1996a).

B.4 Environmental Information Programs and Datasets

- The **Office of Environmental Information (OEI)** administers the TRI (this database was formerly administered by OPPT), which contains site-specific information on the amounts of approximately 540 individually listed toxic chemicals and 22 categories of chemical compounds released directly to air, water, or land or transferred off-site. Because the database only collects information on chemical releases, it does not contain site-specific information on chemical production, use, or worker exposure (EPA, 1996a).

B.5 Pollution Prevention and Toxics Programs and Datasets

- **OPPT** maintains the Premanufacture Notification (PMN) database under the TSCA §5 New Chemicals Program. The database contains physical/chemical properties, use and predicted production information, worker exposure information, and process-related information for "new" chemicals submitted for approval to begin commercialization. This data set provides information only on new chemicals and, therefore, has a negligible overlap with the data to be collected under the IURA.

- **OPPT** developed a joint voluntary program in cooperation with the American Chemistry Council (formerly the Chemical Manufacturers Association, or CMA), Synthetic Organic Chemical Manufacturers Association (SOCMA), Chemical Specialities Manufacturers Association (CSMA), and American Petroleum Institute (API). The program, entitled the Use and Exposure Information Voluntary Project (UEIP), allows EPA to collect chemical use, exposure, and release information for certain chemicals targeted under EPA's Risk Management (RM) program. Information has been collected in three groups (two in 1994 and one in 1996) for 15 to 20 chemicals per group from a total of approximately 100 facilities. Because of the voluntary nature of the program and the limited number of chemicals examined, the data are not collected for most manufactured chemicals. Therefore, data generated from this project would have limited usefulness for initial risk-screening activities. Rather, the data serve to inform the second step of risk characterization, after an initial risk screening. In other words, UEIP provides detailed information on a small number of chemicals for a select number of facilities, but extrapolating from this data set to develop a nationwide picture of use and exposure would be difficult and inadvisable.

- **OPPT** requires that chemical manufacturers and importers report facility identification, manufacturing, use, and exposure information as part of the Primary Assessment Information Rule (PAIR). The type of information collected under the PAIR is similar to the type of information to be collected under the IUR amendments. However, the PAIR information is collected for only a very small, select set of chemicals during each reporting period, and the chemicals that are targeted under PAIR change from year to year based primarily on the priorities of the Interagency Testing Committee. Therefore, the information collected under the PAIR provides only a snapshot of the use and exposure of a small set of chemicals each year rather than a periodically updated record of toxic chemical manufacture, exposure, and use.

B.6 Research and Development Programs and Datasets

- The **Office of Health and Environmental Assessment (OHEA)** maintains the Integrated Risk Information System (IRIS), a database that contains summaries of known hazard data and EPA regulatory information on more than 500 specific chemicals. The database is not linked to chemical use and does not provide site-specific characterizations of workplace exposure scenarios or production volumes.

B.7 State Agency Data Collection Efforts

- **Massachusetts** maintains a database of emission and process information (i.e., quantity produced, process and end product description, and certain chemical identification and property information) from manufacturers, users, and processors within Massachusetts only. This database is part of an effort to reduce toxic wastes in the state (Hope, 1996). The information is collected under the Toxic Use Reduction Act (TURA); however, no exposure information regarding the number of potentially exposed workers or uses of the chemical (e.g., NAICS codes, consumer uses) is collected under TURA (MADEP, 1995).

- **New Jersey** collects production volume and end-use information under the New Jersey state Toxic Catastrophe Prevention Act (TCPA), supporting a risk management program for companies that manufacture, process, possess, or use chemicals above certain chemical-specific threshold levels. The threshold levels are developed for each individual chemical covered under the program based on volatility and toxicity and may range from as low as 100 pounds to greater than 100,000 pounds. The information collected is specific only to production and end uses within the state of New Jersey. Although companies are required to report chemical information as part of the state's risk management program, chemicals shipped in or out of a site as product are not tracked. Information reported primarily relates to release scenarios (i.e., quantity of chemical released from the site into the air or water or as solid/hazardous waste). Additionally, no worker exposure data are collected under this program (Larmee, 1996).

- **Oregon** gathers facility and chemical-specific data on the volume of toxic materials used or brought on-site as part of the Toxics Use Reduction and Hazardous Waste Reduction Act (TURHWRA) of 1989. The primary component of this law is that all facilities in Oregon that report under the Federal Community Right to Know TRI requirements or are hazardous waste generators must develop and submit facility plans to reduce toxic chemicals use and hazardous waste generation. TURHWRA does not contain information on the number of potentially exposed workers or provide detailed information on chemical production or use pathways. However, the requirements under TURHWRA do provide a snapshot of on-site use of toxic chemicals for key facilities in Oregon (Rozell and Brower, 1993; OSPIRG, 1993).

B.8 Other Federal Agencies and Data Collection

- The **Emergency Response Notification System (ERNS)** is maintained by the U.S. Department of Transportation and is used to store information on notifications of releases of oil and hazardous substances into the environment. ERNS combines data from the National Response Center's Database with data from the ten EPA Regions (EPA, 1996a). Release reports are available for (1) substances designated as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended; (2) oil and petroleum products, as defined by the Clean Water Act of 1972 (CWA) and amended by the Oil Pollution Act of 1990; and (3) all other types of materials. Information that can be found in the ERNS database includes, but is not limited to, the following: the material and quantity released, where and when the release occurred, the agency notified, and any information about property damage, injuries, and/or deaths that occurred due to the release. However, there are several limitations to these data. ERNS data are focused on information about releases and not on manufacturing and use of chemicals. Secondly, the data are subject to a certain degree of uncertainty because ERNS contains primarily initial accounts of releases made when exact details are often unknown. Lastly, these data are usually not updated unless an EPA region is involved in the response action.

- The **Occupational Safety and Health Administration (OSHA)** maintains data on the safety and health of workers, including worker exposure to potentially hazardous chemicals used in the workplace. These data focus primarily on site-specific/problematic worker exposures. The data do not contain information regarding the number of workers across an industry that may be exposed to toxic chemicals in the workplace and do not track chemical use information. Further, the data do not track chemicals in every workplace where they may be used and only focus on those where problems may have occurred in the past.

- The **U.S. Consumer Product Safety Commission (CPSC)** collects information on the safety and potential product hazards of more than 15,000 types of consumer products used in and around the home. Generic safety information, such as product labeling and packaging requirements, is collected, but the CPSC does not maintain the type or level of information that will be required under the IURA. It is not within CPSC's jurisdiction to develop information on production volume and actual concentration of a chemical that is contained within a product. CPSC has indicated interest in the information on consumer use and potential exposure to chemicals that EPA will collect under the IURA.

- The **Department of Energy (DOE)** maintains data on natural gas exports and imports, including volume, price, and point of entry or exit of the natural gas. The information is collected and made available to the public quarterly. Data are not collected for natural gas after it moves beyond the importation site or for natural gas that is both produced and used within the United States. Additionally, data are not collected on types of use or exposures and cover only a small subset of the chemicals potentially subject to the IURA reporting (Glynn, 1996). DOE also maintains data on petroleum products at the state level using broad categories such as motor gasoline and residual fuel.

- The **U.S. Geological Survey (USGS)** collects information on over 90 minerals and materials and publishes it in two annual publications, the Mineral Commodity Summaries and the Mineral Yearbook. The Mineral Commodity Summaries provide data sheets on domestic industry structure, government programs, tariffs, and five-year salient statistics for each mineral and material. The Minerals Yearbook, published in three volumes, also includes essential statistical data on minerals and materials and supplements it with local and global production and development information and trends. Data collected in the Minerals Yearbook include production, consumption, technical trends, environmental issues, summary outlooks, and their accompanying narratives. The USGS does not cover those chemical compounds that

are not geological phenomena. They also do not provide information on minerals and materials usage in various production stages or their release to the environment, handling, storage, or transfer. The type and level of environmental information that will be required to be collected under the IURA is beyond the scope of USGS's mission.

- **United Nations Environment Programme (UNEP)** maintains the International Register of Potentially Toxic Chemicals (IRPTC), a database of more than 8,000 chemical profiles covering subject areas ranging from hazard identification to risk assessment. Chemical and product type, use, and production information are among the 17 categories of data entered into the register for each chemical profile. However, the data are international in focus and coverage is spotty. In addition, site-specific information is not included.

B.9 Publicly Available Databases

- Publicly available chemical data sources include chemical industry journals (e.g., *Chemical Engineering News* and the *Chemical Marketing Reporter*), chemical and business directories (e.g., the *Directory of Chemical Produces* and the *Thomas Register*), chemical reference documents (e.g., the *Kirk-Othmer Encyclopedia of Chemical Technology*, *SRI International's Chemical Economics Handbook*, the *Freedonia Market Research* database, and the *Frost & Sullivan Market Intelligence Database*), and publications from chemical trade associations (e.g., the CMA and the American Chemical Society). These sources can sometimes be somewhat useful for characterizing production volume, chemical function, and use category information once individual chemicals have been identified, but this information is often either too general to be used to determine production and use at the plant level or too specific to provide data on industry-wide chemical production. In addition, often the information in these databases is outdated. In general, these sources do not contain the type of worker and consumer exposure information that will be collected under the IURA. Publicly available databases are described in more detail in the EPA report entitled *A Review of Existing Exposure-Related Data Sources and Approaches to Screening Chemicals: A Response to CMA* (EPA, 1998a).

APPENDIX C

DEVELOPMENT OF THE ESTIMATED NUMBERS OF EXPECTED SUBMISSIONS FOR THE CURRENT IUR AND IURA REPORTING

This appendix describes the process used to develop estimates of the number of reports that will be submitted under the IURA. The total number of reports was estimated for several thresholds based on data submitted in 1998 under the current IUR reporting requirements.[1] This appendix describes the input data and data sources that were used as a basis for the estimated number of reports and presents the methodology used to develop the estimates. It also presents the estimated number of reports for each of the options considered.

C.1 Input Data and Methodology

Data compiled from EPA's CUS[2] and EPA's CICIS[3] were used to determine the estimated number of reports expected under the IURA. The categories of input data refer to chemicals reported in the current IUR and organic and inorganic chemicals reported under CICIS. When referring to the CICIS data, organic chemicals refers to all noninorganic chemicals reported under CICIS.

The CUS database was used to determine the total number of reportable chemicals under the IUR, while the CICIS database was used to develop information on the relative number of inorganic chemicals in commerce as compared to the number of organic chemicals. This ratio was then used to estimate the number of reports for inorganic chemicals that will be submitted under the IURA.

C.1.1 Organic Chemicals and Multiple CAS Number Petroleum Stream Chemicals

Data from the CUS database were used to generate the estimates of expected reports for organic chemicals and petroleum stream chemicals. The data are based on the actual numbers of reports, by threshold cut-off, received during the 1998 reporting cycle. These input data include the number of individual reports, the number of discrete chemicals reported, the number of Form Us, and the number of reporting sites. The values were derived for each of the various production volume thresholds to facilitate analysis of the threshold options considered for the IURA. The data are presented in Tables C-1 and C-2.

C.1.2 Inorganic Chemicals

The number of inorganic chemicals likely to be reported under the IURA was derived from the CICIS data presented in Table C-3. The CICIS data are based on data for organic and inorganic chemicals and are presented by the production volume categories used in the original data collection.

---

[1]Data maintained by EPA in the CUS database system.

[2]The CUS databases maintained by the Agency contain information collected under the IUR every four years. Four data collection cycles have been completed—1986, 1990, 1994, and 1998. The databases contain information on company and chemical identification, site location, and annual production volume. The 2002 reporting cycle concludes in December 2002 and resulting information will be available in 2003.

[3]The Chemicals in Commerce Information System (CICIS) database maintained by the Agency contains information collected by EPA on chemicals in commerce in the United States in 1977. The data include company and chemical identification, site location, manufactured or imported status, and production volume in ranges for both organic and inorganic chemicals. The TSCA Inventory of chemicals is updated twice a year based on information from the Master Inventory File, which is maintained by CAS. Chemicals are added periodically to the Master Inventory File through the New Chemicals Program.

Table C-1. Organic Chemicals Reporting Data from EPA's CUS Database (1998)

Threshold (lbs)	Reports	Discrete Chemicals	Form Us	Sites
Total Reported	20,840	8,569	3,860	2,122
PV >25K	17,557	7,326	3,711	2,039
PV >100K	12,946	5,445	3,387	1,828
PV >300K	9,759	3,977	2,776	1,619
PV >500K	8,535	3,382	2,724	1,521
PV >1M	7,052	2,669	2,390	1,398

Source: CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

Table C-2. Multiple CAS Number Petroleum Stream Chemicals Reporting Data from EPA's CUS Database (1998)

Threshold (lbs)	Reports	Discrete Chemicals	Form Us	Sites
Total Reported	4,830	426	478	464
PV >25K	4,703	422	456	443
PV >100K	4,535	417	414	404
PV >300K	4,416	412	381	372
PV >500K	4,364	412	368	360
PV >1M	4,296	409	356	248

Source: CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

Those reported production volume categories are different than those required to evaluate the various IURA options. Therefore, it was necessary to manipulate the data to reflect the thresholds examined by the IURA reporting options (e.g., greater than 10,000 pounds, greater than 25,000 pounds, greater than 300,000 pounds). To perform this manipulation, the ratio of inorganic chemicals to organic chemicals in the CICIS data for each reported threshold was applied to the projected numbers of chemicals and reports developed from the CUS 1998 data, generating the numbers of reports and chemicals for inorganic chemicals corresponding to the IURA threshold categories.

C.2 Estimated Number of Reports in Future Reporting Cycles

Estimates of the number of reports expected under the IURA in future reporting cycles were generated based on CUS data from 1998. Because the number of reports has remained fairly constant over time and 1998 is the most recent submission period, it was assumed that 1998 is a representative

Table C-3. Reporting Data From EPA's CICIS Database (1986)

Threshold (lbs)	Inorganic Chemicals			Organic Chemicals		
	Reports	Discrete Chemicals	Sites	Reports	Discrete Chemicals	Sites
PV <1K	6,338	2,595	811	52,799	32,520	2,433
PV 1K–10K	1,364	649	458	11,219	7,557	1,391
PV 10K–100K	1,614	651	660	11,586	7,352	1,709
PV 100K–1M	2,103	621	985	8,568	4,933	2,073
PV 1M–10M	2,115	497	1,211	5,661	2,532	2,011
PV 10M–50M	1,539	283	987	3,624	1,069	1,477
PV 50M–100M	616	148	462	1,595	431	792
PV 100M–500M	1,292	150	758	3,421	436	1,008
PV 500M–1B	333	64	270	1,261	184	421
PV >1B	408	52	239	1,589	169	370

Source: CICIS Database. 1986. Information from the Chemical in Commerce Information System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

year. The number of reports from the past four reporting cycles is presented in Table C-4.

Table C-4. Number of Reports Submitted Under the IUR in 1986, 1990, 1994, and 1998

Submission Period	Number of Reports
1986	26,250
1990	25,535
1994	25,058
1998	26,667
Average	25,878

Source: CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

The CICIS data were used to determine a ratio of the historical number of organic chemicals to the number of inorganic chemicals. This ratio, when applied to the information available through the CUS database, enabled EPA to estimate the expected number of inorganic chemicals that would be reported under the IURA. First, the number of discrete inorganic chemicals was estimated as if these chemicals had been reported in 1998. This was accomplished by multiplying the ratio of inorganic to organic chemicals reported to the CICIS database in 1986 by the total number of chemicals reported to the CUS database in 1998 (see Eq. [C.1]). This estimate (i.e., the number of discrete inorganic chemicals in 1998) was then used to determine the number of *reports* for inorganic chemicals as if they had been reported in 1998, based on the ratio of inorganic reports to inorganic chemicals in the 1986 CICIS data (see Eq. [C.2]). Based on this methodology, estimated numbers of discrete chemicals and reports for inorganic chemicals were developed, as presented in Table C-5.

Table C-5. Estimated Number of Chemicals and Reports Expected for Inorganic Chemicals[a]

Threshold (lbs)	Total Number of Discrete Chemicals Reported to the CUS in 1998	Inorganic Discrete Chemicals (Estimated as if reported in 1998)	Inorganic Reports (Estimated as if reported in 1998)
PV >10K	8,915	1,284	5,216
PV >25K	7,754	1,117	4,537
PV >100K	5,868	845	3,433
PV >300K	4,395	633	2,571
PV >500K	3,800	547	2,223
PV >1M	3,084	444	1,804

[a]Numbers may not calculate exactly because of rounding.

Sources: CUS Database. 2000. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

CICIS Database. 1986. Information from the Chemical in Commerce Information System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC.

U.S. EPA estimates.

Determination of the Estimated Number of Discrete Inorganic Chemicals as if Reported in 1998

$$IC_1 = (IC_2/OC_2) \times OC_1 \quad \text{(C.1)}$$

Determination of the Estimated Number of Inorganic Chemical Reports as if Reported in 1998

$$RIC_1 = (RIC_2/IC_2) \times IC_1 \quad \text{(C.2)}$$

IC_1 = Estimated number of discrete inorganic chemicals as if reported in 1998
IC_2 = Discrete inorganic chemicals reported to the CICIS database
OC_1 = Total number of discrete chemicals reported to the CUS (organic and multiple CAS number petroleum stream chemicals)
OC_2 = Discrete organic chemicals reported to the CICIS database
RIC_1 = Estimated number of reports for inorganic chemicals as if reported in 1998
RIC_2 = Reports for inorganic chemicals reported to the CICIS database
Ratios[4]: $(IC_2)/(OC_2)$ = CICIS inorganic chemicals/organic chemicals = 0.144
$(RIC_2)/(IC_2)$ = CICIS inorganic reports/inorganic chemicals = 4.063

[4]Ratios were calculated using data for production volumes greater than 10,000 pounds.

C.2.1 Calculation of Total Expected Numbers of Reports Under the IURA

The IURA will require reporting for both organic and inorganic chemicals and will provide a partial exemption for certain chemicals (e.g., multiple CAS number petroleum stream chemicals) from reporting requirements. Eq. (C.3) was used to calculate the total number of reports expected under the IURA for all types of subject chemicals:

Determination of the Total Expected Number of Reports

$$T = ROC_1 + RIC_1 + RPS_1 \quad \text{(C.3)}$$

T	=	Total expected number of reports
ROC_1	=	Reports for organic chemicals
RIC_1	=	Reports for inorganic chemicals
RPS_1	=	Reports for petroleum stream chemicals

APPENDIX D

BASELINE COSTS

D.1 Industry Baseline Costs

The costs of reporting under the current IUR are defined as the "baseline" costs. These costs consist of the four steps for compliance with the requirements of the rule, as defined in Section 3.1.1.1: (1) compliance determination; (2) rule familiarization; (3) preparation and submission of reports, including CBI determination and substantiation; and (4) recordkeeping.

Costs associated with compliance determination and rule familiarization are incurred by each site, regardless of the number of reports submitted. Costs for preparation and submission of reports, as well as recordkeeping costs, are incurred separately for each report that is submitted. The current reporting form, the Form U, may consist of a number of individual chemical reports from one site (see discussion in Section 3.1.1.3). Table D-1 presents the baseline burden[1] of compliance determination per site of between one and four technical staff hours for organic chemicals (including petroleum process stream chemicals). These burden estimates are presented as a range to reflect the variation in the reporting community. Sites that produce fewer chemicals may only need one hour to determine compliance, while sites that produce numerous chemicals may require up to four hours (EPA, 1990). The baseline cost of compliance determination is between $65.96 and $263.84 per site for organic chemicals. Inorganic chemicals are not required to report under the current IUR; therefore, the baseline burden and cost of all reporting requirements are zero for this chemical type. Table D-2 presents the baseline burden of rule familiarization per site of two technical and two managerial staff hours for organic chemicals and partial exemption chemicals. The total cost of rule familiarization is $323.02 per site for organic chemicals.

Table D-3 presents the cost of report preparation and submission for the current IUR. As the table indicates, burden is distributed by labor category among the three parts of the Form U.[2] The total cost is estimated to be between $461.51 and $681.09 per report. It should be noted that the baseline burden estimates for site identification information are not equivalent to those presented in Table 3-2. This is because of the difference in the number of reports per Form U under the baseline versus the amendments,[3] and because of adjustments made to account for the additional information required under the IURA.

Table D-4 presents the per-report recordkeeping burden for the current IUR. Estimated burden is between 0.5 hour and 1 hour of clerical staff time, 1 and 2 hours of technical staff time, and 0.5 hour and 1 hour of managerial staff time. Total cost of recordkeeping is between $127.42 and $254.84 per report.

---

[1]Note that the analysis of burden is segmented between organic chemicals and inorganic chemicals to indicate the differential impact of the IURA on the reporting requirements for each chemical type.

[2]The current Form U does not include Part III; therefore, the baseline burden for this category is zero.

[3]The time required to report this information was assumed to be incurred per form and was therefore allocated across all the chemicals reported on an average form to obtain per-chemical costs associated with this information. Thus, different numbers of reports per form lead to different per-report costs.

Table D-1. Baseline Cost of Compliance Determination (2000$)

	Clerical ($27.37)		Technical ($65.96)		Managerial ($95.55)	
	Low	**High**	**Low**	**High**	**Low**	**High**
Organic Chemicals (including Petroleum Process Stream Chemicals)						
Burden per Site (hours)	0	0	1	4	0	0
Cost per Site ($)	$0.00	$0.00	$65.96	$263.84	$0.00	$0.00
Total Cost for Compliance Determination per Site	$65.96–$263.84					
Inorganic Chemicals						
Burden per Site (hours)	0	0	0	0	0	0
Cost per Site ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Cost for Compliance Determination per Site	$0.00–$0.00					

Table D-2. Baseline Cost of Rule Familiarization (2000$)

	Clerical ($27.37)		Technical ($65.96)		Managerial ($95.55)	
	Low	**High**	**Low**	**High**	**Low**	**High**
Organic Chemicals (including Petroleum Process Stream Chemicals)						
Burden per Site (hours)	0	0	2	2	2	2
Cost per Site ($)	$0.00	$0.00	$131.92	$131.92	$191.10	$191.10
Total Cost for Rule Familiarization per Site	$323.02–$323.02					
Inorganic Chemicals						
Burden per Site (hours)	0	0	0	0	0	0
Cost per Site ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Cost for Rule Familiarization per Site	$0.00–$0.00					

Table D-3. Baseline Cost of Report Preparation and Submission[a] (2000$)

	Clerical ($27.37)		Technical ($65.96)		Managerial ($95.55)	
	Low	**High**	**Low**	**High**	**Low**	**High**
Reporting Form Part (hours)						
I. Site ID	0.38	0.70	0.90	0.98	1.01	1.08
II. Manufacturing Information	0.75	0.81	3.05	4.41	0.77	1.89
III. Processing and Use Information	0.00	0.00	0.00	0.00	0.00	0.00
Total Hours per Report	1.13	1.51	3.95	5.39	1.78	2.98
Costs per Report	$31.03	$41.36	$260.74	$355.22	$169.74	$284.50
Total Cost for Report Preparation and Submission per Report	$461.51–$681.09					

[a] For sites reporting under the current IUR.

Source: Table 3-1 and Table 3-2.

Table D-4. Baseline Cost of Recordkeeping (2000$)

	Clerical ($27.37)		Technical ($65.96)		Managerial ($95.55)	
	Low	**High**	**Low**	**High**	**Low**	**High**
Organic Chemicals (including Petroleum Process Stream Chemicals)						
Burden per Site (hours)	0.5	1	1	2	0.5	1
Cost per Site ($)	$13.68	$27.37	$65.96	$131.92	$47.78	$95.55
Total Cost for Recordkeeping per Report	$127.42–$254.84					
Inorganic Chemicals						
Burden per Site (hours)	0	0	0	0	0	0
Cost per Site ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Cost for Recordkeeping per Report	$0.00–$0.00					

The total cost of compliance was estimated by summing the costs of individual compliance determination, rule familiarization, report preparation and submission, and recordkeeping activities. Each of the individual component costs was calculated by multiplying the cost per site or report by the total number of sites or reports, depending on whether the cost is incurred on a per site or per report basis. The total industry baseline cost associated with the current IUR requirements has been calculated based on the number of submissions (26,365) received with reported production volumes above 10,000 pounds during the 1998 reporting period from 2,666 sites.[4] The baseline total cost is estimated to be between $16.6 and $26.2 million. These costs are presented in Table D-5.

Table D-5. Baseline Cost of Compliance (2000$)

Compliance Task	Unit of Analysis	Cost per Unit		Number of Units	Total Industry Cost (millions$)	
		Low	High		Low	High
Compliance Determination	Site	$65.96	$263.84	2,666	$0.2	$0.7
Rule Familiarization	Site	$323.02	$323.02	2,666	$0.9	$0.9
Report Preparation and Submission	Report	$461.51	$681.09	26,365	$12.2	$18.0
Recordkeeping	Report	$127.42	$254.84	26,365	$3.4	$6.7
Total					**$16.6**	**$26.2**

Source: Tables D-1, D-2, D-3, and D-4.

Table D-6 presents first-year industry costs, present value, and annualized costs for the current IUR. Using a discount rate of three percent, the present value for reporting under the current IUR over a 20-year period is estimated to be between $64.4 million and $102.0 million, with an annualized cost of $4.3 million to $6.9 million. If a discount rate of seven percent is used, the present value decreases to between $48.4 million and $76.7 million, while the annualized cost increases slightly to between $4.6 million and $7.2 million.

D.2 Baseline Agency Costs

To estimate the cost of tasks performed by Agency personnel, the number of full time equivalents (FTEs) and the GS-level required to perform each task were determined. The salary rates were taken from the 2000 General Schedule Locality Rates of Pay for Washington-Baltimore, DC-MD-VA-WV from the U.S. Office of Personnel Management (OPM, 2000). The salary rates are presented in the OPM table by GS-level and Step. For this analysis, a Step 3 is assumed for all FTEs.

The current IUR requires one FTE, GS-12 at a salary of $54,618 to perform quality control of data entry. One FTE, GS-13 at a salary of $64,949 is required to perform data processing, systems development, and contract oversight and management. The annual cost of tasks performed by Agency personnel sums to two FTEs for a total of $119,567. In addition, 0.5 FTE, GS-13 at a salary of $32,475 is required to oversee the development of a guidance document for the IUR. The cost associated with this

[4]A total of 26,667 submissions were received during the 1998 submission period. This total includes some reports for chemicals produced below 10,000 pounds, which some companies voluntarily submitted. Removing reports for chemical submissions that do not meet the 10,000 pound threshold results in 26,365 reports.

Table D-6. Baseline First Year, Present Value, and Annualized Costs According to Chemical Type (million 2000$)

Type of Chemical	First Year Cost		Present Value		Annualized Cost	
	Low	High	Low	High	Low	High
3 Percent Discount Rate						
Organic Chemicals (including Petroleum Process Stream Chemicals)	$16.6	$26.2	$64.4	$102.0	$4.3	$6.9
Inorganic Chemicals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total	**$16.6**	**$26.2**	**$64.4**	**$102.0**	**$4.3**	**$6.9**
7 Percent Discount Rate						
Organic Chemicals (including Petroleum Process Stream Chemicals)	$16.6	$26.2	$48.4	$76.7	$4.6	$7.2
Inorganic Chemicals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total	**$16.6**	**$26.2**	**$48.4**	**$76.7**	**$4.6**	**$7.2**

task is a one-time cost. After accounting for fringe benefits and overhead, Agency personnel tasks cost $197,250 annually, with a one-time cost of $53,573 (IMD, 1996; EPA, 1996b).[5]

Extramural tasks are described as those performed by contractors. Under the current IUR, annual document receipt and tracking and data entry costs amount to $42,642; backup systems operations costs are $26,651, annually. Hence, the total annual costs associated with extramural tasks for the current IUR are equal to about $69,293. In addition, hardware and software costs, systems development, and the development of a guidance document for the current IUR represented a one-time cost of approximately $282,000 (IMD, 1996; EPA, 1996b).

Additional tasks include publication and printing of forms and materials, provision of supplies and materials for the hotline, staffing, and costs associated with mailings. IUR informational materials that will need to be printed include guidance documents, policy letters, and current and past forms. The hotline staff (contractor) are responsible for responding to phone calls, faxes, letters, and e-mail regarding questions about the IUR and requests for materials. In addition, the hotline staff perform all activities associated with mailing requested materials and bulk mailings.

Under the current IUR, it is estimated that the cost of publishing forms, developing other materials, including guidance documents and policy letters, is approximately $1,066 annually. In addition, approximately 7 percent of the calls received and handled by the TSCA hotline can be attributed to the IUR. Therefore, the portion of hotline costs that are attributable to the IUR is estimated to be about

[5]Based on an additional 41 percent of the salary for fringe benefits and 17 percent of the salary plus fringe benefits for overhead (EPA, 1997a).

7 percent of the hotline budget, or approximately $42,855, annually. Costs associated with preparing mailings in response to information requests under the current IUR are approximately $426 annually. This cost is based on approximately 21 mailings per month at a cost of $1.60 each. Therefore, the total estimated cost for providing supplies and materials, as well as operating the hotline to handle IUR related calls, is estimated to be $44,347 (EPA, 1996d; EPA, 1998b).

Baseline Agency costs are divided into two categories: total annual costs and total one-time costs. The total one time costs under the current IUR are sunk costs. The annual costs of the current IUR are incurred each calender year. The total annual costs under the current IUR are presented in Table D-7.

The total annual cost associated with the current IUR is approximately $310,890. This cost includes the cost of Agency tasks (quality control of data entry, data processing, systems development, and contract oversight and management); extramural tasks (document receipt and tracking, data entry, and backup systems operations); and additional tasks (publication and printing forms and materials, the hotline, and mailings). The total one-time cost of $354,197 is attributable to guidance document development and costs associated with systems hardware and software, as presented in Table D-8 (IMD, 1996; EPA, 1996b).

For calculation of the present value over a 20-year time period, the one-time costs were considered to occur in the first year. The annual costs are assumed to occur in each calendar year. Using a three percent discount rate, the present value of Agency costs under the current IUR over a 20-year time period is estimated to be about $5.0 million and the annualized cost is approximately $334,000. With a seven percent discount rate, the present value of Agency costs decreases to approximately $3.4 million while annualized costs increase to about $342,000.

Table D-7. Estimated Annual Agency Costs for the Current IUR

Task	Current IUR Costs
Tasks Performed by Agency Personnel	
Quality Control of Data Entry	$90,103 (1 FTE, GS-12)
Data Processing, Systems Development, and Contract Oversight and Management	$107,146 (1 FTE, GS-13)
Subtotal	**$197,250**
Extramural Tasks (contractor)	
Document Receipt and Tracking and Data Entry	$42,642
Backup Systems Operations	$26,651
Subtotal	**$69,293**
Additional Tasks	
Publication and Printing Forms and Materials	$1,066
Hotline	$42,855
Mailing	$426
Subtotal	**$44,347**
Total Annual Cost	**$310,890**

Note: All costs associated with FTEs include 41 percent fringe benefits and 17 percent overhead.

Sources: Office of Personnel Management (OPM). 2000. "2000 General Schedule Locality Notes of Pay for Washington-Baltimore, DC-MD-VA-WV." <http://www.opm.gov/oca/2000tbls/GSannual/html/GSDCB.HTM> As obtained on May 30, 2000.
U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.
Information Management Division (IMD). 1996. Questions for Branches within OPPT with Responsibility for IUR Data Collection, Processing, and Storage. Information Management Division, U.S. Environmental Protection Agency, Washington, DC.
U.S. Environmental Protection Agency. August 29, 1996d. Transcribed Telephone Conversation with Ruth Heikkinen on Hotline and Mailing Costs, Office of Pollution Prevention and Toxics.
U.S. Environmental Protection Agency. July 30, 1996b. IUR Amendments—Agency Costs Question. Memorandum from Ward Penberthy to Susan Krueger, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency.

Table D-8. Estimated One-Time Agency Costs for the Current IUR[a]

Task	Current IUR Costs
Tasks Performed by Agency Personnel	
Guidance Document Development	$53,573 (0.5 FTE, GS-13)
Subtotal	**$53,573**
Extramural Tasks (contractor)	
Systems Development	$202,548
Hardware and Software	$44,774
Guidance Document Development	$53,302
Subtotal	**$300,624**
Total One-Time Cost	**$354,197**

Note: All costs associated with FTEs include 41 percent fringe benefits and 17 percent overhead.

[a] Systems development, hardware/software, and guidance document development costs under the current IUR are considered to be sunk costs and are not included in the estimates of total costs associated with the current IUR. These costs are presented, however, for the purposes of developing incremental costs for the IURA relevant to current requirements. These one-time costs total $328,515.

Sources: U.S. Environmental Protection Agency. July 30, 1996b. IUR Amendments—Agency Costs Question. Memorandum from Ward Penberthy to Susan Krueger, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency

Office of Personnel Management (OPM). 2000. "2000 General Schedule Locality Notes of Pay for Washington-Baltimore, DC-MD-VA-WV." <http://www.opm.gov/oca/2000tbls/GSannual/html/GSDCB.HTM> As obtained on May 30, 2000.

Information Management Division (IMD). 1996. Questions for Branches within OPPT with Responsibility for IUR Data Collection, Processing, and Storage. Information Management Division, U.S. Environmental Protection Agency, Washington, DC.

U.S. Environmental Protection Agency. April 1997a. *Economic Analysis of the Final Rule to Add Certain Industry Groups to EPCRA Section 313*. Office of Pollution Prevention and Toxics, Regulatory Impacts Branch.

APPENDIX E

INDUSTRY SURVEY RESULTS

During the spring/summer of 1996, the Agency conducted a survey (under Office of Management and Budget clearance #2070-0034) to assess the potential burden associated with reporting for the proposed IURA under TSCA §8.[1] The survey was distributed to previous IUR reporters selected from the CUS database.[2]

The survey was designed to collect information regarding the amount of labor required to complete each task identified in the proposed IURA. Survey respondents were asked to estimate the burden associated with collecting various data for each of three labor categories: clerical, technical, and managerial. The results of this survey provide the basis for determining the burden associated with the proposed IURA. All analysis presented in this appendix focuses on the burden associated with completing the full reporting form. The analysis in Section 3 of this report further dissagregates the data to estimate the burden associated with reports covering only part of the reporting form (i.e., site identification and manufacturing information). This appendix presents an overview of the results of the survey. It describes the survey, the draft reporting form, and the survey respondents. It discusses the estimates of industry reporting burden per chemical, including the calculation of the mean total industry reporting burden and the total reporting burden for large, medium, and small companies. Finally, the section presents average reporting parameters for the survey participants, including the number of sites per company producing a reportable chemical, number of processing and use sites, and the number of end uses.

E.1 Introduction

The survey was administered to 81 companies over a period of four months, from March through June 1996. The survey was sent to potential respondents along with a copy of the draft reporting form and instructions. Potential respondents were informed that participation was voluntary. Attachment 1 provides a copy of the survey and Attachment 2 contains a copy of the draft reporting form sent with the survey.[3] Participants were asked to estimate the amount of time that would be required to report distinct pieces of information about the manufacture and use of TSCA inventory chemicals. The following sections describe the industry burden survey and the survey results.

E.1.1 Survey Description

The survey was developed based on a preliminary draft reporting form incorporating the IURA as well as the current reporting requirements. Generally, the survey was structured so that each question corresponded to a data element on the reporting form. Most of the questions requested estimates of the amount of time that the reporting company would need to compile specific information concerning a typical chemical produced at their site, dividing the time among clerical, technical, and managerial staff. Additional questions asked for information about the number of reportable chemicals produced at a given site and the number of sites producing a reportable chemical, as well as the number of processing and use

[1]The survey was conducted for EPA by ICF Incorporated, an EPA contractor supporting TSCA initiatives. This work was performed under EPA Contract No. 68-02-0064.

[2]EPA maintains the CUS database to track IUR information.

[3]Appendix A contains a copy of the revised draft reporting form as of publication of the Final Rule. This form is different than the one used for the survey.

sites and the number of end uses of a typical chemical. These ancillary questions were designed to develop a better understanding of the reporting parameters and to assist in properly interpreting the results of the reporting burden questions.

In addition to providing answers for each survey question, participants were encouraged to provide comments regarding the survey, the reporting form, and the processes that would be used by the company to complete the reporting form. The Agency considered these comments during the development of the IURA and in redesigning the reporting form.

E.1.2 Draft Reporting Form Description

The survey was developed from a preliminary version of the revised Form U (i.e., the IURA reporting form) covering both the current IUR reporting requirements and the changes associated with the IURA. The draft reporting form used in this survey is different from the revised form required under the IURA; however, the data elements are similar. The draft form used in the survey was divided into five parts, as follows:

- Part 1—Site Identification Information
- Part 2—Chemical Specific Information
- Part 3—Information on Chemical Processing—Incorporative Activities
- Part 4—Information on Chemical Use—Non-Incorporative Activities
- Part 5—Known Commercial and Consumer End Uses of Chemical

Generally, the information included in Parts 1 and 2 of the reporting form corresponds to the information collected under the current IUR, supported by the addition of three data elements regarding company information, plant site identification, and manufacturing information. Parts 3 through 5 of the amended reporting form include the chemical processing and use information that constitutes the majority of new requirements under the IURA[4]

The current IUR requires that certain basic production and manufacturer identification information be provided. The specific data required are as follows:

- **Certification** including a signature, date, and name and title of the representative responsible for the accuracy of the information provided;
- **Company Information** including technical contact name, company name, company street address, and telephone number;
- **Plant Site Identification** including plant site name, Dun & Bradstreet number, and plant site street address;
- **Chemical-Specific Information** including chemical identity CBI substantiation, CAS number or other identifying number, ID code, chemical name, site-limited status, activity (manufacturing or import), and production volume; and

[4]In the current version of the Form U required under the IURA, there is no longer a distinction between incorporative and nonincorporative uses.

- **Confidential Business Information** including up-front substantiation of CBI claims for chemical identity information and substantiation of CBI claims in the event of a Freedom of Information Act (FOIA) request.

In addition to the information required for the current IUR, the IURA final rule requires information on worker exposure and use, as well as limited new information relating to plant site identification. The information to be collected under the IURA is as follows:

- **Company Information** adding the company Dun & Bradstreet number and mailing address;
- **Plant Site Identification** adding the county location of the plant site and the plant site mailing address and provision of CBI substantiation;
- **Manufacturing Information** adding the confidentiality status of the production volume range, number of workers potentially exposed during manufacturing, the physical state of the chemical, and the maximum concentration of the chemical when manufactured;
- **Industrial Processing and Use Exposure Related Information** adding information regarding processing and use of the chemical, including process or use codes, five-digit NAICS codes, industrial function categories, percentage production volume, site-limited status, number of sites (in ranges), and number of potentially exposed workers (in ranges);
- **Consumer and Commercial End-Use Exposure Related Information** adding commercial/consumer end-use categories including whether the chemical is intended for children's use, percentage production volume, and maximum concentration (in ranges) of the chemical in the commercial/consumer end use; and
- **Confidential Business Information** adding up-front substantiation of CBI plant site identification claims.

E.1.3 Discussion of Survey Respondents

Potential participants in the survey were identified through EPA's CUS database, which contains data collected under the current IUR. Companies were then grouped by size using information from Dun & Bradstreet's Dun's Market Identifiers online service. A stratified random sampling method was employed to ensure that a representative cross-section of the chemical manufacturing industry was surveyed. The stratification of the chemical manufacturing industry into small, medium, and large manufacturers was based on the annual sales of the parent company.[5] A total of 207 companies were sent a copy of the survey with a cover letter requesting that they participate in the survey. An attempt was made to contact each company by telephone to confirm the contact information and coordinate a telephone appointment to administer the survey instrument.

Of the companies contacted, 81 chose to participate in the survey. Three of these companies' responses are not included in the burden estimates because their results indicated a burden more than 19 times greater than the average burden estimated by all other survey respondents (see Section E.2 of this appendix for further discussion). The 78 remaining survey respondents included 20 small, 17 medium, and 41 large companies, 25.6 percent, 21.8 percent, and 52.6 percent, respectively. The distribution of

[5]Small companies were identified as having annual sales less than or equal to $40 million, medium-sized companies have annual sales greater than $40 million and less than or equal to $200 million, and large companies have annual sales greater than $200 million.

small, medium, and large companies that report to the IUR, based on the CUS 94 database, compares favorably to the distribution of companies that participated in the survey. Based on the CUS 94 database, the distribution of companies reporting to the IUR in 1994 was approximately 21 percent small companies, 21 percent medium companies, and 58 percent large companies. Table E-1 presents a comparison of these results.

Table E-1. Distribution of Survey Participants and IUR Reporters By Company Size

	Company Size (Percent)			
	Small	**Medium**	**Large**	**Total**
Survey Participants	25.6	21.8	52.6	100
IUR Reporters	21.1	21.2	57.7	100

Of the remaining 126 companies that were sent the survey but did not participate, 20 declined to participate, 5 determined that the survey was not applicable to their business, and 32 could not be contacted because of incomplete or out-of-date contact information. The remaining 69 companies either did not acknowledge phone calls or did not find a convenient appointment time to complete the survey. For the most part, individual survey results were compiled over the telephone so that definitions could be explained in a consistent manner to all participants and unique interpretations of the survey questions could be avoided. Several survey participants chose not to review the survey over the telephone and mailed a completed survey to either the Agency[6] or to ICF Incorporated (the Agency's contractor for this work). Responses from these companies were included in the data set.

Following completion of the interview process, the survey responses were entered into a Paradox© database maintained by ICF Incorporated. Queries of the data were prepared and executed to determine average reporting burden estimates and average reporting parameters for the survey participants.

E.2 Reporting Burden Survey Results

Reporting burden results are the answers to those questions directly relating to the amount of effort required to complete Form U for a typical chemical. Results are presented in four ways: for all reporters, for small company reporters, for medium company reporters, and for large company reporters.

In general, the breakdown of small, medium, and large companies in the set of survey participants accurately reflects the actual breakdown of reporters under the current IUR in the chemical manufacturing industry as a whole. The following sections discuss the methodology for estimating the average industry burden associated with the proposed IURA; the distribution of small, medium, and large companies within the set of survey participants and within the set of reporters under the current IUR; and a comparison of the average estimated reporting burdens for small, medium and large companies.

[6]Surveys sent to the Agency were identified as such and transferred directly to ICF.

E.2.1 Methodology for Calculation of the Reporting Burdens

The survey results were compiled and reporting burdens calculated separately for small, medium, and large firms to determine the effect that company size may have on the level of effort required to develop IURA data and the average numbers of sites, chemicals, and reports per company.

High and low burden estimates for each survey data element were provided by respondents. Some elements were provided on a subchemical level. For example, several survey questions requested a burden estimate for a single SIC code (now NAICS code)–function code combination. The high and low burden estimates for these questions were multiplied by the corresponding number of combinations reported per chemical to obtain burden estimates at the per chemical level.[7] The high estimates were used to develop an average high estimate for each data element. The same methodology was used to develop an average low estimate for each data element. Each average high estimate was then weighted to reflect the correct distribution of small, medium, and large companies (according to the CUS database). The same was done for each average low estimate. Because firms no longer have to report information for incorporative use, nonincorporative use, and repackaging categories separately as they did at the time of the survey, the burdens for reporting the data elements under Sections 3 and 4 of the survey are assumed to be lower than the sum of the time required for these three categories. EPA concluded that the best estimate of the time required to report the common data elements of these three categories was the maximum time required among incorporative, nonincorporative, and repackaging to report a given data element. This is because data elements no longer have to be reported for multiple categories, which implies the total time required to report a data element should be relatively close to the time reported on the original survey for completing a data element for a single category of the original survey.[8] Weighted average high burden estimates for each data element were then added together to yield a high total burden estimate for completing the entire form. Similarly, weighted average low burden estimates were then added together to yield a low total burden estimate.

It is important to note that, although the IURA only require that industry report "reasonably ascertainable" information for most data elements and "readily available" information for downstream processing and use information, the survey that respondents completed did not mention these standards. Thus, survey respondents were reporting burden estimates assuming a higher standard of information than EPA will require. In addition, the UEIP program, which asked respondents to report chemical information very similar to that required by the IURA, also asked respondents to report the time spent preparing the UEIP form for submission (EPA, 1997b). Companies reported a median burden of 8 hours per chemical report, with a mean of 12 hours per chemical report. Both of these factors indicate that the burden estimates derived from the survey may overestimate the actual burden.

E.2.2 Overall Burden Results

Survey results indicate that 45 percent of the companies reported a total per-chemical reporting burden of between 0 and 50 hours for preparing and submitting a full report in the first reporting year.

---

[7]The number of SIC code–function code combinations per chemical was capped at ten because EPA only requires the top ten combinations to be reported.

[8]It is assumed that it is no more time consuming to report a data element for chemical use across all categories than to report that element for either incorporative or nonincorporative use alone.

Another 17 percent reported an average per-chemical reporting burden of between 50 and 100 hours, 17 percent reported an average burden of between 100 to 200 hours, 6 percent reported an average burden of between 200 and 300 hours, and 15 percent reported an average burden greater than 300 hours. As mentioned above, three of these companies provided burden estimates that were extremely large relative to the rest of the respondent population. These three companies provided burden estimates 16, 46, and 115 times greater than the average high burden estimate for medium and large companies. While there is no clear rule on removing outliers, EPA looked for a significant break that would indicate a problem with the responses. Statistically, these outliers are significant anomalies that could have serious impacts on the survey results, and EPA has determined that these responses are outside reasonable limits. For example, one of these three respondents estimated that it would take 12 hours to fill out their address, and 26 hours to fill in a 12-character ID number. Another estimated 780 hours to find the consumer uses of a single chemical. The third estimated 902 hours to report the percentage of production volume of a single chemical that goes to consumer uses. Figure E-1 shows the distribution of companies based on total estimated reporting burden hours.

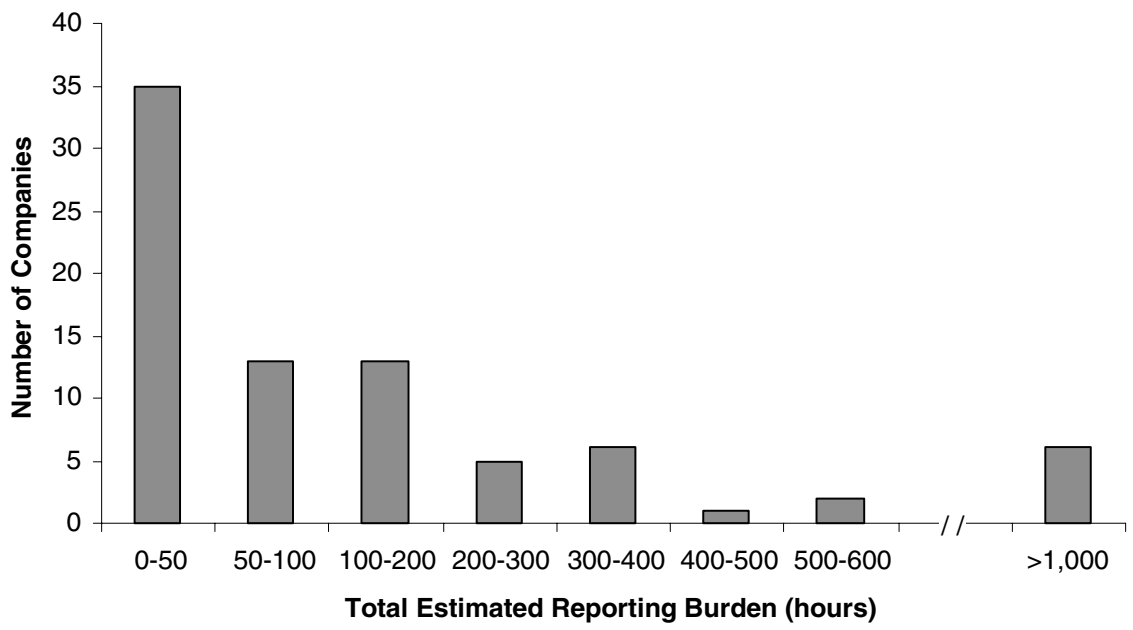


Figure E-1. Distribution of Companies Based on Total Estimated Reporting Burden Hours

EPA has no knowledge of the reasons for the disparity in the responses of these firms, but possible explanations include that the respondents misunderstood the survey instructions or that there was an error in data entry by EPA's contractor. For example, the survey respondents may have been unaware, despite repeated instructions, that the survey applied to a single chemical, not to all chemicals produced at

a site. It is not appropriate for EPA to include such responses in either of these cases. The following three sections describe the burden results for a full Form U for small, medium, and large companies.

E.2.2.1 Small Company Burden Results

The average reporting burden for small companies under the amendments was 46.6 to 47.9 hours per report. On average, small companies estimated 3.3 hours of clerical time, 37.7 to 39.0 hours of technical time, and 5.6 hours of managerial time for each report. Burden results for individual data elements, as estimated by small companies, are shown in Table E-2.

E.2.2.2 Medium Company Burden Results

The average reporting burden for medium companies under the amendments was 144.4 to 150.9 hours per report. On average, medium companies estimated 22.0 to 25.3 hours of clerical time, 86.2 to 87.7 hours of technical time, and 36.2 to 37.9 hours of managerial time for each report. Burden results for individual data elements, as estimated by medium companies, are shown in Table E-3.

E.2.2.3 Large Company Burden Results

The average reporting burden for large companies under the amendments was 102.7 to 123.5 hours per report. On average, large companies estimated 9.9 to 11.6 hours of clerical time, 66.7 to 79.8 hours of technical time, and 26.2 to 32.1 hours of managerial time for each report. Burden results for individual data elements, as estimated by large companies, are shown in Table E-4.

E.2.2.4 Reporting Parameters Results and Discussion

This section presents the reporting parameters used as a means of providing a better understanding of the relationship between sites and chemicals being reported. Two questions on the survey requested information aimed at better characterizing the reporting burden for an average company and an average site. The first of these questions asked for the number of sites that manufacture the same chemical subject to IUR reporting. The second question asks for the number of IUR chemicals that are manufactured at a typical site. Averaged values for responses to these survey questions have been developed by weighting according to the stratification of the reporters under the 1994 IUR reporting period. The results are discussed in Sections E.2.2.4.1 and E.2.2.4.2 below.

In addition to the questions mentioned above, Sections 3 through 5 of the survey asked participants to estimate the number of incorporative use sites, nonincorporative use sites, and end uses for a typical chemical that would be reported under the IURA. These sections include Chemical Processing, Chemical Use, and Known Commercial and Consumer End Uses of the Chemical, respectively, and can be further interpreted based on the results of the average reporting parameters developed in the survey. The total burden estimates for Section 3 of the draft reporting form, covering information on incorporative uses of the chemical, can be divided by the number of incorporative use sites to determine the relationship between total burden and number of sites. The same approach can be followed to create parallel estimates for the chemical use and known commercial and consumer end-use categories. The results of these calculations are presented in Sections E.2.2.4.3, E.2.2.4.4, and E.2.2.4.5 below.

Table E-2. Small Company Reporting Burden for Sections of Form U

Task	Clerical Hours	Technical Hours	Managerial Hours
I. Site Identification Information	**0.03–0.03**	**0.82–0.82**	**1.26–1.26**
1. Certification	0.01–0.01	0.72–0.72	1.22–1.22
2. Company Information			
Company Name, Contact, Address	0.01–0.01	0.03–0.03	0.01–0.01
D&B Number, Mailing Address			
3. Plant Site Identification			
Plant Name, D&B Number, Address	0.01–0.01	0.06–0.06	0.03–0.03
EPA ID Number, Mailing Address			
II. Manufacturing Information	**0.48–0.48**	**4.22–4.47**	**0.59–0.59**
1. Chemical Identification			
2. Site Limited	0.30–0.30	1.83–1.86	0.16–0.16
3. Activity			
4. Production Volume (lbs)			
5. Chemical Identification Up-front CBI Substantiation	0.05–0.05	0.53–0.58	0.18–0.18
6. Plant Site Up-front CBI Substantiation	0.05–0.05	0.36–0.41	0.07–0.07
7. Total Number of Workers	0.06–0.06	0.40–0.40	0.07–0.07
8. Physical State			
9. Maximum Concentration	0.02–0.02	1.10–1.23	0.11–0.11
III. Processing and Use Information	**2.78–2.79**	**32.69–33.68**	**3.74–3.74**
A. *Industrial Processing and Use Exposure Related Data*	***2.50–2.51***	***26.10–26.91***	***2.42–2.42***
1. Determination of Applicability	0.11–0.11	0.59–0.59	0.12–0.12
2. Process and Use Code	0.00–0.00	0.00–0.00	0.00–0.00
3. 5-Digit NAICS Code	0.16–0.16	1.17–1.17	0.05–0.05
4. Function Code	0.16–0.16	0.68–0.73	0.12–0.12
5. Percent Production Volume	1.50–1.50	4.89–4.89	1.00–1.00
6. Total Number of Processing and Use Sites	0.54–0.54	5.61–5.86	0.48–0.48
7. Total Number of Potentially Exposed Workers	0.04–0.04	13.17–13.68	0.65–0.65
B. Commercial and Consumer End-Use Exposure Related Data	***0.28–0.28***	***6.59–6.77***	***1.31–1.31***
1. Determination of Applicability	0.00–0.00	0.44–0.44	0.06–0.06
2. Identification of End Use	0.10–0.10	0.66–0.66	0.22–0.22
3. Percent Production Volume	0.05–0.05	0.63–0.65	0.13–0.13
4. Estimated Weight Percent in Consumer Product	0.12–0.12	4.86–5.02	0.90–0.90
Total Hours for Report Preparation and Submission			
Partial Form	**0.51–0.51**	**5.04–5.29**	**1.85–1.85**
Full Form	**3.29–3.30**	**37.73–38.97**	**5.59–5.59**

E.2.2.4.1. Number of Sites per Company Producing a Particular Chemical. For a single chemical subject to IURA reporting, the weighted average number of sites per company was estimated to be between 2.9 and 3.1 sites. Survey results illustrate that these averages vary based on the size of the company. For example, small companies reported that an average of 1.2 sites manufacture a single IURA-reportable chemical. For medium-sized companies, a single IURA-reportable chemical is manufactured at approximately 1.6 sites, while for large companies, a single IURA-reportable chemical is manufactured at between 3.9 and 4.2 sites. The mean, median, and range for the survey results are presented in Table E-5. Nearly 52 percent of the companies surveyed reported that one site produces a single reportable chemical, while 39 companies (48 percent) estimated greater than one site per reportable chemical.

Table E-3. Medium Company Reporting Burden for Sections of Form U

Task	Clerical Hours	Technical Hours	Managerial Hours
I. Site Identification Information	**0.72–0.72**	**1.11–1.11**	**1.15–1.15**
1. Certification	0.65–0.65	1.02–1.02	1.12–1.12
2. Company Information			
Company Name, Contact, Address	0.03–0.03	0.04–0.04	0.01–0.01
D&B Number, Mailing Address			
3. Plant Site Identification			
Plant Name, D&B Number, Address	0.05–0.05	0.06–0.06	0.03–0.03
EPA ID Number, Mailing Address			
II. Manufacturing Information	**0.93–0.93**	**6.07–6.74**	**1.66–1.71**
1. Chemical Identification			
2. Site Limited	0.30–0.30	1.31–1.37	0.23–0.23
3. Activity			
4. Production Volume (lbs)			
5. Chemical Identification Up-front CBI Substantiation	0.12–0.12	1.41–1.94	0.38–0.38
6. Plant Site Up-front CBI Substantiation	0.09–0.09	0.29–0.32	0.06–0.06
7. Total Number of Workers	0.08–0.08	0.94–0.94	0.28–0.33
8. Physical State			
9. Maximum Concentration	0.33–0.33	2.13–2.17	0.71–0.71
III. Processing and Use Information	**20.36–23.66**	**79.07–79.85**	**33.35–35.01**
A. *Industrial Processing and Use Exposure Related Data*	***18.43–21.72***	***68.49–69.09***	***27.87–29.47***
1. Determination of Applicability	0.27–0.27	2.19–2.19	0.54–0.68
2. Process and Use Code	0.00–0.00	0.00–0.00	0.00–0.00
3. 5-Digit NAICS Code	9.25–12.19	7.87–8.05	6.66–6.66
4. Function Code	0.11–0.11	0.64–0.71	0.30–0.29
5. Percent Production Volume	1.74–1.74	13.36–13.53	3.62–3.92
6. Total Number of Processing and Use Sites	2.83–2.83	16.51–16.69	9.18–9.48
7. Total Number of Potentially Exposed Workers	4.24–4.59	27.92–27.92	7.57–8.46
B. Commercial and Consumer End-Use Exposure Related Data	***1.94–1.94***	***10.58–10.76***	***5.48–5.54***
1. Determination of Applicability	0.29–0.29	1.41–1.41	0.32–0.32
2. Identification of End Use	0.37–0.37	0.97–0.97	0.39–0.39
3. Percent Production Volume	0.56–0.56	1.62–1.68	0.62–0.68
4. Estimated Weight Percent in Consumer Product	0.71–0.71	6.58–6.70	4.15–4.15
Total Hours for Report Preparation and Submission			
Partial Form	**1.65–1.65**	**7.18–7.85**	**2.81–2.86**
Full Form	**22.01–25.30**	**86.25–87.69**	**36.16–37.87**

E.2.2.4.2. Number of IUR Reportable Chemicals per Site. The weighted average estimate of the number of IURA chemicals manufactured at an annual production volume greater than 10,000 pounds at a typical site was reported to be between 24.8 and 34.3 chemicals per site for all survey participants. Small companies averaged 13.0 to 15.0 IURA chemicals manufactured at a typical site, while medium-sized companies averaged between 27.2 and 46.5 chemicals and large companies averaged between 27.6 and 36.0 chemicals per site. Table E-6 presents the mean, median, and range for these parameters for all survey participants by size class.

For purposes of comparison, it is important to note that the number of chemicals per site, as reported by survey respondents, should correspond to the number of reports per site derived from the 1998 CUS database. However, it is worth noting that the average values developed from the survey do not correlate well with the historical information from the 1998 CUS database (9.9 reports per site).

Table E-4. Large Company Reporting Burden for Sections of Form U

Task	Clerical Hours	Technical Hours	Managerial Hours
I. Site Identification Information	**0.49–1.07**	**1.04–1.17**	**0.93–1.06**
1. Certification	0.33–0.87	0.77–0.90	0.83–0.96
2. Company Information			
Company Name, Contact, Address	0.04–0.06	0.07–0.07	0.03–0.03
D&B Number, Mailing Address			
3. Plant Site Identification			
Plant Name, D&B Number, Address	0.11–0.15	0.20–0.21	0.07–0.07
EPA ID Number, Mailing Address			
II. Manufacturing Information	**2.11–2.20**	**8.65–13.83**	**3.24–7.16**
1. Chemical Identification			
2. Site Limited	0.63–0.72	2.26–3.30	0.35–1.31
3. Activity			
4. Production Volume (lbs)			
5. Chemical Identification Up-front CBI Substantiation	0.38–0.38	1.17–2.22	0.63–1.61
6. Plant Site Up-front CBI Substantiation	0.15–0.15	0.69–1.67	0.34–1.32
7. Total Number of Workers	0.31–0.31	1.47–2.49	0.37–1.37
8. Physical State			
9. Maximum Concentration	0.64–0.64	3.07–4.15	1.55–1.55
III. Processing and Use Information	**7.28–8.29**	**56.99–64.78**	**21.98–23.86**
A. *Industrial Processing and Use Exposure Related Data*	***6.19–7.20***	***45.62–51.38***	***19.25–20.63***
1. Determination of Applicability	0.13–0.13	0.94–1.12	0.32–0.32
2. Process and Use Code	0.00–0.00	0.00–0.00	0.00–0.00
3. 5-Digit NAICS Code	0.34–0.35	5.38–5.90	1.77–1.77
4. Function Code	0.28–0.28	1.31–1.48	0.64–0.66
5. Percent Production Volume	1.33–1.33	12.97–14.32	8.30–9.65
6. Total Number of Processing and Use Sites	1.47–2.47	9.52–11.40	3.60–3.60
7. Total Number of Potentially Exposed Workers	2.65–2.65	15.49–17.15	4.63–4.63
B. Commercial and Consumer End-Use Exposure Related Data	***1.09–1.09***	***11.37–13.40***	***2.73–3.23***
1. Determination of Applicability	0.19–0.19	1.18–1.27	0.34–0.39
2. Identification of End Use	0.13–0.13	0.99–1.23	0.26–0.31
3. Percent Production Volume	0.18–0.18	1.59–1.84	0.61–0.66
4. Estimated Weight Percent in Consumer Product	0.59–0.59	7.60–9.06	1.51–1.87
Total Hours for Report Preparation and Submission			
Partial Form	**2.60–3.28**	**9.69–15.01**	**4.18–8.23**
Full Form	**9.88–11.57**	**66.68–79.79**	**26.15–32.09**

Because the historical data provide an extremely reliable value for this data point, the survey data are not used for determining the number of chemicals per site. Reviewing the median survey data, however, shows a better comparison with the 1998 CUS number. The median value of the survey is between 8.0 and 10.0 chemicals per site, which is in line with the value of 9.9 reports per site derived from the 1998 CUS data set. The median value indicates that at least one half of the respondents reported numbers of chemicals per site that were equal to or less than the averages developed from the CUS data. The extremely high values provided by a few companies in the survey have skewed the average significantly and suggest that the mean may not be representative.

Table E-5. Mean, Median, and Range of Sites per Chemical for Small, Medium, and Large Companies

Sites per Chemical						
	Mean		Median		Range	
	Low	High	Low	High	Low	High
Small	1.2	1.2	1	1	1	4
Medium	1.6	1.6	1	1	1	3
Large	3.9	4.2	2	2	1	30
All Companies (unweighted)	2.7	2.8	1	1	1	30
All Companies (weighted)[a]	2.8	3.0	—	—	—	—

[a] Weighting refers to the distribution of average reporting burden by company size based on the proportion of companies within each size class for the set of 1994 IUR reporting companies.

Sources: CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC
ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

E.2.2.4.3. Number of Processing Sites. The number of processing sites per chemical affects the burden for developing processing information for reportable chemicals. If there are a large number of processing sites per chemical, the burden will be higher than if there are comparatively fewer sites. This relationship is strongly supported by the survey responses and is presented in Figure E-2. Table E-7 presents the mean, median, and range estimates developed from the survey responses for this data. As the table indicates, the weighted average number of processing sites per chemical is between 27.6 and 53.3 sites. These average values may be somewhat misleading because of the extremely wide range of reported values and as such, the median (2.5 to 6.0 sites per chemical) values may be a more accurate representation of the typical number of processing sites per chemical.

E.2.2.4.4. Number of Use Sites. Information on the number of use sites per chemical can be examined in the same manner as the information on processing sites presented in the previous section. However, according to the survey data, the relationship between number of use sites and reporting burden is not as clear as the relationship established between number of processing sites and reporting burden. As is shown in Figure E-3, there is an increase in burden for companies reporting on 6 or more use sites per chemical compared to those that report on less than 6 use sites per chemical. The results for companies reporting more than 21 use sites per chemical are less certain because of the relatively few survey responses in these ranges.

Table E-6. Mean, Median, and Range of Chemicals per Site for Small, Medium, and Large Company Sites

Chemicals per Site						
	Mean		Median		Range	
	Low	High	Low	High	Low	High
Small	13.0	15.0	5.0	5.0	1.0	100.0
Medium	27.2	46.5	7.0	9.0	1.0	500.0
Large	27.6	36.0	10.0	12.5	1.0	300.0
All Companies (unweighted)	23.7	32.9	8.0	10.0	1.0	500.0
All Companies (weighted)[a]	24.4	33.8	—	—	—	—

[a] Weighting refers to the distribution of average reporting burden by company size based on the proportion of companies within each size class for the set of 1994 IUR reporting companies.

Sources: CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC
ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

As presented in Table E-8, the average number of use sites per chemical as reported by all companies is between 21.0 and 45.5 sites. The reported survey values range from 0 to 1,000 sites, with a weighted average number for all companies of between 22.9 and 49.3 use sites per chemical. Large companies, on average, reported significantly more use sites per chemical than small and medium companies. While the average number of use sites is high because of the large range presented in the survey results, the median values are much lower, indicating that for many companies this data component is not particularly burdensome.

E.2.2.4.5. Number of End Uses. Information developed from the survey on end uses was analyzed to determine the average number of end uses per chemical for small, medium, and large companies. The weighted average number of end uses per chemical as reported by all surveyed companies is between 3.2 and 5.1 end uses, with estimates ranging from 0 to 100, as presented in Table E-9. While the ranges presented in Table E-9 are broad, both the mean and median estimates for all company sizes fall within a consistent band of between 1 and 7 end uses per chemical.

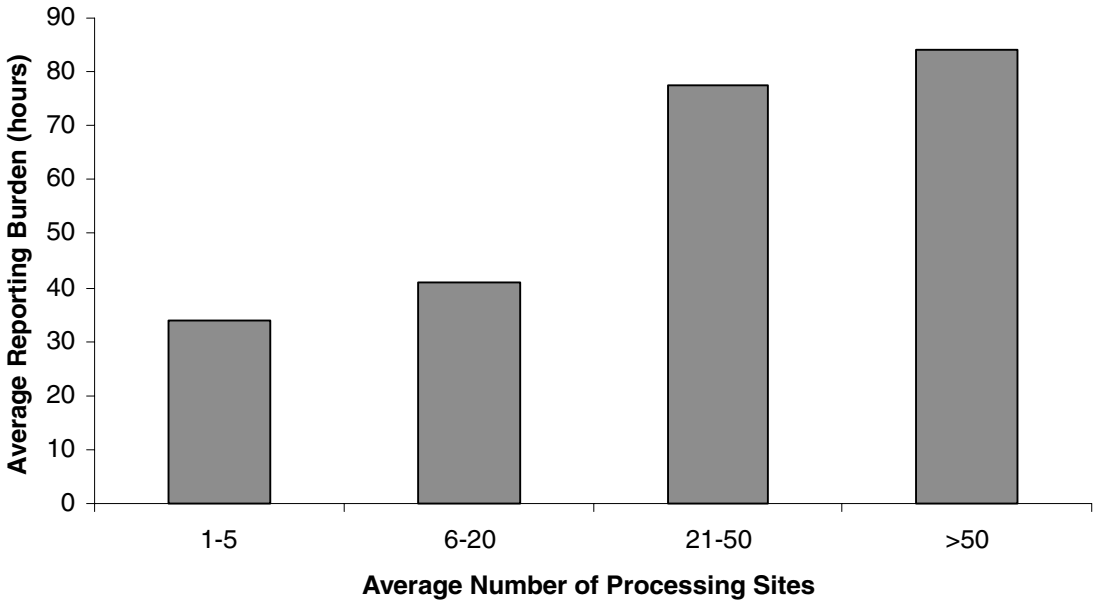


Figure E-2. Relationship Between Average Reporting Burden and Average Number of Processing Sites for All Companies Surveyed

Table E-7. Mean, Median, and Range of Processing Sites per Chemical for Small, Medium, and Large Company Sites

Processing Sites per Chemical						
	Mean		Median		Range	
	Low	High	Low	High	Low	High
Small	31.0	57.3	1.5	2.0	0.0	1,000.0
Medium	11.3	19.7	2.0	5.0	0.0	150.0
Large	32.3	64.0	8.0	12.5	0.0	1,000.0
All Companies (unweighted)	27.4	53.0	2.5	6.0	0.0	1,000.0
All Companies (weighted)[a]	27.6	53.3	—	—	—	—

[a] Weighting refers to the distribution of average reporting burden by company size based on the proportion of companies within each size class for the set of 1994 IUR reporting companies.

Sources: CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC
ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

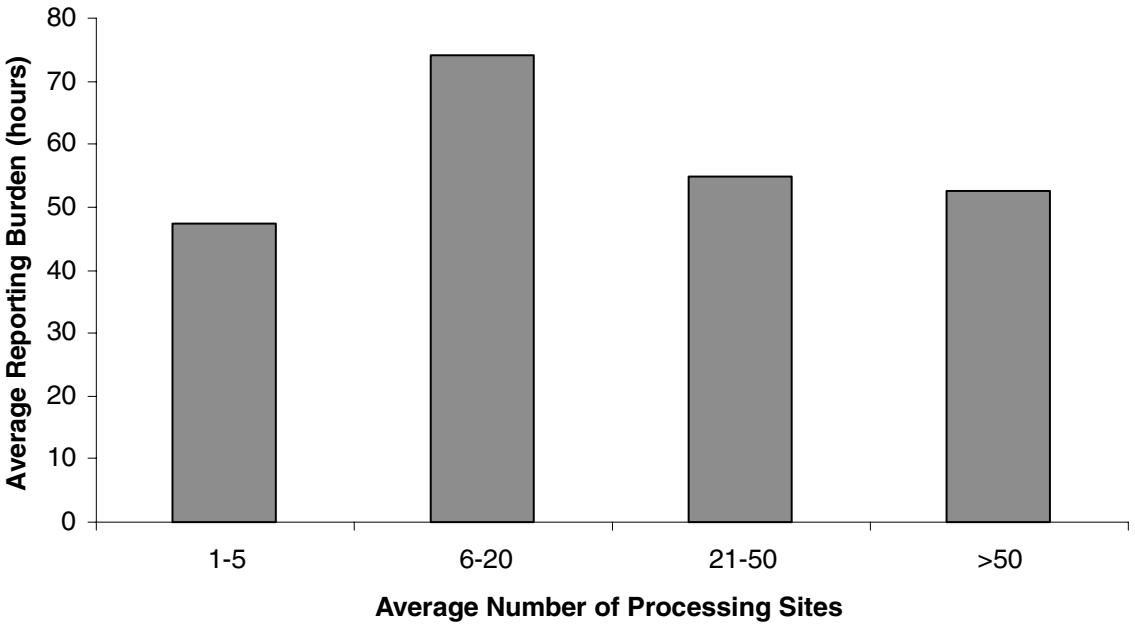


Figure E-3. Relationship Between Average Reporting Burden and Average Number of Use Sites for All Companies Surveyed

Table E-8. Mean, Median, and Range of Use Sites per Chemical for Small, Medium, and Large Company Sites

Use Sites per Chemical						
	Mean		Median		Range	
	Low	High	Low	High	Low	High
Small	3.2	4.1	0.0	0.0	0.0	20.0
Medium	8.1	51.3	1.0	1.0	0.0	500.0
Large	35.4	65.0	2.0	5.0	0.0	1,000.0
All Companies (unweighted)	21.0	45.5	1.0	1.0	0.0	1,000.0
All Companies (weighted)[a]	22.9	49.3	—	—	—	—

[a] Weighting refers to the distribution of average reporting burden by company size based on the proportion of companies within each size class for the set of 1994 IUR reporting companies.

Sources: CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC
ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

Table E-9. Mean, Median, and Range of End Uses per Chemical for Small, Medium, and Large Company Sites

End Uses per Chemical						
	Mean		Median		Range	
	Low	High	Low	High	Low	High
Small	2.4	2.5	1.5	2.0	1.0	8.0
Medium	2.9	3.3	3.0	3.0	1.0	6.0
Large	3.6	6.8	3.0	4.0	0.0	100.0
All Companies (unweighted)	3.1	4.9	3.0	3.0	0.0	100.0
All Companies (weighted)[a]	3.2	5.1	—	—	—	—

[a] Weighting refers to the distribution of average reporting burden by company size based on the proportion of companies within each size class for the set of 1994 IUR reporting companies.

Sources: CUS Database. 1996. Information from the Chemical Update System Database maintained by the Information Management Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, DC
ICF. 1996. *Survey for Estimating the Industry Burden Associated With Collecting Additional Chemical Use Data Under TSCA Section 8 (IUR Amendments).* OMB Control No. 2070-0034. Conducted for EPA by ICF Incorporated, Washington, DC.

ATTACHMENT 1

INDUSTRY BURDEN SURVEY AND COVER LETTER SENT TO SURVEY PARTICIPANTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

February 22, 1996

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Mr. [redacted]
[redacted] Corporation
2[redacted] East [redacted] Avenue
[redacted]

Dear Mr. Lyons:

I am requesting your assistance in a rulemaking activity being conducted by the Office of Pollution Prevention and Toxics (OPPT) of the U.S. Environmental Protection Agency (EPA). Attached is a survey, to be sent to organizations involved in the production or importation of chemicals in the United States, which collects information to be used in the development of amendments to the Toxic Substances Control Act (TSCA) Inventory Update Rule (IUR). The draft amended IUR reporting form requests information regarding chemicals manufactured by your company at various manufacturing sites and processing and use sites. A copy of the draft form is included with the survey.

Expected amendments to the IUR include the collection of information necessary to determine which chemicals are more apt to present a risk to human health and the environment. Currently the IUR collects information on the volume of a chemical produced or imported into the United States. The amendments under development would add information on the use of those chemicals and on the number of potentially exposed workers; this information will be valuable in the assessment of the potential risk of those chemicals, thereby allowing EPA to better focus its efforts.

I am requesting your assistance in pretesting this survey prior to contacting all of the respondents. Your responses to the survey will be included in the information obtained from the full survey. In addition, I am interested in the amount of time and effort required to respond to the survey and any suggestions you have for improving the survey. Your assistance at this point will help ensure that the information obtained from the survey provides accurate, valuable input into the rulemaking process.

Please review the attached survey form. A representative from ICF, Incorporated, a consultant working with OPPT to collect and analyze survey responses, will contact you by telephone to complete the form. EPA will not know the identity of the respondents; that information will be maintained by ICF. Information obtained from this survey will be

aggregated and only the aggregated results will be incorporated into the rulemaking record.

Any questions or comments regarding this survey should be addressed to Susan Krueger of my staff at any of the following:

Telephone: (202)260-1713
Fax: (202)260-1661
E-Mail/Internet: Krueger.Susan@EPAMAIL.EPA.GOV

I appreciate your assistance. Information on the effect of rulemakings from those potentially affected is extremely useful.

Sincerely,

Robert E. Lee II
Chief, Regulatory Impacts Branch
Economics, Exposure and Technology Division
Office of Pollution Prevention and Toxics

Enclosure

SURVEY FOR ESTIMATING THE INDUSTRY BURDEN ASSOCIATED WITH COLLECTING ADDITIONAL CHEMICAL USE DATA UNDER TSCA SECTION 8

(IUR AMENDMENTS)

Name of Respondent _____

Position/Title _____

Name of Company _____

Address _____

_____

_____

_____

Phone Number _____

Fax Number _____

PROPOSED SURVEY FOR ESTIMATING THE INDUSTRY BURDEN ASSOCIATED WITH COLLECTING ADDITIONAL CHEMICAL USE DATA UNDER TSCA SECTION 8

(IUR AMENDMENTS)

********** IMPORTANT **********

This survey has been developed to determine the industry effort associated with collecting chemical exposure data under TSCA Section 8. When completing the following questions, please mark all answers according to a base case scenario in which the data being reported applies to **one typical chemical** being produced at **one typical manufacturing site**, unless otherwise instructed in the question. If possible, please provide a breakout of the burden estimate by labor category for each question. Please note that staff from all labor categories may not be required to complete each individual data element. Any and all connection between the identity of the respondent and the answers to the survey will be kept confidential and will not be provided to EPA.

PART 1. FACILITY IDENTIFICATION INFORMATION

Section 1.1. Certification

1. The reporting form requires a signature certifying that the information provided is complete and accurate. Please estimate the amount of time that will be required to complete this certification, including the time needed for final review (legal and technical) and verification of information (note: do not include time that is covered in other survey questions):

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management (including legal)
Certification			

Section 1.2. Plant Site Identification

2. This section of the reporting form requires identification and address information for a typical manufacturing plant site. Please indicate the estimated amount of time required to provide this information (including plant site name, CBI, Dun & Bradstreet number, and plant site address):

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Plant Site Identification			

3. The reporting form requires indication of the EPA Identification Number (EPA ID) that corresponds to the facility being reported. The EPA ID is a 12-character number assigned to facilities covered by RCRA. Facilities not covered by RCRA are not likely to have an assigned EPA ID. Please indicate the estimated time to determine the EPA ID for the facility being reported (in the case that a typical facility at your company does not have an EPA ID, enter the estimated time to determine that an EPA ID does not exist, and check the Not Applicable box below):

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
EPA Identification Number			

EPA Identification Number Not Applicable	

Section 1.3. Company Information

4. This section of the reporting form requires the contact information for a technical contact including address and telephone number. Please estimate the amount of time that would be necessary to provide this:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Company Information			

5. To calculate the amount of time that may be needed to provide company- and site-specific information for all chemicals and associated plant sites, it is necessary to determine the number of reportable chemicals produced at a typical facility and how many facilities may produce one typical chemical.

   a. Please provide an estimate of the number of plant sites that manufacture a typical chemical:

Estimated Number of Plant Sites That Manufacture a Typical Chemical	

   b. Please provide an estimate of the number of chemicals with annual volume greater than 10,000 pounds manufactured at a typical plant site:

Estimated Number of Chemicals Manufactured at a Typical Plant Site	

PART 2. CHEMICAL SPECIFIC INFORMATION

Section 2.1. Manufacturing Information

6. This section of the reporting form requires information (subsections a - f) regarding manufacturing specifications. Please provide burden estimates in the box below based on the following data requirements:

   a. Identifying Number: Provide the CAS number of the chemical.
   b. ID Code: Indicate the correct tracking code from a list on the back of the reporting form.
   c. Activity (M or I) and CBI: Provide information on the production of the chemical by indicating "M" (manufacture) or "I" (import); indicate if this is CBI.
   d. Site Limited and Indication of CBI: Indicate if the chemical is distributed for commercial purposes outside of the plant site; also, indicate if this is CBI.
   e. Production Volume in Pounds and Indication of CBI: Provide the production volume, in pounds, of the relevant chemical manufactured at this plant site; also, indicate if this is CBI.
   f. Specific Chemical Name: Indicate the name of the chemical for which information is being provided.

   Please indicate the estimated amount of time necessary to complete subsections a - f for one typical chemical at a typical manufacturing plant site:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Manufacturing Information (a - f)			

7. This section of the reporting form requires indication of CBI status for Chemical Identity. A CBI claim for this information requires up-front substantiation, including a justification of why release of this information would jeopardize the market position of the company. Indicate the estimated amount of time to indicate CBI status and provide substantiation for a CBI claim, if applicable, for chemical identity:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Chemical Identity			

   a. If this information is not typically claimed CBI, please indicate that by checking the box below.

Chemical Identity CBI Substantiation Not Applicable	

8. This section of the reporting form requires indication of CBI status for Facility Identity. A CBI claim for this information requires up-front substantiation, including a justification of why release of this information would jeopardize the market position of the company. Indicate the estimated amount of time to indicate CBI status and provide substantiation for a CBI claim, if applicable, for facility identity:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Facility Identification			

a. If this information is not typically claimed CBI, please indicate that by checking the box below.

Facility Identification CBI Substantiation Not Applicable	

9. This section of the reporting form requires indication of CBI status of production volume range information. The ranges are:

10,000 – 100,000 lbs/yr
100,000 – 1,000,000 lbs/yr
1,000,000 – 10,000,000 lbs/yr
10,000,000 – 50,000,000 lbs/yr
50,000,000 – 100,000,000 lbs/yr
100,000,000 – 500,000,000 lbs/yr
500,000,000 – 1,000,000,000 lbs/yr

If the production volume range is not indicated to be CBI, the information may be made available to the public. Please indicate the estimated amount of time required to indicate CBI status of the production volume in ranges:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
CBI Status of Production Volume in Ranges			

a. For what percentage of the chemicals reported by your company would the production volume range be claimed CBI?

Percent of Chemicals Whose Production Volume Range Would Be Claimed CBI	

10. This section of the reporting form requires indication of the appropriate range of the total number of workers potentially exposed to the chemical being reported and indication of CBI status for that information. The ranges are:

Fewer than 10 workers
10 to 20 workers
25 to 100 workers
100 to 250 workers
250 to 1,000 workers
More than 1,000 workers

Please indicate the estimated amount of time required to provide this information:

Required Information	**Estimated Hours Required By Each Staff Level**		
	Clerical	**Technical**	**Management**
Estimated Total Number of Potentially Exposed Workers			

PART 3. INFORMATION ON CHEMICAL PROCESSING - INCORPORATIVE ACTIVITIES

Please be advised that the reporting form requires some information in this section to be provided by indicating ranges rather than exact numbers. The ranges are as follows:

number of processing sites	number of potentially exposed workers
Fewer than 10	Fewer than 10
10 to 20	10 to 20
25 to 100	25 to 100
100 to 250	100 to 250
250 to 1,000	250 to 1,000
More than 1,000	More than 1,000

maximum concentration (wt %)

Fewer than 1%
1 to 30%
30 to 60%
60 to 90 %
Less than 90%

Please note that codes will be designated to stand for various ranges (e.g., the letter ‘b’ will mean between 10 and 20 processing sites).

11. Not Applicable:

The first step in this section requires determination of whether or not the chemical being reported undergoes chemical processing. Please indicate the estimated amount of time necessary to determine whether chemical processing is applicable for the chemical being reported:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Not Applicable			

If chemical processing does <u>not</u> apply to any chemicals that your company reports under TSCA Section 8, please skip to PART 4.

If chemical processing does apply to one or more of the chemicals that your company reports, please continue with PART 3.

12. Function Codes:

This section requires determination of the functions and function codes (provided in Attachment 1) for the chemical being reported. Although the information required for each category is the same, the reporting form divides the functions into two categories - incorporation into a formulation, mixture, or reaction product and incorporation into an article. Please indicate the estimated amount of time necessary to determine and report the function codes for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Function Codes			

13. SIC Code:

For each function code of the chemical that is reported, SIC codes must be reported for processing sites. It has not been determined whether a 3-digit or a 4-digit SIC code will be required. Please indicate separately the estimated amount of time required to determine and report a chemical's 4-digit and 3-digit SIC codes for one function category:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
3-Digit SIC Code			
4-Digit SIC Code			

14. Percent Production Volume:

The reporting form requires a determination of the percentage of production volume of the chemical that is processed in each specific combination of SIC code and function code. The percent production volume is required to be reported within ±10% of the actual percentage. Since the total production volume of the chemical has already been determined in Part 2 of the reporting form, the information necessary for the calculations required here includes only the amount of the chemical that is used in each industry classification (SIC code). Please indicate the estimated amount of time required to calculate and report the appropriate range for the percentage of production volume for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Percent Production Volume			

15. Number of Processing Sites:

The reporting form requires information on the appropriate range for the number of processing sites that receive the chemical from the specific production plant for each combination of function code and SIC code. Please indicate the estimated amount of time necessary to provide the appropriate range for the number of processing sites for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Number of Processing Sites			

16. Number of Potentially Exposed Workers:

The appropriate range for the number of potentially exposed workers at all processing sites for each combination of function code and SIC code is also required in this section of the form. Please indicate the estimated amount of time necessary to determine the appropriate range for the number of potentially exposed workers for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Number of Potentially Exposed Workers			

17. Maximum Concentration (wt%):

The appropriate range for the maximum concentration, by weight percentage, of the chemical that is incorporated into a formulation, mixture, or reaction product or into an article is also required in this section of the form. Please indicate the estimated amount of time necessary to determine the appropriate range for the maximum concentration, by weight percentage, for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Maximum Concentration (wt%)			

18. Repackaging:

Some percentage of the chemical may be repackaged rather than processed or used in another product after manufacture. Please indicate the estimated amount of time that would be necessary to complete the following data for information about repackaging for a typical chemical:

Required Information (Reported in Ranges)	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Percent of Production Volume			
Number of Repackaging Sites			
Number of Exposed Workers			
Maximum Concentration (wt%)			
CBI Claims			

PART 4. INFORMATION ON CHEMICAL USE - NON-INCORPORATIVE ACTIVITIES

Please be advised that the reporting form requires some information in this section to be provided by indicating ranges rather than exact numbers. The ranges are as follows:

number of processing sites	number of potentially exposed workers
Fewer than 10	Fewer than 10
10 to 20	10 to 20
25 to 100	25 to 100
100 to 250	100 to 250
250 to 1,000	250 to 1,000
More than 1,000	Less than 1,000

maximum concentration (wt %)

Fewer than 1%
1 to 30%
30 to 60%
60 to 90%
More than 90%

Please note that codes will be designated to stand for various ranges (e.g., the letter 'b' will mean between 10 and 20 non-incorporative use sites).

19. Not Applicable:

The first step in this section requires determination of whether or not use in non-incorporative activities occurs for the chemical being reported. Please indicate the estimated amount of time necessary to determine whether chemical use information must be reported:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Not Applicable			

If chemical use in non-incorporative activities does <u>not</u> apply to any chemicals that your company reports under TSCA Section 8, please skip to PART 5.

If chemical use in non-incorporative activities does apply to one or more of the chemicals that your company reports, please continue with PART 4.

20. Function Codes:

The first step in this section requires determination of the functions and function codes (provided in Attachment 1) for the chemical being reported. Please indicate the estimated amount of time necessary to determine and report the function codes for a typical chemical at all use sites:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Function Codes			

21. SIC Code:

For each function code of the chemical that is reported, SIC codes must be reported for use sites. It has not been determined whether a 3-digit or a 4-digit SIC code will be required. Please indicate separately the estimated amount of time required to determine and report a chemical's 4-digit and 3-digit SIC codes for one function category:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
3-Digit SIC Code			
4-Digit SIC Code			

22. Percent Production Volume:

The reporting form requires a determination of the percentage of production volume of the chemical that is used in each specific industry category by SIC and function code combination. The percent production volume is required to be reported within ±10% of the actual percentage. Since the total production volume of the chemical has already been determined in Part 2 of the reporting form, the information necessary for the calculations required here includes only the amount of the chemical that is used in each industry classification (SIC code). Please indicate the estimated amount of time required to calculate and report the appropriate range for the percentage of production volume for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Percent Production Volume			

23. Number of Use Sites:

The reporting form requires information on the number of use sites that receive the chemical from the specific production plant for each combination of function code and SIC code. Please indicate the estimated amount of time necessary to provide the appropriate range for the number of use sites for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Number of Use Sites			

24. Number of Potentially Exposed Workers:

The number of potentially exposed workers at all of the use sites for each combination of function code and SIC code is also required in this section of the form. Please indicate the estimated amount of time necessary to determine the appropriate range for the number of potentially exposed workers for a single function code and SIC code combination for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Number of Potentially Exposed Workers			

PART 5. KNOWN COMMERCIAL AND CONSUMER END-USES OF CHEMICAL

Please be advised that the reporting form requires some information in this section to be provided by indicating ranges rather than exact numbers. The ranges are as follows:

maximum concentration (wt %)	number of potentially exposed workers
Less than 1%	Fewer than 10
1 to 30%	10 to 20
30 to 60%	25 to 100
60 to 90 %	100 to 250
250 to 1,000	250 to 1,000
Greater than 90%	More than 1,000

Please note that codes will be designated to stand for various ranges (e.g., the letter 'b' will mean between 10 and 20 potentially exposed workers).

25. Not Applicable:

The first step in this section requires determination of the existence of commercial and consumer end-uses involving the chemical being reported. Please indicate the estimated amount of time necessary to determine whether known end-uses for the chemical must be reported:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Not Applicable			

If commercial and consumer end-uses do <u>not</u> apply to any chemicals that your company reports under TSCA Section 8, please skip to PART 6.

If commercial and consumer end-uses do apply to one or more of the chemicals that your company reports, please continue with PART 5.

26. End-Use Categories:

The reporting form provides the following end-use categories and requires that all of the appropriate uses be designated on the form. Please indicate the estimated amount of time that would be necessary to determine the use categories of a typical chemical:

Adhesives and Sealants	Cosmetics and Toiletries
Automotive Care Products	Electrical/Electronic Products
Glass/Ceramic Products	Fabric/Textiles/Apparel
Leather Products	Lubricants, Greases, & Fuel Additives
Metal Products	Paper Products
Paint and Coatings	Pesticides and Lawn/Garden Products
Polishes and Sanitation	Rubber/Plastic Products
Soaps and Detergents	Transportation Products
Wood/Wood Furniture	Other

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
End-Use Categories			

27. Percent of Production Volume:

The reporting form requires that the percentage of production volume for each end-use be determined. The percent of production volume is required to be reported within ±10% of the actual percentage. Please indicate the estimated amount of time that would be necessary to provide percent of production volume information for a typical chemical:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Percent of Production Volume			

28. Percent by Weight of Chemical in Product:

The reporting form requires an estimate of the appropriate range of the percentage (by weight) of the chemical in the designated end-use category. Please indicate the estimated amount of time that would be necessary to indicate the appropriate range for a typical chemical in a typical end-use category:

Required Information	Estimated Hours Required By Each Staff Level		
	Clerical	Technical	Management
Percent by Weight of Chemical in End-Use			

PART 6. GENERAL QUESTIONS ON REPORTING

The following questions request information about all of the Parts and Sections of the reporting form as a whole. However, please continue to mark all answers according to a base case scenario in which the data being reported applies to **one typical chemical** being produced at **one typical manufacturing site**, unless otherwise instructed in the question.

29. Please provide numerical estimates that correspond to the following statements assuming the base case scenario:

DATA ELEMENT	**RESPONSE** (Please provide a numerical response)
Average number of function codes per chemical produced at a typical manufacturing site	
Average number of 3-digit SIC codes per function code	
Average number of 4-digit SIC codes per function code	
Average total number of incorporative processing sites to which a typical chemical is distributed from one manufacturing plant	
Average total number of non-incorporative use sites to which a typical chemical is distributed from one manufacturing plant	
Average number of end-uses of a typical chemical that would be reported based upon categories listed in Question 26	

30. Indicate the data elements below that are required in the reporting form that are presently available in a company database or otherwise readily available:

DATA ELEMENT	**AVAILABLE** (check if yes)
PART 1: FACILITY IDENTIFICATION INFORMATION	
Manufacturing Plant Site Name	
Company Technical Contact Name	
PART 2: CHEMICAL SPECIFIC INFORMATION	
Manufacturing Activity (M or I)	
Manufacturing Plant Site Limited Chemical Use	
Total Production Volume	
Plant Link to Chemical	
Chemical Link to Plant	
Total Number of Potentially Exposed Workers	
Process Category	
PART 3. INFORMATION ON CHEMICAL PROCESSING - INCORPORATIVE ACTIVITIES	
Function Code	
3-Digit SIC Code	
4-Digit SIC Code	
Percent Production Volume	
Numbers of Potentially Exposed Workers	
Numbers of Processing Sites	
PART 4. INFORMATION ON CHEMICAL USE - NON-INCORPORATIVE ACTIVITIES	
Function Code	
3-Digit SIC Code	
4-Digit SIC Code	
Percent Production Volume	
Numbers of Potentially Exposed Workers	
Numbers of Use Sites	
PART 5. KNOWN COMMERCIAL AND CONSUMER END-USES OF CHEMICAL	
End-Use Category	
Percent Production Volume	
Estimated Weight Percentage in Consumer Product	

31. Indicate which of the required data elements your company is likely to claim CBI:

DATA ELEMENT	**CLAIM CBI** (check if yes)
PART 1: FACILITY IDENTIFICATION INFORMATION	
Manufacturing Plant Site Name	
Company Technical Contact Name	
PART 2: CHEMICAL SPECIFIC INFORMATION	
Manufacturing Activity (M or I)	
Manufacturing Plant Site Limited Chemical Use	
Total Production Volume	
Total Production Volume Within a Range	
Plant Link to Chemical	
Chemical Link to Plant	
Total Number of Potentially Exposed Workers	
Process Category	
PART 3. INFORMATION ON CHEMICAL PROCESSING - INCORPORATIVE ACTIVITIES	
Function Code	
3-Digit SIC Code	
4-Digit SIC Code	
Percent Production Volume	
Numbers of Potentially Exposed Workers	
Numbers of Processing Sites	
PART 4. INFORMATION ON CHEMICAL USE - NON-INCORPORATIVE ACTIVITIES	
Function Code	
3-Digit SIC Code	
4-Digit SIC Code	
Percent Production Volume	
Numbers of Potentially Exposed Workers	
Numbers of Use Sites	
PART 5. KNOWN COMMERCIAL AND CONSUMER END-USES OF CHEMICAL	
End-Use Category	
Percent Production Volume	
Estimated Weight Percentage in Consumer Product	

32. Please indicate if your company has a schedule for the retention of records, including chemical production information:

Yes	No

a. If yes, for how long does your company retain records?
b. Please explain:

33. Please indicate if your company has a policy for the destruction of records:

Yes	No

b. Please explain:

34. We welcome any suggestions you may have concerning improvements in the reporting form that has been provided here. You may provide comments by telephone or mail to:

Mark Wagner
ICF Incorporated
1850 K Street, NW, Suite 1000
Washington DC 20006-2213
phone: 202-862-1155
fax: 202-862-1144

ATTACHMENT 1

Proposed List of Function Codes for IUR Reporting	
Intermediates (Only valid for incorporation into product)	Lubricants and Lubricant Additives
Adsorbents and Absorbents	Odor Agents
Adhesive and Binding Agents	Oxidizing Agents
Aerosol Propellants	Photosensitive Chemicals
Agricultural Chemicals	pH-Regulating Agents
Anti-Adhesive Agents	Process Regulators, used in Polymerization or Vulcanization Processes
Bleaching Agents	Process Regulators other than Polymerization or Vulcanization
Chemical Processing Aids, not otherwise listed	Reducing Agents
Coloring Agents	Reprographic Agents
Corrosion Inhibitors and Anti-Scaling Agents	Solvents, Cleaning/Degreasing
Electroplating Agents	Solvents, Become Part of Product Formulation
Fillers	Solvents, For Chemical manufacture and Processing that are Not Part of the End Product
Fixing Agents	Stabilizers
Flame Retardants	Surface Active Agents, Cleaning Agents
Flotation Agents	Surface Active Agents, Emulsifying Agents
Fuel and Fuel Additives	Viscosity Adjustors
Functional Fluids, Hydraulic and Transmission Fluids	Sterilants/Disinfectants/Biocides
Functional Fluids, Heat Transfer Agents	Other
Functional Fluids, Electrical Conductive and Semiconductive Agents	

ATTACHMENT 2
DRAFT IUR AMENDMENTS REPORTING FORM SENT TO SURVEY PARTICIPANTS

FORM U

U.S. Environmental Protection Agency
Washington, DC 20460
Partial Updating of TSCA Inventory Data Base
Production and Site Report
(Section 8(a) Toxic Substances Control Act, 15 USC 2607)

REPORT NUMBER

PART 1. FACILITY IDENTIFICATION INFORMATION

SECTION 1. CERTIFICATION

Certification Statement: I hereby certify that to the best of my knowledge and belief all of the information entered on this form is complete and accurate, and (2) the confidentiality statements on the basis of the information are true to the information for which I have asserted a confidentiality claim.

SIGNATURE	DATE	NAME/TITLE(Type or Print)

SECTION 2. PLANT SITE IDENTIFICATION

PLANT SITE NAME | CBI

DUN & BRADSTREET NUMBER | EPA ID

PLANT SITE STREET ADDRESS LINE 1

PLANT SITE STREET ADDRESS LINE 2

CITY | COUNTY | STATE

ZIPCODE

SECTION 3. COMPANY INFORMATION

TECHNICAL CONTACT NAME | CBI

COMPANY NAME

COMPANY STREET ADDRESS LINE 1

COMPANY STREET ADDRESS LINE 2

CITY | STATE

ZIPCODE | TELEPHONE (w/Area Code)

DRAFT

PART 2. CHEMICAL SPECIFIC INFORMATION

SECTION 1. MANUFACTURING INFORMATION

A. Identifying Number	B. ID Code (See Back of form)	C. Activity M or I	CBI	D. Site Limited	CBI	E. Production Volume in Pounds	CBI	F. Plant CBI	Chemical CBI

G. Specific Chemical Name

Production Volume Range CBI	Total Number of Potentially Exposed Workers	CBI

Total number of pages submitted, including this page:

REPORT NUMBER

PART 3. INFORMATION ON CHEMICAL PROCESSING - INCORPORATIVE ACTIVITIES

N/A ☐

	CBI	% Prod. Volume	CBI	# of Sites	CBI	Total # of Potentially Exposed Workers	CBI	Max. Conc. (Wt%)	C
REPACKAGING	☐		☐		☐		☐		☐

INCORPORATION INTO A FORMULATION MIXTURE OR REACTION PRODUCT:

	Function Code	CBI	4-digit SIC Code	CBI	% Prod. Volume	CBI	# of Sites	CBI	Total # of Potentially Exposed Workers	CBI	Max. Conc. (Wt%)	
1.		☐		☐		☐		☐		☐		☐
2.		☐		☐		☐		☐		☐		☐
3.		☐		☐		☐		☐		☐		☐
4.		☐		☐		☐		☐		☐		☐
5.		☐		☐		☐		☐		☐		☐
6.		☐		☐		☐		☐		☐		☐
7.		☐		☐		☐		☐		☐		☐
8.		☐		☐		☐		☐		☐		☐
9.		☐		☐		☐		☐		☐		☐
10.		☐		☐		☐		☐		☐		☐

INCORPORATION INTO AN ARTICLE:

	Function Code	CBI	4-digit SIC Code	CBI	% Prod. Volume	CBI	# of Sites	CBI	Total # of Potentially Exposed Workers	CBI	Max. Conc. (Wt%)	
1.		☐		☐		☐		☐		☐		☐
2.		☐		☐		☐		☐		☐		☐
3.		☐		☐		☐		☐		☐		☐
4.		☐		☐		☐		☐		☐		☐
5.		☐		☐		☐		☐		☐		☐
6.		☐		☐		☐		☐		☐		☐
7.		☐		☐		☐		☐		☐		☐
8.		☐		☐		☐		☐		☐		☐
9.		☐		☐		☐		☐		☐		☐
10.		☐		☐		☐		☐		☐		☐

REPORT NUMBER

PART 4. INFORMATION ON CHEMICAL USE - NON-INCORPORATIVE ACTIVITIES

N/A ☐

	Function Code	CBI	4-digit SIC Code	CBI	% Prod. Volume	CBI	# of Sites	CBI	Total # of Potentially Exposed Workers	CBI	Max. Conc. (Wt%)	
1.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
OTHER UNKNOWN USES				☐	☐	☐	☐	☐	☐	☐	☐	☐

PART 5. KNOWN COMMERCIAL AND CONSUMER END-USES OF CHEMICAL

N/A ☐

	Y/N	CBI	% Prod. Vol.	CBI	Est. wt.% in consumer prod.	CBI
Cosmetics and toiletries	☐	☐	☐	☐	☐	☐
Soaps and detergents	☐	☐	☐	☐	☐	☐
Polishes and sanitation goods	☐	☐	☐	☐	☐	☐
Paint and coatings	☐	☐	☐	☐	☐	☐
Adhesives and sealants	☐	☐	☐	☐	☐	☐
Lubricants, greases & fuel products	☐	☐	☐	☐	☐	☐
Automotive care products	☐	☐	☐	☐	☐	☐
Pesticides, lawn & garden prod.	☐	☐	☐	☐	☐	☐
Wood/wood furniture	☐	☐	☐	☐	☐	☐
Fabric/textiles/apparel	☐	☐	☐	☐	☐	☐
Leather Products	☐	☐	☐	☐	☐	☐
Metal products	☐	☐	☐	☐	☐	☐
Electrical/electronic prod.	☐	☐	☐	☐	☐	☐
Rubber/plastic products	☐	☐	☐	☐	☐	☐
Paper Products	☐	☐	☐	☐	☐	☐
Glass/ceramic products	☐	☐	☐	☐	☐	☐
Transportation products	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐

APPENDIX F

SENSITIVITY ANALYSIS

To examine the effects of two parameters on the expected costs of the IURA, a sensitivity analysis was performed. The sensitivity cases presented in this appendix assess the impacts on costs of certain assumptions presented in the cost analysis. The cost analysis presented in Section 3 of this report incorporates several assumptions regarding the average chemical that will be reported under the IURA. Those assumptions include the number of reports per site (9.0 reports per site for organic chemicals and petroleum streams and 8.3 reports per site for inorganics under the amendments) and a discount rate of 3 percent.

Sensitivity cases were developed for these parameters by examining the effect that they have on the quantified costs. The sensitivity cases are as follows:

Number of Reports per Site

Scenario 1a estimates the cost for a site submitting one report.

Scenario 1b estimates the cost for a site submitting 20 reports.

Variation in Discount Rate

Scenario 2 changes the discount rate used to calculate costs of the IURA from 3 percent to 7 percent.

A cost analysis was developed for each case presented in the sensitivity analysis. As shown in Table F-1, the sensitivity analysis for Scenarios 1a and 1b was based on variations in the assumed number of reports per site. The costs for the IURA (Option 1) are also presented in this table. Table F-2 presents the first year incremental, baseline, and total net present values and annualized costs for all of the reporting threshold options under Scenario 2 (i.e., using a 7 percent discount rate).

F.1 Changing the Number of Reports per Site

An increase in the assumed average number of reports per site will significantly increase the cost burden per site of the IURA. Under Scenario 1a, per-site costs are approximately four to nine times lower than the costs of the IURA because of the decrease in the number of reports per site. Conversely, increasing the number of reports per site to 20 increases per-site costs by more than a factor of two. Based on the data presented in Section 3, it is clear that these estimates (i.e., one report and 20 reports per site) under- and overestimate, respectively, the costs for a typical site.

F.2 Changing the Discount Rate

Since the benefits resulting from the amendments will not occur simultaneously with the costs, it is necessary to discount the future streams of costs and benefits before comparing them. The time horizon over which costs and benefits are discounted in this analysis is 20 years. The primary discount rate used in Section 3 is 3 percent, although some results are also presented using a 7 percent discount rate. This sensitivity scenario explores the effect of using a 7 percent discount rate on the incremental costs of the eight options examined for this rule.

Table F-1. Results for Sensitivity Analysis on the Number of Reports per Site

Scenario	Reports Per Site	Incremental Cost Per Site (2000$)	
		Low	High
IURA			
First Reporting Cycle			
Organic Chemicals (including Petroleum Process Stream Chemicals)	9.0	$26,971	$31,871
Inorganic Chemicals	8.3	$11,742	$18,185
Future Reporting Cycles			
Organic Chemicals (including Petroleum Process Stream Chemicals)	9.0	$20,391	$24,221
Inorganic Chemicals	8.3	$27,602	$34,780
Scenario 1a			
First Reporting Cycle			
Organic Chemicals (including Petroleum Process Stream Chemicals)	1.0	($726)	($2,945)
Inorganic Chemicals	1.0	$3,184	$4,415
Future Reporting Cycles			
Organic Chemicals (including Petroleum Process Stream Chemicals)	1.0	($2,907)	($5,532)
Inorganic Chemicals	1.0	$3,652	$4,687
Scenario 1b			
First Reporting Cycle			
Organic Chemicals (including Petroleum Process Stream Chemicals)	20.0	$65,313	$80,068
Inorganic Chemicals	20.0	$25,342	$40,066
Future Reporting Cycles			
Organic Chemicals (including Petroleum Process Stream Chemicals)	20.0	$52,643	$65,460
Inorganic Chemicals	20.0	$65,658	$82,598

There is considerable debate in the economics discipline whether to use the social rate of time preference or the rate of return on investment when discounting. According to recent literature, the rates are quite similar, so choosing one or the other will not make much difference in the magnitude of the present value estimate. The debate between using a rate of return on investment capital and the consumption rate of return focuses on whether investment or consumption is being displaced. Some discounting theory emphasizes that a dollar diverted from productive investment reduces the stream of production created by that marginal investment, while a dollar diverted from consumption would only substitute one type of consumption for another. This diverted capital argument is the basis of the

"shadow price of capital" approach to discounting, which treats displaced investment as "costing" more than displaced consumption. The practical difficulty in implementing this approach is to identify which costs are diverted investments and which are diverted consumption. Various pragmatic approaches to solving this dilemma have been proposed and used by EPA and other government agencies for regulatory analysis, including the "two-staged" discounting approach (Kolb and Scheraga, 1990), or a single "blended rate" somewhere between the rate of investment return and the consumption return.

Recent developments in the economic literature have raised serious questions about the extent to which capital is actually "displaced" today. The displaced capital theory maintains that because regulation diverts funds from alternative investments, some investment opportunities are not undertaken. The pool of available capital is assumed to be fixed, forcing some investment to be foregone when capital is diverted. While the pool of available capital is relatively fixed (at least in the short run) in a closed economy, in an open economy capital can flow in from other countries. The increased demand for investment capital in the United States (created in part to finance the federal deficit) has attracted large amounts of capital into the country, and many economists feel this has significantly reduced the pressure that federal borrowing has had on real interest rates. While the supply of capital is not perfectly elastic, neither is it perfectly inelastic. An elastic supply of capital reduces the difference between investment rates of return and consumer rates of return.

Estimates of real rates of return on investment are lower than many people believe. The real rate of return on U.S. government bonds has been near 0 percent for most of this century, while the annual return on a broad portfolio of stocks has averaged near 4 percent. In general, stocks have done better since 1980 (averaging 4.26 percent) than in other periods of this century, but the rate of return may return to historic norms in the future (Freeman, 1993). Thus, the real rates of return on investment opportunities range from near 0 to 4 percent.

The issues involving the appropriate discount rates and procedures are complex and are not likely to be resolved soon. Much of the recent economic literature summarizing the discounting debate concludes that discount rates reflecting either the social rate of time preference or the rate of return on investments are the appropriate discount rates to use, and this literature also concludes that there is not much difference between the rates. For example, Moore and Viscusi (1990) find no evidence that the rate of time preference for environmental-related health effects differs from financial rates of return and cite evidence that a 2 percent rate is appropriate. Lind (1990) recommends a range of 1 to 3 percent, and Freeman (1993) recommends 2 to 3 percent.

Based on the information presented above, a 3 percent discount rate has been adopted as the most appropriate rate for use in this analysis. However, the results of discounting costs at a 7 percent rate are also presented in the main text of the report for some variables as well as in Table F-2. This table reveals an increase in incremental annualized costs of approximately 7 percent and a decrease in incremental net present values of approximately 24 percent for the selected option. The net present value and annualized cost of all the other options change by a similar percentage in moving from a 3 percent discount rate to a 7 percent discount rate.

Table F-2. Incremental Net Present Values and Annualized Industry Costs of Amendment Options Discounted at 3 Percent and 7 Percent (million 2000$)

Option	First-Year Cost		Net Present Value[a]		Annualized Cost	
	Low	High	Low	High	Low	High
3 Percent Discount Rate						
Threshold Options						
1a - Draft Final[b]	$73.8	$88.9	$289.1	$346.0	$19.4	$23.3
1b - Selected Final[b]	$72.4	$87.4	$258.0	$309.8	$17.3	$20.8
2	$91.1	$103.1	$362.3	$410.3	$24.4	$27.6
3	$67.2	$77.3	$260.7	$300.6	$17.5	$20.2
4	$59.1	$68.6	$226.4	$263.6	$15.2	$17.7
5	$67.2	$77.3	$339.0	$385.2	$22.8	$25.9
Reporting Exemption Option						
6	$84.7	$94.7	$292.5	$328.8	$19.7	$22.1
Reporting Cycle Options						
7	$91.1	$103.1	$706.3	$800.0	$47.5	$53.8
8	$91.1	$103.1	$88.5	$100.1	$5.9	$6.7
7 Percent Discount Rate						
Threshold Options						
1a - Draft Final[b]	$73.8	$88.9	$217.3	$260.2	$20.5	$24.6
1b - Selected Final[b]	$72.4	$87.4	$195.7	$235.1	$18.5	$22.2
2	$91.1	$103.1	$278.6	$325.0	$26.3	$30.7
3	$67.2	$77.3	$196.1	$226.1	$18.5	$21.3
4	$59.1	$68.6	$170.5	$198.5	$16.1	$18.7
5	$67.2	$77.3	$249.5	$283.8	$23.6	$26.8
Reporting Exemption Option						
6	$84.7	$94.7	$222.6	$250.0	$21.0	$23.6
Reporting Cycle Options						
7	$91.1	$103.1	$511.8	$579.6	$48.3	$54.7
8	$91.1	$103.1	$85.2	$96.3	$8.0	$9.1

[a] NPV determined for a 20-year period.

[b] Option 1a represents the draft final option included in the initial submission for interagency review. Option 1b is the final option that was promulgated. EPA removed a CBI reassertion requirement and added a partial exemption for specific chemicals based on low current interest in processing and use data for those chemicals. All options other than 1b include CBI reassertion and do not include the partial exemption for specific chemicals.