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ECONOMIC ANALYSIS IN SUPPORT OF THE
FINAL RULE TO AMEND TSCA SECTION 12 (b)

by

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EXECUTIVE SUMMARY

The Environmental Protection Agency (EPA) is proposing an amendment pursuant to section 12(b) of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2611(b).

Section 12(b) requires that the EPA be notified when exporters intend to ship a chemical substance or mixture to a particular country if any of the following TSCA regulatory actions have been taken:

- a section 4 test rule (final)
- a section 4 testing consent agreement (final)
- a section 5(e) or 5(f) (final order or civil action)
- a section 5(b) "risk list" rule (proposed or final)
- a section 5 SNUR (proposed or final)
- a section 6 rule (proposed or final)
- a section 7 civil action (final)

Upon receipt of a 12(b) submission from a manufacturer, EPA is required to furnish to the importing country an export notification which identifies the chemical substance to be exported and provides details of the associated TSCA regulatory action. Under the current program, foreign governments are supplied with one notice per chemical per calendar year, regardless of the number of shipments or companies exporting the chemical during the calendar year.

At the time that the EPA promulgated the section 12(b) rule in 1980, the Agency did not believe that the rule would impose an excessive burden upon foreign governments, industry, or EPA resources. However, recent experience has demonstrated to the EPA that an increasing number of section 12(b) notices are being received by the Agency each year. The continuous increase in section 12(b) reporting is placing an increasing burden on industry, an increasing administrative burden on the EPA, and most importantly is making import decision-making more difficult for many foreign governments.

The EPA believes that the most practical means of maintaining the quality of notification, of improving the scrutiny importing countries give to notices, and of reducing the burden on both industry and the Agency, is to amend the section 12(b) reporting rules under 40 CFR Part 707.

The EPA is considering five potential amendments, hereafter called Options 1 through 5, which would engender Agency and industry resource savings and also improve the quality of information in the notices sent from the Agency to importing

countries. The five options under consideration are described below.

The proposed options analyzed in this report are the same as those described in the Notice of Proposed Rulemaking (NPR). This analysis uses different names for the options than the names given in the NPR. Options 1 through 4 in this report are the same as the NPR's alternatives 1 through 4. Option 5 in this analysis is the proposed rule in the NPR.

REGULATORY OPTION 1

Option 1 would require reporting of Section 4 substances when the first test data are required or when adverse test data are received under a Section 4 test rule. Currently, reporting is required when the test rule is issued, not when the test data is expected or received.

Option 1 essentially changes the time at which the first reporting would take place. The Agency estimates a delay of six months to one year under this option. In the long run, the savings to industry and to the Agency would be insignificant because there would be no decrease in submissions or notifications, only delay. The actual monetary value of the delay in reporting would be the time value of the money not spent during the six month to one year delay.

This option is not quantitatively analyzed because it will not cause an actual decrease in the number of 12(b) submissions and notifications and therefore does not meet the stated intent of the proposed rulemaking. For this reason this option was not quantitatively analyzed.

REGULATORY OPTION 2

Currently 12(b) reporting is required for Section 4 substances until the end of the reimbursement period. Option 2 would require 12(b) reporting only until the date on which the final Section 4 test data is due. This option would require reporting of section 4 substances for, on average, two years rather than the current eight years.

Over the next five years this option would reduce 12(b) submissions by approximately 74% and would reduce costs to industry and the Agency by between \$1,474,000 and \$3,593,000. A summary of the expected decreases in 12(b) submissions and the resource savings associated with this option are given in tables ES-1 to ES-3.

REGULATORY OPTION 3

Option 3 would require that the reportable substance exist in an exported product at a certain level before reporting is required. Under this option if a reportable substance was present in a small amount, for example, less than 1% or 0.1% of a mixture or formulation, then reporting would not be required. The current rule requires reporting of all substance regardless of percentage in an exported product.

Because some substances are hazardous at very low concentrations, implementation of this option would probably require the EPA to determine percentage cutoffs on a case by case basis. Enforcement would also be difficult because compliance could only be demonstrated by testing the exported product. Thus, both percentage cutoff determination and enforcement would be controversial and resource intensive for the Agency.

The data to analyze the economic impact of Option 3 are not easily available. Current reporting requirements do not require submission of either the amount of the substance to be exported or the contents and percentages of mixtures that are to be exported.

Since data were not available, since the option did not seem feasible due to contradictions with the enabling legislation, and because this option requires increased expenditure of Agency resources to ensure implementation, Option 3 was not analyzed quantitatively.

REGULATORY OPTION 4

Option 4 would establish a one-time notification requirement per company, per chemical, per country for all actions which would trigger section 12(b) submissions. Thus, rather than the annual reports as required under the current rule, exporters would be required to submit only one notice per country for each chemical subject to a rule, order, action, or relief under section 4, 5, 6, or 7 of TSCA.

Over the next five years this option would reduce 12(b) submissions by 48% to 64% and would reduce costs to industry and the Agency by between \$946,000 and \$3,076,000. A summary of the expected decreases in 12(b) submissions and the resource savings associated with this option are given in tables ES-1 to ES-3.

REGULATORY OPTION 5

Option 5 is the proposed rule in the Notice of Proposed Rulemaking. Option 5 would establish a one-time 12(b) submission per company, per chemical, per country requirement for all section 4 actions. Unlike Option 4, this option would not change the recurring annual reporting requirements triggered by actions under sections 5, 6, or 7 of TSCA.

Over the next five years this option would reduce 12(b) submissions by 43% to 57% and would reduce costs to industry and the Agency by between \$843,000 and \$2,740,000. A summary of the expected decreases in 12(b) submissions and the resource savings associated with this option are given in tables ES-1 to ES-3.

BENEFITS

A primary intent of the proposed rulemaking is to maintain the quality of the export notifications while allowing for better scrutiny by foreign governments. Options 2 and 5 allow foreign countries to focus their efforts on those substances which are considered more hazardous.

Options 2 and 5 limit the number of notifications on section 4 test rule substances. In many cases test rules are issued because there is a lack of health and environmental data on a particular chemical. These two options allow foreign countries to focus their efforts on TSCA section 5 and 6 substances for which restrictive regulatory actions have been proposed and/or promulgated.

IMPACT ON SMALL BUSINESS

All three of the options that were quantitatively analyzed reduce the resource expenditure burden for small business entities.

TABLE ES-1
SUMMARY OF SUBMISSIONS: 1993 to 1997

<u>YEAR</u>	<u>BASELINE</u>	<u>OPTION 2</u>	<u>OPTION 4</u>	<u>OPTION 5</u>
1993 7,369	12,538	2,735	4,737 to 6,687	5,647 to
1994 8,088	13,931	4,086	5,154 to 7,349	6,140 to
1995 8,698	15,324	4,194	5,572 to 8,010	6,634 to
1996 9,526	16,717	4,303	5,990 to 8,672	7,128 to
1997 10,245	18,111	4,413	6,409 to 9,335	7,624 to
<hr/>				
TOTAL	76,621 to 44,035	19,731	27,862 to 40,052	33,173
% Decrease		74%	48% to 64%	43% to
		57%		

TABLE ES-2
RESOURCE SAVINGS FOR OPTIONS 2, 4, and 5
FIRST YEAR: 1993

	<u>Industry Savings</u>	<u>Agency Savings</u>	<u>Total Savings</u>
Option 2	\$137,000 to \$588,000	\$158,000	\$295,000 to \$746,000
Option 4	\$82,000 to \$468,000 \$594,000	\$94,000 to \$126,000	\$176,000 to
Option 5	\$72,000 to \$413,000 \$525,000	\$83,000 to \$111,000	\$156,000 to

TABLE ES-3
RESOURCE SAVINGS FOR OPTIONS 2, 4, and 5
NET PRESENT VALUE: 1993 to 1997

INDUSTRY SAVINGS DISCOUNTED AT 7%
AGENCY SAVINGS DISCOUNTED AT 3%

<u>Industry Savings</u>	<u>Agency Savings</u>	<u>Total Savings</u>
Option 2 \$645,000 to \$2,765,000 \$3,593,000	\$828,000	\$1,474,000 to
Option 4 \$414,000 to \$2,367,000 \$3,076,000	\$532,000 to \$710,000	\$946,000 to
Option 5 \$369,000 to \$2,108,000 \$2,740,000	\$474,000 to \$632,000	\$843,000 to

I. INTRODUCTION

The Environmental Protection Agency (EPA) is proposing an amendment pursuant to section 12(b) of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2611(b).

Section 12(b) requires that the EPA be notified when exporters intend to ship a chemical substance or mixture to a particular country if any of the following TSCA regulatory actions have been taken:

- a section 4 test rule (final)
- a section 4 testing consent agreement (final)
- a section 5(e) or 5(f) (final order or civil action)
- a section 5(b) "risk list" rule (proposed or final)
- a section 5 SNUR (proposed or final)
- a section 6 rule (proposed or final)
- a section 7 civil action (final)

Upon receipt of a 12(b) submission¹ from a manufacturer, EPA is required to furnish to the importing country an export notification which identifies the chemical substance to be exported and provides details of the associated TSCA regulatory

¹ The term "submission" is defined as a notice sent by a company to the EPA. The term "notification" refers to a notice sent by the EPA to an importing country.

action. The export notification program is administered by the EPA's Office of Pollution Prevention and Toxics (OPPT) and the majority of the administrative work is carried out by the TSCA Assistance Office (TAO) in OPPT. Under the current program, foreign governments are supplied with one notice per chemical per calendar year, regardless of the number of shipments or companies exporting the chemical during the calendar year.

At the time that the EPA promulgated the section 12(b) rule, the Agency did not believe that the rule would impose an excessive burden upon foreign governments, industry, or EPA resources. However, recent experience has demonstrated to the EPA that an increasing number of section 12(b) notices are being received by the Agency each year.

In 1984 the EPA received 524 section 12(b) submissions and sent 406 notices to foreign governments. The number of submissions and notifications has steadily increased since then, so that in 1991 the Agency received 11,594 submissions and sent 3,749 notices. This trend is expected to continue in the future.

The continuous increase in section 12(b) reporting is placing an increasing burden on industry, an increasing administrative burden on the EPA, and most importantly is making import decision-making more difficult for many foreign governments.

Because the regulatory actions which trigger section 12(b) reporting requirements are mandated by TSCA, it is not possible for the EPA to change the triggering actions. The EPA believes that most practical means of maintaining the quality of notification, of improving the scrutiny importing countries give to notices, and of reducing the burden on both industry and the Agency, is to amend the section 12(b) reporting rules under 40 CFR Part 707.

This analysis evaluates five options the Agency has under consideration for amending the section 12(b) reporting rules.

II. PROPOSED REGULATORY OPTIONS

The proposed options analyzed in this report are the same as those described in the Notice of Proposed Rulemaking (NPR). This analysis uses different names for the options than the names given in the NPR. Options 1 through 4 in this report are the same as the NPR's alternatives 1 through 4. Option 5 in this analysis is the proposed rule in the NPR.

The five regulatory options under consideration are explained below.

A. REGULATORY OPTION 1

Option 1 would require reporting of Section 4 substances when the first test data are required or when adverse test data are received under a Section 4 test rule. Currently, reporting is required when the test rule is issued, not when the test data is expected or received.

Option 1 essentially changes the time at which the first reporting would take place. The Agency estimates a delay of six months to one year under this option. In the long run, the savings to industry and to the Agency would be insignificant because there would be no decrease in submissions or notifications, only delay. The actual monetary value of the delay in reporting would be the time value of the money not spent during the six month to one year delay.

This option is not quantitatively analyzed because it will not cause an actual decrease in the number of 12(b) submissions and notifications.

B. REGULATORY OPTION 2

Currently 12(b) reporting is required for Section 4 substances until the end of the reimbursement period as defined in subsection (c)(3)(B) of section 4 of TSCA (for details see

page 13). During the reimbursement period, if a new firm begins manufacture or import of a Section 4 substance after other firms have paid for test data then the new firm must reimburse the other firms for part of the test costs. Option 2 would require 12(b) reporting only until the date on which the final Section 4 test data is due.

Option 2 is quantitatively analyzed in subsequent sections of this report.

C. REGULATORY OPTION 3

Option 3 would require that the reportable substance exist in an exported product at a certain level before reporting is required. Under this option if a reportable substance was present in a small amount, for example, less than 1% or 0.1% of a mixture or formulation, then reporting would not be required. The current rule requires reporting of all substance regardless of percentage in an exported product.

In the original rulemaking for section 12(b) there were industry comments that many substances exist in trace amounts as impurities and that these trace impurities might trigger reporting requirements. The Agency noted that the enabling legislation was clear in specifying which substances would trigger reporting requirements and that no exemptions were

specified. The Agency also noted that some substances are extremely hazardous in small quantities. For these reasons the Agency rejected the idea of exemptions for small percentages of mixtures.

Because some substances are hazardous at very low concentrations, implementation of this option would probably require the EPA to determine percentage cutoffs on a case by case basis. Enforcement would also be difficult because compliance could only be demonstrated by testing the exported product. Thus, both percentage cutoff determination and enforcement would be controversial and resource intensive for the Agency.

The data to analyze the economic impact of Option 3 are not easily available. Current reporting requirements do not require submission of either the amount of the substance to be exported or the contents and percentages of mixtures that are to be exported. Thus TAO of OPPT has no information on the number of exports that have small amounts of reportable substances in export mixtures.

Because of the above-mentioned problems with data acquisition, contradictions with the enabling legislation, and increased expenditure of Agency resources to ensure implementation, Option 3 is not quantitatively analyzed in this report.

D. REGULATORY OPTION 4

Option 4 would establish a one-time notification requirement per company, per chemical, per country for all actions which would trigger section 12(b) submissions. Thus, rather than the annual reports as required under the current rule, exporters would be required to submit only one notice per country for each chemical subject to a rule, order, action, or relief under section 4, 5, 6, or 7 of TSCA.

Option 4 is quantitatively analyzed in subsequent sections of this report.

E. REGULATORY OPTION 5

Option 5 is the proposed rule in the Notice of Proposed Rulemaking. Option 5 would establish a one-time 12(b) submission per company, per chemical, per country requirement for all section 4 actions. Unlike Option 4, this option would not change the recurring annual reporting requirements triggered by actions under sections 5, 6, or 7 of TSCA.

Option 5 is quantitatively analyzed in subsequent sections of this report.

III. REDUCED REPORTING AND NOTIFICATION

This economic analysis estimates the resource savings for industry and the EPA that would result from Option 2, Option 4, and Option 5. As mentioned previously Options 1 and 3 will not be quantitatively analyzed.

Options 2, 4, and 5 reduce the number of submissions sent to the Agency from companies exporting substances regulated under section 12(b) of TSCA. These options also reduce the number of notifications that the Agency will send to foreign governments. A reduction in the number of company submissions and Agency notifications will save both industry and the EPA resources. These resource savings will be called the "reduction in reporting burden".

A. REDUCTION IN REPORTING BURDEN IN INDUSTRY

The procedure used to estimate the reduction in reporting burden for industry requires several steps. First, a baseline estimate of the number of submissions and notifications that would be received and sent under the existing rule will be generated. Second, an estimate of the reduction in industry submissions resulting from the options under analysis is generated. Next an estimate of the average industry cost for a submission is given. Finally, the reduction in submissions and

the average cost per submission are used to calculate the reduction in industry reporting burden.

1. Estimation Methodology

To estimate the decrease in company submissions, the difference between the number of submissions that would have been sent in without the proposed rulemaking and the number that would be sent by companies if a proposed regulatory option is adopted is estimated. The estimate of the number of repeat submissions that would no longer be required is based on data from the Agency's TSCA Assistance Office (TAO).

a. Submission Data

Data on the actual number of 12(b) submissions received by the Agency from 1983 to 1991 is shown in Table I.

TABLE I: 12(b) SUBMISSIONS, 1983 TO 1991

	<u>TSCA SECTION</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
<u>1990</u>	<u>1991</u>							
8,385	4 9,803	-	31	283	1,506	1,703	3,352	5,753
333	5 487	1	9	11	88	115	196	265
588	6 1,107	437	484	525	462	549	756	382
	<u>TOTAL.....</u>	<u>438</u>	<u>524</u>	<u>819</u>	<u>2,056</u>	<u>2,367</u>	<u>4,304</u>	<u>6,400</u>
9,305	11,594							

Note: EPA has never received any submissions under TSCA Section 7, so that section will not be addressed in the remainder of this report.

SOURCE: Newsome 1989, Woodburn 1992, RII 1992

b. Trends in Submissions

Before proceeding to the estimate of the number of future 12(b) submissions the Agency expects to receive, comment should be made on two trends that are evident in the data presented in Table I. First, it is evident that before 1986 the number of 12(b) submissions was primarily being driven by TSCA section 6 substances. Since then most submissions have been triggered by TSCA section 4 substances. Second, there have been significant increases in the number of submissions sent to the Agency to report export of section 4 substances. In addition, the number of submissions triggered by section 5 substances has been small by comparison to sections 4 and 6.

The two trends noted above can be explained by looking at the number of substances that were regulated by each of these sections of TSCA. Table II shows the number of substances that were added to the list of regulated substances in each section from before 1983 through 1991.

TABLE II: NUMBER OF SUBSTANCES SUBJECT TO 12(b), BY SECTION AND YEAR THEY BECAME REPORTABLE

TSCA SECTION		Before 1983	1983	1984	1985	1986	1987	1988
1989	1990	1991						
	4	0	0	1	7	7	6	41
22	1	1						
	5	12	22	74	44	109	31	38
64	158	87						

| 0 | 6 | | 0 3 | 0 | 3 | 0 | 0 | 0 | 5

SOURCE: Newsome 1989, RII 1991

Section 6 substances triggered the majority of 12(b) reports prior to 1986 for two reasons (see Table I). First, there were no section 4 actions which required 12(b) reporting prior to 1984 and there was only one substance which triggered reporting added to the list in 1984. Also, the substances that were on the section 6 list were CFCs, asbestos and PCBs. These three substances are large volume substances that were exported quite frequently to many different countries.

Since 1985 many new substances have been added to the section 4 list, particularly in 1988 and 1989 (including large volume substances such as methyl ethyl ketone (MEK) and isopropanol). This has led to a large increase in the number of submissions for section 4 chemicals since 1989. While the number of section 5 substances has also increased significantly, these are new chemicals regulated under the Premanufacture Notice (PMN) program. They are often small volume chemicals, and are unlikely to trigger large increases in 12(b) reports.

c. Estimating 12(b) submissions

An estimate of the number of 12(b) submissions that the EPA would receive under existing rulemaking was calculated using a regression equation based on the data provided in Table I. An estimation equation was generated for each of the sections of TSCA which trigger 12(b) reporting.

These equations assume that the number of future 12(b) submissions that are triggered by each of these TSCA sections are a function of time. This implicitly assumes that the Agency will proceed to add substances to the various sections of TSCA in a manner that is consistent with previous experience. Implicit assumptions such as this lead the Agency to believe that there may be a degree of uncertainty inherent in the estimates. Further, uncertainty increases as the time period being estimated increases. The Agency believes the relatively short time frame predicted here (only until 1997) minimizes the likelihood of an incorrect prediction caused by the above-mentioned considerations.

The equations that were used to estimate future submissions are given in Appendix I. Full analytical information on the statistical analysis is given in Appendix II. The following table uses the equations given in Appendix I to estimate the number of 12(b) submissions that would be received by the Agency under existing rulemaking.

TABLE III: BASELINE, 1992 TO 1997

ESTIMATED 12(b) SUBMISSIONS WITHOUT AMENDED RULEMAKING

<u>TSCA SECTION</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
4	9,845	11,130	12,414	13,698	14,982	16,267
5	462	520	579	638	697	756
6	838	888	938	988	1,038	1,088
TOTAL.....	11,145	12,538	13,931	15,324	16,717	18,111

The next task for this analysis is to estimate the number of 12(b) submissions required as a result of the proposed amendments described in Options 2, 4, and 5.

2. Submissions Under Option 2

Option 2 would eliminate section 12(b) reporting of section 4 substances during the reimbursement period. In this option companies report until the date on which the final section 4 test data are due.

The time that a substance is under Section 4 consideration can be divided into two periods. The first period will be from initiation of action until receipt of test data. It is assumed, based on TAO estimates, that this period averages two years. The second period is from receipt of test data until the end of the reimbursement period. It is assumed, again based on TAO estimates, that this period averages 6 years. Under current 12(b) rules, companies must submit notices for the entire eight years while under Option 2 companies would submit notices for the first two years. This means that the number of repeat notices sent because of section 4 actions would decrease by three fourths.

It would be helpful to know what the percentage of 12(b) submissions are for newly added section 4 substances.

Under Option 2 these submissions are required for the first two years after the substances are added to the section 4 list. Data resource limitations make an empirical estimation of this percentage unfeasible. Making assumptions about this percentage are also difficult. In any given year when new substances are added to the section 4 list they may be large volume substances that have a high probability of export or the substances may be low volume, specialty chemicals with no export potential. Under these two potential scenarios the impacts on the number of first year 12(b) submissions differ dramatically. For the large volume substances there would be a large number of 12(b) submissions triggered when the substance is regulated. Specialty chemicals would not trigger a large increase in 12(b) submissions and thus the submissions received in that year would be for substances that were already on the section 4 list of reportable substances.

Because of the above-mentioned difficulties, this analysis assumes that the incremental increase between years in 12(b) section 4 submissions are all first year reports for newly reportable substances. Under Option 2 the total number of submissions triggered by section 4 in any given year will consist of the increase in submissions for that year plus the previous year's increase in 12(b) section 4 submissions. For example, in estimating 1993 submissions, it is estimated that from 1991 to 1992 the number of 12(b) submissions on section 4 substances increased by 412 (9,845 - 9,803). Between 1992 and 1993, 12(b)

section 4 submissions are estimated to increase by 1,285 (11,130 - 9,845). Thus, the estimated number of 12(b) section 4 submissions under Option 2 in 1993 will be 1,327 (42 + 1,285). The number of 12(b) submissions in the years 1993 through 1997 are generated using the same procedure.

Under Option 2 the number of 12(b) section 5 and section 6 submissions will not change from the baseline. Estimates of the number of 12(b) submissions under Option 2 are given in Table IV.

TABLE IV
ESTIMATED 12(b) SUBMISSIONS UNDER OPTION 2

<u>TSCA SECTION</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
4	1,327	2,569	2,568	2,568	2,569
5	520	579	638	697	756
6	888	938	988	1,038	1,088
<u>TOTAL.....</u>	<u>2,735</u>	<u>4,086</u>	<u>4,194</u>	<u>4,303</u>	<u>4,413</u>

The projected increases in submissions are driven by the beta estimate of the regression function. Since the beta estimator is constant, the incremental increases will be zero after 1994. This means that the projected annual 12(b) section 4 submissions will be constant (at 2,568) after 1994 and that any increase in the total number of 12(b) submissions after that year will be driven by section 5 and section 6 substances.

3. Submissions Under Option 4

Option 4 establishes a one-time submission per company per chemical per country requirement for all section 4, 5, or 6 actions which trigger section 12(b) reporting.

Under this option all first year section 4, 5, and 6 12(b) submissions will be reported. The estimate of the number of new submissions triggered by sections 4, 5, and 6 is assumed to be the incremental yearly increase in 12(b) submissions. This assumption is the same used in the estimation process for Option 2.

It is difficult to estimate the percentage of repeat submissions for a substance because that percentage increases the longer a substance has been regulated. It would seem reasonable to assume that reportable substances have a "reporting life cycle". For example, in the first year that a substance is reportable, 100% of the export of the substance is reported. In the second year some companies will export to the same countries and thus will not be required to report, and in the third year the probabilities increase for an exporting company that they will have reported in the first or second year. Thus, over the "reporting life cycle" the percentage of repeat submissions continues to increase and the number of required submissions would therefore decrease under Option 4.

The implication of this changing percentage is that a single estimate of the number of repeat submissions may be misleading and over simplified. If the average age of the section 4 substance cohort increases then the number of 12(b) submissions will decline under Option 4 because of an increase in repeat submissions. Conversely, if the age of the section 4 substance cohort becomes younger then the percentage of repeat submissions will decline and the number of 12(b) submissions will increase.

There are difficulties in empirically estimating the nature of the "reporting life cycle" of section 4 substances. The Agency has only been receiving 12(b) submissions for these substances for eight years and, as can be seen from Tables I and II, until recently the number of reportable substances has been relatively small.

An extensive analysis of one of these substances, diethylenetriamine (DETA), a substance that was reportable for the first time in 1985 and is one of the more heavily exported substances, revealed the following:

TABLE V: ANALYSIS OF DETA

<u>YEAR</u>	<u># OF 12 (B) SUBMISSIONS</u>	<u># OF REPEATS</u>	<u>% OF REPEATS</u>
1986	60	14	23%
1987	133	61	46%
1988	139	97	70%

SOURCE: NEWSOME 1989

Analysis of another heavily exported substance, biphenyl, disclosed a first year repeat percentage of 67% and a second year repeat percentage of 72%. Analysis of two other substances [decabromodiphenyl (DBDO) and tetrabromobisphenol (TBBA)] that are not exported heavily revealed first year repeat percentages of 67% and 72%, respectively (Newsome 1989).

It is difficult to conclude from this data what the percentage of repeat submissions for section 12(b) substances would be over time. For purposes of this analysis it will be assumed that the percentage of repeat submissions in the second reporting year will be between 20% and 70%. This assumption will allow for the addition to the 12(b) list substances such as DETA or such as DBDO. In the third year the assumed percentage of repeat submissions will be between 50% and 70%. The fourth and fifth year will be assumed to have 70% repeat submission rates. These assumptions will provide an upper and lower bound for the estimates on the number of repeat submissions after the first year of reporting (Newsome 1989).

Another simplifying assumption made in the analysis was that the length of time that substances have been reportable is evenly distributed. Thus, 25% of submissions other than first-year submissions will be in their second year of reporting, 25% in their third reporting year, etc. This assumption seems reasonable given the historical data provided in Table II.

Using the assumptions stated above, Table VI presents estimates of the number of 12(b) submissions the Agency will receive under Option 4.

TABLE VI
ESTIMATED 12(B) SUBMISSIONS UNDER OPTION 4

<u>TSCA SECTION</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
4	4,239 to 5,961	4,623 to 6,571	5,008 to 7,181	5,393 to 7,791	5,780 to 8,401
5	197 to 277	215 to 306	233 to 334	250 to 362	268 to 390
6	301 to 448	316 to 472	331 to 496	346 to 519	361 to 543
TOTAL.....	4,737 to 6,687	5,154 to 7,349	5,572 to 8,010	5,990 to 8,672	6,409 to 9,335

4. 12(B) Submissions Under Option 5

Option 5 is the proposed rule in the Notice of Proposed Rulemaking. Option 5 would establish a one-time 12(b) submission requirement per company per chemical per country for all section 4 actions. This option would not change the recurring annual reporting requirements triggered by actions under sections 5, 6, or 7 of TSCA. Option 5 is similar to Option 4 except that the one-time reporting only applies to section 4 substances under Option 5.

In estimating the decrease in submissions under Option 5 the same assumptions concerning new and repeat submission are made that were made for Option 4. Thus, the incremental increase each year in 12(b) section 4 submissions are assumed to be from new section 4 actions. Repeat submissions in the second year are assumed to be between 20% and 70%, third year repeats between 50% and 70%, and fourth and fifth year 70%. Also the length of time that substances have been reportable is assumed to be evenly distributed.

Given these assumptions and using the same estimation procedure used to estimate the decrease in submissions for Option 4, estimates of the number of 12(b) submissions under Option 5 were generated. These estimates are presented in Table VII.

TABLE VII
ESTIMATED 12(B) SUBMISSIONS UNDER OPTION 5

<u>TSCA SECTION</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
4	4,239 to 5,961	4,623 to 6,571	5,008 to 7,181	5,393 to 7,791	5,780 to 8,401
5	520	579	638	697	756
6	888	938	988	1,038	1,088
TOTAL.....	5,647 to 7,369	6,140 to 8,088	6,634 to 8,698	7,128 to 9,526	7,624 to 10,245

B. Decrease in 12(b) Submissions

Estimating the decrease in 12(b) submissions requires taking the information in Tables IV, VI, and VII (Estimated Submissions Under Options 2, 4 and 5) and subtracting those values from the data given in Table III (Baseline: Submissions Under Existing Rulemaking). This gives an estimate of the decrease in 12(b) submissions resulting from the various options. The results of this estimation are summarized in Table VIII below.

TABLE VIII
DECREASE IN 12(B) SUBMISSIONS UNDER OPTIONS 2, 4, AND 5

<u>YEAR</u>	<u>OPTION 2</u>	<u>OPTION 4</u>	<u>OPTION 5</u>
1993	9,803	5,851 TO 7,802	5,169 TO 6,892
1994	9,845	6,582 TO 8,777	5,843 TO 7,791
1995	11,130	7,314 TO 9,752	6,517 TO 8,690
1996	12,414	8,045 TO 10,727	7,191 TO 9,589
1997	13,698	8,776 TO 11,702	7,866 TO 10,487

The estimated decrease in 12(b) submissions associated with Option 2 is approximately 9,800 for 1993. This represents a 78% decrease in submissions for 1993 versus the baseline. From 1993 to 1997 the expected decline in submissions is an estimated 57,000. This is a 74% decrease in submissions over 5 years.

The estimated decrease in 12(b) submissions associated with Option 4 is 5,900 to 7,800 for 1993. This represents a 47% to 62% decrease in submissions for 1993 versus the baseline. From 1993 to 1997 the expected decrease in submissions is between 37,000 and 49,000. This is a decrease in submissions of between 48% and 64% over the next 5 years.

The estimated decrease in 12(b) submissions associated with Option 5 is 5,200 to 6,900 for 1993. This represents a 41% to 55% decrease in submissions for 1993 versus the baseline. From 1993 to 1997 the expected decrease in submissions is between 33,000 and 43,000. This is a decline in 12(b) submissions of between 43% to 57% over the next 5 years.

C. Industry Cost Per Submission

The EPA has previously generated estimates of the cost to companies of submitting a notice of intent to export. When the Agency was estimating the initial costs of compliance with the hazard communication provisions of the Significant New Use Rule (SNUR) under TSCA, the cost of submitting an export notification letter was estimated (Karnes 1988). It is assumed that the cost of sending notifications under the SNUR rulemaking are the same as those for section 12(b) of TSCA. The costs of submitting a notice of export, updated for inflation (CEA 1992), are estimated as follows:

- 1 hr. legal or managerial time @ \$48.61/hr. = \$48.61
 - 1/2 hr. secretarial time @ \$15.60/hr. = \$ 7.80
 - 1 letter via registered mail @ \$5.79/letter = \$ 5.79
- Total = \$62.20

The export reporting costs associated with section 12(b) of TSCA would be about \$60 per chemical per company.

The estimate of \$60 per submissions is for first time submissions. This estimate could be viewed as a maximum cost for submissions. Most of the repeat submissions received by the Agency are computer generated form letters, and thus the cost of compliance is likely to be less than the estimate for first time compliance. If it is assumed that there is no managerial or legal time expended in generating the repeat submissions then the \$48.61/hr cost for that labor is excluded from the cost estimate. Thus the minimum cost estimate would include the cost of secretarial services and the cost of sending a registered letter. The minimum cost estimate for a repeat submission under this set of assumptions is \$13.59 or approximately \$14 per chemical per company.

Under the assumptions given, a single repeat submission will cost a company a minimum of \$14 and a maximum of \$60.

D. Industry Savings

Two estimates of the cost saving to industry from the proposed options are presented in this section. First, Table IX presents the industry savings for 1993 calculated for Options 2, 4, and 5. Numbers in this table are generated by multiplying the number of repeat submissions that would not be submitted times the estimated cost per submission.

Table X presents estimates of the net present value of industry savings over five years. The net present value is calculated using a seven percent discount rate, on the assumption that the cost of submissions is an opportunity cost of investment funds, which has a real rate (i.e., adjusted for inflation) of approximately seven percent. Later calculations of EPA costs are made using a three percent discount rate. This assumes that government expenditures are not an opportunity cost use of investment funds, but rather are an opportunity cost of consumption funds. Three percent is considered a more proper discount rate for consumption funds.

The estimates use the minimum (\$14) and maximum (\$60) values for the cost per submission. Thus both of the estimates are in the form of a range, from low to high, rather than a specific point estimate.

TABLE IX: INDUSTRY SAVINGS, 1993 *

<u>OPTION 2</u>	<u>OPTION 4</u>	<u>OPTION 5</u>
\$137,000 to \$588,000	\$82,000 to \$468,000	\$72,000 to \$413,000

* All monetary values are rounded to the nearest \$1000

TABLE X: NET PRESENT VALUE OF INDUSTRY SAVINGS, 1993 TO 1997
USING A 7% DISCOUNT RATE

OPTION 2	\$645,000 TO \$2,765,000
OPTION 4	\$414,000 TO \$2,367,000
OPTION 5	\$369,000 TO \$2,108,000

IV. AGENCY RESOURCE SAVINGS

Agency resource savings from the proposed options will occur in two specific areas. First, the Information Management Division (IMD) of the Office of Pollution Prevention and Toxics (OPPT) will handle fewer submissions from industry. Second, the TSCA Assistance Office (TAO) of OPPT will send out fewer notifications to importing countries. The next two sections of this analysis will estimate the cost savings to the Agency in these two areas.

A. RESOURCE SAVINGS FOR IMD

When companies send in 12(b) submissions the Information Management Division (IMD) of the Office of Pollution Prevention and Toxics (OPPT) performs several functions. Examples of these functions include: receiving the submission form, checking the form for completeness, logging the submission into the document control system, and sending a copy to the TSCA Assistance Office (TAO) of OPPT.

A representative from IMD stated that 12(b) submissions are currently handled by both an EPA employee and a contractor (IMD 1992). It takes the EPA employee, a GS-9, approximately five minutes to process each submission. Assuming 100 percent for overhead expenses, the wages and benefits for a GS-9 level employee are approximately \$54,000 per year or \$27 per hour. Since each submission takes five minutes to process, this is equivalent to \$2.25 per form. The data entry is performed by a contractor at \$13.88 per hour. Since it takes about 15 minutes to enter the data, the cost is about \$3.50 per form. Thus, the total cost to IMD is \$5.75, or approximately \$6, per form.

This estimate assumes that the IMD uses existing equipment and capital and that these costs are sunk costs and thus zero.

The estimated savings to IMD will be the cost for handling a submission (\$6) times the decrease in submissions resulting from

the various options. Table XI shows 1993 the savings to IMD from the various options.

TABLE XI: IMD SAVINGS FOR 1993

<u>OPTION 2</u>	<u>OPTION 4</u>	<u>OPTION 5</u>
\$59,000	\$35,000 TO \$47,000	\$31,000 TO \$41,000

Table XII presents the net present value of IMD's savings under Options 2, 4 and 5 from 1993 to 1997 using a discount rate of 3%. This rate is used on the assumption that government expenditures do not represent an opportunity cost of investment funds but rather are an opportunity cost of consumption funds, for which three percent is an appropriate rate.

TABLE XII: NET PRESENT VALUE OF IMD SAVINGS, 1993 TO 1997
USING A 3% DISCOUNT RATE

OPTION 2	\$311,000
OPTION 4	\$200,000 to \$266,000
OPTION 5	\$178,000 to \$237,000

B. RESOURCE SAVINGS FOR TSCA ASSISTANCE OFFICE

1. TAO Cost Per Notification

The TAO currently has a GS-13, Step 4 level employee working one quarter time on 12(b) notifications (TAO 1992). Assuming 100% overhead for benefits and overhead, the estimated cost to the Agency for the GS-13 position is \$101,660 annually. The Agency also spends \$75,000 on contractor support for the notifications. In 1993 the cost to the Agency for time allocated to processing the 12(b) notifications is approximately \$100,400 ($101,600 \times .25 + 75,000$).

In 1991 the Agency sent 3,749 notices to foreign governments. Therefore, The Agency cost per 12(b) notification sent is approximately \$27 ($\$100,400$ divided by 3,749).

2. Reduction in Notifications

Using data on the actual number of notifications sent by TAO from 1984 to 1991 (Woodburn 1992), a linear extrapolation was used to estimate the expected number of future notifications that TAO will send from 1993 to 1997. Details are presented in Appendix III. The summary of this extrapolation is shown in Table XIII below.

TABLE XIII: BASELINE

ESTIMATED NOTIFICATIONS WITHOUT AMENDED RULEMAKING

<u>Year</u>	<u>Number of Notifications</u>
1993	4,708
1994	5,186
1995	5,664
1996	6,142
1997	6,620

This analysis assumes that the decline in Agency notifications is directly related to the number of submissions received from companies. A comparison of the data in Table III (Baseline: 12b Submissions Without Amended Rulemaking) and Table VIII (Decrease in Submissions Under Options 2, 4, and 5) generates the percentage decrease in submissions due to the various options. It is assumed that notifications sent by the Agency will decline by the same percentage under the various options.

An estimate of the expected future decrease in notifications is generated by multiplying the number of notifications estimated in Table XIII by the expected percentage declines for each of the three options. This process provides a schedule showing the expected decrease in notifications that result from Options 2, 4, and 5. This schedule is shown in Table XIV below.

TABLE XIV: REDUCTION IN AGENCY NOTIFICATIONS

<u>Year</u>	<u>Option 2</u>	<u>Option 4</u>	<u>Option 5</u>
1993	3,681	2,197 to 2,929	1,941 to 2,588
1994	3,665	2,450 to 3,267	2,175 to 2,900
1995	4,114	2,703 to 3,604	2,409 to 3,212
1996	4,561	2,956 to 3,941	2,642 to 3,523
1997	5,007	3,208 to 4,277	2,875 to 3,833

3. TAO Savings

The savings to TAO from the 3 options will be equal to the cost per notification (\$27) times the decrease in notifications. The one year savings for 1993 for TAO from the various options is given in Table XV below.

Table XV: TAO SAVINGS IN 1993

<u>Option 2</u>	<u>Option 4</u>	<u>Option 5</u>
\$99,000	\$59,000 to 79,000	\$52,000 to 70,000

Table XVI gives the net present value of the saving to TAO for the three options, discounted at 3% from 1993 to 1997.

TABLE XVI: NET PRESENT VALUE OF TAO SAVINGS, 1993 TO 1997
USING A 3% DISCOUNT RATE

OPTION 2	\$517,000
OPTION 4	\$332,000 to \$443,000
OPTION 5	\$296,000 to \$395,000

C. TOTAL SAVINGS FOR THE AGENCY

In conclusion, the total savings to the Agency will be the savings to IMD plus the savings to TAO. Table XVII below summarizes expected Agency savings in 1993 from the proposed options. Table XVIII summarizes the expected net present value of Agency saving discounted at 3% from 1993 to 1997.

TABLE XVII: AGENCY SAVINGS FOR 1993

<u>Option 2</u>	<u>Option 4</u>	<u>Option 5</u>
\$158,000	\$94,000 to \$126,000	\$83,000 to \$111,000

TABLE XVIII: NET PRESENT VALUE OF AGENCY SAVINGS, 1993 TO 1997
USING A 3% DISCOUNT RATE

OPTION 2	\$828,000
OPTION 4	\$532,000 to \$710,000
OPTION 5	\$474,000 to \$632,000

V. SUMMARY OF REDUCTION IN REPORTING AND NOTIFICATION BURDEN

The total estimated savings for 1993 under Option 2 is estimated to be between \$295,000 and \$746,000. The net present value of the total savings for option 2 from 1993 to 1997 is estimated at \$1,474,000 to \$3,593,000, using a 7% discount rate for industry savings and a 3% rate for EPA savings.

The total estimated savings for 1993 under Option 4 is estimated to be between \$176,000 and \$594,000. The net present value of the total savings for this option from 1993 to 1997 is estimated at \$946,000 to \$3,076,000.

The total estimated savings for 1993 under Option 5 is estimated to be between \$156,000 and \$525,000. The net present value of the total savings for this option from 1993 to 1997 is estimated at \$843,000 to \$2,740,000.

The estimated savings to industry and the EPA that will result from the proposed rulemaking are summarized in Tables XIX and XX.

TABLE XIX: TOTAL RESOURCE SAVINGS FROM OPTION 2, 4, AND 5

FIRST YEAR: 1993

OPTION 2	\$295,000 to \$746,000
OPTION 4	\$176,000 to \$594,000
OPTION 5	\$156,000 to \$525,000

TABLE XX: TOTAL RESOURCE SAVINGS FROM OPTION 2, 4, AND 5

NET PRESENT VALUE: 1993 TO 1997

OPTION 2	\$1,474,000 to \$3,593,000
OPTION 4	\$946,000 to \$3,076,000
OPTION 5	\$843,000 to \$2,740,000

Calculated using a 7% discount rate for industry savings and a 3% rate for Agency savings.

VI. BENEFITS

By decreasing the volume of notices importing countries receive, the proposed option may increase the effectiveness of the notification program by allowing foreign countries to focus their efforts on those substances which are considered more hazardous.

Options 2 and 5 are most effective in meeting this benefit criteria. These two options will limit the number of notifications on section 4 test rule substances. In many cases test rules are issued because there is a lack of health and environmental data on a particular chemical. Thus, these two options may allow foreign countries to spend their efforts on section 5 and 6 substances for which restrictive regulatory actions have been proposed and/or promulgated.

VII. EFFECTS OF THE PROPOSED OPTIONS ON SMALL BUSINESSES

In September 1980, Congress enacted the Regulatory Flexibility Act (P.L. 96-354), which requires that regulatory Agencies consider potential effects of regulations on small entities. If it is determined that the regulations are likely to affect small entities disproportionately, the Act also mandates that possible relief measures be examined during the Rulemaking process.

In response to the Regulatory Flexibility Act, EPA established specific guidelines for analyzing the potential impact of Proposed Rules on small entities. Under the Agency's guidelines, regulatory impact analyses must define "small entity" and determine whether there is "a significant economic impact on a substantial number of small entities".

A. SMALL BUSINESS DEFINITION

The Federal definition of "small entities" includes small businesses (SBs), small not for profit organizations, and small governmental jurisdictions. For purposes of this analysis, it was assumed that not for profit organizations and small government jurisdictions would not be affected by the proposed options. Thus, "small entity" may be considered synonymous with small business.

The current definition of small business under section 8(a) of TSCA includes those firms whose annual sales, when combined with the annual sales of their parent company, if applicable, are less than \$40 million, and less than 100,000 pounds of the regulated chemical is manufactured per site. Firms that generate less than \$4 million in annual sales are considered SBs regardless of production volumes.

B. IMPACTS ON SMALL BUSINESS

All three of the options that were quantitatively analyzed reduce the resource expenditure burden for business entities. Given the higher propensities of large firms to engage in export activities, it is possible that the primary recipients of the cost savings are large entities. Small entities, however, also realize cost savings if they engage in export of 12(b) substances.

VIII. CONCLUSIONS

Each of the options cause dramatic decreases in the number of 12(b) submissions that the Agency might expect to receive in the next five years. Under each of the options the absolute number of 12(b) submissions will decline initially and then begin to rise. Over the next five years the resource saving for each of the three options analyzed are of similar magnitudes. The five-year saving for each ranges from about three quarters of a million dollars at the lower bound to slightly over three and a half million at the upper bound. The analysis indicates that the greatest resource savings over the next five years for industry and the Agency are associated with Option 2. However, given the uncertainty of the estimates, care should be taken in interpreting the precise rank ordering of the resource savings of the options.

One of the objectives of the current proposed rule is to improve the quality of the information in the notifications being sent to foreign countries. Option 2 and 5 best meet this objective by decreasing the number of 12(b) section 4 notifications while maintaining annual notification of export of sections 5 and 6 substances.

APPENDIX I: ESTIMATION EQUATIONS

The equations that were used to estimate future submissions are given in table I.1.

TABLE I.1: EQUATIONS FOR ESTIMATING
12 (B) SUBMISSIONS

1. SSfour is defined as the number of 12(b) submissions as a function of TSCA section 4 actions. The year to be estimated is defined as (t_n)

$$\begin{aligned} \text{SSfour} &= f(t_n) \\ \text{SSfour} &= -2997.5 + 1284.3(t_n) \end{aligned}$$

2. SSfive is defined as the number of 12(b) submissions as a function of TSCA section 5 actions.

$$\begin{aligned} \text{SSfive} &= f(t_n) \\ \text{SSfive} &= -127.1 + 58.9(t_n) \end{aligned}$$

3. SSsix is defined as the number of 12(b) submissions as a function of TSCA section 6 actions.

$$\begin{aligned} \text{SSsix} &= f(t_n) \\ \text{SSsix} &= 337.8 + 50(t_n) \end{aligned}$$

The following is an example of how the above equations can be used to estimate future 12(b) submissions. Since there were nine years of data for SSfour, 1983 to 1991, the first year to be estimated, 1992, would be the tenth time period. Thus the estimation equation would be as follows:

$$\begin{aligned} \text{SSfour}_{1992} &= -2997.5 + 1284.3 \times (10) && \text{or} \\ \text{SSfour}_{1992} &= 9,845 \end{aligned}$$

Thus in 1992 the number of 12(b) submissions that would be sent in for substances on the section 4 list is estimated to be 9,845.

APPENDIX II: REGRESSION RESULTS

Trend analysis was used to develop a relationship between the number of TSCA subsection 12(b) submissions based upon filings under TSCA subsections 4, 5, and 6. The general form of the model specified is

$$SS_i = f(\text{time})$$

where SS_i represents TSCA subsection i , $i = 4, 5, \text{ or } 6$. Several nonlinear specifications were estimated and found to be lacking when compared to the linear formulation (Newsome 1989). Although data were available for only nine years, parameter estimates, as well as the overall equations, were found to be highly significant. Also, the explanatory power of the estimated equations ranged from 38 percent to a high of 92 percent. Summing the estimated values for subsections 4, 5, and 6 provides the baseline for subsection 12(b) filings.

Table II.1 shows the input variables to the regression. Table II.2 shows the regression results.

TABLE II.1: 12(b) Submissions, 1983 to 1991

<u>Year</u> t_n	<u>Section 4</u> <u>(SSfour)</u>	<u>Section 5</u> <u>(SSfive)</u>	<u>Section 6</u> <u>(SSsix)</u>	<u>Total</u>
1983 1	0	1	437	438
1984 2	31	9	484	524
1985 3	283	11	525	819
1986 4	1,506	88	462	2,056
1987 5	1,703	115	549	2,367
1988 6	3,352	196	756	4,304
1989 7	5,753	265	382	6,400
1990 8	8,384	333	588	9,305
1991 9	9,803	487	1,107	11,594

TABLE II.2: Regression Results

Dependent Variable: SSfour Independent Variable: tn

Regression Output:

Constant	-2997.53
Std Err of Y Est	1281.869
R Squared	0.895874
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	1284.283
Std Err of Coef.	165.4886

Dependent Variable: SSfive Independent Variable: tn

Regression Output:

Constant	-127.111
Std Err of Y Est	51.10841
R Squared	0.919167
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	58.86667
Std Err of Coef.	6.598068

Dependent Variable: SSSix Independent Variable: tn

Regression Output:

Constant	337.7778
Std Err of Y Est	187.0842
R Squared	0.379743
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	50
Std Err of Coef.	24.15247

APPENDIX III: LINEAR EXTRAPOLATION RESULTS

The number of notifications sent by the TSCA Assistance Office to foreign governments is shown below (TAO 1992).

TABLE III.1: ACTUAL NOTIFICATIONS BY TAO

<u>Year</u>	<u>Notifications</u>
1984	406
1985	533
1986	869
1987	1,035
1988	2,100
1989	3,855
1990	3,633
1991	3,749

A linear extrapolation provides a reasonable estimate of the number of notifications expected. There was an increase of 3,343 annual notifications between 1984 and 1991 (3,749 - 406). Divided by seven years, this is an average increase of 478 notifications per year for each year between 1984 and 1991. Applying this rate of increase to future years results in the following prediction for notifications in future years.

TABLE III.2: PREDICTED NOTIFICATIONS BY TAO

<u>Year</u>	<u>Notifications</u>
1992	4,230
1993	4,708
1994	5,186
1995	5,664
1996	6,142
1997	6,620

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