

# **Environmental Protection Agency Toxic Substances Control Act**

Friday  
July 11, 1980

**PLAINTIFF'S  
EXHIBIT**

KM-384

## **Part III**

### **Environmental Protection Agency**

**Toxic Substances Control; Records and  
Reports of Allegations of Significant  
Adverse Reactions to Health or the  
Environment**

KMX 01177

**ENVIRONMENTAL PROTECTION  
AGENCY****40 CFR Part 717**

[FRL 1483-4]

**Toxic Substances Control Act;  
Records and Reports of Allegations of  
Significant Adverse Reactions to  
Health or the Environment****AGENCY:** Environmental Protection  
Agency.**ACTION:** Proposed rule.

**SUMMARY:** Section 8(c) of the Toxic Substances Control Act requires that "any person who manufactures, processes, or distributes in commerce any chemical substance or mixture" must keep "records of significant adverse reactions to health or the environment, as determined by the Administrator by rule, alleged to have been caused by the substance or mixture." Section 8(c) requires that employee allegations be kept for 30 years, and all other allegations be kept for five years. This proposal sets out definitions and procedures for implementing section 8(c).

**Note.**—Persons who "process" chemical substances or mixtures include companies that manufacture consumer goods or industrial products. Manufacturers of automobiles, paper products, textiles, or electronic components, for example, should consider commenting on this proposed rule.

**DATES:** In order for EPA to consider comments during development of the final rule, it must receive written comments on this proposal on or before October 9, 1980 (see *Public Meetings* below for a discussion of meeting arrangements.)

**ADDRESS:** Written comments should bear the document control number OTS-083001 and should be submitted to the Chemical Information Division, Office of Pesticides and Toxic Substances (TS-793), Attention: Document Control Officer, Environmental Protection Agency, Washington, DC 20460. All written comments concerning this notice will be available for public inspection at the OPTS Reading Room, 447 East Tower, from 9:00 a.m. to 5:00 p.m., Monday through Friday.

**FOR FURTHER INFORMATION CONTACT:** John B. Ritch, Director, Industry Assistance Office, Office of Pesticides and Toxic Substances (TS-799), Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, 800-424-9065; in Washington call 554-1404.

**SUPPLEMENTARY INFORMATION:** This proposed rule to implement section 8(c) of the Toxic Substances Control Act, 15

U.S.C. 2607(c), would apply to all persons who manufacture or process chemical substances or mixtures, and to all distributors except retailers. These persons would be required to keep records of allegations of "significant" adverse reactions. These are defined as reactions that suggest that a chemical may cause long-lasting or irreversible damage to health or the environment. In the proposal, records of written and oral allegations that are not anonymous and that implicate a chemical substance or mixture would have to be kept at the plant site where they are received. For reporting purposes, companies would have to transfer data from allegation records to a standard EPA form. The proposal discusses options for automatic reporting of certain allegations to EPA. The proposal also contains a provision under which EPA will require firms to submit records at the specific request of EPA.

EPA has worked closely with the Occupational Safety and Health Administration and the Consumer Product Safety Commission during the development of this proposal. The Agencies intend to share information about workers and consumers that results from this requirement.

**Purpose and Scope**

Section 8(c) of the Toxic Substances Control Act requires that persons who manufacture, process, or distribute chemical substances or mixtures record allegations of significant adverse reactions to such chemical substances or mixtures. The section also requires that such records be submitted upon the request of the Administrator or his duly designated representatives. This proposed rule implements these requirements. The rule proposes a system of recordkeeping and reporting which would serve the following purposes:

(a) It would establish an invaluable historical record of allegations of significant adverse reactions and related information which EPA can examine whenever a chemical is discovered to present possible risks to human health or the environment; and

(b) It would provide a means to reveal patterns of adverse effects which might otherwise either not be noticed or go undetected for long periods of time, and to identify previously unknown chemical hazards.

**Definitions**

Section 8(c) does not make recordkeeping contingent upon evaluating or verifying an allegation. In the proposed rule, the Agency has defined an allegation in part as a

"statement made without formal proof or regard for evidence." This lack of need for supporting information is one factor that distinguishes section 8(c) from section 8(e) of TSCA (substantial risk notification). Section 8(e) states that persons must immediately inform the Administrator if they have information that reasonably supports the conclusion that a chemical substance poses a substantial risk of injury to health or the environment. A report of substantial risk of injury, unlike an allegation of a significant adverse reaction, is accompanied by information which reasonably supports the seriousness of the effect or the probability of its occurrence (see 43 FR 11110 *et seq.*, March 16, 1978). However, the Agency recognizes that an allegation (or allegations) recorded under section 8(c) could result in a notification of substantial risk filed under section 8(e) if a firm obtains additional information that meets the higher standards of section 8(e). If this happens, and a firm files a section 8(e) report, the Agency would not require the firm to separately report to the Agency under section 8(c) (see discussion under Reporting Requirements). However, the opposite is not true: complying with section 8(c) requirements does not relieve a firm of any responsibilities under section 8(e).

For the purposes of this rule only, "significant adverse reactions to health or the environment" are those which indicate the possibility of long-lasting or irreversible damage to health or the environment. We have included descriptions of effects to illustrate what we mean by "significant." Specifically, we intend to exclude one-time effects, such as those resulting from an accidental poisoning or an accidental spill of a caustic chemical onto the skin. This exclusion is proposed because we believe that recordkeeping under section 8(c) is important for health effects whose implications may not be fully apparent at the time of their occurrence. In addition, the Occupational Safety and Health Administration recordkeeping requirements for work-related injuries and illnesses cover serious effects of the kind that we propose to exclude (see 29 CFR Part 104).

This proposed rule does not attempt to enumerate all of the specific effects and circumstances which may constitute a significant adverse reaction. Rather, we have measured significance in terms of when the adverse reaction occurs in relation to exposure to a substance, and how long the effects last. Health effects that last only for the duration of the exposure should be recorded only if they occur repeatedly. This means that

nausea or headaches may be significant adverse effects if they are experienced repeatedly by a person upon exposure to the substance. Effects that persist beyond the period of exposure (such as kidney dysfunction or sterility) are reactions that should be recorded, even if alleged only once.

We have broadly defined adverse environmental reactions that should be recorded. Generally, adverse environmental effects may be indicated by gradual or sudden changes in the composition of plant or animal life in an area. Such adverse changes in the composition of life could be indicated by abnormal numbers of animal or plant deaths; a decline in the vigor or reproductive success of a species; a reduction in either crop or livestock agricultural productivity; or alterations in the behavior of a species.

The Agency requests comments on the appropriateness of these proposed criteria. Also, we invite persons wishing clarification of what constitutes a recordable allegation to include in their comments either real or hypothetical examples for interpretation. In the preamble to the final rule, we will address typical examples submitted in response to this proposal and use them to clarify the definition.

#### Persons Subject to This Part

This proposal would apply to all persons who manufacture or process chemical substances or mixtures, and to all distributors of chemical substances and mixtures except retailers. The term "manufacture" is defined in TSCA to include manufacture, import, and production. The term "process" is defined in TSCA to mean preparation of a chemical substance or mixture for distribution in commerce (a) in the same or different form or physical state from that in which it was received, or (b) as part of an article. Thus, persons who ordinarily consider themselves to be "users" because all that they do is incorporate a chemical into an article, are "processors" under TSCA. Retailers are firms that sell a final product to ultimate purchasers who are not commercial entities. The definitions of "manufacture for commercial purposes" and "process for commercial purposes" are discussed in greater detail in the preamble of the proposed TSCA section 8(d) rule "Health and Safety Data Reporting", published December 31, 1979, in the Federal Register (44 FR 77470).

Retail distributors are the only small businesses that the Agency proposes to exempt from the present rule. Retailers are excluded because the potential for retail employees being exposed is

limited since they handle packaged products. In addition, it appears that allegations from employers or consumers regarding brand name products are, as a general practice, sent by retailers to the manufacturer or processor, because it is in the retailers' interest to report to their suppliers any customer problems resulting from the use of products (see item 2 of the record described at the end of this preamble). The supplier will be a manufacturer, processor, or distributor who is subject to this rule. Hence, manufacturers', processors', and distributors' records would be generally more comprehensive, and should be sufficient for the purposes of this rule. In addition, retailers are so numerous and include so many small firms that we will consider including them in this rule only if it appears that exempting them will substantially reduce the effectiveness of this rule. The Agency solicits comments on whether retailers or other small businesses should be exempt from the requirements of this rule. If the comments make it clear that including retailers will make the rule substantially more effective and the greater effectiveness is justified when weighed against the burden that would be imposed, then retailers will be included in the rule as promulgated.

#### Allegations Which Must Be Kept

The proposed rule would require companies to keep records of written and oral allegations so long as the allegations are not anonymous, and so long as they are made to an appropriate company official, e.g., a supervisor, a company physician or health unit staff member, a company agent, or a public relations officer. The Agency believes that oral allegations should be written down, since many people are more likely to submit allegations by telephone than in writing.

This proposed rule does not limit the recording of allegations to those which describe a chemical substance by exact name. The Agency believes that requiring an exact name would be too restrictive because there will be instances when employees, plant neighbors, or consumers (or the firm itself) will not be able to name a specific chemical—either because their knowledge of chemistry is limited or because they have encountered more than one chemical and cannot pinpoint only one chemical as the cause. The proposed rule requires firms to keep not only allegations that name a specific chemical substance, but also those that reasonably implicate a chemical. Therefore, the proposed rule states that firms must also keep allegations that

name or identify the following: an article which contains a specific chemical substance or mixture; a company process or operation that involves one or more chemical substances; or an effluent, emission, or other chemical discharge from the site of manufacturing, processing, or distribution.

#### Recordkeeping Requirements

As mentioned earlier, a major purpose of this rule is to establish a complete record for both the EPA and industry, so that a body of knowledge will exist for reference should concern arise over a particular chemical. The record can provide another means for industry to monitor the safe production and use of chemical substances and mixtures. In addition, EPA could request the submission of allegations that involve a chemical which is being investigated. After analysis, those allegations could then be used during the assessment process to supplement already known toxicity and exposure data on the chemical substance. A further purpose of the records could be to provide a means during inspections to help determine whether a chemical problem exists at a plant site.

This proposal would require firms to keep copies of original allegations and to establish records that contain specified information about the allegations. A standard EPA form is offered as an optional recordkeeping form. The same form would be mandatory for reporting purposes. It is important that EPA receive the reports in a standard format so that they can be processed and evaluated efficiently. On the other hand, the form would be optional for recordkeeping since the Agency recognizes that firms may have already developed other forms or automated systems of recordkeeping which may not be compatible with the proposed EPA form. The proposed rule specifies the information that must be kept if the EPA form is not used. The Agency solicits comments concerning the appropriateness and usefulness of the information on the form. The form appears as Appendix I to the proposed rule.

This rule would also require firms to file allegation records and forms in a specified way so that this information could be easily retrieved. Allegation records and forms would be filed by chemical substance if the substance is known. However, for cases in which it is not possible to identify a specific chemical as the cause of a problem, firms would establish files according to mixture identity, and, if this cannot be determined, by the identity of the

article, company process or operation, or plant site discharge involved.

The rule would require that the results of any follow-up investigation be kept with the allegation records and the corresponding EPA form or company form or file. This is important to a basic purpose of the rule, which is to establish a complete historical record. Such a record should include information that the firm recorded on its own, and information that was recorded because of requirements set by another agency, such as the Occupational Safety and Health Administration (OSHA).

A firm must keep allegation records, recordkeeping forms, and the results of any follow-up investigations at the site where the allegation is received. The Agency believes that it is logical to keep a complete record at the site where the problem occurs, for reference purposes. In connection with the proposed automatic reporting requirement, plant sites must also send copies of the EPA standard form or company form to be aggregated and reported by the company headquarters, if this differs from the site where the allegations were received.

We have included an alternative method of compliance for distributors. This would permit a distributor to send allegations to the appropriate manufacturer or processor instead of keeping them as records. The distributor would be required to send an allegation within five days of its receipt, and to keep a log (thirty years for employee allegations, five years for others) showing the name and address of the person to whom the allegation was sent, the date it was sent, and a brief description of the chemical that is the subject of the allegation. This would greatly reduce the recordkeeping requirement for distributors, while adding only a minimal burden to the manufacturers and processors who would have already established procedures for recordkeeping and reporting allegations. Furthermore, this provision would reduce the number of firms that are required to retain allegation records and to report to EPA. The Agency invites comments on the benefits or burdens of this alternative compliance method and whether it should be included in the final rule.

To avoid duplicating records that already exist, this rule proposes an alternative compliance method for keeping consumer complaints. Firms may already keep records that may be required by this rule because of requirements in regulations carrying out section 16(b) of the Consumer Product Safety Act (CPSA). If so, these firms would not be required to make copies of

these CPSA records to include as part of the section 8(c) record. However, firms would keep consumer complaints for the length of the time outlined in this proposal and would report them as required by this rule. The Agency also thinks that the CPSA records should be retrievable in the same way as section 8(c) records. For example, records should be filed by chemical or article identity. The proposed rule therefore states that they must be retrievable in the manner outlined for section 8(c) allegations and forms, in section 717.15 of this proposed rule. The Consumer Product Safety Commission (CPSC) has proposed (see 42 FR 57642), but has not yet promulgated final rules under section 16(b) of the CPSA. This alternative would be available only when those final rules have been promulgated.

The Agency is concerned that there is no "feedback" mechanism for allegeders to learn of any actions which may result from submitting an allegation to a company. Persons who make allegations will do so to protect themselves and others from similar effects in the future, and should know the outcome of their allegation. The Agency requests comments on the kinds of feedback mechanisms that EPA could require, how such mechanisms should be implemented, and who should be subject to such a requirement.

An employee making an allegation is afforded protection from employer reprisal. TSCA section 23(a) provides that "No employer may discharge any employee or otherwise discriminate against any employee \* \* \* (who) assisted or participated \* \* \* in any other action to carry out the purposes of this Act." An employee who believes that he has been discriminated against may file a complaint under section 23 with the Secretary of Labor.

#### Reporting Requirements

As proposed, this rule would require firms to submit certain allegations upon the request of the Agency. A firm would then be required to transcribe data from the allegation records to a one-page, pre-printed EPA form for admission. In addition, the Agency plans to include in the final rule a requirement for firms to automatically report allegations to EPA. Section 717.16(b)(1) of the rule has been reserved for such an automatic reporting provision.

The purpose of this provision would be to make the Agency aware of any unusual pattern of effects of unsuspected chemical problems. To detect such patterns, the Agency proposes to handle allegations reported under section 8(c) in a manner similar to

that now used for substantial risk notices under section 8(e). First, each allegation will be carefully studied. The assessor will place the allegation in its proper context by also referring to existing literature on the chemical's toxicity and uses, examining available exposure data, and searching for other similar adverse reactions which are previously known. Should this study uncover a problem that warrants further investigation, the Agency may request other related information from the firm that submitted the allegation. Through this method, the Agency hopes to detect problems not previously recognized as serious or to uncover problems that have gone unnoticed. If the initial study finds that there may be a problem, but that it may be best handled under another authority, the allegation may be referred to OSHA, CPSC, or other EPA program offices. Each allegation will be entered in a data base that will extend the usefulness of the allegation. Primarily, the data system will permit EPA to track from one place all allegations reported to the Agency from anywhere in industry. Here again, by building an historical file, the Agency hopes to be able to detect patterns that were previously not recognized. A further statistical use will be to monitor the effectiveness of the final rule by allowing easy review of the types and numbers of allegations reported to EPA.

The Agency is concerned that automatic reporting be designed to result in the reporting of allegations that can be reasonably analyzed. The Agency is particularly concerned by comments from industry (see minutes of August 15, 1979 meeting, Public Record) that companies are often deluged with complaints after introducing any new or changed product. It may be that the sheer numbers of such allegations would overload the EPA's analytical resources if the complaints are about health effects. It is also possible that the numbers of chemical consumer products encountered by an individual consumer would make it unlikely that a consumer will be able to identify any one as a cause of a recordable adverse reaction. Therefore, the Agency is considering whether consumer allegations should be subject to reporting in a different manner than other allegations or should perhaps be exempt from automatic reporting. EPA requests comments on the best approach.

EPA is considering an automatic reporting system in which companies would forward allegation records to EPA whenever three are received in a twelve-month period for the same chemical substance, mixture, process, or

site discharge. The threshold number is a matter on which comment is solicited. The suggested threshold of three is based on the following considerations. The threshold must be a reasonable one in the context of several situations including plant neighbor allegations and consumer allegations, as well as employee allegations. We considered that the source of employee allegations about any one chemical or process will be a relatively small group of workers, even if the company is quite large. For instance, a threshold of ten to twenty allegations would be too high if there were only twenty to thirty workers involved in a process. On the other hand, three allegations from a group of thirty workers may indicate that a workplace problem is developing. Similarly, three allegations about a plant effluent would be unlikely to be simple coincidence and may indicate a problem. We have also taken into account the fact that the Conference Report on TSCA contains a statement that "[b]ecause the ultimate significance of adverse reactions is difficult to predict, the conferees intend that the requirements to retain records err on the side of safety". We believe that this Congressional advice applies equally to reporting under section 8(c).

The Agency is considering alternative definitions for the automatic reporting threshold. One option under consideration is to apply the threshold over a time period other than twelve months, up to as long as five years. Other options under consideration, which might substitute for or complement the automatic reporting threshold, could require firms to immediately report to EPA:

(a) Any allegation of carcinogenic, mutagenic, teratogenic or reproductive effects;

(b) Any allegation that involves:

(1) A new chemical substance (i.e., any substance that was reported to EPA under the premanufacture notification requirements of Section 5(a)(1)(A) of TSCA);

(2) A chemical substance that has been recommended by the Interagency Testing Committee for priority consideration by EPA; or

(3) A chemical substance that is the subject of a proposed or final rule under Section 4, 5, or 6 of TSCA;

(c) Any allegation made by a representative of organized labor or any State or local government; or

(d) Any allegation that involves a chemical substance which had been the subject of a previous section 8(c) report by that firm.

These possible alternatives, or some combination of them, may be adopted in

the final rule and should be carefully considered in comments on this proposal.

The Agency is considering other methods of obtaining reports of section 8(c) allegations. In lieu of the threshold approach discussed above, the rule could require an annual statistical report of numbers of allegations received on chemical substances, mixtures, processes, and site discharges. The Agency invites comment on the statistical approach as well as suggestions of other alternatives. The final decision will take into account all comments on the alternatives and comments on the definition of "significant adverse reactions," since the two are interdependent.

In connection with automatic reporting under this rule, EPA believes the company headquarters should be responsible for reporting to EPA. The Agency thinks that this approach is logical because a firm's headquarters would be in the best position to aggregate allegations if the company has several plant sites. Placing the responsibility for automatic reporting on the company headquarters ensures that firms and EPA will be made aware of potential problems that occur in a number of plant sites, even if only one or two allegations are filed at each individual site. To simplify reporting, only company headquarters would report to EPA, and then would send only copies of the EPA standard form to the Agency. The headquarters would be required to send these copies to the Agency within fifteen days of the time the reporting threshold is reached. Subsequent allegations concerning the same cause would also be submitted to EPA if received within a year after the initial submission. Reporting by headquarters would also be required if the automatic reporting provision prescribes an annual statistical report instead of "threshold" reports. The Agency would like comments on these aspects of automatic reporting.

To avoid duplicating reports, the proposal contains a provision which would exempt firms from the automatic reporting requirement if a firm's investigation of a section 8(c) allegation has resulted in the firm's filing a report with EPA under section 8(e) of TSCA (substantial risk notification), or with the Consumer Product Safety Commission under section 15(b) of the Consumer Product Safety Act (substantial product hazard notification).

The proposed rule also contains a provision to protect the privacy of individuals. Specifically, firms are to omit names (or any other identifiers of

individuals who have made allegations) when they report to EPA, unless EPA specifically requires names to be submitted in a particular case.

To help the Agency design the automatic reporting provision and predict its effects, discussions have been held with industry and other interested persons. Meetings were held on November 11, 1978, and August 15, 1979, to discuss the provisions of the rule and solicit information about the numbers and types of allegations now received by industry. Some useful information has been submitted to EPA, although more complete data are expected in response to EPA requests for industry assistance in this matter. Obtaining information on allegations industry currently receives will enable EPA to determine an automatic reporting requirement threshold that will serve the Agency's purpose without unnecessarily burdening industry. The automatic reporting threshold which EPA finally determines will depend on the extent to which industry submits complete information and accurate numbers. In the absence of accurate data from industry, EPA will determine an automatic reporting threshold from best estimates based on the information in the Agency's possession or gathered from other sources.

A "Reports Impact Analysis" has been prepared to estimate costs of a requirement that allegations be reported when three are received by a company in a twelve-month period. This document is in the public record available for review in the OPTS Reading Room. In this document are the basic costs of recording, filing, and reporting allegations; using an adjusted multiplier, the basic costs can be reapplied to any reporting requirement. Basically, the analysis found that automatic reporting will constitute the smaller fraction of the total costs of this rule to industry, with most costs resulting from the recordkeeping requirement. This estimate is a result of industry comments (see item 4 of the record described at the end of this preamble) on previous drafts of this rule. These comments indicated that few allegations are received by firms each year. However, previous comments addressed a narrower definition of "significant adverse reactions" than the one in this proposal. The Agency specifically requests information about the number of allegations industry can expect to receive in view of the proposed definition.

The Agency will consider conducting a pilot test of any final automatic reporting requirements. The method of

conducting such a test could be to select certain segments of the potential respondents and require those persons to submit reports in accordance with the automatic reporting provision. Reports submitted over a specified period of time would be assessed before applying the requirement to all persons who keep records of allegations under section 8(c). The Agency is concerned about the broad impact that may result from reporting, in terms of both the number of respondents who may have to submit reports and the number of reports EPA may have to assess. Thus, a pilot test may determine the number of reports that would be submitted in relation to the number of allegations received. The Agency may be better able to estimate the impact on industry of a reporting requirement and to project the kinds of information reports may yield. In considering the need to test any reporting requirement, EPA will examine information submitted in response to this proposal and determine the need to learn more about the numbers and content of allegations now received by industry. The Agency invites comments on the need for a pilot test, the objectives of such a test, and procedures for selecting industrial segments for the test.

#### Existing Records

Many firms may already keep records of allegations of significant adverse reactions. Existing records may vary in terms of the content and manner in which they are filed. The proposed rule would not require firms to reorganize their records to conform with EPA's recordkeeping and automatic reporting requirements. However, firms are requested to review records of allegations received after enactment of TSCA (January 1, 1977) and before promulgation of this Part to determine if there are three or more allegations, as defined in this Part, that implicate any one substance, mixture, article, operation, or site discharge. If three or more allegations were recorded within any twelve-month period, the Agency requests that the allegations be transmitted to EPA.

#### Economic Impacts

The Agency can only estimate the number of allegations which may be received by industry and the costs which may result from the proposed rule. A review of the industries potentially subject to keeping records indicates that over 600,000 firms with approximately 20 million employees may be affected (see Appendix B, Reports Impact Analysis). Processors of chemical substances and mixtures may

be found across the spectrum of mining, manufacturing, and wholesale trade industries (SIC codes 10-14, 20, 22-28, 31-39, 49-51). Analysis of the possible burdens to industry indicates that the highest likely annual recordkeeping cost to all of industry will be \$450,000. Preliminary estimates are that 10,000-20,000 allegations may be received and filed annually, with an estimated cost of \$22,500 to process each allegation. If an automatic reporting requirement were to result in 5% of these allegations being submitted to EPA (at an estimated cost of \$55 per allegation package), the additional annual cost to all of industry would be \$18,150. The Agency invites comments that estimate the number of allegations which may be received annually and the costs which may result from both recording and reporting to EPA. The reasoning behind the estimated costs is described in the "Section 8(c) Reports Impact Analysis". The analysis covers the costs for a company to receive, process, and file an allegation, and also the numbers of allegations which may be received annually by industry. These estimates are used to calculate the lowest and highest costs to industry which may result from keeping the section 8(c) records. The lowest and highest costs to industry from automatically reporting allegations to EPA are also estimated. While the analysis examines the costs to report three independent allegations received in a twelve-month period, we have extended that analysis to show the likely costs from different levels of reporting to EPA. The "Section 8(c) Reports Impact Analysis" is part of the Public Record and may be obtained by writing or calling the Industry Assistance Office, Office of Pesticides and Toxic Substances (TS-799), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, 800-424-9065; in Washington call 554-1404.

#### Confidentiality

Firms may assert a claim of business confidentiality for all or part of any records. EPA is aware of the need to maintain the confidentiality of any legitimate trade secret. Confidential information will be safeguarded as provided in the "TSCA Confidential Business Information Security Manual" adopted by EPA in July, 1978.

Any claims of confidentiality must be made at the time of submission, and substantiated as described at 40 CFR 2.203(a)(2), within 15 working days of submission, and in the manner specified in § 717.17 of this proposed rule. This rule would require submission of two copies of records containing confidential material—one copy indicating what data

are claimed as confidential and one copy without the confidential information. EPA will consider failure to submit two copies as a waiver of the confidentiality claim. However, EPA will notify firms who claim parts of records confidential if they did not submit the required two copies. This provision affords persons the opportunity to correct errors and thus prevent data claimed as confidential from being placed in the public file. To ensure proper handling, submissions must be addressed to the Document Control Officer of the Office of Pesticides and Toxic Substances.

#### Sunset Provision

Internal EPA regulations state that new reporting requirements will contain a provision for repealing that requirement on a specific date within five years after their promulgation. This proposed rule is exempt from the imposition of such a "sunset" requirement because the records are required by statute. However, the rule will be reviewed periodically in the years after it is promulgated to study its effectiveness and associated burdens. EPA will consider comments received from any source on the effectiveness of the rule, with the aim of reducing the burden on affected parties while satisfying the provisions of section 8(c).

#### Public Meetings

During the 90-day comment period, EPA staff responsible for developing this proposal will be available to meet with interested persons from individual companies, organized labor, trade associations, and environmental or consumer organizations. Most meetings will be held at EPA in Washington, D.C. However, to facilitate state and local comments, the Agency will hold one or two meetings outside of Washington, D.C., in a locale central to a large group or groups requesting the meeting. The Agency will determine time and place based on demonstrated need and interest.

EPA will provide facilities and make other necessary arrangements for such meetings. The meetings will be open to the public and the Agency will make transcripts or summaries of the meetings for inclusion in the public record.

Anyone interested in requesting a meeting or in learning the schedule of meetings may call the Industry Assistance Office at 800-424-9065 or, in Washington, 554-1404.

EPA encourages the public to use the Industry Assistance Office's toll-free telephone service during the early part of the comment period in order to clarify

its understanding of the proposal and develop comments.

EPA also encourages the public to use the opportunity for meeting-by-request, as offered above. The Agency has found that such meetings make it easier for the public to give EPA a sense of the predicted costs and process of compliance. Case-studies, impact analyses, interpretations of definitions used in the proposed rule, and thoughts on how a proposal would work in practice are particularly helpful to the Agency. Such material or experience, while it underlies them, often are not conveyed in written comments. Presentation of such material in a roundtable format enables the commentator to talk-and-walk his way through an anticipated impact and EPA to cross-check on the spot his meaning and assumptions. The Agency has found this sort of exchange enhances significantly the utility of such commentary.

#### Public Record

EPA has established a public record for this rulemaking (docket number OTS 083001). The record, along with a complete index, is available for inspection in the OPTS Reading Room, 447 East Tower, from 9:00 a.m. to 5:00 p.m. on working days (401 M Street, SW., Washington, DC 20460). This record includes basic information that the Agency considered in developing this proposed rule. The Agency will supplement the record with additional information as it is received. The record includes the following categories of information:

1. This proposed rule.
2. The Advance Notice of Proposed Rulemaking, published in the Federal Register on March 11, 1977 (42 FR 13579).
3. All comments on that Advance Notice.
4. A draft of this proposed rule, dated October 12, 1978, sent to selected industry, labor, and public interest groups.
5. All letters of transmittal sent with that draft, and comments received on it.
6. Minutes of a November 13, 1978 meeting with industry and special interest groups to discuss the TSCA section 8(c) draft rule.
7. "Notification of Substantial Risk Under Section 8(e)," March 16, 1978 (43 FR 11110), and comments received.
8. Occupational Safety and Health Administration regulations on "Recording and Reporting Occupational Injuries and Illnesses" (29 CFR Part 1904), and forms revised in 1978.
9. Consumer Product Safety Commission proposed reporting

requirements regarding recordkeeping of consumer product safety complaints, November 3, 1977 (42 FR 57642).

10. Consumer Product Safety Commission interpretation of policy for "Reports of Substantial Product Hazards," August 7, 1978 (43 FR 34988).

11. "Final Report on the Economic Impact of Proposed Recordkeeping Rules to Deputy Associate Executive Directorate for Economic Analysis, U.S. Consumer Product Safety Commission," Battelle, Columbus, Ohio, March 19, 1979.

12. Minutes of an August 15, 1979 meeting with industry and special interest groups to discuss the TSCA section 8(c) draft rule.

EPA anticipates adding to the rulemaking record the following types of information:

1. All comments on this proposed rule.
  2. All relevant support documents and studies.
  3. Records of all substantive communications between EPA personnel and persons outside the Agency. (This does not include any inter- or intra-agency memoranda unless specifically noted in the index of the rulemaking record.)
  4. Minutes, summaries, or transcripts of any public meetings held to develop this rule.
  5. Any factual information considered by the Agency in developing the rule.
- EPA will designate the complete rulemaking record, as prescribed by section 19(a)(3) of TSCA, on or before the date the regulation is promulgated, and will accept additional material for inclusion in the record at any time between this proposal and such designation. The final rule will also permit persons to point out any errors or omissions in the record.

**Note.**—EPA has determined that this document does not contain a major proposal that requires preparation of a Regulatory Analysis under Executive Order No. 12044.

EPA proposes to establish a new 40 CFR Part 717 as set forth below.

Dated: June 27, 1980.

Douglas M. Costle,  
Administrator.

#### PART 717—RECORDS AND REPORTS OF ALLEGATIONS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT

##### Sec.

- 717.11 Scope and compliance.
- 717.12 Definitions.
- 717.13 Who is subject to this Part.
- 717.14 Which allegations must be kept.
- 717.15 Recordkeeping requirements.
- 717.16 Inspection and reporting requirements.
- 717.17 Confidential business information.

Authority: Sec. 8(c), Pub. L. 94-469, 90 Stat. 2029 (15 U.S.C. 2607(c)).

#### § 717.11 Scope and compliance.

(a) Section 8(c) of the Toxic Substances Control Act (TSCA) requires manufactures, processors, and distributors of chemical substances and mixtures: (1) To keep "records of significant adverse reactions to health or the environment, as determined by the Administrator by rule, alleged to have been caused by the substance or mixture"; and (2) to "permit inspection and submit copies of such records", upon request of any designated representative of the Administrator. This rule implements section 8(c) of TSCA. It describes the records to be kept and prescribes the conditions under which a firm must submit or make the records available to a duly designated representative of the Administrator.

(b) Section 15(3) of TSCA makes it unlawful for any person to "fail or refuse to (1) establish or maintain records, (2) submit reports, notices or other information, or (3) permit access to or copying of records as required by this Act or a rule thereunder". Section 16 states that violating section 15 makes a person liable to the United States for a civil penalty and possible criminal prosecution. Under section 17, the district courts of the United States have jurisdiction to restrain any violation of section 15.

#### § 717.12 Definitions.

The definitions set forth in Section 3 of TSCA and the following definitions apply to this part:

(a) "Allegation" means a statement, made without formal proof or regard for evidence, that a chemical substance or mixture has caused an adverse reaction to health or the environment.

(b) "Firm" or "company" means any person that is subject to this rule, as defined in § 717.13, below.

(c) "Manufacture" or "process" means to manufacture or process for commercial purposes.

(d)(1) "Manufacture for commercial purposes" means to import, produce, or manufacture with the purpose of obtaining an immediate or eventual commercial advantage for the manufacturer, and includes, among other things, such "manufacture" of any amount of a chemical substance or mixture.

(i) For distribution in commerce, including for test marketing, and

(ii) For use by the manufacturer, including use for product research and development, or as an intermediate.

(2) "Manufacture for commercial purposes" also applies to substances that are produced coincidentally during their manufacture, processing, use, or disposal of another substance or mixture, including both byproducts that are separated from that other substance or mixture and impurities that remain in that substance or mixture. Such byproducts and impurities may, or may not, in themselves have commercial value. They are nonetheless produced for the purpose of obtaining a commercial advantage since they are part of the manufacture of a chemical product for a commercial purpose.

(e) "Person" includes any individual, firm, company, corporation, joint-venture, partnership, sole proprietorship, association, or any other business entity, any State or political subdivision thereof, any municipality, any interstate body, and any department, agency, or instrumentality of the Federal Government.

(f) "Process for commercial purposes" means the preparation of a chemical substance or mixture, after its manufacture, for distribution in commerce with the purpose of obtaining an immediate or eventual commercial advantage for the processor. Processing of any amount of a chemical substance or mixture is included. If a chemical substance or mixture containing impurities is processed for commercial purposes, then those impurities are also processed for commercial purposes.

(g) "Retailer" means a person who distributes in commerce a chemical substance, mixture, or article to ultimate purchasers who are not commercial entities.

(h) "Significant adverse reactions" are reactions which may indicate a tendency of a chemical substance or mixture to cause long-lasting or irreversible damage to health or the environment. In addition to obvious indicators such as major human diseases or ecological damage, such indicators include:

(1) Health effects. (i) Which, although they persist only for the duration of exposure, such as nausea or impaired vision, are experienced repeatedly by a person upon exposure to the substance;

(ii) Which persist beyond the period of exposure, such as prolonged headaches or loss of muscle control; or

(iii) Which occur after cessation of exposure, such as sterility or delayed neurotoxicity; and

(2) Environmental effects, even if they are restricted to the environs of a plant or disposal site, such as gradual or sudden changes in the composition of plant or animal life in an area. Examples of this are: (i) Abnormal numbers of

deaths of animals or plants. (e.g., fish kills);

(ii) Reduction of the reproductive success or the vigor of a species;

(iii) Reduction in agricultural productivity, whether crops or livestock; or

(iv) Alterations in the behavior or distribution of a species.

(i) "Site" means a contiguous property unit. Property divided only by a public right-of-way is considered one site. There may be more than one manufacturing plant on a single site.

(j) "Substance" means a chemical substance or mixture unless otherwise indicated.

#### § 717.13 Who is subject to this Part.

All manufacturers, processors, and all persons who distribute substances in commerce except retailers, are subject to this rule. The exemption of retailers does not apply to retailers who are also manufacturers or processors of the substance in question.

#### § 717.14 Which allegations must be kept.

(a) Firms must keep any allegation of a significant adverse reaction to health or the environment.

That implicates a substance by: (i) Naming a specific substance,

(ii) Naming an article which contains a specific substance,

(iii) Naming a company process or operation in which substances are involved, or

(iv) Identifying an effluent, emission, or other chemical discharge from a site of manufacturing, processing, or distribution of a substance; and

(2) That is submitted: (i) In writing and signed, or

(ii) Orally, but not anonymously.

(A) By an employee to a supervisor, company physician or health unit staff member, or company agent,

(B) By any source, such as an individual consumer, a neighbor of a plant, a public health official, or an organization on behalf of its members, to a company agent, public relations officer, or any other appropriate company official.

(b) An allegation of a health effect(s) on a single individual shall be counted as one allegation. For example, if an allegation is made in behalf of five individuals, it should be counted as five allegations. An allegation by a single source of an environmental effect shall be counted as one allegation.

#### § 717.15 Recordkeeping requirements.

(a) *Contents of records.* (1) Upon receiving each written and signed allegation, a firm must date it and keep it. A firm must write down, date, and

keep each oral allegation (including the name of the alleege) that is subject to this rule. All allegations shall be kept in a file designated for this purpose. An allegation is considered received when it is first reported to or known by a supervisor, company physician or health unit staff member, or any other appropriate company official.

(2) A firm must keep the data described in paragraph three of this section, either on EPA Form No. 7710-29, or by the firm's own recordkeeping method, and link the data to the written allegation by a unique reference number. Oral allegations may be written down initially on the EPA form. The data required by paragraph three must be kept with the original allegation. EPA Form No. 7710-29 is available from EPA Regional Offices or by writing or calling the Industry Assistance Office, Office of Pesticides and Toxic Substances (TS-799), Environmental Protection Agency, Washington, DC 20460, 202-554-1404 or 800-424-9065 (toll free).

(3) Firms must record the following: (i) The name of the company; the name and address of the plant site which receives the allegation; the name, title, and telephone number of the company official whom EPA can contact for further information; and the date the allegation is received.

(ii) The implicated substance, mixture, article, company process or operation, or site discharge (see paragraph four of this section).

(iii) A description of the alleege (e.g., "company employee", "individual consumer", "plant neighbor"). If the allegation involves a health effect, the sex and year of birth of the individual should be recorded.

(iv) A description of the alleged health effect(s), indicating whether the effect(s) is prolonged, recurrent, or incapacitating. The description must relate how the effect(s) became known and the alleged route of exposure, if ascertainable.

(v) A description of the nature of the alleged environmental effect, identifying the affected plant or animal species.

(4) Allegations must be filed according to one of the following: (i) Chemical substance identity;

(ii) Mixture identity, if the implicated chemical substance cannot be identified; or

(iii) Identity of the article, company process or operation, or site discharge involved, if the implicated chemical substance or mixture cannot be identified.

(5) The results of any company investigation or further required report that is made following a particular allegation must be kept by the firm with

the allegation and the corresponding EPA form or company record. For example, if an employee allegation results in a requirement for the firm to record the case on Occupational Safety and Health Administration Form 101 or appropriate substitutes (see 29 CFR Part 1904 for requirements under the Occupational Safety and Health Act of 1970), a copy of the OSHA record must be included in the allegation file.

(b) *Retention period.* Firms must keep records relating to employee allegations (whether submitted by or on behalf of the employee) for 30 years from the date they are received; all others must be kept for five years.

(c) *Location of records.* Firms must keep copies of the allegation, EPA Form No. 7710-29 or the company form or file, and the results of any follow-up investigation at the site where they are received. Copies of the EPA form or company form or file must also be kept at company headquarters if this differs from the site where the allegation is received.

(d) *Transfer of records.* (1) If a firm ceases to do business, the successor must receive and keep all the records that must be kept under this rule.

(2) If a firm ceases to do business and there is no successor to receive and keep the records for the prescribed period, these records must be transmitted by registered mail to EPA.

(e) *Alternative compliance methods.*

(1) Distributors can satisfy the requirements of this rule by establishing and carrying out procedures for sending allegations to the appropriate processor or manufacturer within five days of receiving them. Distributors must keep a log of transmitted allegations, showing the name and address of the manufacturer or processor to whom the allegation was forwarded, the date on which each allegation was forwarded, and a brief description of the implicated chemical substance, mixture, article, or site discharge. The distributor must keep this log for thirty years for employee allegations and five years for others. This alternative compliance method does not apply to distributors who are also processors or manufacturers of the substance in question.

(2) Firms may keep allegations which are also subject to recordkeeping requirements under section 16(b) of the Consumer Product Safety Act in the manner required by the Consumer Product Safety Commission (see 16 CFR 116). However, those allegations must be retrievable according to the requirements of § 717.15(a)(3). Those

allegations are also subject to the retention and reporting requirements of this rule. Firms must transcribe those allegations to EPA Form No. 7710-29 only if they become subject to the reporting requirement of § 717.16.

#### § 717.16 Inspection and reporting requirements.

(a) *Inspection.* Firms must make records of allegations available for inspection by any duly designated representative of the Administrator.

(b) *Automatic reporting.*

(1) [Reserved]

(2) Whenever an investigation of an allegation(s) has resulted in a report to the EPA under section 8(e) of TSCA (substantial risk notification, see 43 FR 11110, March 16, 1978) or a report to the Consumer Product Safety Commission under section 15(b) of the Consumer Product Safety Act (substantial hazard notification, see 16 CFR Part 1115), the requirement for automatic reporting under this section will be considered waived by the EPA.

(c) *Other reporting.* At the request of any duly designated representative of the Administrator, each person who is required to keep records under this rule must transcribe the allegation to EPA Form No. 7710-29 and submit copies of those forms. EPA will announce any such requirements for submitting records, apart from automatic reporting under paragraph (b) of this section, by a notice in the Federal Register if large numbers of firms are involved. When only a few are involved, EPA will announce the requirements by letters to appropriate firms, signed by the Assistant Administrator for Pesticide and Toxic Substances or his designee, and will specify which records must be submitted.

(d) *How to report.* Firms must submit records (preferably by certified mail) to the Document Control Officer, Office of Pesticides and Toxic Substances (TS-793), Environmental Protection Agency, Washington, DC 20460.

(e) *Privacy.* Firms must omit names or other identifiers of individuals who have made allegations whenever they appear in records forwarded to EPA under paragraph (b) of this section, in order to avoid jeopardizing the privacy of those individuals. EPA will require the names of individuals only for purposes of follow-up investigations. EPA will then explicitly request the records in a Federal Register notice or letter as indicated under paragraph (c) of this section.

#### § 717.17 Confidential business information.

(a) Firms may assert a claim of business confidentiality covering all or part of any records they submit. EPA will not disclose information covered by a claim except in accordance with the procedures set forth at 40 CFR Part 2, as amended on September 8, 1978, 43 FR 39997 and March 23, 1979, 44 FR 17673. Firms claiming confidentiality on any portion of allegations reported to EPA must substantiate that claim of confidentiality in writing to EPA within 15 days of reporting the allegations to EPA. Written substantiation must accompany any records submitted under § 717.16(c).

(b) Section 14(b) of TSCA states that EPA may not withhold from disclosure, on the grounds that they are confidential business information, health and safety studies of any substance that has been offered for commercial distribution, or for which testing is required under TSCA section 4, or for which notice is required under TSCA section 5, except to the extent that disclosure of data from such studies would reveal:

(1) Processes used in the manufacturing or processing of a chemical substance or mixture, or

(2) The portion of a mixture comprised by any of the chemical substances in the mixture.

Any respondent who wishes to assert a claim that part of a study should be withheld from disclosure because disclosure would reveal a confidential process or quantitative mixture composition should explicitly explain the basis of the claim and clearly demarcate the material subject to the claim.

(c) If no claim of confidentiality is made for the records submitted to EPA, they will be placed in an open file, which will be available to the public without further notice to the firm.

(d) To assert a claim of confidentiality for data contained in records, firms must submit two copies of the record:

(1) One complete copy for internal EPA use must specifically indicate the data that the firm claims as confidential, by designating and marking the information on each page with a label such as "confidential", "proprietary", or "trade secret".

(2) The second copy must not contain any of the information claimed as confidential in the first copy; this copy will be placed in an open file that is available to the public.

(3) If the firm does not provide the second copy, EPA will notify the firm by certified mail. If EPA does not receive the second copy within ten days after the firm receives the notice, the first copy will be placed in the public file.

(e) Nothing in this section precludes EPA from withholding information in an allegation if disclosing that information would be an unwarranted invasion of personal privacy.

#### **40 CFR Part 717**

#### **Records and Reports of Allegations of Significant Adverse Reactions to Health or the Environment**

##### **Appendix I**

The following is the proposed form to record and report

BILLING CODE 6560-01-M

|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             |                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <b>NOTE</b><br>Please read instructions on reverse prior to completing this form.                                                                                                                                                                                          | <b>U.S. ENVIRONMENTAL PROTECTION AGENCY</b><br><b>RECORD OF ALLEGED SIGNIFICANT ADVERSE REACTIONS TO CHEMICAL SUBSTANCES OR MIXTURES</b><br><i>(This information required under the TSCA, Section 8(c))</i> | Form Approved<br>OMB No. 158-OXXX       |
| <b>SECTION I - Company Identification</b>                                                                                                                                                                                                                                  |                                                                                                                                                                                                             |                                         |
| NAME AND TITLE OF COMPANY OFFICIAL                                                                                                                                                                                                                                         |                                                                                                                                                                                                             | PHONE NUMBER                            |
| COMPANY NAME                                                                                                                                                                                                                                                               |                                                                                                                                                                                                             | DIVISION AND PLANT NAME                 |
| COMPANY ADDRESS                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             | PLANT SITE ADDRESS                      |
| CITY                                                                                                                                                                                                                                                                       | COUNTY                                                                                                                                                                                                      | CITY                                    |
| STATE                                                                                                                                                                                                                                                                      | ZIP CODE                                                                                                                                                                                                    | STATE                                   |
|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             | ZIP CODE                                |
| <b>SECTION II - Chemical Identification</b>                                                                                                                                                                                                                                |                                                                                                                                                                                                             |                                         |
| NAME (Chemical Substance/Mixture/Article/Process/Effluent, Emission or Other Discharge)                                                                                                                                                                                    |                                                                                                                                                                                                             |                                         |
|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             |                                         |
|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             | REFERENCE NUMBER TO VERBATIM ALLEGATION |
| <b>SECTION III - Alleged Significant Adverse Reactions</b>                                                                                                                                                                                                                 |                                                                                                                                                                                                             |                                         |
| <input type="checkbox"/> COMPANY EMPLOYEE <input type="checkbox"/> INDIVIDUAL CONSUMER <input type="checkbox"/> PLANT NEIGHBOR <input checked="" type="checkbox"/> OTHER (Specify)                                                                                         |                                                                                                                                                                                                             |                                         |
| CHECK THE CATEGORY OF THE ALLEGED REACTION                                                                                                                                                                                                                                 |                                                                                                                                                                                                             |                                         |
| <b>HEALTH EFFECTS</b>                                                                                                                                                                                                                                                      |                                                                                                                                                                                                             |                                         |
| PROVIDE THE FOLLOWING FOR PERSONS EXPERIENCING HEALTH EFFECTS                                                                                                                                                                                                              |                                                                                                                                                                                                             |                                         |
| <input type="checkbox"/> MALE                                                                                                                                                                                                                                              | <input type="checkbox"/> FEMALE                                                                                                                                                                             | YEAR OF BIRTH                           |
| CANCER (Specify Body Site)                                                                                                                                                                                                                                                 | NERVOUS SYSTEM DISORDER                                                                                                                                                                                     | SKIN PROBLEM                            |
| BIRTH DEFECT                                                                                                                                                                                                                                                               | BEHAVIORAL DISORDER                                                                                                                                                                                         | EYE AILMENT                             |
| STERILITY                                                                                                                                                                                                                                                                  | RESPIRATORY DISORDER                                                                                                                                                                                        | HEADACHE                                |
| OTHER REPRODUCTIVE DISORDER                                                                                                                                                                                                                                                | GASTRO-INTESTINAL DISORDER                                                                                                                                                                                  | OTHER (Specify)                         |
| BLOOD DISORDER                                                                                                                                                                                                                                                             | NAUSEA OR VOMITING                                                                                                                                                                                          |                                         |
| CARDIOVASCULAR DISORDER                                                                                                                                                                                                                                                    | DIARRHEA                                                                                                                                                                                                    |                                         |
| <b>ENVIRONMENTAL EFFECT</b>                                                                                                                                                                                                                                                |                                                                                                                                                                                                             |                                         |
| ANIMALS AFFECTED (Give names)                                                                                                                                                                                                                                              | PLANTS AFFECTED (Give names)                                                                                                                                                                                | OTHER (Specify)                         |
| <b>SECTION IV - Description and Comments</b>                                                                                                                                                                                                                               |                                                                                                                                                                                                             |                                         |
| BRIEFLY DESCRIBE THE EFFECT(S) CHECKED IN SECTION III. DESCRIBE HOW THE EFFECT(S) BECAME KNOWN, AND, IF POSSIBLE, INDICATE IF THE EFFECT(S) IS/ARE PROLONGED OR RECURRENT OR INCAPACITATING. ANY PERTINENT COMMENTS SHOULD BE INCLUDED. (Continue on reverse if necessary) |                                                                                                                                                                                                             |                                         |
|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             |                                         |
| U.S. EPA USE ONLY                                                                                                                                                                                                                                                          |                                                                                                                                                                                                             |                                         |

CONTINUATION OF SECTION IV

D  
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f  
t

## INSTRUCTIONS

**WHO MAY COMPLETE THIS FORM**

An employee's supervisor, a company physician or health unit, a company agent, public relations officer or any other responsible company official.

**Section I**

Enter the addresses of the company headquarters making the report and the plant site where the allegation was received.

**Section II**

Write the name of the chemical material which is alleged to have caused a significant adverse reaction to health or the environment. If a specific chemical substance cannot be identified, then identify the material by the most specific of the following: a MIXTURE, an ARTICLE or PRODUCT, an industrial PROCESS or OPERATION, or an EFFLUENT, EMISSION, or other industrial SITE DISCHARGE. Indicate the CAS number if a chemical substance is specified.

A unique reference number must be included on this form that links it to the original written allegation, and this form must be kept in the same file as the original allegation.

**SECTION III**

Check the box that best describes the source of the allegation. The name of the individual making the allegation should NOT be included on this form. If the box "Other" is used, provide further identification of the source (e.g., company name, consumer group, public health organization, etc.).

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If the allegation involves a health effect, the sex and year of birth of the person making the allegation should be recorded, if possible.

Check the box or boxes which best describes the alleged effect(s). If the allegation concerns an environmental effect, in addition to checking the box, give the name of the animal(s) or plant(s) alleged to have been affected in the space provided.

**Section IV**

Describe, in the words of the person making the allegation when possible, the effect(s) and indicate whether it is PROLONGED, RECURRENT or INCAPACITATING if appropriate. Briefly describe how the effect(s) became known and the alleged route of exposure. Allegations naming cancer as a health effect should specify the body site (e.g., liver) and clearly describe the cancer.

Any clarification of the allegation, known explanation of the cause, or extenuating circumstances should be included if known at the time this form is filled out. The results of a follow-up investigation should not be included in this Section, but should be filed with this form as a separate statement.

This Section may be continued on the reverse of this form and an attached sheet of paper if additional space is needed to give a complete description.

**Section 8(c) Reports Impact Analysis***Legal Authority*

1. Section 8(c) of the Toxic Substances Control Act (TSCA) requires all manufacturers, processors, and distributors of any chemical substance or mixture to keep records of significant adverse reactions to health or the environment alleged to have been caused by the chemical substance or mixture. Employee allegations must be kept for 30 years, and all others for five years. Records required to be maintained will include consumer allegations of harm to health, reports of occupational disease, and complaints of injury to the environment from any source. Each person required to maintain these records must permit their inspection and submit copies upon request by any duly authorized representative of the Administrator.

**2. Background**

a. *Purpose.*—The proposed rule will tell manufacturers, processors, and wholesale distributors what kinds of allegations to record and when to report them to the EPA.

This rule will serve two major purposes: (1) To establish an historical record to be examined whenever a chemical is discovered to present a possible risk; and (2) to reveal patterns of adverse effects or unsuspected chemical problems which should be considered during the hazard assessment process.

The Office of Testing and Evaluation (OTE) of the Office of Pesticides and Toxic Substances (OPTS), will review, analyze, and follow-up the allegations retained and submitted as a result of the section 8(c) requirement in TSCA. The Assessment Division, the Health Review Division, and the Environmental Review Division will study the submissions for signs of a hazard which may warrant further investigation or testing. Allegations that are submitted will be evaluated in an assessment document which will be abstracted for addition to the OPTS Chemicals In Commerce Information System (CICIS). That information will be used to (1) supplement data already known, (2) indicate an increase of a chemical substance's known hazard potential, (3) call attention to chemical substances previously considered to not present a hazard, or (4) identify previously unknown hazards. The Agency can then, as appropriate, use TSCA authorities to (1) require testing (section 4), (2) require submission of a significant new use notice (section 5), (3) ban or limit the manufacture or use (section 6), (4) declare an imminent hazard (section 7), or (5) require the reporting or retention of information that can be used for future analyses (section 8).

b. *Procedural Description.*—Firms subject to this rule will record written and oral allegations that implicate one of their chemical substances, by naming the chemical substance or mixture, or naming articles, industrial operations, or industrial site discharges that implicate a substance. These allegations will be stored in a file dedicated to section 8(c) allegations, and retained for 30 years (employee) or five years (all others). Distributors may forward to the appropriate manufacturer or processor any allegations received on that product, if they maintain a log containing specified information.

During the comment period for this proposal, the Agency will determine the conditions under which companies are to automatically report allegations to EPA. For the purposes of this analysis, it is hypothesized that whenever three allegations implicating the same cause are received within 12 months, the firm must forward copies of the standard EPA form to EPA within fifteen days after receipt of the third allegation. Section 8(c) reporting would be waived if the allegations result in a "Notice of Substantial Risk", under section 8(e) of TSCA, or a "Substantial Hazard Notification", under section 15(b) of the Consumer Product Safety Act.

Approximately 40,000 establishments that manufacture, process or distribute chemical substances and another 543,000 establishments which may process these substances will be subject to this rule. (See Appendix A to this report.) Retail distributors are exempted in this proposed rule, and other distributors may forward allegations to the appropriate manufacturer or processor.

c. *Unavailability From Other Data Sources.*—Records required by the Occupational Safety and Health Administration (OSHA) were examined as a possible substitute for the section 8(c) employee allegations. However, section 8(c) provides the means to allege the presence of a possible problem, without any proof. The OSHA Form 101 (see 29 CFR 1904) is intended to record accidents or document the cause of an injury, which is several steps beyond an allegation. The proposed rule directs that copies of any OSHA record that results from an allegation will be maintained with the section 8(c) record of the allegation.

The proposed rule does offer an alternative compliance method for retaining allegations or consumer complaints which are subject to recordkeeping requirements under section 16(b) of the Consumer Product Safety Act. These allegations have only to be filed and reported according to the requirements of this proposal.

**3. Alternatives**

(a) *Automatic Reporting Alternatives.* A number of variations are possible for an automatic reporting provision. In this Reports Impact Analysis, we have estimated costs of submitting allegations to EPA whenever three independent allegations are received on one chemical substance, mixture, article, process, or site emission in a twelve-month period. One alternative under consideration is to apply the threshold over a period of time other than twelve months, up to as long as five years. Patterns emerging over a longer time frame would have a better chance of discovery, yet the recordkeeping and file search burden would be increased for respondents. Other options under consideration might substitute for or complement the automatic reporting threshold. The rule could require firms to immediately report to EPA any allegations of specified effects (e.g., carcinogenic, mutagenic, teratogenic, or reproductive disorders). In addition, the rule could require firms to immediately report allegations about certain specified types of substances (e.g., new substances reported under Section 5(a)(1)(A) of TSCA, substances recommended

by the Interagency Testing Committee, substances which are the subject of a proposed or final rule under Section 4, 5, or 6 of TSCA, or substances subject to previous section 8(c) reports). These alternatives could enable the Agency to examine allegations about selected chemical substances of concern. The Agency could require annual statistical reports or summaries of allegations received. The Agency could exempt individual consumer allegations from automatic reporting, because of the effects that product performance expectations may have on complaints. However, consumer complaints are likely sources of relevant information which could reveal patterns of significant proportions. Another option would be to require that consumer allegations be reported in a different manner than other allegations. The proposed rule requests comments on all of these alternatives.

(b) *Alternatives to Automatic Reporting.* The Agency could rely solely on inspecting records. This would reduce the cost to industry, and reduce the cost of EPA analysis of allegations that are submitted. The Office of Enforcement would have a significantly larger role if inspections were the major method of looking at allegations. The early warning mechanism would be lost, and thus EPA's capability to discover unsuspected hazards would be reduced.

(c) *Alternative to No Small Business Definition.* Different recordkeeping and reporting requirements could be based on the size of a firm. Different requirements would reduce the impact on small business while still covering a large portion of industry. However, there is no small business exemption in section 8(c), and such a provision would reduce the scope of the early warning mechanism resulting from automatic reporting to EPA.

(d) *EPA Reporting Form Alternative.* Use of the EPA form and the transcription requirement could be eliminated, and only the basic records would be reported to EPA. While this would eliminate a new form and reduce industry's paperwork, it would transfer to EPA the burden of sorting through many formats and kinds of information to properly assess the allegations. The form also provides industry with an additional guide as to what should be recorded, it is a simple one-page form to fill out, it simplifies assessment for EPA by having a standard format, and the form can be easily coded for computer entry.

(e) *Alternative to Excluding Retail Distributors.* All distributors could be subject to this rule, including retail distributors. Such an inclusion would require 1.4 million more businesses to retain and report allegations, and would significantly expand the coverage and impact of this rule. However, the potential for retail employee exposure is comparatively minimal, since retail distribution will mainly involve the handling of packaged products. Consumer allegations regarding name brand products will generally be sent to the manufacturer anyway—either directly by the consumer or indirectly via the retailer.

**4. Impact Analysis**

The following Impact Analysis has been prepared to examine the potential costs and

burdens of the proposed section 8(c) rule, both to industry and to EPA. To estimate the costs to industry, we have analyzed the time and probable personnel costs that may be incurred by a company to process and file an allegation once it has been received and recorded. Then, using estimates based on dialogues with industry, we have estimated the numbers of allegations which could be received annually by industry. By multiplying the estimated costs to process an allegation by the estimated number of allegations that could be received, we can make a reasonable estimate of the possible costs to industry from complying with the recordkeeping portion of the proposed rule. In addition, we have analyzed the potential costs to industry of complying with an automatic reporting requirement. To do so, we performed an analysis of the time and personnel cost to prepare and submit several independent allegations that implicate the same cause. While this analysis examined the cost of only one method of automatic reporting, we continued the analysis so that a range of costs are presented. We feel that the high and low costs of automatic reporting will draw comment and help the Agency examine alternatives. It is emphasized that this analysis is composed of estimates (which may not be accurate), that those estimates are multiplied against other estimates, and the results may not be wholly realistic. However, for the purposes of analyzing the potential costs of this proposed rule, we feel that the costs presented below are within the range of actual costs. This analysis, as well as the preamble to the rule, offers our reasoning and solicits comment on many subjects. The Agency is dependent on commentators to offer alternatives to this method of analysis, provide actual figures to plug into our equations, and to improve our estimates.

#### I. Work Hour Requirements/Costs

A. Respondents. Approximately 583,000 firms employing 20 million workers will be required to record and report allegations. The following analysis, prepared by the Office of Regulatory Analysis and the Program

Integration Division, describes the costs to industry of recording and automatically reporting allegations. Paragraphs two and three below (p. 10) are primarily concerned with "fixed costs", the costs to a company of receiving and filing an allegation. The recordkeeping requirements represent the largest and most costly impact of this proposed rule. The proposed costs of automatic reporting are included in paragraph 4 (p. 14) of this analysis because the Agency expects that some form of automatic reporting will be part of the final rule. One hypothetical set of conditions for reporting is presented here—three allegations implicating the same substance received within 12 months. However, the reporting threshold levels will be determined after considering comments on the proposed rule. Therefore, the costs of reporting will be some fraction or multiple of the figures in this analysis, and will depend on the automatic reporting conditions set forth in the final rule.

#### 1. Work Hour Requirements/Costs Per Allegation

The time requirements and cost estimates for processing and submitting section 8(c) allegations are shown in Table 1 (p. 8). As previously stated, we have projected costs from the time an allegation is recorded. The cost estimate does not cover administrative costs to set up a file system or otherwise implement the rule. Further, some firms may design more extensive reviews of allegations than projected in this analysis. These costs are estimated for a typical firm, using labor cost estimates of managerial time @ \$30/hour, technical support staff @ \$20/hour, and secretarial time @ \$10/hour.

The unit cost is estimated for an average-sized firm. There may be variations from this cost for very large or very small firms. Also a lesser cost would occur for firms operating only one plant site since they would not incur the costs of forwarding the allegations to corporate headquarters. Alternatively, smaller firms may incur higher personnel costs because reviews may be performed by higher level personnel. However, this cost difference should not significantly affect the average.

The unit cost estimates given in Table 1 assume the following procedure for handling section 8(c) allegations:

a. Processing the Allegation: (i) An oral or written allegation of an adverse health or environmental effect is delivered to the plant manager from either an employee at the plant or from the public. The allegation is logged in by the secretary and reviewed by the plant manager.

(ii) The secretary forwards a copy of the allegation to the appropriate officer at corporate headquarters.

(iii) The allegation is received at corporate headquarters and reviewed by the appropriate officer. The section 8(c) allegation file is reviewed to determine if a file for the implicated chemical substance or mixture, article, industrial operation or site emission exists that contains other allegations.

(iv) A file on the chemical substance is created (if one does not already exist), and the allegation is filed.

b. Submitting a Group of Three Allegations Upon Receipt of the Third: (v) The file is retrieved and reviewed by managerial and technical staffs.

(vi) The allegations are transcribed to the standard EPA form and reviewed by the technical staff for accuracy.

(vii) Copies of the file are made, and the submittal package prepared.

(viii) The completed submittal package is then forwarded to EPA.

The "fixed" activity cost in Table 1 represents costs which will be incurred by the firm whenever a section 8(c) allegation is received, regardless of whether the allegation is ultimately forwarded to EPA. Since allegations are assumed to be submitted randomly throughout the year there are no appreciable economies of scale.

The "variable" cost component represents costs which would be incurred after three allegations had been received concerning a chemical and the three allegations must be submitted to EPA. Therefore, the total cost of processing three separate allegations on a chemical and then submitting the group to EPA can be calculated as follows:

$(\$22.50 \times 3) + \$55.00 = \$122.50$ , see Table 1

Table 1.—Unit Cost of Compliance With Section 8(c) Requirements

| Activity                                                   | Time processing allegation | Time submitting allegation | Fixed activity cost | Variable activity cost |
|------------------------------------------------------------|----------------------------|----------------------------|---------------------|------------------------|
| <b>I. Processing the Allegation</b>                        |                            |                            |                     |                        |
| Allegation received                                        | 0.25 hour clerical         | NA                         | 2.50                |                        |
|                                                            | 0.25 hour managerial       | NA                         | 7.50                |                        |
| Allegation forwarded to corporate headquarters             | 0.25 hour clerical         | NA                         | 2.50                |                        |
| Allegation received at headquarters and reviewed           | 0.25 hour managerial       | NA                         | 7.50                |                        |
| Filed created; allegation filed                            | 0.25 hour secretarial      | NA                         | 2.50                |                        |
| <b>II. Submitting the Allegations to EPA</b>               |                            |                            |                     |                        |
| File retrieved, reviewed by managerial and technical staff | NA                         | 0.25 hour secretarial      |                     | 2.50                   |
|                                                            | NA                         | 0.5 hour managerial        |                     | 15.00                  |
|                                                            | NA                         | 0.5 hour technical         |                     | 10.00                  |
| Allegation transcribed to EPA form                         | NA                         | 0.5 hour secretarial       |                     | 5.00                   |
|                                                            | NA                         | 0.5 hour technical         |                     | 10.00                  |
| Copies made, materials prepared                            | NA                         | 0.25 hour secretarial      |                     | 2.50                   |
|                                                            | NA                         | 0.25 hour managerial       |                     | 7.50                   |
| Package sent                                               | NA                         | 0.25 hour secretarial      |                     | 2.50                   |
| Totals                                                     | 1.75 hour secretarial      | 1.25 hour secretarial      | 22.50               | 55.00                  |
|                                                            | 0.05 hour managerial       | 0.75 hour managerial       |                     |                        |
|                                                            |                            | 1.0 hour technical         |                     |                        |

## 2. Estimated Number of Allegations Received by Firms

The Agency has consulted with many sources to develop estimates of the number of section 8(c)-type allegations which are now received by industry. All estimates have had the same problem, namely that there never has been a requirement such as section 8(c), and we do not know for certain how many such allegations might be received annually. Due to the novelty of this requirement and the scant available data, the Agency has based this analysis on assumptions, estimates, and feedback on early drafts of the proposed rule. The groups also estimated the number of allegations that could be received annually based on definitions in an earlier draft of this rule. In that draft, "significant adverse reactions to health or the environment" were defined more narrowly. This proposal broadens the definition and coverage. Additionally, in the earlier draft, allegations were to name a specific substance, while this proposal allows persons making an allegation to cite a consumer product, industrial process or industrial site emission as the cause without specifying a chemical. These changes will increase the number of recordable allegations (some allegations may not be "recordable allegations" the first time, but may become recordable if the effect is experienced repeatedly by the same person). However, those industry estimates can still serve for estimating the potential number of allegations which may be received annually.

EPA has polled several sources to estimate the number of section 8(c)-type allegations received by industry each year. For the most part, the Agency has relied upon the following:

- (a) Chemical industry and trade association contacts,
  - (b) Past experience of EPA staff with the chemical industry during the development of other section 8 rules, and
  - (c) Comparison with similar data collected by OSHA and BLS.<sup>1</sup>
- Firms and chemical industry associations<sup>2</sup> which provided EPA with early estimates of the number of allegations received by chemical firms included:
- (a) Chemical Manufacturers Association (CMA),
  - (b) Synthetic Organic Chemicals Manufacturers Association (SOCMA),
  - (c) American Textiles Manufacturers Institute (ATMI).

<sup>1</sup> The OSHA/BLS data on occupational injuries could not be used directly because they include illnesses from all occupational hazards rather than only those caused by exposure to chemical substances.

<sup>2</sup> These commentors and others are encouraged to provide estimates on the basis of the requirements proposed, since their estimates were based on an early draft.

(d) National Retail Merchants Association (NRMA).

(e) National Retail Hardware Association (NRHA), and

(f) E.I. DuPont De Nemours & Co. (Inc.)

Estimates provided by the chemical industry used the number of company production employees as the basis for measuring the number of allegations received from any source by a company. So, the estimates of probable numbers of allegations a company might receive are based on the number of employees in the chemical industry, regardless of the fact that allegations may be submitted by consumers, plant neighbors, or others. In the case of estimates for section 8(c), the chemical industry used 1,000 employees as the common denominator as follows:

Number of allegations of all sorts ÷ Number of production employees

The substance of the chemical industry estimates is that 2-4 allegations will be received annually for every 1000 employees.

Since the chemical industry estimates of numbers of allegations are based on employment figures, we reviewed the number of production employees in firms which manufacture, process, or distribute chemical substances or mixtures (see Appendix A—Estimate of Persons Subject to TSCA Section 8(c)). Firms who manufacture and process chemical substances or mixtures can in large part be readily identifiable within the Standard Industrial Classification (SIC) codes 28 and 2911 (Group 1). However, additional manufacturers, processors, and distributors are spread throughout industry and commerce. "Chemical substance" under TSCA includes naturally occurring chemical substances, such as minerals and metals, and agricultural products, such as cotton. To make an accurate estimate of the section 8(c) impact, a determination was needed as to how many employees in all industries might be involved in the same kind of activity as employees in SIC codes 28 and 2911. The only source of information that comprehensively describes the make up and employment of U.S. industry is the Standard Industrial Classification Manual. The limitation of this source is that it classifies industry by end products and does not detail the activities involved in production. Therefore, one must rely on the description of end products to determine whether chemical processing is likely to be a part of the production. In addition, companies are classified according to their major products so it is possible that, for some companies, minor activities involving chemical processing may be missed. The analysis found that large segments of industry may include processors; however, in most of those segments, only a small percentage of the production employees can be expected to be involved in processing chemicals (as opposed to assembly work and

other manufacturing activities). Examples of industries with incidental processing activities are apparel manufacturers (SIC 23), fabricated metal products (SIC 34), electrical machinery (SIC 36), and automotive manufacturers (SIC 37). In those segments (called Group 2 hereafter), chemical processing is expected to be incidental to the manufacture of another article. Therefore, for the purpose of estimating the number of section 8(c)-type allegations (which is based on estimates from the chemical industry), only a portion of the employees in Group 2 were counted. It was estimated that 10% of the employees in Group 2 on the average may be involved in chemical processing during the regular performance of duties. Some individual companies may be occupied 100% in chemical processing and others may be occupied 1%. As has been previously stated, the Agency has analyzed the costs of this completely new kind of requirement on scanty data and reasonable assumptions. We feel that 10% is a reasonable figure and is a multiplier that can be changed if better information is supplied through comments.

Appendix B to this analysis contains a listing of SIC codes that were selected as being either primarily engaged in manufacturing or processing chemical substances (Group 1), or as incidental processors or distributors (Group 2) (see Appendix A). Our review, using Bureau of Labor Statistics figures, concluded that over 583,000 establishments may manufacture, process, or distribute substances. In those establishments, there are estimated to be 3,200,000 employees in Group 1, and 17,200,000 employees in Group 2. The number of workers used to determine the possible number of allegations was the sum of the following equation:

Group 1 + (Group 2) (0.10) = Section 8(c) Worker Population = 4.9 million employees

Rounding off to an even 5 million employees:  
(Number of Employees) × (2-4 allegations) ÷ 1000 employees = Number of Allegations = 10,000-20,000 allegations

This means that an average of 10,000-20,000 section 8(c)-type allegations could be received by industry each year.

## 3. Recordkeeping Cost Estimates

In Table 1 (p.6), we estimate that a company will expend 2.25 hours to receive and process an allegation (fixed cost), which is estimated to cost \$22.50 per allegation. At \$22.50 per allegation, for an estimated 10,000-20,000 allegations per year, the annual fixed costs to industry to process section 8(c)-type allegations is estimated to be \$225,000-\$450,000.

## 4. Automatic Reporting Cost Estimates

To assess the probable costs of an automatic reporting provision, we have

estimated the numbers of allegations that might be submitted by firms to EPA. In addition, using the cost estimates in Table 1 (p.8), we have estimated the probable cost to industry if an automatic reporting provision is included in the final rule. For the purposes of this analysis, we have estimated the cost of an automatic reporting provision that requires the submission of allegations when three allegations about the same substance are received in a twelve-month period. These allegations would not have to be submitted to EPA except when three independent allegations are received about the same cause. The Agency estimates that only 3-5% of the total number of allegations received by industry will have to be submitted to EPA. The reason for this estimate is that we feel that it is improbable that three independent allegations about the same cause in the same twelve-month period will occur frequently. While this figure is clearly based on assumptions, we believe that this is a reasonable number from which to base cost estimates. If 3-5% of the allegations are reported, this means that EPA expects to receive between 300 (3% of 10,000) and 1000 (5% of 20,000) section 8(c) allegations per year. If these allegations are submitted to EPA in groups of three, the Agency anticipates receiving between 100 and 330 submittal packages each year.

In Table 1, we estimate that for a firm to review, transcribe, and forward a package of three allegations will require three hours and cost \$55. Thus, the estimated annual cost to industry of submitting 100-330 packages of allegations is \$5,500-\$18,150.

We have also examined the possibility that the number of allegations submitted to industry may eventually double as the section 8(c) program becomes more widely known among employees and consumers. The cost estimates for this scenario are summarized in Table 2.

Costs to submit packages of allegations have been estimated for three scenarios in Table 2. In these scenarios we have estimated, according to three rates, the probable percentage of the allegations received by industry that could be automatically reported. For each scenario, costs have been computed for the different estimates of numbers of allegations that could be received annually by industry and subject to reporting to EPA. We estimate that industry may receive 10,000-20,000 section 8(c) allegations per year, and we have also computed the costs should industry receive double our estimate, or 40,000 allegations per year. Table 2 contains cost estimates for the following scenarios:

Scenario 1 Low reporting rate (3% of allegations received by industry are forwarded to EPA).

Scenario 2 "Most likely case" (5% of allegations received by industry are forwarded to EPA).

Scenario 3 "Worst possible case" (allegations are distributed such that all allegations received by industry (100%) must be submitted to EPA).

Each of these scenarios is broken down into three variations:

10,000—If 10,000 allegations are received by industry each year (2/1000 empl/yr)

20,000—If 20,000 allegations are received by industry each year (4/1000 empl/yr)

40,000—If 40,000 allegations are received by industry each year (8/1000 empl/yr)

TABLE 2—Estimated Costs of Automatic Reporting

#### BASIS OF COMPUTATION

Fixed Costs (Recordkeeping)

(Number of Allegations Received by Industry) × (\$22.50)

Variable Costs (Automatic Reporting)

(Percent of Allegations Submitted to EPA) × (Number of Allegations Received by Industry) ÷ (Number of Allegations in Submittal Package)

[The product is divided by 3 because the \$55 submittal cost is incurred only once for every three allegations submitted]

Total Cost to Industry = Fixed Costs + Variable Costs

#### SUMMARY OF RESULTS

|                                                       | Number of Allegations Received by Industry |           |             |
|-------------------------------------------------------|--------------------------------------------|-----------|-------------|
|                                                       | 10,000                                     | 20,000    | 40,000      |
| Scenario 1: 3% of Allegations Submitted to EPA.....   | \$230,500                                  | \$461,000 | \$922,000   |
| Scenario 2: 5% of Allegations Submitted to EPA.....   | \$231,200                                  | \$468,300 | \$936,700   |
| Scenario 3: 100% of Allegations Submitted to EPA..... | \$308,300                                  | \$816,700 | \$1,633,300 |

#### Total Annual Cost to Industry of Automatic Reporting.

The total annual costs to keep and report section 8(c) allegations are estimated to range from a low of \$230,500 (Scenario 1 at 10,000 allegations) to a high of \$1,633,300 (Scenario 3 at 40,000 allegations). It should be noted that the "worst case" scenario (scenario 3) is considered to have nearly a zero probability of ever occurring; it is presented as an illustration of the absolute maximum cost which may be imposed on industry by the section 8(c) program. Similarly, there is a low probability that industry will receive 40,000 allegations per year, which is double the estimate we derived from industry input.

The costs for the "most likely" case scenario (Scenario 2 at 10,000-20,000 allegations) range from \$231,200 to \$468,300, depending ultimately on the number of allegations which are actually received by industry. EPA believes these figures from Scenario 2 represent the most realistic estimate of the section 8(c) program costs with automatic reporting included. If the number of allegations received by industry doubles to 40,000 allegations per year, the estimated annual costs may range from \$922,000 (Scenario 1) to \$1,633,300 (Scenario 3).

#### 5. Comparing Recordkeeping to Automatic Reporting Cost Estimates

In conclusion, EPA estimates the total short-run cost to industry of the section 8(c) program to range from \$230,500 to \$816,700 if 10,000-20,000 allegations are received annually. In this estimate, "fixed"

recordkeeping cost range from \$225,000-\$450,000, and "variable" reporting costs range from \$5,500-\$18,150. If the size of the program were to double due to increased worker and consumer awareness, the Agency estimates that the total cost to industry would rise to \$922,000-\$1,633,300. In this doubled estimate, "fixed" recordkeeping costs are \$900,000, and "variable" reporting costs range from \$22,000-\$733,300. Except in the cases of Scenario 3 of Table 2, where 100% of the allegations are reported to EPA, the automatic reporting costs are very small compared to the basic cost of complying with the section 8(c) recordkeeping requirements. In none of these cases is the cost of the section 8(c) program very burdensome to either the industry as a whole or individual firms.

#### B. Agency (EPA) Impacts

Evaluation of section 8(c) submissions will require the Agency to devote the following resources:

1. *Prescreen:* (Chemical Information Division) The Document Control Officer receives, records on a log, classifies, and forwards the allegation package to OTE. These activities are estimated to require four hours per submitted package of three allegations.

2. *Assessment:* (Office of Testing and Evaluation) OTE has dedicated 2 1/2 person years to assess section 8(c) allegations. Specifically, the Assessment Division and Health Review Division will each devote 1 person year; the Environmental Review Division will devote 1/2 person year. OTE is uncertain how long each allegation assessment should take, but if the section 8(e) submissions are a valid indicator, then each allegation should require eight hours, or 24 hours per package of three allegations.

3. *Data Entry:* (Chemical Information Division) The Systems Operations Branch estimates an annual cost of \$100,000 for the contractor to abstract and enter section 8(c), (d), and (e) submissions. These submissions will be entered onto the OPTS CIGIS (Chemicals In Commerce Information System). This experience to date is 660 section 8(d) health and safety studies, and 275 section 8(e) notices of substantial risk. The Office of Regulatory Analysis estimates that EPA is likely to receive 1,000 allegations per year, which would represent about double the submissions to now handled by the contractor, and therefore would cost approximately \$50,000 a year.

4. *Enforcement:* (Office of Enforcement) The Office of Enforcement intends to actively enforce this rule. Inspections of section 8(c) files will be conducted in conjunction with inspections performed for other provisions of TSCA and other laws administered by EPA. Present plans to combine inspections means that the rule will have little effect on OE resource allocation.

#### II. Secondary Impacts

A. *Recordkeeping Changes.* The requirements of this rule will create a new requirement to record and report allegations; however no new positions (jobs) or primary functions should result from meeting those requirements.

*B. Effects on Agency Program Operations.* Little effect, beyond that described above, is expected on Agency operations unless the number of submissions is considerably more than anticipated. Enforcement activities may be increased if inspections uncover widespread compliance problems.

#### 5. Respondent Coordination

During the development of this rule, there have been a number of exchanges with industry representatives. On November 13, 1978, a Work Group meeting was held with representatives from industry (see Public Record in Preamble) at which a draft of the rule was discussed. A public meeting was held on August 15, 1979, to discuss this proposed rule, which has several changes from the previous draft (see Public Record in Preamble). This proposal reflects some comments from that meeting, especially concerning the automatic reporting provision. The conditions requiring automatic reporting will be set after considering comments in response to this proposal. Several contacts with the industry helped establish the probable number of allegations that will be received by industry and the costs to industry [see paragraph 4(f)(A)(2) above]. Furthermore, many telephone calls have been received by OPTS from industry representatives that either provided input or concerned the status of the rule.

#### Appendix A—Reports Impact Analysis

##### Estimate of Persons Subject to TSCA Section 8(c)

###### Introduction

An effort has been made to define, by Standard Industrial Classification (SIC) code, the parameters of the industrial and commercial community which may be affected by the proposed section 8(c) rule. The purpose of this exercise is to examine all industrial categories to determine and list the SIC codes (see Appendix B to Reports Impact Analysis) for those who may manufacture, process, or distribute chemical substances or mixtures as defined in TSCA and may be subject to section 8(c). Under the TSCA definition, a chemical substance includes any naturally occurring substance or combination of substances, such as minerals or cotton. Those who manufacture chemical substances or mixtures, such as organic chemicals, may in large part be readily identifiable within the SIC codes 28 and 2911. However, additional manufacturers, as well as processors and distributors, are spread throughout industry and commerce. Large segments of industry may include processors; however, in most of those segments, only a small percentage of the production employees can be expected to be involved in the processing of chemicals (as opposed to assembly work and other activities). While the list of industries and SIC codes is reasonably complete and comprehensive, exclusion of an SIC code from the list should not be construed to mean that persons in that code are not manufacturers, processors, or distributors of chemical substances or mixtures. Some SIC codes were eliminated from the list because there was no clear indication from the description in the *Standard Industrial*

*Classification Manual* that the industry might manufacture or process any substances. Other SIC codes were excluded because the industries generally appeared to not be within the jurisdiction of TSCA. The selections were made without consulting industry, and it is expected that comments to the proposed rule and this analysis will improve and validate the selection criteria and result in a more comprehensive listing.

###### Purpose

This review was conducted to better estimate the potential impact of the proposed section 8(c) rule. Industry has provided estimates to EPA about the number of section 8(c) allegations that are now received annually in a manner that measures the number of allegations received from all sources by the number of industry production employees as follows:

###### Total Allegations Of All Sorts—Number of Production Employees

An estimate was derived from industry input which concludes that industry annually receives from any source 2-4 allegations for every 1000 production employees. The number of production employees thus becomes a common denominator to estimate the number of allegations that might be subject to recordkeeping and reporting under TSCA section 8(c). The purpose of this study is to estimate the number of production workers who could be expected to be involved in the manufacturing, processing, or wholesale distributing of chemical substances or mixtures.

###### Assumptions and Procedures

1. The provisions of section 8(c) are to be applied to *all* persons who manufacture, process, or distribute chemical substances or mixtures in commerce except retailers. This will include persons in the chemical and allied products industry; those who distribute those products in commerce; and industries outside the traditional "chemical industry" if their production activities involve the manufacture or processing of "chemical substances" or "mixtures" as defined by TSCA. TSCA defines chemical substances as including naturally occurring substances such as metals or cotton. Many industrial segments will technically "process" under the definitions of TSCA, and those persons should be subject to the statutory provision for those chemical substances or mixtures which are processed. Persons who solely *use* (do not process) chemical substances or mixtures may generate section 8(c)-type allegations, which may be sent to and then kept by manufacturers, processors, or distributors of those substances or mixtures; but users are not subject to the section 8(c) recordkeeping and reporting provisions.

2. Since the SIC codes are structured around the article produced by the coded industry, we have drawn inferences about the operations involved in making the end product. Processors were selected by judging whether in some way production of the end product might regularly involve processing of chemicals, such as, at a minimum, applying a surface coating. Thus, while the manufacturers of transportation equipment are included on the list, those persons

providing transportation services were excluded (SIC 40-48).

3. Industries can be separated into two groups: (a) Group 1, those primarily engaged in manufacturing or processing chemical substances or mixtures, all of whose production employees are expected to be involved in chemical activities, and (b) Group 2, those who may process or distribute chemical substances or mixtures, but only as a small part of their overall operation. Companies in Group 2 may be considered processors or distributors, yet the activities are diverse and chemical processing is expected to be incidental. Therefore, in this review only a portion of the employees were counted to equate their activities with production employees in Group 1. It was estimated that 10% of the employees in Group 2 may be involved in chemical processing during the regular performance of duties. The figure of 10% is very much an estimate of the potential numbers of similarly exposed production workers, and in some cases certain Group 2 industries should have *all* workers counted (e.g., textile mills). In other cases, fewer than 10% of the production workers should be counted. Given these limitations, the 10% figure can be considered a reasonable estimate which is an easily multiplied figure that commentators can consider and then provide more accurate information. This estimate is for the purposes of analyzing the impact of section 8(c) only, and may not apply to other rules under TSCA.

4. The figures for the numbers of production employees and establishments listed in Appendix B were drawn from data provided by the Bureau of Labor Statistics (BLS), DOL, (*Employment and Wages, First Quarter 1975*, PB-292 189, 1979). All employees listed in this BLS study are production workers and all establishments and employees are counted only once, according to the primary SIC code. The data are drawn from information submitted to each state unemployment insurance program. BLS considers these data to be a virtual census of all nonagricultural workers. While the data are drawn from January 1975, the figures are more current than the Department of Commerce *Census of Manufacturers* and most likely approximate the current numbers of establishments and production workers.

5. Due to the structure of the SIC codes, which is based on products not processes, additions to the SIC list were made if it appeared *possible* that the manufacture of those products might involve processing or handling substances according to the TSCA definitions. Since many of the industries may perform a small amount of related processing, only 10% of those workers are counted. Yet, for many large industries, such as automobile manufacturers, the study concluded that 10% may be an overestimate because of the large number of unrelated jobs. Furthermore, counting 100% of the workers in Group 1, probably is an overestimate. Yet, the figures offer a reasonable approximation of the number of employees with work comparable to that of production employees in the chemical industry, and can serve as the number of workers to be substituted in the formula for estimating section 8(c)-type allegations:

# Number of allegations from all sources ÷ 1000 Production Workers

Also, the figures for the mining and wholesale trade codes (10-14, 50-51) were only available in 3-digit categories, and therefore include some 4-digit categories that would otherwise not be counted in the study (e.g., Mining Services).

## Results

Examination of the *Standard Industrial Classification Manual* resulted in identifying the following groups:

(a) Group 1. 100% employee potential exposure  
Number of SIC codes: 15 3-digit, 55 4-digit.  
Number of establishments: 39,355.

Number of production workers: 3,174,951.  
(b) Group 2. 10% employee potential exposure  
Number of SIC codes: 24 3-digit, 308 4-digit.  
Number of establishments: 543,075.  
Number of production workers: 17,211,588.

The following equation estimates the number of U.S. production workers (Section 8(c) Worker Population) involved in chemical activities:

Group 1 + (Group 2)(0.10) = Section 8(c)  
Worker Population  
3,174,951 + 1,721,159 = 4,896,110

## Appendix B—Report Impact Analysis

### SIC Categories—100% Exposure

#### Group I

| SIC code | Description                                           | Number of report-<br>ed units | Number of employees |
|----------|-------------------------------------------------------|-------------------------------|---------------------|
| 101      | Iron Ores.....                                        | 90                            | 23,396              |
| 102      | Copper Ores.....                                      | 144                           | 43,473              |
| 103      | Lead & Zinc Ores.....                                 | 98                            | 7,989               |
| 104      | Gold Ores & Silver Ore.....                           | 258                           | 3,953               |
| 105      | Bauxite & Other Aluminum Ores.....                    | 18                            | 468                 |
| 106      | Ferroalloy Ores, Except Vanadium.....                 | 43                            | 4,596               |
| 109      | Miscellaneous Metal Ores.....                         | 224                           | 8,338               |
| 111      | Anthracite.....                                       | 146                           | 3,587               |
| 121      | Bituminous Coal.....                                  | 3,523                         | 197,452             |
| 141      | Dimension Stone.....                                  | 265                           | 3,597               |
| 142      | Crushed & Broken Stone.....                           | 1,498                         | 40,367              |
| 144      | Sand & Gravel.....                                    | 2,700                         | 32,107              |
| 145      | Clay, Ceramic and Refractory Minerals.....            | 213                           | 8,279               |
| 147      | Chemical & Fertilizer Minerals.....                   | 202                           | 24,897              |
| 149      | Miscellaneous Nonmetallic Minerals, Except Fuels..... | 267                           | 5,067               |
| 2261     | Finishing Plants—Cotton.....                          | 276                           | 33,027              |
| 2262     | Finishing Plants—Man-Made Fiber & Silk.....           | 315                           | 29,544              |
| 2269     | Finishing Plants Textiles.....                        | 225                           | 14,502              |
| 2611     | Pulp Mills.....                                       | 79                            | 15,102              |
| 2621     | Paper Mills, Except Bldg. Papermills.....             | 433                           | 173,536             |
| 2631     | Paperboard Mills.....                                 | 237                           | 63,785              |
| 2641     | Paper Coating & Glazing.....                          | 445                           | 54,527              |
| 2812     | Alkalies and Chlorine.....                            | 73                            | 23,478              |
| 2813     | Industrial Gases.....                                 | 393                           | 17,344              |
| 2816     | Inorganic Pigments.....                               | 115                           | 13,713              |
| 2819     | Industrial Inorganic Chemicals.....                   | 735                           | 99,180              |
| 2821     | Plastic Materials.....                                | 590                           | 83,400              |
| 2822     | Synthetic Rubber.....                                 | 84                            | 15,239              |
| 2823     | Cellulosic Man-Made Fibers.....                       | 30                            | 25,078              |
| 2824     | Synthetic Organic Fibers, Ex. Cellulosic.....         | 76                            | 93,109              |
| 2831     | Biological Products.....                              | 225                           | 18,321              |
| 2833     | Medicinal Chemicals.....                              | 125                           | 16,368              |
| 2841     | Soap & Other Detergents.....                          | 549                           | 38,371              |
| 2842     | Specialty Cleaning.....                               | 990                           | 28,080              |
| 2843     | Surface Active Agents, Finishing Agents etc.....      | 198                           | 6,002               |

| SIC code | Description                                                | Number of report-<br>ed units | Number of employees |
|----------|------------------------------------------------------------|-------------------------------|---------------------|
| 2844     | Perfumes, Cosmetics & Other Toilet Preparations.....       | 585                           | 47,738              |
| 2851     | Paints & Varnishes.....                                    | 1,497                         | 62,861              |
| 2861     | Gum & Wood Chemicals.....                                  | 139                           | 5,650               |
| 2865     | Cyclic Crudes & Cyclic Intermediates.....                  | 208                           | 33,008              |
| 2869     | Industrial Organic Chemicals.....                          | 415                           | 119,231             |
| 2873     | Nitrogenous Fertilizers.....                               | 206                           | 12,315              |
| 2874     | Phosphatic Fertilizers.....                                | 139                           | 15,444              |
| 2875     | Fertilizers, Mixing Only.....                              | 572                           | 14,180              |
| 2891     | Adhesives & Sealants.....                                  | 506                           | 12,152              |
| 2893     | Printing Ink.....                                          | 417                           | 12,152              |
| 2895     | Carbon Black.....                                          | 33                            | 4,361               |
| 2899     | Chemicals & Chemicals Preparations.....                    | 955                           | 36,283              |
| 2911     | Petroleum Refining.....                                    | 575                           | 155,358             |
| 2951     | Paving Mixtures & Blocks.....                              | 625                           | 10,225              |
| 2952     | Asphalt Felts & Coating.....                               | 215                           | 18,619              |
| 2992     | Lubricating Oils & Greases.....                            | 308                           | 8,023               |
| 2999     | Products of Petroleum & Coal NEC.....                      | 45                            | 2,140               |
| 3011     | Tires & Inner Tubes.....                                   | 201                           | 129,086             |
| 3021     | Rubber & Plastic Footwear.....                             | 102                           | 30,936              |
| 3031     | Reclaimed Rubber.....                                      | 22                            | 767                 |
| 3041     | Rubber & Plastic Hose.....                                 | 100                           | 18,451              |
| 3069     | Fabricated Rubber.....                                     | 1,212                         | 107,346             |
| 3079     | Misc. Plastic Products.....                                | 7,978                         | 327,331             |
| 3111     | Leather Tanning & Finishing.....                           | 468                           | 21,172              |
| 3241     | Cement, Hydraulic.....                                     | 214                           | 32,680              |
| 3274     | Lime.....                                                  | 106                           | 327,331             |
| 3312     | Blast Furnaces, Steel Works, & Rolling Mills.....          | 477                           | 507,079             |
| 3313     | Electrometallurgical Products.....                         | 58                            | 18,989              |
| 3331     | Primary Smelting & Refining of Copper.....                 | 29                            | 17,416              |
| 3332     | Primary Smelting & Refining of Lead.....                   | 19                            | 3,134               |
| 3333     | Primary Smelting & Refining of Zinc.....                   | 15                            | 6,424               |
| 3334     | Primary Production of Aluminum.....                        | 50                            | 32,962              |
| 3339     | Primary Smelting & Refining of Non-Ferrous Metals NEC..... | 99                            | 10,296              |
| 3471     | Electroplating, Plating & Polishing.....                   | 3,414                         | 54,491              |
| 3479     | Coating Engraving & Allied Services.....                   | 1,478                         | 28,132              |
| Total    |                                                            | 39,335                        | 3,174,951           |

### SIC Categories—10% Exposure

#### Group II

| SIC code | Description                                                       | Number of report-<br>ed units | Number of employees |
|----------|-------------------------------------------------------------------|-------------------------------|---------------------|
| 131      | Crude Petroleum & Natural Gas Liquids.....                        | 6,325                         | 145,846             |
| 132      | Natural Gas.....                                                  | 120                           | 4,262               |
| 2074     | Cottonseed Oil Mills.....                                         | 110                           | 7,730               |
| 2075     | Soybean Oil Mills.....                                            | 78                            | 9,334               |
| 2076     | Vegetable Oil Mills.....                                          | 44                            | 2,220               |
| 2077     | Animal & Marine Oil Mills.....                                    | 430                           | 11,747              |
| 221      | Broad Woven Fabric Mills, Cotton.....                             | 427                           | 158,286             |
| 222      | Broad Woven Fabric Mills, Man-made Fiber & Silk.....              | 478                           | 101,626             |
| 223      | Broad Woven Fabric Mills, Wools including Dyeing & Finishing..... | 211                           | 21,520              |
| 224      | Narrow Fabrics & Other Smallwares Mills.....                      | 449                           | 23,199              |
| 225      | Women's Full Length & Knee Length Hosiery.....                    | 264                           | 33,341              |
| 2252     | Hosiery, Except Women's Full & Knee Length.....                   | 401                           | 28,897              |
| 2253     | Knit Outerwear Mills.....                                         | 1,059                         | 67,102              |
| 2254     | Knit Underwear Mills.....                                         | 114                           | 32,664              |

| SIC code | Description                                                      | Number of report-<br>ed units | Number of employees |
|----------|------------------------------------------------------------------|-------------------------------|---------------------|
| 2257     | Circular Knit Fabric Mills.....                                  | 378                           | 31,823              |
| 2258     | Warp Knit Fabric Mills.....                                      | 328                           | 20,370              |
| 2259     | Knitting Mills, NEC.....                                         | 85                            | 4,458               |
| 2271     | Woven Carpets & Pads.....                                        | 101                           | 7,281               |
| 2272     | Tufted Carpets & Rugs.....                                       | 407                           | 43,088              |
| 2279     | Carpets & Rugs, NEC.....                                         | 59                            | 948                 |
| 2281     | Yarn Spinning Mills.....                                         | 401                           | 73,893              |
| 2282     | Yarn Texturing.....                                              | 187                           | 18,585              |
| 2283     | Yarn Mills, Wool.....                                            | 115                           | 11,488              |
| 2284     | Thread Mills.....                                                | 79                            | 10,883              |
| 2291     | Felt Goods, except Woven Felts & Hats.....                       | 75                            | 4,187               |
| 2292     | Lace Goods.....                                                  | 101                           | 2,762               |
| 2293     | Paddings & Upholstery Filling.....                               | 127                           | 5,726               |
| 2294     | Processed Waste & Recovered Fiber.....                           | 169                           | 6,346               |
| 2295     | Coated Fiber.....                                                | 191                           | 11,188              |
| 2296     | Tire Cord & Fiber.....                                           | 29                            | 17,893              |
| 2297     | Nonwoven Fabrics.....                                            | 32                            | 3,180               |
| 2298     | Cordage & Twine.....                                             | 170                           | 10,440              |
| 2299     | Textile Goods, NEC.....                                          | 137                           | 9,903               |
| 2311     | Men's & Youth's Suits & Coats.....                               | 754                           | 92,578              |
| 2321     | Men's Nightwear.....                                             | 838                           | 111,349             |
| 2322     | Men's Underwear.....                                             | 94                            | 18,010              |
| 2323     | Men's Neckwear.....                                              | 259                           | 6,279               |
| 2327     | Men's Trousers.....                                              | 658                           | 82,952              |
| 2328     | Men's Work Clothing.....                                         | 471                           | 96,984              |
| 2329     | Clothing, NEC.....                                               | 875                           | 50,884              |
| 2331     | Women's Blouses, Waists & Shirts.....                            | 884                           | 45,742              |
| 2335     | Women's Dresses.....                                             | 4,700                         | 158,606             |
| 2337     | Women's Suits & Skirts.....                                      | 1,577                         | 58,882              |
| 2339     | Women's NEC.....                                                 | 2,292                         | 111,144             |
| 2341     | Women's Underwear.....                                           | 841                           | 72,779              |
| 2342     | Brassieres & Girdles.....                                        | 322                           | 34,188              |
| 2351     | Millinery.....                                                   | 153                           | 2,831               |
| 2352     | Hats & Caps.....                                                 | 268                           | 12,620              |
| 2361     | Girls' Dresses, Blouses.....                                     | 475                           | 24,611              |
| 2363     | Girls' Coats & Suits.....                                        | 179                           | 7,288               |
| 2369     | Girls' Outerwear.....                                            | 432                           | 32,182              |
| 2371     | Fur Goods.....                                                   | 772                           | 4,072               |
| 2381     | Dresses & Work Gloves.....                                       | 158                           | 14,369              |
| 2384     | Robes & Dressing Gowns.....                                      | 203                           | 7,910               |
| 2385     | Rain Coats.....                                                  | 260                           | 14,038              |
| 2386     | Leather & Sheep Lined Clothing.....                              | 213                           | 5,239               |
| 2387     | Apparel, Belts.....                                              | 284                           | 8,154               |
| 2389     | Apparel, NEC.....                                                | 219                           | 5,324               |
| 2391     | Curtains & Draperies.....                                        | 1,218                         | 24,523              |
| 2392     | House Furnishings.....                                           | 1,082                         | 37,490              |
| 2393     | Textile Bags.....                                                | 210                           | 7,116               |
| 2394     | Carpets & Related Products.....                                  | 980                           | 12,752              |
| 2395     | Plating, Decorative & Novelty Stitching.....                     | 999                           | 11,854              |
| 2396     | Automotive Trimmings.....                                        | 635                           | 23,102              |
| 2397     | Schiffli Machine Embroideries.....                               | 258                           | 2,952               |
| 2399     | Fabricated Textile Products, NEC.....                            | 825                           | 20,892              |
| 2411     | Logging Camps.....                                               | 13,855                        | 68,784              |
| 2421     | Sawmills & Planing Mills.....                                    | 7,308                         | 158,845             |
| 2426     | Hardwood Dimension & Flooring Mills.....                         | 885                           | 25,060              |
| 2429     | Special Product Sawmills.....                                    | 518                           | 5,713               |
| 2431     | Millwork.....                                                    | 2,472                         | 58,821              |
| 2434     | Wood Kitchen Cabinets.....                                       | 2,470                         | 33,954              |
| 2435     | Hardwood Veneer & Plywood.....                                   | 317                           | 22,308              |
| 2436     | Softwood Veneer & Plywood.....                                   | 245                           | 35,898              |
| 2439     | Wood Containers.....                                             | 486                           | 6,686               |
| 2511     | Wood Household Furniture.....                                    | 2,058                         | 124,707             |
| 2512     | Wood Household Furniture Upholstery.....                         | 1,514                         | 80,226              |
| 2514     | Metal Household Furniture.....                                   | 507                           | 27,309              |
| 2515     | Mattresses & Box Springs.....                                    | 1,046                         | 31,158              |
| 2517     | Wood Television, Radio Phonograph & Sewing Machine Cabinets..... | 113                           | 10,948              |
| 2519     | Household Furniture NEC.....                                     | 146                           | 2,945               |
| 2521     | Wood Office Furniture.....                                       | 262                           | 11,903              |
| 2522     | Metal Office Furniture.....                                      | 208                           | 30,159              |
| 2531     | Public Building & Related Furniture.....                         | 372                           | 24,074              |
| 2541     | Wood Partitions, Shelving, Lockers, etc.....                     | 537                           | 26,343              |
| 2542     | Metal Partitions & Shelving.....                                 | 537                           | 24,709              |
| 2591     | Draping Hardware, Window Blinds & Shades.....                    | 581                           | 13,147              |
| 2599     | Furniture & Fixtures NEC.....                                    | 282                           | 9,784               |
| 2642     | Envelopes.....                                                   | 260                           | 23,457              |

| SIC code | Description                                             | Number of reported units | Number of employees | SIC code | Description                                             | Number of reported units | Number of employees | SIC code | Description                                                             | Number of reported units | Number of employees |
|----------|---------------------------------------------------------|--------------------------|---------------------|----------|---------------------------------------------------------|--------------------------|---------------------|----------|-------------------------------------------------------------------------|--------------------------|---------------------|
| 2643     | Bags, Except Textile Bags.....                          | 578                      | 46,475              | 3356     | Rolling, Drawing & Extruding of Nonferrous Metals.      | 177                      | 18,762              | 3561     | Pumps & Pumping Equipment.....                                          | 506                      | 57,010              |
| 2645     | Die-Cut Paper Paperboard & Cardboard.....               | 423                      | 16,869              | 3357     | Drawing & Insulating of Nonferrous Wire.....            | 383                      | 82,609              | 3562     | Ball & Roller Bearings.....                                             | 183                      | 59,279              |
| 2546     | Pressed & Molded Pulp Goods.....                        | 54                       | 4,535               | 3361     | Aluminum Foundries.....                                 | 968                      | 45,656              | 3563     | Air & Gas Compressors.....                                              | 143                      | 28,714              |
| 2647     | Sanitary Paper Products.....                            | 102                      | 19,344              | 3362     | Brass, Bronze, Copper, Copper Base Alloy Foundries..... | 560                      | 20,170              | 3564     | Blowers & Exhaust Fans.....                                             | 502                      | 34,389              |
| 2648     | Stationery, Tablets and Related Products.....           | 88                       | 5,707               | 3369     | Nonferrous Foundries NEC.....                           | 425                      | 16,006              | 3565     | Industrial Patterns.....                                                | 968                      | 10,002              |
| 2649     | Converted Paper and Paperboard NEC.....                 | 524                      | 28,302              | 3398     | Metal Heat Treating.....                                | 449                      | 10,911              | 3566     | Speed Changers & Industrial High Speed Drives.....                      | 267                      | 25,113              |
| 2651     | Folding Paperboard Boxes.....                           | 587                      | 41,827              | 3399     | Primary Metal Products NEC.....                         | 237                      | 8,749               | 3567     | Industrial Process Furnaces & Ovens.....                                | 327                      | 19,869              |
| 2652     | Set-Up Paperboard Boxes.....                            | 340                      | 12,916              | 3411     | Metal Cans.....                                         | 421                      | 69,820              | 3568     | Mechanical Power Transmission Engines.....                              | 160                      | 24,083              |
| 2653     | Corrugated & Solid Fiber Boxes.....                     | 1,349                    | 95,713              | 3412     | Metal Shipping Barrels, Drums etc.....                  | 167                      | 12,237              | 3569     | General Ind. Machinery & Equipment.....                                 | 636                      | 46,211              |
| 2654     | Sanitary Food Containers.....                           | 180                      | 25,833              | 3421     | Cutlery.....                                            | 148                      | 15,348              | 3572     | Typewriters.....                                                        | 32                       | 17,975              |
| 2655     | Fiber Cans, Tubes, Drums & Similar Products.....        | 299                      | 18,643              | 3423     | Hand & Edge Tools, Ex. Tools.....                       | 743                      | 49,821              | 3573     | Electronic Computing & Equipment.....                                   | 738                      | 219,277             |
| 2661     | Building Paper & Building Board Mills.....              | 108                      | 11,633              | 3425     | Hand Saw & Saw Blades.....                              | 119                      | 7,655               | 3574     | Calculating and Accounting Machines.....                                | 68                       | 31,913              |
| 2711     | Newspapers: Publishing, Publishing & Printing.....      | 8,527                    | 382,066             | 3429     | Hardware NEC.....                                       | 1,073                    | 65,480              | 3576     | Scales and Balances, Except Laboratory.....                             | 88                       | 7,254               |
| 2721     | Periodicals, Publishing.....                            | 2,832                    | 69,081              | 3431     | Enamelled Iron Metal Sanitary Ware.....                 | 133                      | 9,475               | 3579     | Office Machines NEC.....                                                | 199                      | 25,448              |
| 2731     | Books, Publishing & Printing.....                       | 1,585                    | 67,643              | 3432     | Plumbing Fixture Fittings & Trim.....                   | 243                      | 20,417              | 3581     | Automatic Merchandising Machines.....                                   | 101                      | 8,355               |
| 2732     | Book Printing.....                                      | 215                      | 27,681              | 3433     | Heating Equipment Except Electric Warm Air Furnace..... | 379                      | 29,217              | 3582     | Commercial Laundry, & Dry Cleaning.....                                 | 91                       | 5,764               |
| 2741     | Misc. Publishing.....                                   | 2,276                    | 38,231              | 3441     | Fabricated Structural Metal.....                        | 2,078                    | 106,912             | 3585     | Air Conditioning & Industrial-Commercial Refrigeration Equipment.....   | 658                      | 110,564             |
| 2751     | Commercial Printing.....                                | 11,489                   | 164,256             | 3442     | Metal Doors, Sash, Frames, etc.....                     | 1,882                    | 62,464              | 3586     | Measuring and Dispensing Pumps.....                                     | 29                       | 5,715               |
| 2752     | Commercial Printing Lithographic.....                   | 9,229                    | 168,521             | 3443     | Fabricated Plate Work.....                              | 1,689                    | 149,457             | 3589     | Service Industry Machines.....                                          | 682                      | 31,868              |
| 2753     | Engraving & Plate Printing.....                         | 595                      | 11,091              | 3444     | Sheet Metal Work.....                                   | 3,696                    | 84,800              | 3592     | Carburetors, Pistons, Piston Rings, and Valves.....                     | 218                      | 30,947              |
| 2754     | Commercial Printing Gravure.....                        | 124                      | 8,350               | 3446     | Architectural & Ornamental Metal Work.....              | 2,000                    | 30,665              | 3599     | Machinery, except Electrical NEC.....                                   | 14,409                   | 202,011             |
| 2879     | Pesticides & Agricultural Chemicals NEC.....            | 357                      | 22,027              | 3448     | Prefabricated Metal Building & Components.....          | 448                      | 18,456              | 3612     | Power, Distribution, & Specialty Transformers.....                      | 383                      | 58,474              |
| 3131     | Boot & Shoe Cut Stock.....                              | 263                      | 9,705               | 3449     | Misc. Metal Work.....                                   | 333                      | 9,734               | 3613     | Switchgear and Switchboard Apparatus.....                               | 588                      | 69,954              |
| 3142     | House Slippers.....                                     | 102                      | 8,994               | 3451     | Screw Machine Products.....                             | 1,881                    | 49,076              | 3621     | Motors and Generators.....                                              | 437                      | 117,906             |
| 3143     | Men's Footwear.....                                     | 241                      | 59,111              | 3452     | Bolts, Screws, Rivets & Washers.....                    | 721                      | 56,526              | 3622     | Industrial Controls.....                                                | 623                      | 62,587              |
| 3144     | Women's Footwear.....                                   | 324                      | 68,434              | 3462     | Metal Forgings & Stampings.....                         | 497                      | 55,621              | 3623     | Welding Apparatus, Electric.....                                        | 157                      | 17,528              |
| 3149     | Footwear, except Rubber NEC.....                        | 243                      | 22,993              | 3463     | Nonferrous.....                                         | 33                       | 4,861               | 3624     | Carbon and Graphite Products.....                                       | 78                       | 14,233              |
| 3151     | Leather Gloves & Mittens.....                           | 108                      | 4,817               | 3465     | Automotive Stampings.....                               | 294                      | 68,712              | 3629     | Electrical Industrial Apparatus, NEC.....                               | 148                      | 11,811              |
| 3161     | Luggage.....                                            | 277                      | 14,176              | 3466     | Crowns & Closures.....                                  | 37                       | 5,057               | 3631     | Household Cooling Equipment.....                                        | 85                       | 18,704              |
| 3171     | Women's Handbags & Purses.....                          | 442                      | 16,926              | 3469     | Metal Stampings NEC.....                                | 2,260                    | 110,831             | 3632     | Household Refrigerators & Home and Farm Freezers.....                   | 54                       | 34,278              |
| 3172     | Personal Leather Goods Ex. Women's Purses.....          | 308                      | 10,835              | 3493     | Steel Springs Except Wire.....                          | 163                      | 7,962               | 3633     | Household Laundry Equipment.....                                        | 36                       | 20,100              |
| 3199     | Leather Goods, NEC.....                                 | 405                      | 8,143               | 3494     | Valves & Pipe Fittings.....                             | 783                      | 92,387              | 3634     | Electric Housewares & Fans.....                                         | 286                      | 46,188              |
| 3211     | Flat Glass.....                                         | 86                       | 18,164              | 3495     | Wire Springs.....                                       | 258                      | 13,646              | 3635     | Household Vacuum Cleaners.....                                          | 32                       | 9,068               |
| 3221     | Glass Containers.....                                   | 139                      | 69,527              | 3496     | Misc. Fabricated Wire Products.....                     | 1,201                    | 46,026              | 3636     | Sewing Machines.....                                                    | 84                       | 8,385               |
| 3229     | Pressed & Blown Glass.....                              | 327                      | 56,500              | 3497     | Metal Foil & Leaf.....                                  | 48                       | 2,461               | 3639     | Household Appliances NEC.....                                           | 87                       | 14,793              |
| 3231     | Glass Products.....                                     | 883                      | 35,803              | 3498     | Fabricated Pipe.....                                    | 479                      | 23,912              | 3641     | Electric Lamps.....                                                     | 251                      | 39,026              |
| 3251     | Brick & Structural Clay Tile.....                       | 371                      | 19,045              | 3499     | Fabricated Metal Products, NEC.....                     | 1,238                    | 40,438              | 3643     | Current Carrying Wiring Devices.....                                    | 528                      | 73,622              |
| 3253     | Ceramic Wall & Floor Tile.....                          | 98                       | 8,990               | 3511     | Steam, Gas, & Hydraulic Turbines & Generators.....      | 83                       | 49,238              | 3644     | Noncurrent Carrying Wiring Devices.....                                 | 204                      | 22,382              |
| 3255     | Clay Refractories.....                                  | 157                      | 13,579              | 3519     | Internal Combustion Engines.....                        | 155                      | 75,792              | 3645     | Residential Electric Lighting Fixtures.....                             | 666                      | 19,684              |
| 3259     | Structural Clay Products.....                           | 124                      | 6,478               | 3523     | Farm Machinery & Equipment.....                         | 1,624                    | 159,829             | 3646     | Commercial, Industrial, Institutional Electrical Lighting Fixtures..... | 191                      | 15,376              |
| 3261     | Vitreous China Plumbing Fixtures.....                   | 80                       | 8,817               | 3524     | Garden Tractors & Garden Equipment.....                 | 135                      | 20,556              | 3647     | Vehicular Lighting Equipment.....                                       | 50                       | 12,603              |
| 3262     | Vitreous China Table and Kitchen Articles.....          | 21                       | 5,341               | 3531     | Construction Machinery & Equipment.....                 | 701                      | 153,975             | 3648     | Lighting Equipment NEC.....                                             | 137                      | 6,294               |
| 3263     | Fine Earthenware.....                                   | 12                       | 5,124               | 3532     | Mining Machinery & Equipment.....                       | 254                      | 29,596              | 3651     | Radio & TV Receiving Sets.....                                          | 525                      | 87,481              |
| 3264     | Porcelain Electrical Supplies.....                      | 79                       | 12,115              | 3533     | Oil Field Machinery & Equipment.....                    | 311                      | 57,947              | 3652     | Phono Records & Magnetic Tape.....                                      | 624                      | 22,187              |
| 3269     | Pottery Products NEC.....                               | 582                      | 13,370              | 3534     | Elevators & Moving Stairways.....                       | 167                      | 14,647              | 3661     | Telephone & Telegraph Apparatus.....                                    | 303                      | 164,121             |
| 3271     | Concrete Brick & Block.....                             | 1,388                    | 21,952              | 3535     | Conveyors & Conveying Equipment.....                    | 504                      | 28,723              | 3662     | Radio & TV Transmitting Equipment.....                                  | 1,566                    | 322,595             |
| 3272     | Concrete Products.....                                  | 3,552                    | 66,165              | 3536     | Hoists.....                                             | 252                      | 28,806              | 3671     | Radio & TV Receiving Tubes.....                                         | 40                       | 12,808              |
| 3273     | Ready-Mixed Concrete.....                               | 4,212                    | 75,900              | 3537     | Industrial Trucks, Tractors, Trailers.....              | 398                      | 34,383              | 3672     | Cathode Ray Picture Tubes.....                                          | 67                       | 11,968              |
| 3275     | Gypsum Products.....                                    | 128                      | 13,709              | 3541     | Machine Tools, Metal Cutting.....                       | 878                      | 70,768              | 3673     | Transmitting, Industrial & Special Purpose Electron Tubes.....          | 60                       | 17,213              |
| 3281     | Cut Stone & Stone Products.....                         | 937                      | 12,435              | 3542     | Machine Tools, Metal Forming.....                       | 339                      | 28,055              | 3674     | Semiconductors & Related Devices.....                                   | 497                      | 126,549             |
| 3291     | Abrasive Products.....                                  | 366                      | 28,318              | 3544     | Special Dies & Tools.....                               | 7,289                    | 119,176             | 3675     | Electronic Capacitors.....                                              | 102                      | 19,181              |
| 3292     | Asbestos Products.....                                  | 165                      | 24,487              | 3545     | Machine Tool Accessories.....                           | 1,661                    | 59,678              | 3676     | Resistors, for Electronic Applications.....                             | 59                       | 8,344               |
| 3293     | Gaskets, Packing & Sealing.....                         | 382                      | 25,408              | 3546     | Power Driven Hand Tools.....                            | 127                      | 22,995              | 3677     | Electronic Coils, Transformers, etc.....                                | 274                      | 16,294              |
| 3295     | Minerals & Earth, Ground.....                           | 455                      | 14,449              | 3547     | Rolling Mills Machinery & Equipment.....                | 56                       | 14,469              | 3678     | Connectors, for Electronic Applicators.....                             | 38                       | 2,843               |
| 3296     | Mineral Wools.....                                      | 158                      | 23,120              | 3549     | Metal Working Machinery NEC.....                        | 199                      | 13,946              |          |                                                                         |                          |                     |
| 3297     | Nonclay Refractories.....                               | 98                       | 11,237              | 3551     | Food Products Machinery.....                            | 751                      | 43,823              |          |                                                                         |                          |                     |
| 3299     | Nonmetallic Mineral Products.....                       | 417                      | 5,711               | 3552     | Textile Machinery.....                                  | 621                      | 36,178              |          |                                                                         |                          |                     |
| 3315     | Steel Wire, Nails.....                                  | 192                      | 21,250              | 3553     | Wood Working Machinery.....                             | 296                      | 13,150              |          |                                                                         |                          |                     |
| 3316     | Cold Rolled Steel Sheet Strip & Bars.....               | 184                      | 18,843              | 3554     | Paper Industries Machinery.....                         | 211                      | 18,928              |          |                                                                         |                          |                     |
| 3317     | Steel Pipe & Tubes.....                                 | 208                      | 29,414              | 3555     | Printing Trades Machinery & Equipment.....              | 619                      | 30,315              |          |                                                                         |                          |                     |
| 3321     | Gray Iron Foundries.....                                | 963                      | 156,225             | 3559     | Special Industry Machinery, NEC.....                    | 1,051                    | 57,583              |          |                                                                         |                          |                     |
| 3322     | Malleable Iron Foundries.....                           | 72                       | 23,186              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3324     | Steel Investment Foundries.....                         | 58                       | 11,306              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3325     | Steel Foundries NEC.....                                | 242                      | 57,309              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3341     | Secondary Smelting & Refining of Nonferrous Metals..... | 376                      | 19,309              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3351     | Rolling, Drawing & Extruding of Copper.....             | 158                      | 30,632              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3353     | Aluminum Sheet, Plate, & Foil.....                      | 85                       | 30,350              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3354     | Aluminum Extruded Products.....                         | 163                      | 28,981              |          |                                                         |                          |                     |          |                                                                         |                          |                     |
| 3355     | Aluminum Rolling & Drawing NEC.....                     | 24                       | 5,252               |          |                                                         |                          |                     |          |                                                                         |                          |                     |

| SIC<br>code | Description                                                                   | Number<br>of<br>report-<br>ed<br>units | Number of<br>employees | SIC<br>code | Description                                | Number<br>of<br>report-<br>ed<br>units | Number of<br>employees |
|-------------|-------------------------------------------------------------------------------|----------------------------------------|------------------------|-------------|--------------------------------------------|----------------------------------------|------------------------|
| 3679        | Electronic Components NEC                                                     | 2,465                                  | 140,145                | 506         | Electrical Goods                           | 23,934                                 | 356,356                |
| 3691        | Storage Batteries                                                             | 241                                    | 25,236                 | 507         | Hardware, Plumbing, &<br>Heating Equipment | 18,378                                 | 206,792                |
| 3692        | Primary Batteries, Dry and<br>Wet                                             | 72                                     | 12,138                 | 508         | Machinery, Equipment &<br>Supplies         | 79,375                                 | 1,002,867              |
| 3693        | X-Ray Equipment                                                               | 142                                    | 17,081                 | 509         | Miscellaneous Durable<br>Goods             | 22,146                                 | 193,205                |
| 3694        | Electrical Equipment for<br>Internal Combustion<br>Engines                    | 343                                    | 62,373                 | 511         | Paper & Paper Goods                        | 8,796                                  | 116,251                |
| 3699        | Electrical Equipment NEC                                                      | 298                                    | 11,663                 | 513         | Apparel, Piece Goods, &<br>Notions         | 17,291                                 | 154,027                |
| 3711        | Motor Vehicles and<br>Passenger Car Bodies                                    | 334                                    | 347,584                | 516         | Chemicals & Allied Products                | 9,626                                  | 109,609                |
| 3713        | Truck & Bus Bodies                                                            | 730                                    | 45,593                 | 517         | Petroleum                                  | 16,885                                 | 225,181                |
| 3714        | Motor Vehicle Parts &<br>Accessories                                          | 1,719                                  | 361,418                | 519         | Miscellaneous Nondurable<br>Goods          | 33,341                                 | 313,787                |
| 3715        | Truck Trailers                                                                | 368                                    | 21,856                 | Total       |                                            | 543,075                                | 17,211,586             |
| 3721        | Aircraft                                                                      | 222                                    | 305,564                |             |                                            |                                        |                        |
| 3724        | Aircraft Engines                                                              | 246                                    | 133,664                |             |                                            |                                        |                        |
| 3726        | Aircraft Parts                                                                | 1,046                                  | 98,716                 |             |                                            |                                        |                        |
| 3731        | Ship Building & Repair                                                        | 458                                    | 165,901                |             |                                            |                                        |                        |
| 3732        | Boat Building & Repair                                                        | 1,703                                  | 38,401                 |             |                                            |                                        |                        |
| 3743        | Railroad Equipment                                                            | 145                                    | 60,482                 |             |                                            |                                        |                        |
| 3751        | Motorcycles & Bicycles                                                        | 250                                    | 12,277                 |             |                                            |                                        |                        |
| 3792        | Travel Trailers & Campers                                                     | 1,029                                  | 27,820                 |             |                                            |                                        |                        |
| 3799        | Transportation Equipment                                                      | 363                                    | 9,083                  |             |                                            |                                        |                        |
| 3811        | Engineering Laboratory,<br>Scientific Equipment                               | 718                                    | 65,608                 |             |                                            |                                        |                        |
| 3822        | Automatic Controls for<br>Regulating Commercial &<br>Residential Environments | 252                                    | 37,623                 |             |                                            |                                        |                        |
| 3824        | Totalizing Fluid Meters &<br>Counting Devices                                 | 124                                    | 15,017                 |             |                                            |                                        |                        |
| 3825        | Instruments for Measuring &<br>Testing Electricity &<br>Electrical Signals    | 509                                    | 64,062                 |             |                                            |                                        |                        |
| 3829        | Measuring & Controlling<br>Devices NEC                                        | 328                                    | 17,758                 |             |                                            |                                        |                        |
| 3832        | Optical Instruments & Lenses                                                  | 416                                    | 22,495                 |             |                                            |                                        |                        |
| 3841        | Surgical & Medical<br>Instruments & Appliances                                | 542                                    | 42,227                 |             |                                            |                                        |                        |
| 3842        | Surgical Supplies &<br>Appliances                                             | 1,002                                  | 56,178                 |             |                                            |                                        |                        |
| 3843        | Dental Equipment                                                              | 376                                    | 15,056                 |             |                                            |                                        |                        |
| 3851        | Ophthalmic Equipment                                                          | 933                                    | 37,817                 |             |                                            |                                        |                        |
| 3861        | Photo Equipment & Supplies                                                    | 682                                    | 125,209                |             |                                            |                                        |                        |
| 3873        | Watches, Clocks, Clockwork<br>& Supplies                                      | 237                                    | 32,628                 |             |                                            |                                        |                        |
| 3911        | Jewelry, Precious Metal                                                       | 1,812                                  | 31,315                 |             |                                            |                                        |                        |
| 3914        | Silverware, Plated Ware,<br>Stainless Steel                                   | 242                                    | 11,528                 |             |                                            |                                        |                        |
| 3915        | Jewelry Materials                                                             | 577                                    | 8,826                  |             |                                            |                                        |                        |
| 3931        | Musical Instruments                                                           | 361                                    | 25,177                 |             |                                            |                                        |                        |
| 3942        | Dolls                                                                         | 262                                    | 6,394                  |             |                                            |                                        |                        |
| 3944        | Games, Toys, & Children's<br>Vehicles                                         | 686                                    | 39,178                 |             |                                            |                                        |                        |
| 3949        | Sporting and Athletic Goods,<br>NEC                                           | 1,547                                  | 62,662                 |             |                                            |                                        |                        |
| 3951        | Pens & Mechanical Pencils                                                     | 111                                    | 9,788                  |             |                                            |                                        |                        |
| 3952        | Lead Pencils                                                                  | 154                                    | 8,285                  |             |                                            |                                        |                        |
| 3953        | Marking Devices                                                               | 556                                    | 8,340                  |             |                                            |                                        |                        |
| 3955        | Carbon Paper & Inked<br>Ribbons                                               | 108                                    | 4,985                  |             |                                            |                                        |                        |
| 3961        | Costume Jewelry                                                               | 1,341                                  | 28,786                 |             |                                            |                                        |                        |
| 3962        | Feathers, Plumes, Artificial<br>Trees & Flowers                               | 291                                    | 4,926                  |             |                                            |                                        |                        |
| 3963        | Buttons                                                                       | 197                                    | 3,849                  |             |                                            |                                        |                        |
| 3964        | Needles, Pins, Hooks, &<br>Eyes                                               | 288                                    | 16,384                 |             |                                            |                                        |                        |
| 3991        | Brooms & Brushes                                                              | 437                                    | 15,889                 |             |                                            |                                        |                        |
| 3993        | Signs & Advertising Displays                                                  | 2,662                                  | 41,282                 |             |                                            |                                        |                        |
| 3995        | Burial Caskets                                                                | 420                                    | 13,633                 |             |                                            |                                        |                        |
| 3996        | Linoileum, Asphalted-Felt-<br>Base Floor Covers                               | 21                                     | 8,134                  |             |                                            |                                        |                        |
| 3999        | Manufacturing Industry                                                        | 2,158                                  | 50,145                 |             |                                            |                                        |                        |
| 492         | Gas Production & Distribution                                                 | 1,837                                  | 159,390                |             |                                            |                                        |                        |
| 501         | Automotive Vehicles &<br>Automotive Equipment                                 | 27,650                                 | 367,253                |             |                                            |                                        |                        |
| 502         | Furniture & Home<br>Furnishings                                               | 9,455                                  | 85,967                 |             |                                            |                                        |                        |
| 503         | Lumber & Construction<br>Materials                                            | 13,484                                 | 145,810                |             |                                            |                                        |                        |
| 504         | Sporting Goods, Toys, &<br>Hobby Goods                                        | 5,002                                  | 55,151                 |             |                                            |                                        |                        |
| 505         | Metals & Minerals, Except<br>Petroleum                                        | 7,891                                  | 126,288                |             |                                            |                                        |                        |

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