

## VII. COMPLIANCE AND ENFORCEMENT PROFILE

### Background

Until recently, EPA has focused much of its attention on measuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the Clean Air Act, the Resource Conservation and Recovery Act, the Clean Water Act, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level, and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was the creation of EPA's Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match Air, Water, Waste, Toxics/Pesticides/EPCRA, TRI, and Enforcement Docket records for a given facility, and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, sector-specific measures of success for compliance assistance efforts are under development.

### Compliance and Enforcement Profile Description

Using inspection, violation and enforcement data from the IDEA system, this section provides information regarding the historical compliance and enforcement activity of this sector. In order to mirror the facility universe reported in the Toxic Chemical Profile, the data reported within this section consists of records only from the TRI reporting universe. With this decision, the selection criteria are consistent across sectors with certain exceptions. For the sectors that do not normally report to the TRI program, data have been provided from EPA's Facility Indexing System (FINDS) which tracks facilities in all media databases. Please note, in this section, EPA does not attempt to define the actual number of facilities that fall within each sector. Instead, the section portrays the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census (See Section II). With sectors dominated by small businesses, such as metal finishers and printers, the reporting universe within

the EPA databases may be small in comparison to Census data. However, the group selected for inclusion in this data analysis section should be consistent with this sector's general make-up.

Following this introduction is a list defining each data column presented within this section. These values represent a retrospective summary of inspections and enforcement actions, and reflect solely EPA, State, and local compliance assurance activities that have been entered into EPA databases. To identify any changes in trends, the EPA ran two data queries, one for the past five calendar years (April 1, 1992 to March 31, 1997) and the other for the most recent twelve-month period (April 1, 1996 to March 31, 1997). The five-year analysis gives an average level of activity for that period for comparison to the more recent activity.

Because most inspections focus on single-media requirements, the data queries presented in this section are taken from single media databases. These databases do not provide data on whether inspections are state/local or EPA-led. However, the table breaking down the universe of violations does give the reader a crude measurement of the EPA's and states' efforts within each media program. The presented data illustrate the variations across EPA Regions for certain sectors.<sup>3</sup> This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

## Compliance and Enforcement Data Definitions

### General Definitions

**Facility Indexing System (FINDS)** -- this system assigns a common facility number to EPA single-media permit records. The FINDS identification number allows EPA to compile and review all permit, compliance, enforcement and pollutant release data for any given regulated facility.

**Integrated Data for Enforcement Analysis (IDEA)** -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FINDS identification number to link separate data records from EPA's databases. This allows retrieval of records from across

---

<sup>3</sup> EPA Regions include the following states: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

media or statutes for any given facility, thus creating a "master list" of records for that facility. Some of the data systems accessible through IDEA are: AIRS (Air Facility Indexing and Retrieval System, Office of Air and Radiation), PCS (Permit Compliance System, Office of Water), RCRIS (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB (National Compliance Data Base, Office of Prevention, Pesticides, and Toxic Substances), CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS (Toxic Release Inventory System). IDEA also contains information from outside sources such as Dun and Bradstreet and the Occupational Safety and Health Administration (OSHA). Most data queries displayed in notebook sections IV and VII were conducted using IDEA.

### Data Table Column Heading Definitions

**Facilities in Search** -- are based on the universe of TRI reporters within the listed SIC code range. For industries not covered under TRI reporting requirements (metal mining, nonmetallic mineral mining, electric power generation, ground transportation, water transportation, and dry cleaning), or industries in which only a very small fraction of facilities report to TRI (e.g., printing), the notebook uses the FINDS universe for executing data queries. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage described in Section II.

**Facilities Inspected** --- indicates the level of EPA and state agency inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a one-year or five-year period.

**Number of Inspections** -- measures the total number of inspections conducted in this sector. An inspection event is counted each time it is entered into a single media database.

**Average Time Between Inspections** -- provides an average length of time, expressed in months, between compliance inspections at a facility within the defined universe.

**Facilities with One or More Enforcement Actions** -- expresses the number of facilities that were the subject of at least one enforcement action within the defined time period. This category is broken down further into federal and state actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. Administrative actions include Notices of Violation (NOVs). A facility with multiple enforcement actions is only counted once in this column, e.g., a facility with 3 enforcement actions counts as 1 facility.

**Total Enforcement Actions** -- describes the total number of enforcement actions identified for an industrial sector across all environmental statutes. A facility with multiple enforcement actions is counted multiple times, e.g., a facility with 3 enforcement actions counts as 3.

**State Lead Actions** -- shows what percentage of the total enforcement actions are taken by state and local environmental agencies. Varying levels of use by states of EPA data systems may limit the volume of actions recorded as state enforcement activity. Some states extensively report enforcement activities into EPA data systems, while other states may use their own data systems.

**Federal Lead Actions** -- shows what percentage of the total enforcement actions are taken by the United States Environmental Protection Agency. This value includes referrals from state agencies. Many of these actions result from coordinated or joint state/federal efforts.

**Enforcement to Inspection Rate** -- is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This ratio is a rough indicator of the relationship between inspections and enforcement. It relates the number of enforcement actions and the number of inspections that occurred within the one-year or five-year period. This ratio includes the inspections and enforcement actions reported under the Clean Water Act (CWA), the Clean Air Act (CAA) and the Resource Conservation and Recovery Act (RCRA). Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. Also, this ratio does not account for enforcement actions arising from non-inspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action within the CAA, CWA, and RCRA.

**Facilities with One or More Violations Identified** -- indicates the percentage of inspected facilities having a violation identified in one of the following data categories: In Violation or Significant Violation Status (CAA); Reportable Noncompliance, Current Year Noncompliance, Significant Noncompliance (CWA); Noncompliance and Significant Noncompliance (FIFRA, TSCA, and EPCRA); Unresolved Violation and Unresolved High Priority Violation (RCRA). The values presented for this column reflect the extent of noncompliance within the measured time frame, but do not distinguish between the severity of the noncompliance. Violation status may be a precursor to an enforcement action, but does not necessarily indicate that an enforcement action will occur.

**Media Breakdown of Enforcement Actions and Inspections** -- four columns identify the proportion of total inspections and enforcement actions within EPA Air, Water, Waste, and TSCA/FIFRA/EPCRA databases. Each column is a percentage of either the "Total Inspections," or the "Total Actions" column.

### **VII.A. Textile Industry Compliance History**

Table 18 provides an overview of the reported compliance and enforcement data for the textiles industry over the past five years (April 1992 to April 1997). These data are broken out by EPA Region<sup>4</sup> thereby permitting geographical comparisons. A few points evident from the data are listed below.

- Over 60 percent of textile sector inspections and enforcement actions were in Region IV where most of the industry's facilities (61 percent) are located.
- Region II, with only 24 facilities, carried out relatively few inspections in relation to the number of facilities (19 months between inspections on average) but had the highest enforcement to inspection rate (0.15).
- Region III had the shortest average time between inspections (11 months) but one of the lowest enforcement to inspection rates (0.04).

---

<sup>4</sup> EPA Regions include the following states: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

**Table 18: Five-Year Enforcement and Compliance Summary for the Textile Industry**

A	B	C	D	E	F	G	H	I	J
Region	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	43	40	143	18	11	14	79%	21%	0.10
II	24	15	74	19	6	11	82%	18%	0.15
III	31	24	168	11	6	6	100%	0%	0.04
IV	217	160	976	13	25	46	98%	2%	0.05
V	20	15	49	24	3	4	100%	0%	0.08
VI	7	4	22	19	1	1	0%	100%	0.05
VII	1	1	4	15	0	0	0%	0%	0.00
VIII	0	0	0	--	0	0	0%	0%	--
IX	9	6	17	32	0	0	0%	0%	0.00
X	3	2	12	15	1	1	0%	100%	0.08
TOTAL	355	267	1,465	15	53	83	90%	10%	0.06

## VII.B. Comparison of Enforcement Activity Between Selected Industries

Tables 19 and 20 allow the compliance history of the textiles sector to be compared to the other industries covered by the industry sector notebooks. Comparisons between Tables 19 and 20 permit the identification of trends in compliance and enforcement records of the industry by comparing data covering the last five years (April 1992 to April 1997) to that of the past year (April 1996 to April 1997). Some points evident from the data are listed below.

- Of the sectors listed, facilities in the textile sector had one of the highest proportions of state lead enforcement actions (90 percent) over the past five years. In addition, the industry had a relatively low enforcement to inspection rate (0.06) during this period.
- Over the past year, the enforcement to inspection rate for the industry decreased further to a rate lower than many of the other sectors listed (0.04).
- The textile sector had a low percentage of facilities inspected with violations (56 percent) and enforcement actions (6 percent) in the past year compared to most of the sectors listed.

Tables 21 and 22 provide a more in-depth comparison between the textiles industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in the previous tables (Tables 19 and 20), the data cover the last five years (Table 21) and the last one year (Table 22) to facilitate the identification of recent trends. A few points evident from the data are listed below.

- The percentage of inspections carried out under each environmental statute has changed slightly between the average of the past five years and that of the past year. Inspections under CAA increased from 58 percent to 66 percent while inspections under CWA decreased from 22 percent to 17 percent.
- The percentage of enforcement actions carried out under RCRA, CWA, and FIFRA/TSCA/EPCRA/Other decreased significantly between the average of the past five years and that of the past year, while enforcement actions under CAA increased from 54 percent to 75 percent.

**Table 19: Five-Year Enforcement and Compliance Summary for Selected Industries**

A	B	C	D	E	F	G	H	I	J
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
Metal Mining	1,232	378	1,600	46	63	111	53%	47%	0.07
Coal Mining	3,256	741	3,748	52	88	132	89%	11%	0.04
Oil and Gas Extraction	4,676	1,902	6,071	46	149	309	79%	21%	0.05
Non-Metallic Mineral Mining	5,256	2,803	12,826	25	385	622	77%	23%	0.05
<b>Textiles</b>	<b>355</b>	<b>267</b>	<b>1,465</b>	<b>15</b>	<b>53</b>	<b>83</b>	<b>90%</b>	<b>10%</b>	<b>0.06</b>
Lumber and Wood	712	473	2,767	15	134	265	70%	30%	0.10
Furniture	499	386	2,379	13	65	91	81%	19%	0.04
Pulp and Paper	484	430	4,630	6	150	478	80%	20%	0.10
Printing	5,862	2,092	7,691	46	238	428	88%	12%	0.06
Inorganic Chemicals	441	286	3,087	9	89	235	74%	26%	0.08
Resins and Manmade Fibers	329	263	2,430	8	93	219	76%	24%	0.09
Pharmaceuticals	164	129	1,201	8	35	122	80%	20%	0.10
Organic Chemicals	425	355	4,294	6	153	468	65%	35%	0.11
Agricultural Chemicals	263	164	1,293	12	47	102	74%	26%	0.08
Petroleum Refining	156	148	3,081	3	124	763	68%	32%	0.25
Rubber and Plastic	1,818	981	4,383	25	178	276	82%	18%	0.06
Stone, Clay, Glass and Concrete	615	388	3,474	11	97	277	75%	25%	0.08
Iron and Steel	349	275	4,476	5	121	305	71%	29%	0.07
Metal Castings	669	424	2,535	16	113	191	71%	29%	0.08
Nonferrous Metals	203	161	1,640	7	68	174	78%	22%	0.11
Fabricated Metal Products	2,906	1,858	7,914	22	365	600	75%	25%	0.08
Electronics	1,250	863	4,500	17	150	251	80%	20%	0.06
Automobile Assembly	1,260	927	5,912	13	253	413	82%	18%	0.07
Shipbuilding and Repair	44	37	243	9	20	32	84%	16%	0.13
Ground Transportation	7,786	3,263	12,904	36	375	774	84%	16%	0.06
Water Transportation	514	192	816	38	36	70	61%	39%	0.09
Air Transportation	444	231	973	27	48	97	88%	12%	0.10
Fossil Fuel Electric Power	3,270	2,166	14,210	14	403	789	76%	24%	0.06

A	B	C	D	E		F		G	H
				Facilities with 1 or More Violations		Facilities with 1 or more Enforcement Actions			
				Number	Percent*	Number	Percent*		
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Number	Percent*	Number	Percent*	Total Enforcement Actions	Enforcement to Inspection Rate
Metal Mining	1,232	142	211	102	72%	9	6%	10	0.05
Coal Mining	3,256	362	765	90	25%	20	6%	22	0.03
Oil and Gas Extraction	4,676	874	1,173	127	15%	26	3%	34	0.03
Non-Metallic Mineral Mining	5,256	1,481	2,451	384	26%	73	5%	91	0.04
<b>Textiles</b>	<b>355</b>	<b>172</b>	<b>295</b>	<b>96</b>	<b>56%</b>	<b>10</b>	<b>6%</b>	<b>12</b>	<b>0.04</b>
Lumber and Wood	712	279	507	192	69%	44	16%	52	0.10
Furniture	499	254	459	136	54%	9	4%	11	0.02
Pulp and Paper	484	317	788	248	78%	43	14%	74	0.09
Printing	5,862	892	1,363	577	65%	28	3%	53	0.04
Inorganic Chemicals	441	200	548	155	78%	19	10%	31	0.06
Resins and Madmade Fibers	329	173	419	152	88%	26	15%	36	0.09
Pharmaceuticals	164	80	209	84	105%	8	10%	14	0.07
Organic Chemicals	425	259	837	243	94%	42	16%	56	0.07
Agricultural Chemicals	263	105	206	102	97%	5	5%	11	0.05
Petroleum Refining	156	132	565	129	98%	58	44%	132	0.23
Rubber and Plastic	1,818	466	791	389	83%	33	7%	41	0.05
Stone, Clay, Glass and Concrete	615	255	678	151	59%	19	7%	27	0.04
Iron and Steel	349	197	866	174	88%	22	11%	34	0.04
Metal Castings	669	234	433	240	103%	24	10%	26	0.06
Nonferrous Metals	203	108	310	98	91%	17	16%	28	0.09
Fabricated Metal	2,906	849	1,377	796	94%	63	7%	83	0.06
Electronics	1,250	420	780	402	96%	27	6%	43	0.06
Automobile Assembly	1,260	507	1,058	431	85%	35	7%	47	0.04
Shipbuilding and Repair	44	22	51	19	86%	3	14%	4	0.08
Ground Transportation	7,786	1,585	2,499	681	43%	85	5%	103	0.04
Water Transportation	514	84	141	53	63%	10	12%	11	0.08
Air Transportation	444	96	151	69	72%	8	8%	12	0.08
Fossil Fuel Electric Power	3,270	1,318	2,430	804	61%	100	8%	135	0.06
Dry Cleaning	6,063	1,234	1,436	314	25%	12	1%	16	0.01

\*Percentages in Columns E and F are based on the number of facilities inspected (Column C). Percentages can exceed 100% because violations and actions can occur without a facility inspection.

Table 21: Five-Year Inspection and Enforcement Summary by Statute for Selected Industries											
Industry Sector	Facilities Inspected	Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EP CRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Metal Mining	378	1,600	111	39%	19%	52%	52%	8%	12%	1%	17%
Coal Mining	741	3,748	132	57%	64%	38%	28%	4%	8%	1%	1%
Oil and Gas Extraction	1,902	6,071	309	75%	65%	16%	14%	8%	18%	0%	3%
Non-Metallic Mineral Mining	2,803	12,826	622	83%	81%	14%	13%	3%	4%	0%	3%
<b>Textiles</b>	<b>267</b>	<b>1,465</b>	<b>83</b>	<b>58%</b>	<b>54%</b>	<b>22%</b>	<b>25%</b>	<b>18%</b>	<b>14%</b>	<b>2%</b>	<b>6%</b>
Lumber and Wood	473	2,767	265	49%	47%	6%	6%	44%	31%	1%	16%
Furniture	386	2,379	91	62%	42%	3%	0%	34%	43%	1%	14%
Pulp and Paper	430	4,630	478	51%	59%	32%	28%	15%	10%	2%	4%
Printing	2,092	7,691	428	60%	64%	5%	3%	35%	29%	1%	4%
Inorganic Chemicals	286	3,087	235	38%	44%	27%	21%	34%	30%	1%	5%
Resins and Manmade Fibers	263	2,430	219	35%	43%	23%	28%	38%	23%	4%	6%
Pharmaceuticals	129	1,201	122	35%	49%	15%	25%	45%	20%	5%	5%
Organic Chemicals	355	4,294	468	37%	42%	16%	25%	44%	28%	4%	6%
Agricultural Chemicals	164	1,293	102	43%	39%	24%	20%	28%	30%	5%	11%
Petroleum Refining	148	3,081	763	42%	59%	20%	13%	36%	21%	2%	7%
Rubber and Plastic	981	4,383	276	51%	44%	12%	11%	35%	34%	2%	11%
Stone, Clay, Glass and Concrete	388	3,474	277	56%	57%	13%	9%	31%	30%	1%	4%
Iron and Steel	275	4,476	305	45%	35%	26%	26%	28%	31%	1%	8%
Metal Castings	424	2,535	191	55%	44%	11%	10%	32%	31%	2%	14%
Nonferrous Metals	161	1,640	174	48%	43%	18%	17%	33%	31%	1%	10%
Fabricated Metal	1,858	7,914	600	40%	33%	12%	11%	45%	43%	2%	13%
Electronics	863	4,500	251	38%	32%	13%	11%	47%	50%	2%	7%
Automobile Assembly	927	5,912	413	47%	39%	8%	9%	43%	43%	2%	9%
Shipbuilding and Repair	37	243	32	39%	25%	14%	25%	42%	47%	5%	3%
Ground Transportation	3,263	12,904	774	59%	41%	12%	11%	29%	45%	1%	3%
Water Transportation	192	816	70	39%	29%	23%	34%	37%	33%	1%	4%
Air Transportation	231	973	97	25%	32%	27%	20%	48%	48%	0%	0%
Fossil Fuel Electric Power	2,166	14,210	789	57%	59%	32%	26%	11%	10%	1%	5%
Dry Cleaning	2,360	3,813	66	56%	23%	3%	6%	41%	71%	0%	0%

Table 22: One-Year Inspection and Enforcement Summary by Statute for Selected Industries											
Industry Sector	Facilities Inspected	Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Metal Mining	142	211	10	52%	0%	40%	40%	8%	30%	0%	30%
Coal Mining	362	765	22	56%	82%	40%	14%	4%	5%	0%	0%
Oil and Gas Extraction	874	1,173	34	82%	68%	10%	9%	9%	24%	0%	0%
Non-Metallic Mineral Mining	1,481	2,451	91	87%	89%	10%	9%	3%	2%	0%	0%
<b>Textiles</b>	<b>172</b>	<b>295</b>	<b>12</b>	<b>66%</b>	<b>75%</b>	<b>17%</b>	<b>17%</b>	<b>17%</b>	<b>8%</b>	<b>0%</b>	<b>0%</b>
Lumber and Wood	279	507	52	51%	30%	6%	5%	44%	25%	0%	40%
Furniture	254	459	11	66%	45%	2%	0%	32%	45%	0%	9%
Pulp and Paper	317	788	74	54%	73%	32%	19%	14%	7%	0%	1%
Printing	892	1,363	53	63%	77%	4%	0%	33%	23%	0%	0%
Inorganic Chemicals	200	548	31	35%	59%	26%	9%	39%	25%	0%	6%
Resins and Manmade Fibers	173	419	36	38%	51%	24%	38%	38%	5%	0%	5%
Pharmaceuticals	80	209	14	43%	71%	11%	14%	45%	14%	0%	0%
Organic Chemicals	259	837	56	40%	54%	13%	13%	47%	34%	0%	0%
Agricultural Chemicals	105	206	11	48%	55%	22%	0%	30%	36%	0%	9%
Petroleum Refining	132	565	132	49%	67%	17%	8%	34%	15%	0%	10%
Rubber and Plastic	466	791	41	55%	64%	10%	13%	35%	23%	0%	0%
Stone, Clay, Glass and Concrete	255	678	27	62%	63%	10%	7%	28%	30%	0%	0%
Iron and Steel	197	866	34	52%	47%	23%	29%	26%	24%	0%	0%
Metal Castings	234	433	26	60%	58%	10%	8%	30%	35%	0%	0%
Nonferrous Metals	108	310	28	44%	43%	15%	20%	41%	30%	0%	7%
Fabricated Metal	849	1,377	83	46%	41%	11%	2%	43%	57%	0%	0%
Electronics	420	780	43	44%	37%	14%	5%	43%	53%	0%	5%
Automobile Assembly	507	1,058	47	53%	47%	7%	6%	41%	47%	0%	0%
Shipbuilding and Repair	22	51	4	54%	0%	11%	50%	35%	50%	0%	0%
Ground Transportation	1,585	2,499	103	64%	46%	11%	10%	26%	44%	0%	1%
Water Transportation	84	141	11	38%	9%	24%	36%	38%	45%	0%	9%
Air Transportation	96	151	12	28%	33%	15%	42%	57%	25%	0%	0%
Fossil Fuel Electric Power	1,318	2,430	135	59%	73%	32%	21%	9%	5%	0%	0%
Dry Cleaning	1,234	1,436	16	69%	56%	1%	6%	30%	38%	0%	0%

## VII.C. Review of Major Legal Actions

### Major Cases/Supplemental Environmental Projects

This section provides summary information about major cases that have affected this sector, and a list of Supplemental Environmental Projects (SEPs).

#### VII.C.1. Review of Major Cases

As indicated in EPA's *Enforcement Accomplishments Report, FY1995 and FY1996* publications, one significant enforcement actions was resolved between 1995 and 1996 for the textiles industry.

***J-Street Site (Erwin, Harnett County, NC):*** On August 9, 1995, EPA issued unilateral administrative order (UAOs) to Swift Textiles, Inc., and Burlington Industries, Inc. The UAOs require the Respondents to conduct an engineering evaluation/cost analysis, expanded site investigation and a removal action for the J-Street Site, located in Erwin, Harnett County, North Carolina. Swift Textiles, Inc. is the present owner/operator of the site and Burlington Industries, Inc., was an owner/operator of the facility at the time of disposal of hazardous substances. Both Burlington and Swift have been very cooperative and are complying fully with the terms of the UAO.

#### VII.C.2. Supplementary Environmental Projects (SEPs)

Supplemental environmental projects (SEPs) are environmental projects that require the non-compliant facility to complete specific projects. Information on SEP cases can be accessed via the Internet at EPA's Enviro\$en\$e website: <http://es.inel.gov/sep>.

## VIII. COMPLIANCE ACTIVITIES AND INITIATIVES

This section highlights the activities undertaken by this industry sector and public agencies to voluntarily improve the sector's environmental performance. These activities include those independently initiated by industrial trade associations. In this section, the notebook also contains a listing and description of national and regional trade associations.

### VIII.A. EPA Voluntary Programs

#### *33/50 Program*

The 33/50 Program is a groundbreaking program that has focused on reducing pollution from seventeen high-priority chemicals through voluntary partnerships with industry. The program's name stems from its goals: a 33% reduction in toxic releases by 1992, and a 50% reduction by 1995, against a baseline of 1.5 billion pounds of releases and transfers in 1988. The results have been impressive: 1,300 companies have joined the 33/50 Program (representing over 6,000 facilities) and have reached the national targets a year ahead of schedule. The 33% goal was reached in 1991, and the 50% goal -- a reduction of 745 million pounds of toxic wastes -- was reached in 1994. The 33/50 Program can provide case studies on many of the corporate accomplishments in reducing waste (Contact 33/50 Program Director David Sarokin -- 260-6396).

Table 23 lists those companies participating in the 33/50 program that reported four-digit SIC codes within SIC 22 to TRI. In addition, the number of facilities within each company that are participating in the 33/50 program and that report four-digit SIC codes within SIC 22 to TRI is shown. Finally, where available and quantifiable against 1988 releases and transfers, each company's 33/50 goals for 1995 and the actual total releases, transfers and percent reduction between 1988 and 1994 are presented.

The textile manufacturing industry as a whole used, generated, or processed twelve of the seventeen target TRI chemicals in 1994. Of the 33/50 target chemicals, methyl ethyl ketone, toluene, xylenes, and methyl isobutyl ketone are *released* the most by volume (pounds). Methyl ethyl ketone is released in the greatest quantity overall. It is released at a rate almost twice that of toluene, the next largest chemical released. Together methyl ethyl ketone and toluene account for about 71 percent of 33/50 chemicals released by textile facilities and approximately 41 percent of the industry's total TRI releases in 1994.

Of the target chemicals, methyl ethyl ketone, trichloroethylene, toluene, and xylenes (mixed isomers) are *transferred* the most by volume (pounds). Methyl ethyl ketone is transferred in the greatest quantity. The volume of it

is transferred at a rate almost two and a half times greater than trichloroethylene, the next largest volume of chemical transferred. Together methyl ethyl ketone and trichloroethylene account for about 61 percent of 33/50 chemicals transferred by textile facilities and approximately 17 percent of the industry's total TRI transfers in 1994.

Table 23 shows that 47 textile companies listed under SIC 22 are participating in the 33/50 program. Within these 47 companies, 114 facilities reporting four-digit SIC codes within SIC 22 are participating in the 33/50 program. This comprises 27 percent of the textile manufacturing facilities reporting to TRI. Not every facility owned by the companies shown may be participating in the 33/50 program. The 33/50 goals shown for companies with multiple textile facilities are company-wide, potentially aggregating either more than one facility or facilities not carrying out textile manufacturing operations. In addition to company-wide goals, individual facilities may have their own 33/50 goals or may be listed specifically as not participating in the program. The actual percent reductions shown in the last column apply only to companies' textile facilities. Therefore, direct comparisons to those company goals incorporating non-textile manufacturing facilities or excluding certain facilities may not be possible. For information on specific facilities participating in 33/50, contact David Sarokin at 202-260-6907 at the 33/50 Program Office.

Table 23: Textile Industry Participation in the 33/50 Program

Parent Company (Headquarters Location)	Company- Owned Facilities Reporting 33/50 Chemicals	Company-Wide % Reduction Goal <sup>1</sup> (1988 to 1995)	1988 TRI Releases and Transfers of 33/50 Chemicals (pounds)	1994 TRI Releases and Transfers of 33/50 Chemicals (pounds)	Actual % Reduction for Facilities (1988-1994)
A T R Wire & Cable Co. Danville, KY	1	100	79,174	0	100
Albany International Corp. Albany, NY	1	*	0	0	0
Allied-Signal Inc. Morristown, NJ	1	50	160,600	0	100
American Home Products Corp. Madison, NJ	1	50	76,750	0	100
Amoco Corp. Chicago, IL	3	50	14,490	259	98
Barnhardt Manufacturing, Co. Charlotte, NC	4	25	57,693	76,090	-32
BGF Industries, Inc. Greensboro, NC	1	***	12,700	0	100
Borden Inc. New York, NY	1	*	73,900	0	100
BP America Inc. Cleveland, OH	1	24	217,882	0	100
Bridport-Grundy Inc. Moodus, CT	1	12	124,475	76,781	38
Burke Mills, Inc. Valdese, NC	1	35	42,863	0	100
Coating Technologies International Inc. Columbia, SC	3	59	7,778,051	5,169,485	34
Coats Viyella North America Charlotte, NC	8	38	175,277	101,859	42
Collins & Aikman Holdings II, Charlotte, NC	16	***	1,435,072	17,894	99
Continental General Tire Inc. Akron, OH	1	***	12,320	0	100
Crystal Springs Print Works Chickamauga, GA	1	50	40,850	0	100
Dundee Mills Inc. Griffin, GA	1	50	250	0	100
Exxon Corporation Irving, TX	1	50	7	5	29
Farley Inc. Chicago, IL	5	2	68,410	3,545	95
Ferro Corporation Cleveland, OH	1	50	36,650	0	100

## Textile Industry

## Compliance Assurance Activities

Parent Company (Headquarters Location)	Company- Owned Facilities Reporting 33/50 Chemicals	Company-Wide % Reduction Goal <sup>1</sup> (1988 to 1995)	1988 TRI Releases and Transfers of 33/50 Chemicals (pounds)	1994 TRI Releases and Transfers of 33/50 Chemicals (pounds)	Actual % Reduction for Facilities (1988-1994)
Gencorp Inc. Akron, OH	2	33	5,427,191	2,957,175	46
Glen Raven Mills Inc. Burlington, NC	4	50	54,724	116,042	-112
Grafil Inc. Sacramento, CA	1	***	0	21,192	0
Hood Coatings, Inc. Georgetown, MA	1	76	39,249	2,994	92
Joan Fabrics Corp Tyngsboro, MA	2	**	0	0	0
Magee Industrial Enterprises Bloomsburg, PA	1	*	342,615	0	100
Manning Fabrics Inc. Pinehurst, NC	1	*	27,429	0	100
Mascotech, Taylor, MI	1	35	295,229	0	100
Masland Industries Carlisle, PA	2	***	283,626	0	100
Middlesex Research Mfg. Co. Hudson, MA	1	100	39,000	0	100
Milliken and Company Spartanburg, SC	18	50	681,599	40,805	94
Odyssey Partners LP New York, NY	2	***	897,200	3,912	100
Parker Hannifin Corp. Cleveland, OH	1	50	34,171	0	100
Paulsen Wire Rope Corp. Sunbury, PA	1	80	15,000	0	100
Penn Columbia Corp. New York, NY	1	50	64,750	0	100
Precision Fabrics Group Inc. Greensboro, NC	1	100	1,387	1,390	0
Ruddick Corp. Charlotte, NC	2	***	160,000	315,242	-97
Russell Corp Alexander City, AL	2	90	346,015	137,699	60
Santee Print Works Sumter, SC	1	33	106,650	68,762	36
Sara Lee Corp. Chicago, IL	2	1	0	86	0
Scapa Group Inc. Raleigh, NC	3	**	0	37,800	0
Schneller Inc. Kent, OH	1	*	250	47,870	-19048

Parent Company (Headquarters Location)	Company- Owned Facilities Reporting 33/50 Chemicals	Company-Wide % Reduction Goal <sup>1</sup> (1988 to 1995)	1988 TRI Releases and Transfers of 33/50 Chemicals (pounds)	1994 TRI Releases and Transfers of 33/50 Chemicals (pounds)	Actual % Reduction for Facilities (1988-1994)
Springs Industries Inc. Fort Mill, SC	5	80	185,528	8,987	95
Textile, Rubber and Chemical Corp. Dalton, GA	1	*	0	702	0
Trefilarbed Arkansas Inc. Pine Bluff, AR	1	*	0	83,315	0
United Silk Mills, USA Ltd. New York, NY	1	60	77,650	0	100
Zeneca Holdings Inc. Wilmington, DE	2	*	0	0	0
<b>TOTAL</b>	<b>114</b>		<b>19,486,677</b>	<b>9,289,891</b>	<b>52</b>

Source: *US EPA 33/50 Program Office, 1996.*  
<sup>1</sup> Company-wide Reduction Goals aggregate all company-owned facilities which may include facilities not producing textiles.  
\* = Reduction goal not quantifiable against 1988 TRI data.  
\*\* = Use reduction goal only.  
\*\*\* = No numeric reduction goal.  
Note: Some of the facilities listed in this table manufacture coated fabrics and are classified as SIC Code 2295, Miscellaneous Textiles, Coated Fabrics -- Not Rubberized.

### *Environmental Leadership Program*

The Environmental Leadership Program (ELP) is a national initiative developed by EPA that focuses on improving environmental performance, encouraging voluntary compliance, and building working relationships with stakeholders. EPA initiated a one year pilot program in 1995 by selecting 12 projects at industrial facilities and federal installations which would demonstrate the principles of the ELP program. These principles include: environmental management systems, multimedia compliance assurance, third-party verification of compliance, public measures of accountability, pollution prevention, community involvement, and mentor programs. In return for participating, pilot participants received public recognition and were given a period of time to correct any violations discovered during these experimental projects.

EPA is making plans to launch its full-scale Environmental Leadership Program in 1997. The full-scale program will be facility-based with a 6-year participation cycle. Facilities that meet certain requirements will be eligible to participate, such as having a community outreach/employee involvement programs and an environmental management system (EMS) in place for 2

years. (Contact: <http://es.inel.gov/elp> or Debby Thomas, ELP Deputy Director, at 202-564-5041)

### *Project XL*

Project XL was initiated in March 1995 as a part of President Clinton's *Reinventing Environmental Regulation* initiative. The projects seek to achieve cost effective environmental benefits by providing participants regulatory flexibility on the condition that they produce greater environmental benefits. EPA and program participants will negotiate and sign a Final Project Agreement, detailing specific environmental objectives that the regulated entity shall satisfy. EPA will provide regulatory flexibility as an incentive for the participants' superior environmental performance. Participants are encouraged to seek stakeholder support from local governments, businesses, and environmental groups. EPA hopes to implement fifty pilot projects in four categories, including industrial facilities, communities, and government facilities regulated by EPA. Applications will be accepted on a rolling basis. For additional information regarding XL projects, including application procedures and criteria, see the May 23, 1995 Federal Register Notice. (Contact: Fax-on-Demand Hotline 202-260-8590, Web: <http://www.epa.gov/ProjectXL>, or Christopher Knopes at EPA's Office of Policy, Planning and Evaluation 202-260-9298)

### *Climate Wise Program*

Climate Wise is helping US industries turn energy efficiency and pollution prevention into a corporate asset. Supported by the technical assistance, financing information and public recognition that Climate Wise offers, participating companies are developing and launching comprehensive industrial energy efficiency and pollution prevention action plans that save money and protect the environment. The nearly 300 Climate Wise companies expect to save more than \$300 million and reduce greenhouse gas emissions by 18 million metric tons of carbon dioxide equivalent by the year 2000. Some of the actions companies are undertaking to achieve these results include: process improvements, boiler and steam system optimization, air compressor system improvements, fuel switching, and waste heat recovery measures including cogeneration. Created as part of the President's Climate Change Action Plan, Climate Wise is jointly operated by the Department of Energy and EPA. Under the Plan many other programs were also launched or upgraded including Green Lights, WasteWi\$e and DoE's Motor Challenge Program. Climate Wise provides an umbrella for these programs which encourage company participation by providing information on the range of partnership opportunities available. (Contact: Pamela Herman, EPA, 202-260-4407 or Jan Vernet, DoE, 202-586-4755)



*Energy Star Buildings Program*

EPA's ENERGY STAR Buildings Program is a voluntary, profit-based program designed to improve the energy-efficiency in commercial and industrial buildings. Expanding the successful Green Lights Program, ENERGY STAR Buildings was launched in 1995. This program relies on a 5-stage strategy designed to maximize energy savings thereby lowering energy bills, improving occupant comfort, and preventing pollution -- all at the same time. If implemented in every commercial and industrial building in the United States, ENERGY STAR Buildings could cut the nation's energy bill by up to \$25 billion and prevent up to 35% of carbon dioxide emissions. (This is equivalent to taking 60 million cars off the road). ENERGY STAR Buildings participants include corporations; small and medium sized businesses; local, federal and state governments; non-profit groups; schools; universities; and health care facilities. EPA provides technical and non-technical support including software, workshops, manuals, communication tools, and an information hotline. EPA's Office of Air and Radiation manages the operation of the ENERGY STAR Buildings Program. (Contact: Green Light/Energy Star Hotline at 1-888-STAR-YES or Maria Tikoff Vargan, EPA Program Director at 202-233-9178 or visit the ENERGY STAR Buildings Program website at <http://www.epa.gov/appdstar/buildings/>)

*Green Lights Program*

EPA's Green Lights program was initiated in 1991 and has the goal of preventing pollution by encouraging U.S. institutions to use energy-efficient lighting technologies. The program saves money for businesses and organizations and creates a cleaner environment by reducing pollutants released into the atmosphere. The program has over 2,345 participants which include major corporations, small and medium sized businesses, federal, state and local governments, non-profit groups, schools, universities, and health care facilities. Each participant is required to survey their facilities and upgrade lighting wherever it is profitable. As of March 1997, participants had lowered their electric bills by \$289 million annually. EPA provides technical assistance to the participants through a decision support software package, workshops and manuals, and an information hotline. EPA's Office of Air and Radiation is responsible for operating the Green Lights Program. (Contact: Green Light/Energy Star Hotline at 1-888-STAR-YES or Maria Tikoff Vargan, EPA Program Director, at 202-233-9178 the )

*WasteWi\$e Program*

The WasteWi\$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response. The program is aimed at reducing municipal solid wastes by promoting waste prevention, recycling collection and the manufacturing and purchase of recycled products. As of 1997, the

program had about 500 companies as members, one third of whom are Fortune 1000 corporations. Members agree to identify and implement actions to reduce their solid wastes setting waste reduction goals and providing EPA with yearly progress reports. To member companies, EPA, in turn, provides technical assistance, publications, networking opportunities, and national and regional recognition. (Contact: WasteWi\$e Hotline at 1-800-372-9473 or Joanne Oxley, EPA Program Manager, 703-308-0199)

### *NICE<sup>3</sup>*

The U.S. Department of Energy is administering a grant program called The National Industrial Competitiveness through Energy, Environment, and Economics (NICE<sup>3</sup>). By providing grants of up to 45 percent of the total project cost, the program encourages industry to reduce industrial waste at its source and become more energy-efficient and cost-competitive through waste minimization efforts. Grants are used by industry to design, test, and demonstrate new processes and/or equipment with the potential to reduce pollution and increase energy efficiency. The program is open to all industries; however, priority is given to proposals from participants in the forest products, chemicals, petroleum refining, steel, aluminum, metal casting and glass manufacturing sectors. (Contact: <http://www.oit.doe.gov/access/nice3>, Chris Sifri, DOE, 303-275-4723 or Eric Hass, DOE, 303-275-4728)

### *Design for the Environment (DfE)*

DfE is working with several industries to identify cost-effective pollution prevention strategies that reduce risks to workers and the environment. DfE helps businesses compare and evaluate the performance, cost, pollution prevention benefits, and human health and environmental risks associated with existing and alternative technologies. The goal of these projects is to encourage businesses to consider and use cleaner products, processes, and technologies. For more information about the DfE Program, call (202) 260-1678. To obtain copies of DfE materials or for general information about DfE, contact EPA's Pollution Prevention Information Clearinghouse at (202) 260-1023 or visit the DfE Website at <http://es.inel.gov/dfe>.

## **VIII.B. Trade Association/Industry Sponsored Activity**

### **VIII.B.1 Environmental Programs**

#### *Encouraging Environmental Excellence (E3)*

The Encouraging Environmental Excellence (E3) program is a voluntary environmental initiative, created in 1992, by the American Textile Manufacturers Institute (ATMI). The program aims to strengthen textile companies' commitment to addressing environmental issues. E3 encourages

member companies to focus their environmental efforts in the areas of recycling and waste reduction, pollution prevention, and water and energy conservation. Companies may join the E3 program provided they are in compliance with all federal and state environmental laws, and follow a 10-point set of guidelines set forth by ATMI. Some of these guidelines include: providing ATMI with a company environmental policy; submitting a copy of environmental audits showing that the company is in compliance with federal and states laws; listing a set of environmental goals and target achievement dates; and describing how the company has been able to offer assistance to citizens, interest groups, other companies, and government agencies. In 1995, 52 textile companies were members of the E3 program. For more information on ATMI's E3 program, please contact, ATMI at 202-862-0500.

#### *American Textile Partnership (AMTEX)*

The American Textile Partnership (AMTEX) is a collaborative research program between the United States Integrated Textile Complex (U.S. ITC), the United States Department of Energy (U.S. DOE), national research laboratories, and research universities. The U.S. ITC includes manufacturers of fibers, fabrics, apparel, sewn products, and retailers. The goal of AMTEX is to strengthen the national and international competitiveness of the U.S. ITC through research and development. AMTEX runs several projects, some of which directly or indirectly address environmental issues facing the textile industry. Projects that specifically address environmental issues are highlighted below.

#### *Textile Resource Conservation (TRec)*

The Textile Resource Conservation (TRec) is one of many projects under the American Textile Partnership (AMTEX). The goal of the TRec project is to develop resource-efficient textile manufacturing processes which use less energy and natural resources, with no net waste to the environment. The project aims to:

- Recover and reuse 100,000 tons of knit fabric waste valued at \$474 million per year.
- Reduce water use by 133 billion gallons per year, including 50 billion gallons sent to waste treatment at a combined cost of \$146 million.
- Recover valuable raw materials. For example, raw materials in reactive dyes alone were valued at over \$66 million/year.

So far the program's achievements include:

- Developing a method for recovering dyes and colorants.
- Developing a process for recovering and reusing polyester and cotton from scrap fabric and apparel.
- Demonstrating a method by which the amount of chemical, water, and energy needed to scour, wash, and finish fabrics is greatly reduced.
- Developing a water-based method for removing oil and grease from fabric instead of using volatile solvents.

For more information, contact Don Alexander, Project Manager, at the Institute of Textile Technology at 864-595-0035.

#### *Demand Activated Manufacturing Architecture (DAMA)*

The Demand Activated Manufacturing Architecture (DAMA) is a project under AMTEX, that aims to develop a computer-based information system by the end of the decade. This system will link all aspects of the U.S. Integrated Textile Complex (ITC) in an electronic marketplace, thereby streamlining the entire industry. (The ITC includes manufacturers of fibers, fabrics, apparel, sewn products, and retailers.) Through this electronic marketplace, companies will be able to identify, compare, buy and sell resources, products, and services offered.

Through DAMA, all sectors of the ITC will be linked with each other through electronic mail (E-mail), the World Wide Web, and other Internet interfaces. DAMA hopes that this will allow companies to be more responsive to changes and shifts in customer demands, thereby enabling the ITC to streamline the entire textile and apparel production process. As a result, shipment and handling costs should be reduced and overproduction curbed. Additionally, it is projected that \$25 billion per year can be saved by better inventory management through DAMA (Textile/Clothing Technology Corp., 1996) For more information on the DAMA project, contact James Lovejoy at the Textile/Clothing Technology Corp. (TC<sup>2</sup>) at 919-380-2184.

**VIII.B.2. Summary of Trade Associations**

American Textile Manufacturers  
Institute (ATMI)

1130 Connecticut Ave., NW, Suite 1200

Washington, DC 20036-3954

Phone: (202) 862-0500

Fax: (202) 862-0570

<http://www.atmi.org>

Members: 150 companies

Staff: 36

Budget: \$2,000,000-\$5,000,000

The American Textile Manufacturers Institute (ATMI) is the one of the largest trade associations for the textile industry. Members companies of ATMI, are located in more than 30 different states and process approximately 80 percent of textile fibers consumed by plants in the United States (ATMI, 1997). ATMI serves as the main liaison between the various sectors of the textile industry, and government agencies and the media. It also provides its members with information on international trade, government relations, and economic conditions facing the industry. Additionally, ATMI also provides product, communication, and administrative services for its members. ATMI also puts out several publications including *Textile Hi-Lights*, *Textile Trends* and *Global View*.

Northern Textile Association (NTA)

230 Congress Street,

Boston, MA 02110

Phone: (617) 542-8220

Fax: (617) 542-2199

Members: 280 mills

Staff: 6-10

Budget: \$250,000-\$500,000

The Northern Textile Association (NTA) is the oldest trade association for the textile industry. Its members are located in 23 states in the U.S. as well as in Canada and overseas. However, the majority of its members are still primarily located in New England. Although a large proportion of its members manufacture cotton and synthetic yarns, NTA also represents manufacturers of wool, flock, felt, elastic, and luxury fiber products. NTA also acts as a liaison between the industry and federal, state, national and international agencies.

American Association for Textile Technology

P.O. Box 99

Gastonia, NC 28053

Phone: (704) 824-3522

Fax: (704) 824-0630

Members: 400 individuals

Staff: 2

Budget: \$10,000-\$25,000

This association is composed of individuals involved in fiber, yarn, and fabric formation technology. Organized in 1934 and incorporated in 1945, this group encourages the growth and dissemination of knowledge in the field of textile technology and marketing.

American Association of Textile Chemists  
and Colorists  
P.O. Box 12215  
Research Triangle Park, NC 27709-2215  
Phone: (919) 549-8141  
Fax: (919) 549-8933

Members: 8,000 individuals and  
300 organizations  
Staff: 20-25  
Budget: \$2,000,000-\$5,000,000

This group was founded in Boston in 1921 with 270 charter members and incorporated in Massachusetts. The American Association of Textile Chemists and Colorists promotes the increase in knowledge of the application of dyes and chemicals in the textile industry and the use of textile wet processing machinery. Publications include the *AATCC Technical Manual* (annual) and *Textile Chemist & Colorist* (monthly).

American Yarn Spinners Association  
P.O. Box 99  
Gastonia, NC 28053  
Phone: (704) 824-3522  
Fax: (704) 824-0630

Members: 120 companies  
Staff: 7  
Budget: \$100,000-\$250,000

This group was formed, in 1967, from the merger of the Carded Yarn Association and the Combed Yarn Spinners. This group is affiliated with the Craft Yarn Council of America. This group absorbed the Long Staple Yarn Association in 1974, the Yarn Dyers Association in 1976, the Carpet Yarn Association in 1981, and the Association of Synthetic Yarn Manufacturers in 1988.

Carpet and Rug Institute  
310 S. Holiday Ave.  
P.O. Box 2048  
Dalton, GA 30722-2048  
Phone: (706) 278-3176  
Fax: (706) 278-8835

Members: 225 companies  
Staff: 15  
Budget: \$1,000,000-\$2,000,000

This group was formed, in 1928, from the merger of the American Carpet Institute and the Tufted Textile Manufacturers Association. The group publishes a membership directory and holds annual meetings in the fall.

INDA, Association of the Nonwoven  
Fabrics Industry  
1001 Winstead Drive, Suite 460  
Cary, NC 27513  
Phone: (919) 677-0060  
Fax: (919) 677-0211

Members: 135 companies  
Staff: 13  
Budget: \$1,000,000-\$2,000,000

This group includes suppliers of fibers, adhesives, chemicals, fluff pulp, plastic film and related materials, roll goods producers, machinery and equipment suppliers, finishers and converters, and marketers of finished products. INDA publishes the *INDA Journal of Nonwoven Research* (quarterly), the *Nonwoven Handbook*, and a variety of conference papers.

International Society of Industrial Fabric  
Manufacturers  
1337 Garden Circle Drive  
Newberry, SC 29108  
Phone: (803) 939-8513

Members: 350 individuals  
Staff: 1  
Budget: under \$10,000

Members of this group include engineers, executives, technicians and salespersons in the industrial fabrics and textile industry. Formerly called the International Society of Industrial Yarn Manufacturers, this association holds two semi-annual meetings in the spring and fall.

International Textile and Apparel Association  
P.O. Box 1360  
Monument, CO 80132-1360  
Phone: (719) 488-3716

Members: 1,000 individuals  
Staff: 1  
Budget: \$100,000-\$250,000

Formerly known as the Association of College Professors of Textiles and Clothing, this association started up as an outgrowth of regional conferences of textile and clothing professors. Active members are people engage in college or university instruction, research, and/or administration in textiles, clothing, or a related area. Publications include *The Clothing and Textiles Research Journal* (quarterly) and the *ITAA Proceedings*.

Knitted Textile Association  
386 Park Avenue South, 9th Floor  
New York, NY 10016  
Phone: (212) 689-3807  
Fax: (212) 889-6160

Members: 165 companies  
Staff: 2-5  
Budget: \$250,000-\$500,000

This group was first established as the Knitted Fabric Group. Members include makers of knitted fabrics of all types and their suppliers. This trade association holds an annual meeting in March.

**IX. CONTACTS AND REFERENCES**

For further information on selected topics within the textile industry a list of publications and contacts are provided below.

**Contacts<sup>5</sup>**

<b>Name</b>	<b>Organization</b>	<b>Telephone</b>	<b>Subject</b>
Belinda Breidenbach	EPA, Office of Compliance	202-564-7022	Compliance assistance and regulatory requirements
Paul Almodovar	EPA, Office of Air Quality Planning and Standards	919-541-0283	Regulatory development
Doug Williams	EPA, Office of Research and Development	513-569-7361	Industrial processes and pollution prevention
Brent Smith	NC State	919-515-6548	Manmade fibers processes and pollution prevention methods
Jane Henriques	American Textile Manufacturers Institute	202-862-0500	Industrial processes and pollution prevention methods
Karen Addis	American Textile Manufacturers Institute	202-862-0500	Industrial processes
David Trumbull	Northeast Textile Association (NTA)	617-542-8220	Environmental initiatives and programs and regulatory issues

CAA: Clean Air Act

CWA: Clean Water Act

OECA: Office of Enforcement and Compliance Assurance

NEIC: National Enforcement Investigations Center

RCRA: Resource Conservation and Recovery Act

---

<sup>5</sup> Many of the contacts listed above have provided valuable background information and comments during development of this document. EPA appreciates this support and acknowledges that the individuals listed do not necessarily endorse all statements made within this notebook.

---

**References**

---

**Section II - Introduction, Background, and Scope**

---

- 1) American Textiles Manufacturers Institute (ATMI). *Textiles: America's First Industry*, Washington, DC, 1997a.
- 2) American Textiles Manufacturers Institute (ATMI). Comments on draft of this document, 1997b.
- 3) American Textiles Manufacturers Institute (ATMI). *The U.S. Textile Industry, Scope and Importance*, Office of the Chief Economist, Washington, DC, 1996.
- 4) Benjamin, R.(Ed.) *Fairchild's Textile & Apparel Financial Directory 1996*, Fairchild Publications, New York, NY, 1996.
- 5) Gale Research Inc. *Ward's Business Directory of U.S. Private and Public Companies*, 1995.
- 6) Neefus, J.D. "Textile Industrial Processes," in *Industrial Hygiene Aspects of Plant Operations, Volume 1, Process Flows*, Cralley, L.V. and Cralley, L.J. (eds.), MacMillan Publishing Co., Inc., New York, NY, 1982.
- 7) Office of Management and Budget. *Standard Industrial Classification Manual*, Washington, DC, 1987.
- 8) United States Department of Commerce. *1992 Census of Manufactures, Industry Series, Weaving and Floor Covering Mills, Industries 2211, 2221, 2231, 2241, and 2273*, Bureau of the Census, Washington, DC, 1995.
- 9) United States Department of Commerce. *1992 Census of Manufactures, Industry Series, Knitting Mills, Industries 2251, 2252, 2253, 2254, 2257, 2258, and 2259*, Bureau of the Census, Washington, DC, 1995.
- 10) United States Department of Commerce. *1992 Census of Manufactures, Industry Series, Dyeing and Finishing Textiles, Except Wool Fabrics and Knit Goods, Industries 2261, 2262, and 2269*, Bureau of the Census, Washington, DC, 1995.
- 11) United States Department of Commerce. *1992 Census of Manufactures, Industry Series, Yarn and Thread Mills, Industries 2281, 2282, and 2284*, Bureau of the Census, Washington, DC, 1995.
- 12) United States Department of Commerce. *1992 Census of Manufactures, Industry Series, Miscellaneous Textile Goods, Industries 2295, 2296, 2297, 2298, and 2299*, Bureau of the Census, Washington, DC, 1995.

- 13) United States Environmental Protection Agency. *Best Management Practices for Pollution Prevention in the Textile Industry*, EPA, Office of Research and Development, 1996.
- 14) Wilson, K. *A History of Textiles*, Westview Press, Boulder, CO, 1979.

**Section III - Industrial Process Description**

---

- 1) American Textiles Manufacturers Institute (ATMI). Comments on draft of this document, 1997b.
- 2) Calfa, L., Holbrook, J., Keenan, C., and T. Reilly. *A Guide to Pollution Prevention in Woolen Mills*. Prepared for Northern Textile Association, Boston, 1993.
- 3) Corbman, B.P. *Textiles: Fiber to Fabric*, 5th edition, McGraw-Hill, Inc., New York, 1975.
- 4) Foundation of Flexographic Technical Association (FFTA). *Flexography: Principles and Practices*, 4th edition, Ronkonkoma, NY, 1991.
- 5) Ormerod, A. *Modern Preparation and Weaving Machinery*, Butterworth and Co. Ltd, London, 1983.
- 6) Oxtoby, E. *Spun Yarn Technology*, Butterworth and Co. Ltd, London, 1987.
- 7) Press, J.J. *Man-made Textile Encyclopedia*, Textile Book Publishers, Inc., New York, 1959.
- 8) Snowden-Swan, L.J. "Pollution Prevention in the Textile Industries," in *Industrial Pollution Prevention Handbook*, Freeman, H.M. (Ed.), McGraw-Hill, Inc., New York, 1995.
- 9) Spencer, D.J. *Knitting Technology*, 2nd edition, Pergamon Press, Oxford, 1983.
- 10) United States Environmental Protection Agency. *Best Management Practices for Pollution Prevention in the Textile Industry*, EPA, Office of Research and Development, 1996.
- 11) Wingate, Dr. Isabel B. *Fairchild's Dictionary of Textiles*, 6th edition, Fairchild Publications, New York, 1979.

**Section V - Pollution Prevention Opportunities**

---

- 1) Calfa, L., Holbrook, J., Keenan, C., and T. Reilly. *A Guide to Pollution Prevention in Woolen Mills*. Prepared for Northern Textile Association, Boston, 1993.
- 2) NCDEHNR. *Case Studies: A Compilation of Successful Waste Reduction Projects Implemented by North Carolina Businesses and Industries*. North Carolina Department of Environment, Health, and Natural Resources, Office of Waste Reduction, Raleigh, North Carolina, 1995.

- 3) NCDEHNR. *Identification and Reduction of Pollution Sources in Textile Wet Processing*. North Carolina Department of Environment, Health, and Natural Resources, Office of Waste Reduction, Raleigh, North Carolina, 1991.
- 4) NCDEHNR. *A Workbook for Pollution Prevention by Source Reduction in Textile Wet Processing*. North Carolina Department of Environment, Health, and Natural Resources, Office of Waste Reduction, Raleigh, North Carolina, 1988.
- 5) Snowden-Swan, L.J. "Pollution Prevention in the Textile Industries," in *Industrial Pollution Prevention Handbook*, Freeman, H.M. (Ed.), McGraw-Hill, Inc., New York, 1995.
- 6) United States Environmental Protection Agency. *Best Management Practices for Pollution Prevention in the Textile Industry*, EPA, Office of Research and Development, 1995.

**Section VII - Federal Statutes and Regulations**

---

- 1) Internet Site: <http://cbmnt1.energylan.sandia.gov/amtexwww/conservation.html>
- 2) Textile/Clothing Technology Corp. (TC<sup>2</sup>), *The Textile Revolution: DAMA The Demand Activated Manufacturing Architecture Project*, Cary, NC, 1996.