VII. COMPLIANCE AND ENFORCEMENT HISTORY

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 Federal Insecticide, Fungicide, and Rodenticide Act, 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.[5] 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) -- 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

[5] 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: AFS (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 usage 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. Fertilizer, Pesticide, and Agricultural Chemical Industry Compliance History

Table 25 provides an overview of the reported compliance and enforcement data for the Fertilizer, Pesticide, and Agricultural Chemical Industry over five years from April 1992 to April 1997. These data are also broken out by EPA Regions thereby permitting geographical comparisons. A few points evident from the data are listed below.

- About 75 percent of agricultural chemical facility inspections and 73 percent of enforcement actions occurred in EPA Regions IV, V, VI, and VII.

- Region IX had the highest ratio of enforcement actions to inspections (0.13) and the longest average time between inspections (21 months). This indicates that fewer inspections were conducted in relation to the number of facilities in the Region, but that these inspections were more likely to result in an enforcement action than inspections conducted in other Regions.

- With the exception of Region I, in which no inspections or enforcement actions were carried out in between 1992 and 1997, Region VIII had the lowest enforcement to inspection rate (0.03).

Table 25: Five-Year Enforcement and Compliance Summary for the Fertilizer, Pesticide, and Agricultural Chemical 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	3	0	0	--	0	0	0%	0%	--
II	11	8	50	13	3	4	75%	25%	0.08
III	18	16	123	9	2	10	80%	20%	0.08
IV	77	44	449	10	15	41	83%	17%	0.09
V	35	23	128	16	4	7	57%	43%	0.05
VI	34	21	167	12	5	9	56%	44%	0.05
VII	43	31	225	11	8	17	71%	29%	0.08
VIII	9	5	33	16	1	1	100%	0%	0.03
IX	25	10	72	21	5	9	78%	22%	0.13
X	8	6	46	10	4	4	25%	75%	0.09
TOTAL	263	164	1,293	12	47	102	74%	26%	0.08

Source: Data obtained from EPA's Integrated Data for Enforcement Analysis (IDEA) system in 1997.

VII.B. Comparison of Enforcement Activity Between Selected Industries

Tables 26 and 27 allow the compliance history of the agricultural chemical sector to be compared to the other industries covered by the industry sector notebooks. Comparisons between Tables 26 and 27 permit the identification of trends in compliance and enforcement records of the various industries by comparing data covering five years (April 1992 to April 1997) to that of the last year for which data were available (April 1996 to April 1997). Some points evident from the data are listed below.

- The agricultural chemical sector was inspected more frequently than most of the sectors shown (12 months on average between inspections).

- Between 1992 and 1997, the industry had a higher enforcement to inspection rate than most sectors (0.08); however, in 1997 the ratio decreased to 0.05 which is lower than most sectors.

- The agricultural chemical sector had one of the highest percentages of facilities inspected with one or more violations (97 percent) in 1997, but one of the lowest percentages of facilities with one or more enforcement actions (5 percent).

Tables 28 and 29 provide a more in-depth comparison between the Fertilizer, Pesticide, and Agricultural Chemical Industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in the previous Tables (Tables 26 and 27), the data cover the years 1992 to 1997 (Table 28) and 1997 (Table 29) to facilitate the identification of recent trends. A few points evident from the data are listed below.

- The percent of inspections carried out under each environmental statute has changed only slightly between the average of the years 1992 to 1997 and that of the past year. The Clean Air Act accounted for the most inspections (43 percent) during this period. This increased to almost half of all agricultural chemical facility inspections (49 percent) in 1997.

- The percent of enforcement actions taken under each environmental statute changed significantly from the 1992 to 1997 period to the past year. Enforcement actions taken under the Clean Air Act increased from 39 percent to 55 percent and enforcement actions taken under RCRA increased from 30 percent to 36 percent. At the same time, the enforcement actions taken under the Clean Water Act went from 20 percent in 1992 to 1995 to no actions in 1997.

Table 26: 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
Textiles	355	267	1,465	15	53	83	90%	10%	0.06
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

Table 27: One-Year Enforcement and Compliance Summary for Selected Industries

A	B	C	D	E		F		G	H
				Facilities with 1 or More Violations		Facilities with 1 or more Enforcement Actions		Total Enforcement Actions	Enforcement to Inspection Rate
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Number	Percent*	Number	Percent*		
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
Textiles	355	172	295	96	56%	10	6%	12	0.04
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 Manmade 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

Table 28: 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/ 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	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%
Textiles	267	1,465	83	58%	54%	22%	25%	18%	14%	2%	6%
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 29: 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%
Textiles	172	295	12	66%	75%	17%	17%	17%	8%	0%	0%
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, about 17 significant enforcement actions were resolved between 1995 and 1996 for the Fertilizer, Pesticide, and Agricultural Chemical Industry.

American Cyanamid Company On June 28, 1995, Region II issued an administrative complaint against American Cyanamid Company for violations at its Lederle Laboratories facility located in Pearl River, New York. The complaint proposed assessment of a $272,424 fine for the company's failure to submit timely TRI Form Rs for 1,1,1-trichloroethane, naphthalene, phosphoric acid, toluene, manganese compounds and zinc compounds for the reporting years 1990, 1991, 1992, and 1993.

Precision Generators, Inc. The Regional Administrator signed a consent order in the *Precision Generators, Inc.*, a FIFRA case, in which the respondent agreed to pay the proposed penalty of $4,000. The administrative complaint cited the respondent's sale and misbranding of its unregistered pesticide product ethylene fluid used to accelerate the ripening of fruits and vegetables. Such a product is a "plant regulator" falling within the definition of "pesticide" in FIFRA.

E.C. Geiger, Inc. On August 18, 1995, the Regional Administrator signed a consent agreement and consent order finalizing settlement of the administrative proceeding against E.C. Geiger, Inc. of Harleysville, Pennsylvania, for violations of sections 12(a)(1)(A) and (B) of FIFRA, 7 U.S.C. section 136j(a)(1)(A) and (B). The complaint alleged that during 1992, Geiger sold or distributed an unregistered and misbranded pesticide product, a rooting hormone called "Indole-3-butyric Acid-Horticultural Grade." For these violations the complaint sought a $14,000 penalty. Geiger has agreed to pay a penalty of $8,900.

Rhone-Poulenc, Inc. Region III reached a settlement with Rhone-Poulenc, Inc., in a Part II administrative action brought for violations of RCRA boiler and industrial furnace (BIF) regulations at Rhone-Poulenc's Institute, West Virginia plant. The settlement calls for Rhone-Poulenc to pay a penalty of over $244,000 and to undertake numerous compliance tasks.

IMC-Agrico Company On November 8, 1994, the Regional Administrator ratified a consent decree between the United States and IMC-Agrico Company

concerning IMC's violations of section 301(a) of the CWA. IMC owns and operates phosphate rock mines and associated processing facilities in Florida and Louisiana. Eight of its mineral extraction operations located throughout Florida and its Port Sutton Phosphate Terminal located in Tampa, Florida, were the subject of this referral. The action arose out of IMC's violation of its permit effluent limits for a variety of parameters including dissolved oxygen, suspended solids, ammonia, and phosphorous, as well as non-reporting and stormwater violations at the various facilities-over 1,500 permit violations total. The case was initiated following review of the facility discharge monitoring reports and EPA and state inspections of the sites. The consent decree settlement involved an up-front payment of $835,000 and a $265,000 Supplemental Environmental Project (SEP). The pollution prevention SEP involved converting IMC's scrubber discharge and intake water systems into a closed loop system, greatly reducing pollution loading at the Port Sutton facility, by April 1995.

J.T. Eaton & Company, Inc. J.T. Eaton & Company, Inc. distributed and sold at least 13 unregistered pesticides (mostly rodenticides). These unregistered pesticides resulted from varying the form of the rodent bait and the packaging of several of Eaton's registered products (e.g., registered as a bulk product) but sold in ready-to-use place packs. The company also distributed and sold a misbranded pesticide product and made inaccurate claims in advertising for another product. A stop sale, use, or removal order and an administrative complaint were issued simultaneously on March 23, 1995. The penalty assessed in the complaint was $67,500. The complaint was settled on August 25, 1995, for $40,000.

Citizens Elevator Co., Inc. Citizens Elevator Co. repackaged and distributed and sold the pesticide "Preview" in five gallon buckets, many bearing pie filling labels, to at least 24 customers, constituting the distribution and sale of an unregistered pesticide. The complaint, issued June 30, 1994, assessed a penalty of $108,000. In supplemental environmental projects for the prevention of spills of pesticides and fertilizers and the safer, more efficient storage and application of pesticides and fertilizer. The respondent spent $184,771. A consent agreement signed June 30, 1995, settled the case for $8,400.

Nitrogen Products, Inc. On September 25, 1995, a joint stipulation and order of dismissal was filed in the United States District Court for the Eastern District of Arkansas. Nitrogen Products, Inc. (NPI), agreed to pay a civil penalty of $243,600 to the United States for violations of the Clean Air Act, and Subparts A and R of 40 CFR Part 61. The foreign parent corporation, Internationale Nederlanden Bank, N.V., acquired the facility through

foreclosure and expended over $2 million to cover the phosphogypsum stack and regrade.

Micro Chemical, Inc. The illegal transportation of hazardous waste by a Louisiana pesticide formulation company, Micro Chemical, Inc., to an unpermitted disposal facility in violation of RCRA resulted in a $500,000 fine, five years of probation, and compliance with corrective action measures contained in a corrective action administrative order on consent. In March 1990, Micro Chemical transported 100 cubic yards of hazardous waste from its facility to a field in Baskin, Louisiana-a location that did not have a RCRA permit. After its discovery, it was removed under the Louisiana Department of Agriculture's guidance. Micro Chemical has taken measures to stabilize and prevent the spread of pesticide contamination from the Micro Chemical facility site, as required by a RCRA 3008(h) corrective action administrative order on consent. The order will result in the removal of all contaminated soil at the site, and the remediation of all off-site contamination that has migrated into a drainage basin located adjacent to the site.

Chempace Corporation On September 26, 1996, Region V PTES filed a civil administrative complaint against Chempace corporation of Toledo, Ohio alleging 99 counts for the distribution or sale of unregistered and misbranded pesticides, and pesticide production in unregistered establishments. The total proposed penalty in the complaint is $200,000. The case is significant in that Chempace had, previous to the complaint, canceled all of the company's pesticide product registrations pursuant to section 4 of FIFRA, as well as their establishment registration pursuant to section 7. However, the company continued to produce and sell those canceled pesticides in a facility that was not registered.

Northrup King Co. On September 30, 1996, as a result of a FIFRA inspection conducted by Region V on March 27-28, 1996, Region V issued a FIFRA civil complaint to Northrup King Co. of Golden Valley, Minnesota. The pesticide involved in the case is a genetically engineered corn seed that protects against the corn borer. Because this case is the first FIFRA complaint involving a genetically engineered pesticide, the case is nationally significant. The complaint alleged 21 counts of sale and distribution of an unregistered pesticide, 21 counts for failure to file a Notice of Arrival for pesticide imports, and 8 counts of pesticide production in unregistered establishments, for a total proposed penalty of $206,500. A consent agreement and consent order was filed simultaneously with, and in resolution of the complaint. The respondent agreed to pay $165,200, which is the largest penalty collected by Region V under FIFRA.

Micro Chemical. Micro Chemical is a pesticide formulating, mixing, and packaging facility 3,000 feet up gradient of the Winnsboro's groundwater well complex. In March 1990, a release from the facility was reported by a citizen. Investigations revealed that the company had attempted to dump 100 cubic yards of pesticide contaminated soil offsite. People living near the dump site

became ill from the fumes and the state ordered the soil to be returned to Micro Chemical. Ultimately a criminal case was initiated for the midnight dumping. Other storage violations detected were the subject of an administrative complaint issued in September 1992. A RCRA 3008(h) order on consent was entered into on September 1994 to remediate the site. In resolving the September 1992 complaint, a final order was issued on March 28, 1996. Micro Chemical agreed to pay a penalty of $25,000 and agreed to fund a SEP valued at $25,000. The SEP established collection events for household waste and waste pesticides in the Franklin Parish area. During FY96, the SEP enabled about 100 tons of waste to be collected and properly disposed.

Terra Industries, Inc. At the request of the Chemical Emergency Prevention and Preparedness Office (CEPPO), and in accordance with section 112(r) of the CAA, EPA released the results of its investigation into the cause of an explosion of the ammonium nitrate plant at this nitrogen fertilizer manufacturing facility. The report released in January 1996 identifies numerous unsafe operating procedures at the plant as contributing factors to the explosion, and recommends certain standard operating procedures which would help prevent similar occurrences at ammonium nitrate production facilities.

The Terra explosion occurred on December 13, 1994, killing four individuals and injuring 18 others. It also resulted in the release of approximately 5,700 tons of anhydrous ammonia to the air and approximately 25,000 gallons of nitric acid to the ground and required evacuation over a two-state area of over 2,500 persons from their homes.

In a subsequent action, an administrative civil complaint alleging violations of EPCRA sections 213 and 313, and section 8(a) of TSCA, was filed citing that Terra International failed to submit Toxic Release Inventory (TRI) information to EPA in a timely manner, and data submitted to EPA by Terra failed to include releases of more than 17 million pounds of toxic chemicals to the environment on-site.

Pfizer/AgrEvo Reporting of unreasonable adverse effects information is required under FIFRA section 6(a)(2), and failure to submit such reports has resulted in a $192,000 settlement involving AgrEvo Environmental Health, Inc. and Pfizer, Inc. The case arose in early 1994 after an individual reported disabling neurological symptoms and chemical sensitivity after using RID products to kill lice. The ensuing EPA investigation revealed numerous additional unreported incidents involving RID which is manufactured by AgrEvo and distributed by Pfizer. EPA amended the complaint charging 24 counts against each company. FIFRA 6(a)(2) requires pesticide registrants to submit to EPA any additional information (beyond that submitted in the pesticide registration process) that they have regarding unreasonable adverse effects of their pesticides on human health or the environment. The information is used by the Agency in the determination of risks associated with pesticides.

Rohm and Haas Company This complaint cited Rohm and Haas for 66 violations under FIFRA section 12(a)(1)(c), for the distribution or sale of a registered pesticide the composition of which differed from the composition as described in its registration under FIFRA section 3. EPA registers pesticides based upon the accurate assessment of components used in the manufacture of the product. Use of an unapproved formula can lead to production of a pesticide for which no assessment of risk has been determined or result in unknown synergistic effects. Following settlement negotiations, and in accordance with the FIFRA Enforcement Response Policy, the original penalty of $330,000 was reduced to $118,800, based on a 20% reduction to the gravity level, a 40% reduction for immediate self-disclosure, mitigation, and corrective actions, and a 15% reduction for good attitude, cooperation, and efforts to comply with FIFRA.

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

SEPs are compliance agreements that reduce a facility's non-compliance penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can reduce the future pollutant loadings of a facility. Information on SEP cases can be accessed via the Internet at http://es.epa.gov/oeca/sep.

VIII. COMPLIANCE ASSURANCE 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 initiated independently by industrial trade associations. In this section, the notebook also contains a listing and description of national and regional trade associations.

VIII.A. Sector-Related Environmental Programs and Activities

National Agricultural Compliance Assistance Center (Ag Center)

EPA's Office of Compliance, with the support from the United States Department of Agriculture (USDA), developed EPA's National Agriculture Compliance Assistance Center (Ag Center). The Ag Center offers comprehensive, easy-to-understand information about approaches to compliance that are both environmentally protective and agriculturally sound.

The Ag Center focuses on providing information about EPA's own requirements. In doing so, the center relies heavily on existing sources of agricultural information and established distribution channels. Educational and technical information on agricultural production is provided by the USDA and other agencies, but assistance in complying with environmental requirements has not traditionally been as readily available. The Ag Center is currently working with USDA and other federal and state agencies to provide the agricultural community, including regional and state regulatory agencies, with a definitive source for federal environmental compliance information. The Ag Center offers information on a variety of topics, including the following:

- Pesticides
- Animal waste management
- Emergency planning and response
- Groundwater and surface water
- Tanks / containment
- Solid / hazardous waste

Through a toll-free telephone number and a website that is regularly updated and expanded, the Ag Center offers a variety of resources including:

- current news, compliance policies and guidelines, pollution prevention information, sources of additional information and expertise, and summaries of regulatory initiatives and requirements

- user-friendly materials that consolidate information about compliance requirements, pollution prevention, and technical assistance resources for use by regional and state assistance and educational programs, trade associations, businesses, citizens, and local governments

- agriculture-related information on reducing pollution and using the latest pollution prevention methods and technologies

- information on ways to reduce the costs of meeting environmental requirements, including identification of barriers to compliance

The Ag Center's toll-free number is 1-888-663-2155 and the website address is: http://es.epa.gov/oeca/ag/

National Pesticide Information Retrieval System (NPIRS)

Purdue University has developed a collection of databases through their Center for Environmental and Regulatory Information Systems, one of which is the National Pesticide Information Retrieval System. NPIRS is a collection of six databases related to pesticides, including product registration document information, data submitter information, residue tolerances, fact sheets, material safety data sheets, and the daily federal register. Full search access to the NPIRS databases is by annual subscription.

Association of American Plant Food Control Officials (AAPFCO) Label Recommendations

The AAPFCO is considering a set of recommendations issued by a task force of fertilizer producers and state officials. These recommendations call for labeling and standards for non-nutrient constituents in fertilizer and directions that will allow users to apply fertilizers at a rate that will not exceed these standards. One proposed addition to labels is to list all raw materials, including recycled wastes; however, the concentration of these materials will not be required (ARA, 1997).

Agricultural Research Institute

ARI was founded in 1951 as a part of the National Academy of Sciences, then incorporated separately in 1973. ARI analyzes agricultural problems and promotes research by its members to solve them. ARI publishes annual meeting minutes, a directory, books, pamphlets, and newsletters.

National Association of State Departments of Agriculture (NASDA)

NASDA was founded in 1916 by directors of state and territorial departments of agriculture to coordinate policies, procedures, laws, and activities between the states and federal agencies and Congress. NASDA conducts research, holds a trade show, and distributes several bulletins, newsletters, and directories.

ChemAlliance

EPA's Office of Compliance developed ChemAlliance, a new Compliance Assistance Center for the chemical industry. Among its features is an exciting "expert help," which offers an interactive guide to finding compliance

resources specific to a user's needs. Take a "virtual plant tour" to find out which regulations apply to your company's operations by clicking on a detailed chemical plant illustration. ChemAlliance can be reached at 1-800-672-6048; its web site is located at . *http://www.chemalliance.org*,

VIII.B. EPA Voluntary Programs

Pesticide Environmental Stewardship Program (PESP)

The Pesticide Environmental Stewardship Program (PESP) is a broad effort by EPA, USDA, and the FDA to reduce pesticide use and risk in both agriculture and nonagricultural settings. In September 1993, the three agencies announced a federal commitment to two major goals: 1) developing specific use/risk reduction strategies that include reliance on biological pesticides and other approaches to pest control that are thought to be safer than traditional chemical methods, and 2) by the year 2000, having 75 percent of United States agricultural acreage adopt integrated pest management programs.

A key part of the PESP is the public/private partnership which began when EPA, USDA, and FDA announced the partnership and more than 20 private organizations signed on as charter members. All organizations with a commitment to pesticide use/risk reduction are eligible to join the PESP, either as Partners or Supporters. The PESP program has 35 partners. Together, these partners represent at least 45,000 pesticide users. The program has a goal of adding 35 new partners per year.

33/50 Program

The 33/50 Program is a ground breaking 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 -- 202-260-6396).

Table 30 lists those companies participating in the 33/50 program that reported the SIC codes 2873, 2874, 2875, and 2879 to TRI. Some of the companies shown also listed facilities that are not producing agricultural chemicals. The number of facilities within each company that are participating in the 33/50 program and that report SIC codes 2873, 2874, 2875, and 2879 is shown. Where available and quantifiable against 1988 releases and transfers, each company's 33/50 goals for 1995 and the actual total releases and transfers and percent reduction between 1988 and 1995 are presented. Eleven of the seventeen target chemicals were reported to TRI by agricultural chemical facilities in 1995.

Table 30 shows that 24 companies comprised of 78 facilities reporting SIC 287 participated in the 33/50 program. For those companies shown with more than one agricultural chemical facility, all facilities may not have participated in 33/50. The 33/50 goals shown for companies with multiple facilities, however, were company-wide, potentially aggregating more than one facility and facilities not carrying out agricultural chemical operations. In addition to company-wide goals, individual facilities within a company may have had their own 33/50 goals or may have been specifically listed as not participating in the 33/50 program. Since the actual percent reductions shown in the last column apply to only the companies' agricultural chemical facilities, direct comparisons to those company goals incorporating non-agricultural chemical facilities or excluding certain facilities may not be possible. For information on specific facilities participating in 33/50, contact David Sarokin (202-260-6907) at the 33/50 Program Office.

Table 30: Fertilizer, Pesticide, and Agricultural Chemical Industry Participation in the 33/50 Program

Parent Company (Headquarters Location)	Company-Owned Facilities Reporting 33/50 Chemicals	Company- Wide % Reduction Goal[1] (1988 to 1995)	1988 TRI Releases and Transfers of 33/50 Chemicals (pounds)[2]	1995 TRI Releases and Transfers of 33/50 Chemicals (pounds)[2]	% of Change per Facility (1988-1995)
AMERICAN HOME PRODUCTS CORP. MADISON, NJ	2	49	47,950	73,876	-54
ARCADIAN CORP. MEMPHIS, TN	6	0	4,340	10,127	-133
BAY ZINC CO. INC. MOXEE CITY, WA	1	50	77,250	252	100
CHEM-TECH LTD. DES MOINES, IA	1	90	800	0	100
CHEVRON CORP. SAN FRANCISCO, CA	3	50	8,746	0	100
CONAGRA INC. OMAHA, NE	6	8	17,086	5,238	69
E.I. DU PONT DE NEMOURS & CO WILMINGTON, DE	2	50	144,412	440,370	-205
ELF AQUITAINE INC. NEW YORK, NY	1	49	3,068	0	100
FIRST MISSISSIPPI CORP. JACKSON, MS	7	0	701,144	214,334	69
FMC CORPORATION CHICAGO, IL	5	50	6,190	2,339	62
GLAXO WELLCOME INC. RESEARCH TRIANGLE PARK, NC	1	37	1,125	0	100
GOWAN COMPANY YUMA, AZ	1	0	0	2,207	---
IMC FERTILIZER GROUP INC. NORTHBROOK, IL	7	0	56,350	51,548	9
ISK AMERICAS INC. ATLANTA, GA	2	50	884,412	726,713	18
LAROCHE HOLDINGS INC. ATLANTA, GA	1	0	17,590	0	100
MALLINCKRODT GROUP INC. SAINT LOUIS, MO	1	44	0	0	---
MILES INC. PITTSBURGH, PA	1	38	39,822	6,650	83
MONSANTO COMPANY SAINT LOUIS, MO	1	23	0	1,260	---
RHONE-POULENC INC. MONMOUTH JUNCTION, NJ	21	50	3,128,263	1,392,117	55
SC JOHNSON & SON INC. RACINE, WI	1	50	19,086	20,096	-5
SANDOZ CORPORATION NEW YORK, NY	3	50	207,086	87,000	58
TALLEY INDUSTRIES PHOENIX, AZ	1	0	8,243	2,289	72
UNIVERSAL COOPERATIVES INC. MINNEAPOLIS, MN	1	70	17,750	1,265	93
UNOCAL CORPORATION LOS ANGELES, CA	2	50	0	9	---
Total	**78**	**---**	**5,390,713**	**3,037,690**	**44**

Source: United States EPA 33/50 Program Office, 1997.

[1] Company-Wide Reduction Goals aggregate all company-owned facilities which may include facilities not producing agricultural chemicals.

[2] Releases and Transfers are from facilities only. 1995 33/50 TRI data were not available at time of publication.

* = Reduction goal not quantifiable against 1988 TRI data. ** = Use reduction goal only. *** = No numeric reduction goal.

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.

There have been at least two Project XL proposals relating to fertilizer production, however both of these have been either rejected or withdrawn. PCS Nitrogen (formerly Arcadian Fertilizer) had proposed to reuse stockpiled phosphogypsum as an ingredient in a soil enhancer. Another proposal by Dow Chemical Company in Louisiana was to trade off equipment leak reductions for relief from some emissions control, monitoring, reporting and record-keeping requirements.

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

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 of 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 Vargas, 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 United States 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-STARYES or Maria Tikoff Vargar, EPA Program Director, at 202-233-9178)

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^3

The United States Department of Energy is administering a grant program called The National Industrial Competitiveness through Energy, Environment, and Economics (NICE^3). 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.C. Trade Association/Industry Sponsored Activity

VIII.C.1. State Advisory Groups

Association of American Pesticide Control Officials (AAPCO)
P.O. Box 1249 Members: 55
Hardwick, VT 05843 Staff: 1
Phone: 802-472-6956
Fax: 802-472-6957
E-mail: aapco@plainfield.bypass.com

Formed in 1947, the Association of American Pesticide Control Officials (AAPCO) consists of state and federal pesticide regulatory officials. All federal and provincial Canadian officials, officials of all North American countries involved with the regulation of pesticides may be members of AAPCO as well. AAPCO holds meetings twice a year and publishes an annual handbook that contains uniform policies and model pesticide legislation that the association has adopted.

AAPCO aims to promote uniform and effective state legislation and pesticide regulatory programs. Its other objectives are to develop inspection procedures, to promote labeling and safe use of pesticides, to provide opportunities for members to exchange information, and to work with industry to promote the usefulness and effectiveness of pesticide products.

State FIFRA Issues Research and Evaluation Group (SFIREG)
P.O. Box 1249 Members:
Hardwick, VT 05843 10 state representatives
Phone: 802-472-6956
Fax: 802-472-6957
E-mail: aapco@plainfield.bypass.com

The State FIFRA Issues Research and Evaluation Group evolved in 1978 out

of a cooperative agreement between the EPA's Office of Pesticide Programs (OPP) and the Association of American Pesticide Control Officials (AAPCO). SFIREG is an independent but related body of AAPCO that provides state comments to the Office of Pesticide Programs on issues relating to the manufacture, use and disposal of pesticides. Its membership is comprised of ten state representatives, who represent and are selected by the states in each of the ten EPA Regions.

VIII.C.2. Trade Associations

Association of American Plant Food Control Officials (AAPFCO)
University of Kentucky Members: 200
Division of Regulatory Services
103 Regional Services Building
Lexington, KY 40546-0275
Phone: 606-257-2668
606-257-2970
Fax: 606-257-7351

The AAPFCO is an organization of state fertilizer control officials from the United States and Canada who are involved in the administration of fertilizer regulations and laws. The AAPFCO's purpose is to achieve uniformity throughout their membership with regards to promoting effective legislation, adequate sampling, accurate labeling, and safe use of fertilizers, as well as to study and discuss relevant issues.

Agricultural Retailers Association (ARA)
11701 Borman Dr., Ste. 110 Members:1,100
St. Louis, MO 63146 Staff: 17
Phone: 800-844-4900
Fax: 314-567-6808

The Agricultural Retailers Association was founded in 1954 and is made up of dealers, manufacturers, and suppliers of fluid fertilizers and agrichemicals, as well as equipment manufacturers, retail affiliations, and state association affiliates. ARA was formerly known as the National Nitrogen Solutions Association. Their publications include *Agricultural Retailers Association-Membership Directory and Buyer's Guide* (annual), *Connections*, a bimonthly newsletter, and the *Fluid Fertilizer Manual*.

Fertilizer Industry Round Table (FIRT)
5234 Glen Arm Rd. Nonmembership
Glen Arm, MD 21057
Phone: 410-592-6271
Fax: 410-592-5796

The Fertilizer Industry Round Table was founded in 1951. Participants include production, technical, and research personnel in the fertilizer industry. FIRT acts as a forum for discussion of technical and production problems. They hold an annual meeting and publish the proceedings.

The Fertilizer Institute (TFI)
501 2nd St., NE
Washington, DC 20002
Phone: 202-675-8250
Fax: 202-544-8123

Members: 300
Staff: 22

The Fertilizer Institute was founded in 1970 and now has 48 affiliated groups. Members include producers, manufacturers, retailers, trading firms, and equipment manufacturers. TFI represents members in various legislative, educational, and technical areas, and provides information and public relations programs. Publications include: *Directory of Fertilizer References*, annual; *Fertilizer Facts and Figures*, annual; *Fertilizer Institute--Action Letter*, monthly; *Fertilizer Record*, periodic.

Chemical Manufacturers Association (CMA)
1300 Wilson Blvd.
Arlington, VA 22209
Phone: 703-741-5000
Fax: 703-741-6000

Members: 185
Staff: 280

The Chemical Manufacturers Association was founded in 1872 and now has a budget of $36 million. CMA conducts advocacy and administers research areas of broad import to chemical manufacturing, such as pollution prevention and other special research programs. CMA also conducts committee studies, operates the Chemical Emergency Center (CHEMTREC) for guidance to emergency service on handling emergencies involving chemicals and the Chemical Reference Center which offers health and safety information about chemicals to the public. Publications include semi-monthly newsletters, *ChemEcology* and *CMA News*, and the *CMA Directory and User's Guide.*

Chemical Specialties Manufacturers Association (CSMA)
1913 Eye St., NW
Washington, DC 20006
Phone: 202-872-8110
Fax: 202-872-8114

Members: 425
Staff: 31

The Chemical Specialties Manufacturers Association was founded in 1914 and is made up of manufacturers, marketers, formulators, and suppliers of household, industrial, and personal care chemical specialty products such as pesticides, cleaning products, disinfectants, sanitizers, and polishes. CSMA serves as a liaison to federal and state agencies and public representatives, provides information and sponsors seminars on governmental activities and scientific developments.

American Crop Protection Association (ACPA)
1156 15th St., NW, Ste. 400 Members: 82
Washington, DC 20005 Staff: 29
Phone: 202-296-1585
Fax: 202-463-0474

The American Crop Protection Association was founded in 1933 and now has a budget of $7 million. Members include companies involved in producing or formulating agricultural chemical products including agricultural fumigants, agricultural scalicides, chemical plant sprays and dusts, defoliants, soil disinfectants, weed killers, and others. It is comprised of legislative, regulatory and science departments and publishes a periodic bulletin, manuals, *Growing Possibilities*, quarterly, and *This Week and Next*, weekly.

Western Crop Protection Association (WCPA)
3835 N. Freeway Blvd. Ste. 140 Members: 170
Sacramento, CA 95834 Staff: 6
Phone: 916-568-3660
Fax: 916-565-0113

The WCPA is a regional organization of manufacturers, formulators, distributors, and dealers of basic pesticide chemicals and suppliers of solvents, diluents, emulsifiers, and containers. They are affiliated with the American Crop Protection Association. They publish several bulletins and periodicals.

National Pest Control Association (NPCA)
8100 Oak St. Members: 2,300
Dunn Loring, VA 22027 Staff: 21
Phone: 703-573-8330
Fax: 703-573-4116

The National Pest Control Association was founded in 1933 and now has a budget of $2.8 million. Members include companies engaged in control of insects, rodents, birds, and other pests. NPCA provides advisory services on control procedures, new products, and safety and business administration practices. NPCA sponsors research at several universities, furnishes, technical information and advice to standards and code writing groups, and maintains an extensive library on pests. NPCA publishes many titles including manuals, newsletters, membership guides, technical releases, and reports.

International Fertilizer Development Center (IFDC)
PO Box 2040 Muscle Shoals,

AL 35662
Phone: 205-381-6600
Fax: 205-381-7408

Nonmembership
Staff: 180

The International Fertilizer Development Center was founded in 1974 and includes participants such as scientists, engineers, economists and specialists in market research and development and communications. IFDC uses a $13.5 million budget to try to alleviate world hunger by increasing agricultural production in the tropics and subtropics through development of improved fertilizers. IFDC sponsors and conducts studies in fertilizer efficiencies and offers courses on fertilizer production, environmental issues, and crop sustainability. They maintain greenhouses and laboratories, and publish several periodicals and manuals.

United Products Formulators and Distributors Association(UPFDA)
1 Executive Concourse No. 103
Duluth, GA 30136
Phone: 404-623-8721
Fax: 404-623-1714

Members: 102
Staff: 1

The United Products Formulators and Distributors Association was founded in 1968 and is made up of companies engaged in formulating and distributing pesticide products. The UPFDA works to solve problems of member companies and promote sound and beneficial legislation and to cooperate with allied industries.

North American Horticultural Supply Association (NAHSA)
1790 Arch St.
Philadelphia, PA 19103
Phone: 215-564-3484
Fax: 215-564-2175

Members: 135
Staff: 3

The North American Horticultural Supply Association was founded in 1988 and represents horticultural supplies such as greenhouse building materials and supplies, pesticides, and fertilizers. The NAHSA works to strengthen and enhance the relationship between manufacturers and distributors and promotes distribution in the market. They publish a quarterly newsletter, *NAHSA News,* and an annual *Industry Calendar*.

American Agricultural Economics Association (AAEA)
1110 Buckeye Ave.
Ames, IA 50010-8063
Phone: 515-233-3202
Fax: 515-233-3101

Members: 4,500
Staff: 6

The American Agricultural Economics Association, founded in 1910, is a professional society of state, federal, and industrial agricultural economists, teachers, and extension workers. The AAEA works to further knowledge of agricultural economics through scientific research, instruction, publications, meetings, and other activities. They publish a bimonthly newsletter, a semi-bimonthly *American Journal of Agricultural Economics*, a quarterly magazine *Choices*, and a biennial *Handbook Directory*.

Institute for Agriculture and Trade Policy (IATP)
1313 5th St., SE, No. 303
Minneapolis, MN 55414
Phone: 612-379-5980
Fax: 612-379-5982

The IATP was founded in 1986 and has an annual budget of $1.15 million. They maintain a speakers bureau and conduct research programs on trade agriculture, global institutions, North-South relations, and the Third World. They publish several periodical bulletins.

California Fertilizers Association (CFA)
1700 I St., Ste. 130
Sacramento, CA 95814
Phone: 916-441-1584
Fax: 916-441-2569

The CFA represents fertilizer manufacturers, distributors, wholesalers, and retail dealers that sell products within California. They maintain a legislative hotline and publish studies and handbooks on issues pertaining to fertilizers.

American Society of Agronomy (ASA)
677 S. Segoe Rd. Members: 12,500
Madison, WI 53711 Staff: 30
Phone: 608-273-8080
Fax: (608) 273-2021

The ASA was founded in 1907 and presently operates on a budget of 2.5 million dollars per year. ASA is a professional society of plant breeders, soil scientists, chemists, educators, technicians, and other concerned with crop production and soil management. ASA sponsors fellowship programs and provides placement service. ASA publishes annual, bimonthly, and monthly periodicals as well as special publications.

Potash and Phosphate Institute (PPI)
655 Engineering Drive No. 110 Members: 14
Norcross, GA 30092 Staff: 30
Phone: 770-447-0335
Fax: 770-448-0439

PPI supports scientific research in the areas of soil fertility, soil testing, plant analysis, and tissue testing. PPI participates in farmers meetings, workshops, and training courses and publish a quarterly magazine, *Better Crops with Plant Food*.

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IX. CONTACTS/ACKNOWLEDGMENTS/RESOURCE MATERIALS

For further information on selected topics within the Fertilizer, Pesticide, and Agricultural Chemical Industry, a list of contacts and publications are provided below.

Contacts[6]

Name	Organization	Telephone	Subject
Michelle C. Yaras	EPA, Office of Enforcement and Compliance Assurance (OECA), Agriculture and Ecosystems Division, Agriculture Branch	202 564-4153	Notebook Contact
Arty Williams	EPA, Office of Prevention, Pesticides and Toxic Substances (OPPT)	703 305-5239	Ground Water Pesticide Management Plan Rule
Jean Frane	EPA, OPPT	703 305-5944	Food Quality Protection Act
Paul Parsons	EPA, OPPT	703 308-9073	FIFRA Data Requirements
David Stangel	EPA, OECA	202 564-4162	Stored or Suspended Pesticides; Good Laboratory Practice Standards; Pesticide Management and Disposal
Joseph Hogue	EPA, OPPT	703 308-9072	FIFRA Restricted Use Classifications
Robert McNally	EPA, OPPT	703 308-8085	FIFRA Pesticide Tolerances
Joseph Nevola	EPA, OPPT	703 308-8037	FIFRA Pesticide Tolerances
Ellen Kramer	EPA, OPPT	703 305-6475	FIFRA Pesticide Tolerances
Carol Peterson	EPA, OPPT	703 305-6598	FIFRA Tolerance Fee Structure
Robert A. Forrest	EPA, OPPT	703 308-9376	FIFRA Exemptions
Nancy Fitz	EPA, OPPT	703 305-7385	FIFRA Pesticide Management and Disposal
Cathleen Barnes	EPA, OPPT	703 305-7101	FIFRA Prior Informed Consent
John MacDonald	EPA, OPPT	703 305-7370	Certification and Training
Kevin Keaney	EPA, OPPT	703 305-5557	FIFRA Worker Protection Standards

[6] Many of the contacts listed above have provided valuable information and comments during the development of this document. EPA appreciates this support and acknowledges that the individuals listed do not necessarily endorse all statements made within this notebook.

The following people received a draft copy of this Sector Notebook and may have provided comments.

Name	Organization	Telephone
Paul Bangser	EPA, Office of General Counsel, Water Division	202 260-7630
Philip J. Ross	EPA, Office of General Counsel, Pesticides and Toxic Substances Division	202 260-0779
Don Olson, Chief	EPA, Industrial Branch, OECA, Office of Regulatory Enforcement, Water Enforcement Division	202 564-5558
Jon Jacobs	EPA, OECA, Office of Regulatory Enforcement, Case Development, Policy and Enforcement Branch -Eastern Regions, Toxics and Pesticides Enforcement Division	202 564-4037
Jerry Stubbs	EPA, Case Development, Policy and Enforcement Branch-Western Regions, Toxics and Pesticides Enforcement Division, Office of Regulatory Enforcement	202 564-4178
Anne E. Lindsay, Director	EPA, Field and External Affairs Division Office of Pesticide Programs	703 305-5265
Marcia E. Mulkey, Director	EPA, Office of Pesticide Programs	703 305-7090
Artie Williams, Chief	EPA, Environmental Field Branch, Field and External Affairs Division, Office of Pesticide Programs	703 305-5239
Seth Heminway	EPA, OC Sector Notebook Coordinator	202 564-7017
Sam Silverman	EPA, Enforcement Coordinator Region 1	617 565-3443
Laura Livingston	EPA, Enforcement Coordinator Region 2	212 637-4059
Samantha Fairchild	EPA, Enforcement Coordinator Region 3	215 814-5710
Sherri Fields	EPA, Enforcement Coordinator Region 4	404 562-9684
Tinka Hyde	EPA, EPA, Enforcement Coordinator Region 5	312 886-9296
Robert Lawrence	EPA, Enforcement Coordinator Region 6	214 665-6580
Diane Callier	EPA, Enforcement Coordinator Region 7	913 551-7459
Mike Gaydosh	EPA, Enforcement Coordinator Region 8	303 312-6773
Jo-Ann Semones	EPA, Enforcement Coordinator Region 9	415 744-1547
Ron Kreizenbeck	EPA, Enforcement Coordinator Region 10	206 553-1265
Edward M. White	Assistant Pesticide Administrator, Indiana State Chemist Office, Purdue University	765 494-1587

Dale Dubberly, Chief	Bureau of Compliance Monitoring Florida Department of Agriculture & Consumer Services	850 488-8731
Robin Rosenbaum	Pesticide Registration Manager, Pesticide & Plant Pest Management Division, Michigan Department of Agriculture	517 335-6542
Buzz Vance	Nebraska Department of Agriculture	402 471-6853
Donnie Dippel	Assistant Commissioner, Pesticide Programs, Texas Department of Agriculture	512 463-7476
Paul Kindinger	Agricultural Retailers Association (ARA)	314 567-6655
Joel Padmore	Association of American Plant Food Control Officials (AAPFCO), Food & Drug Protection Division North Carolina Department of Agriculture	919 733-7366
Renee Pinel	California Fertilizers Association	916 441-1584
Mark Muller	Institute for Agriculture and Trade Policy	612 870-3420
Rick Kirchhoff	National Association of State Departments of Agriculture (NASDA)	202 296-9680
Robert Rosenberg	National Pest Control Association	703 573-8330
Robert E. Roberts	Executive Director Environmental Council of States (ECOS)	202 624-3660
Diane Bateman	The Fertilizer Institute (TFI)	202 675-8250
Jay Vroom	American Crop Protection Association	202 296-1585

Section II: Introduction to the Fertilizer, Pesticide, and Agricultural Chemical Industry

1992 Census of Manufacturers Industry Series: Agricultural Chemicals, United States Department of Commerce, Bureau of Census, Economics and Statistics Administration, Washington, DC, May 1995.

1987 Standard Industrial Classification Manual, Office of Management and Budget, 1987.

Aspelin, Arnold, *Pesticide Industry Sales and Usage, 1994 and 1995 Market Estimates*, Office of Prevention, Pesticides and Toxic Substances, USEPA, August 1997.

"Facts and Figures for the Chemical Industry," *Chemical and Engineering News*, June 23, 1998.

Hodge, Charles A. and Popovici, Neculai N., ed., *Pollution Control in Fertilizer Production,* Marcel Dekker, Inc., 1994.

Hoffmeister, George. "Fertilizers", *Kirk-Othmer Encyclopedia of Chemical Technology, 4th ed.* New York: John Wiley & Sons. 1993.

Kent, James A., ed., *Riegel's Handbook of Industrial Chemistry*, Ninth edition, Van Nostrand Reinhold, New York, 1992.

Ollinger, Michael, and Fernandez-Cornejo, Jorge. *Regulation, Innovation, and Market Structure in the United States Pesticide Industry,* Economic Research Service, USDA, June 1995.

Andrilenas, Paul, and Vroomen, Harry. United States Department of Agriculture, *Seven Farm Input Industries, Fertilizer,* Economic Research Service, U.S.D.A., September 1990.

Dun & Bradstreet's Million Dollar Directory, 1997.

United Nations Environment Programme and United Nations Industrial Development Organization, *Mineral Fertilizer Production and the Environment*, UNEP, Paris, 1996.

United States Environmental Protection Agency, Enforcement, Planning, Targeting & Data Division,, *FIFRA, section 7 Data System,* United States EPA. 1996.

United States Environmental Protection Agency, *Development Document for Best Available Technology, Pretreatment Technology, and New Source Performance Technology for the Pesticide Formulating, Packaging, and Repackaging Industry- Final*, EPA, Office of Water, Washington, DC, September 1996.

United States Environmental Protection Agency, *Biopesticides Web Site*, Office of Pesticide Programs, <http://www.epa.gov/oppbppd1/biopesticides/>, August 1999.

United States Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors (AP-42)*, Fifth edition, EPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, July 1993.

United States Environmental Protection Agency, *Guides to Pollution Prevention, The Pesticide Formulating Industry*, EPA, Center for Environmental Research Information, Cincinnati, February 1990.

United States Industry & Trade Outlook '98, United States Department of Commerce, International Trade Administration, Washington, DC, 1998.

United States International Trade Commission, *Industry & Trade Summary, Pesticide Products and Formulations,* USITC Publication 2750, Office of Industries, March 1994.

Section III: Industrial Process Description

Air and Waste Management Association, Buonicore, Anthony J. and Davis, Wayne T., ed., *Air Pollution Engineering Manual*, Van Nostrand Reinhold, New York, 1992.

Cremlyn, R., *Pesticides*, John Wiley & Sons, New York, 1978.

Hargett, Norman and Pay, Ralph, "Retail Marketing of Fertilizers in the United States" Presented at the Fertilizer Industry Round Table, Atlanta, Georgia, 1980.

Hoffmeister, George. "Fertilizers", *Kirk-Othmer Encyclopedia of Chemical Technology, 4th ed. Volume 10,* New York: John Wiley & Sons. 1993.

Kroschwitz, Jacqueline, and Howe-Grant, Mary (eds.). "Ammonia", *Kirk-Othmer Encyclopedia of Chemical Technology, 4th ed. Volume 2,* New York: John Wiley & Sons. 1992.

Hodge, Charles A. and Popovici, Neculai N., ed., *Pollution Control in Fertilizer Production,* Marcel Dekker, Inc., 1994.

Kent, James A., ed., *Riegel's Handbook of Industrial Chemistry*, Ninth edition, Van Nostrand Reinhold, New York, 1992.

Korcak, R.F. "Utilization of Coal Combustion By-Products in Agriculture and Horticulture," *Agricultural Utilization of Urban and Industrial By-Products*, American Society of Agronomy, Madison, WI, 1995.

Lewis, Richard J., Sr., ed., *Hawley's Condensed Chemical Dictionary*, Twelfth edition, Van Nostrand Reinhold, New York, 1993.

Manual on Fertilizer Statistics, Food and Agriculture Organization of the United Nations, Rome, 1991.

Miller, W.P. "Environmental Considerations in Land Application of By-Product Gypsum," *Agricultural Utilization of Urban and Industrial By-Products*, American Society of Agronomy, Madison, WI, 1995.

Nielson, Francis T., *Manual of Fertilizer Processing*, Marcel Dekker, Inc., New York, 1987.

The Fertilizer Institute (TFI), comments submitted by Jim Skillen on a draft of this Sector Notebook, September 1999.

United Nations Environment Programme, *Mineral Fertilizer Production and the Environment*, Technical Report N.26, United Nations Industrial Development Organization, 1996.

United States Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors (AP-42)*, Fifth edition, EPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, July 1993a.

United States Environmental Protection Agency, *Development Document for Best Available Technology, Pretreatment Technology, and New Source Performance Technology for the Pesticide Formulating, Packaging, and Repackaging Industry- Final*, EPA, Office of Water, Washington, DC, September 1996.

United States Environmental Protection Agency, *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Basic Fertilizer Chemicals Segment of the Fertilizer Manufacturing Point Source Category*, EPA, Office of Air and Water Programs, Washington, DC, March 1974.

United States Environmental Protection Agency, *Guides to Pollution Prevention, The Pesticide Formulating Industry*, Risk Reduction Engineering Laboratory and Center for Environmental Research Information, Office of Research and Development, February 1990.

United States Environmental Protection Agency, *Pesticide Industry Sales and Usage, 1994 and 1995 Market Estimates*, Office of Prevention, Pesticides and Toxic Substances, August 1997.

United States Environmental Protection Agency, *Report to Congress for Cement Kiln Dust*. Volume II: Methods and Findings. Springfield, VA: United States Department of Commerce, December 1993b.

United States Environmental Protection Agency, *1996 Toxics Release Inventory Database*.

Water Environment Federation, *Pretreatment of Industrial Wastes*, Manual of Practice FD-3, Alexandria, VA, 1994.

Section IV: Chemical Release and Transfer Profile

United States Environmental Protection Agency, *1996 Toxics Release Inventory Database*.

United States Environmental Protection Agency, *1995 Toxics Release Inventory Database*.

United States EPA Office of Air and Radiation, AIRS Database, 1997.

United States Environmental Protection Agency, *1995 Toxics Release Inventory Public Data Release*, United States EPA Office of Pollution Prevention and Toxics, April 1997. (EPA 745-R-97-005)

Section V: Pollution Prevention Opportunities

California Fertilizer Association, *Dry and Liquid Fertilizer Handling Guidelines for Retail Fertilizer Facilities*, CFA, http://www.calfertilizer.org/fertguide.html, November 1996.

Hunt, Gary, et. al., eds. *Case Summaries of Waste Reduction by Industries in the Southeast.* Waste Reduction Resource Center for the Southeast, North Carolina department of Natural Resources and Community Development, Raleigh, NC, July 1989.

Preventing Pollution in the Chemical Industry, Five Years of Progress, Chemical Manufacturers Association, 1993.

United Nations Environment Programme, *Mineral Fertilizer Production and the Environment*, Technical Report N.26, United Nations Industrial Development Organization, 1996.

United States Environmental Protection Agency, *Development Document for Best Available Technology, Pretreatment Technology, and New Source Performance Technology for the Pesticide Formulating, Packaging, and Repackaging Industry- Final*, EPA, Office of Water, Washington, DC, September 1996.

United States Environmental Protection Agency, *Guides to Pollution Prevention, The Pesticide Formulating Industry*, EPA, Center for Environmental Research Information, Cincinnati, February 1990.

Section VI: Summary of Applicable Federal Statutes and Regulations

Haugrud, K. Jack. "Agriculture," Chapter 8 in *Sustainable Environmental Law, Integrating Natural Resource and Pollution Abatement Law from Resources to Recovery*, Environmental Law Institute, St. Paul, 1993.

Landfair, Stanley W. "Toxic Substances Control Act," Chapter 11 in *Environmental Law Handbook*, 12th ed., Government Institutes, Inc., Rockville, MD, 1993.

Miller, Marshall E. "Federal Regulation of Pesticides," Chapter 13 in *Environmental Law Handbook*, 12th ed., Government Institutes, Inc., Rockville, MD, 1993.

Section VII: Compliance and Enforcement History

United States Environmental Protection Agency, Data obtained from EPA's *Integrated Data for Enforcement Analysis (IDEA)* system in 1997.

Section VIII: Compliance Activities and Initiatives

Agricultural Retailers Association, *Retailer Facts by FAX*, ARA Weekly, November 7, 1997.

Center for Environmental and Regulatory Information Services. <http://www.ceris.purdue.edu>

Jaszczak, Sandra, ed. *Gale Encyclopedia of Associations.* 31st ed., International Thomson Publishing Co., 1996.

United States Environmental Protection Agency, 33/50 Program Office, 1997.