
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 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.³ 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

³ 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).

records from EPA's databases. This allows retrieval of records from across 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 Response, Compensation, and Liability Information System, Office of Solid Waste and Emergency Response), and TRIS (Toxics 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 Toxic Release Inventory (TRI) reporters within the listed SIC code range. For industries not covered under TRI reporting requirements (oil and gas extraction, 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. 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. Oil and Gas Extraction Industry Compliance History

Table 14 provides an overview of the reported compliance and enforcement data for the oil and gas extraction industry over the past five years (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.

- Over half of the inspections (3,094) and a majority of the enforcement actions (175) during the five year period were conducted in Region VI, which comprises Texas, Oklahoma, Louisiana, New Mexico, and Arkansas. More than half of the oil and gas production activity for the nation is centered in these states.
- Region II has among the fewest facilities, but held the most inspections per facility (an average of an inspection per 12 months at each facility) and had the highest enforcement to inspection ratio (0.17).
- Region VIII had the least frequent inspections (an average of 69 months between inspections) and one of the lowest enforcement to inspection ratios (0.04).
- Nearly 80 percent of the enforcement actions were state-led. The only Region where the majority of actions were federally-led was Region X, in which many oil fields are on Federal land in Alaska.

Table 14: Five-Year Enforcement and Compliance Summary for the Oil and Gas 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	2	5	36	0	0	0%	0%	--
II	20	12	100	12	2	17	94%	6%	0.17
III	100	26	159	38	6	7	100%	0%	0.04
IV	179	107	590	18	0	0	0%	0%	--
V	66	35	166	24	2	2	50%	50%	0.01
VI	2,666	1,097	3,094	52	93	175	75%	25%	0.06
VII	50	27	114	26	0	0	0%	0%	--
VIII	1,291	432	1,120	69	18	49	84%	16%	0.04
IX	208	124	584	21	20	48	96%	4%	0.08
X	93	40	139	40	8	11	18%	82%	0.08
TOTAL	4,676	1,902	6,071	46	149	309	79%	21%	0.05

VII.B. Comparison of Enforcement Activity Between Selected Industries

Tables 15 and 16 allow the compliance history of the oil and gas sector to be compared to the other industries covered by the industry sector notebooks. Comparisons between Tables 15 and 16 permit the identification of trends in compliance and enforcement records of the various industries 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.

- Oil and gas extraction facilities are inspected much less frequently (46 months between inspections on average) than facilities in most other industries included in the following tables, and the enforcement to inspection ratio (0.05) is among the lowest of the included industries.
- Oil and gas extraction facilities have the lowest percentage of facilities with one or more violations (15 percent) and have one of the lowest percentages of facilities with enforcement actions (three percent).
- The one-year enforcement to inspection ratio (0.03) is significantly less than the five-year ratio (0.05), indicating that enforcement actions may be becoming less frequent per given number of inspections.

Tables 17 and 18 provide a more in-depth comparison between the oil and gas extraction industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in the previous Tables (Tables 15 and 16), the data cover the last five years (Table 17) and last one year (Table 18) to facilitate the identification of recent trends. A few points evident from the data are listed below.

- The vast majority of both inspections and actions were performed under the Clean Air Act, much more so than in other industries.
- RCRA accounted for a relatively low percentage of the industry's inspections and enforcement actions compared to other industries.
- The inspections performed under RCRA yielded proportionately more actions than those performed under either CAA or CWA.

Table 15: 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
Aerospace	237	184	1,206	12	67	127	75%	25%	0.10
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
Drv Cleaning	6,063	2,360	3,813	95	55	66	95%	5%	0.02

Table 16: One-Year Enforcement and Compliance Summary for Selected Industries

A Industry Sector	B Facilities in Search	C Facilities Inspected	D Number of Inspections	E Facilities with 1 or More Violations		F Facilities with 1 or more Enforcement Actions		G Total Enforcement Actions	H Enforcement to Inspection Rate
				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
Aerospace	237	119	216	105	88%	8	7%	11	0.05
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 17: 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 Mammade 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%
Aerospace	184	1,206	127	34%	38%	10%	11%	54%	42%	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 18: 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%
Aerospace	119	216	11	37%	36%	7%	0%	54%	55%	1%	9%
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* publications for FY 1996, FY 1997, and FY 1998 and a U.S. Department of Justice press release, seven significant enforcement actions have been resolved recently for the oil and gas extraction industry.

Three cases involved violations of the Clean Water Act. Two cases involved violations of National Pollution Discharge Elimination System (NPDES) discharge limits. The Cook Inlet Oil and Gas Platforms (owned by Marathon, Shell, and Unocal) agreed to pay \$212,000 for allegedly violating NPDES permits for 18 offshore platforms in Cook Inlet, Alaska. In a separate settlement, BP Exploration, Inc. agreed to pay \$59,900 in response to an administrative complaint that the levels of fecal coliform bacteria, BOD, TRC, pH and flow were beyond its NPDES permit levels between January 1992 and October 1995.

The CWA violation settled in U.S. v. Berry Petroleum was part of a multi-agency (federal and state) case relating to a crude oil spill of 2,000 barrels from an oil production facility in a wetland area located adjacent to a California state beach. The spill contaminated the wetlands, adjacent ocean, and nearby beaches. It was determined that the spill occurred, in large part, because the facility failed to implement its EPA-mandated SPCC plan. Berry Petroleum paid \$800,000 to EPA for the CWA violation in addition to \$1.06 million in penalties to the California Regional Water Quality Control Board, the U.S. Fish and Wildlife Service, and other federal and state agencies. Berry also transferred \$1,315,000 to a trust fund administered by the National Fish and Wildlife Foundation that will be used for long term restoration of the site.

A settlement in U.S. (Sac and Fox Nation) v. Tenneco Oil Company was reached over an alleged SDWA violation. Surface and groundwater on land of the Sac and Fox Nation was contaminated near areas of oil leases maintained by Tenneco between 1924 and 1989. Tenneco is required to provide the Sac and Fox Nation with a potable water supply of 207 sustainable gallons per minute and \$1.16 million in cash. The overall dollar value of the settlement is over \$3.5 million.

An alleged CAA violation was settled with Vastar Resources, Inc. and ARCO, regarding their facility on the Southern Ute Indian Reservation in La Plata County, CO. Vastar (the current owner) and ARCO (the previous owner) failed to install pollution control equipment on gas production engines at the facility. The results were large emissions of carbon monoxide (CO) and savings of \$657,412 on the part of Vastar by operating the equipment without the required air emission controls. Vastar complied with EPA self-policing policies, and as a result the company only paid \$137,949 plus \$247,000 for the pollution control equipment. Although ARCO came forward at the same time as Vastar, it did not report the emissions while it owned the facility, and as a result did not meet EPA's self-disclosure standards. ARCO did not admit to the allegations, but settled for \$519,463, which includes money saved from not using the equipment plus a penalty.

In September 1999, the Department of Justice announced that BP Exploration (Alaska) Inc. pleaded guilty to one felony count related to the illegal disposal of hazardous waste on Alaska's North Slope in violation of CERCLA. BP Exploration had contracted with Doyan Drilling Inc. to drill production wells on Endicott Island. Between 1993 and 1995 Doylan employees illegally injected wastes down the outer rim, or annuli, of the oil wells. BP Exploration failed to report the illegal injections as soon as it learned of the conduct. The wastes included paint thinner and toxic solvents containing lead and chemicals such as benzene, toluene, and methyl chloride. BP Exploration was fined \$500,000 and agreed to spend a total of \$22 million to resolve the criminal case and related civil claims. The civil settlement requires BP Exploration to pay \$6.5 million in penalties to resolve allegations that BP illegally disposed of the hazardous waste and violated the Safe Drinking Water Act. Also under the terms of the agreement, BP Exploration will establish an environmental management system at all of BP Amoco's facilities in the U.S. and Gulf of Mexico that are engaged in the exploration, drilling, or production of oil (U.S. Department of Justice, September 23, 1999).

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 the SEP National Database, es.epa.gov/oeca/sep/. This information is not comprehensive and provides only a sample of the types of SEPs developed for the oil and gas extraction industry.

One agreement was listed for SIC code 13. George Perry Exploration and Production, in Oceana County, MI, performed a SEP in response to violations

of sections 1421 and 1422 of SDWA, in which the company violated the state underground injection control (UIC) program regulations and failed to submit an application for implementation of a UIC program. As a pollution reduction SEP, the company plugged three abandoned production wells to prevent the possible contamination of underground sources of drinking water. The cost of the project was valued at \$6,000.

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

VIII.A.1. Federal Activities

EPA Regional Compliance and Enforcement Activities

Several significant regional activities relating to the oil and gas extraction industry were reported in the 1997 Enforcement and Compliance Assurance Reports. Region VI provided assistance to offshore oil and gas exploration and production facilities with regard to NPDES permits. Region VI sent reporting forms to more than 2,000 facilities for compliance monitoring and reporting of the effluent quality of wastewater discharges from offshore platforms to the Gulf of Mexico. General permitting and reporting questions were explained to increase compliance through approximately 300 telephone conversations with facility operators, consultant, and state and federal agencies. Finally, a presentation on NPDES Offshore General Permit compliance and enforcement was given to approximately 100 permittees in Dallas. Partially as a result of these efforts, the compliance reporting rate is approximately 98 percent.

Region VI also created a work group that addressed the compliance and reporting of over 3,000 injection wells operated by 500 to 600 oil producers in the Osage Mineral Reserve. The group created *Osage Operators' Environmental Handbook* and *Osage Operators' Environmental Manual*, in order to assist small oil producers in complying with Bureau of Indian Affairs (BIA) and EPA requirements.

Region VIII, the U.S. Fish and Wildlife Service (USFWS) and associated states implemented a pilot program regarding problem oil pits (POPs). POPs are open-air pits along with tanks and associated spills at drilling and production sites that lack devices (such as proper netting) to prevent birds from landing on (and becoming stuck in) the layer of oil. This program seeks to address impacts to ground water and surface water as well as impacts to wildlife. The program cooperated with federal and state regulators (Bureau of Land Management, state environmental agencies, and state oil and gas commissions) to perform aerial surveys and ground surveys of oil pits in Colorado, Montana, and Wyoming. The states had the lead whenever

possible. It was found that a large number of the pits would be considered POPs and were in noncompliance with applicable federal and state statutes or regulations. To address the high rate of noncompliance, the relevant agencies are mobilizing to offer compliance assistance, informal enforcement, or formal enforcement. All EPA Region VIII states have been completed for this POP effort except Utah, which is planned for completion in 1999 and EPA regions 5 and 7 are pursuing POP programs.

U.S. Department of Energy Oil and Gas Environmental Research and Analysis Program

The Office of Fossil Energy of the Department of Energy (DOE) has initiated several programs that address environmental and regulatory issues in the oil and gas industry. The efforts primarily center around streamlining regulatory procedures that affect the industry and performing research on cost-effective environmental compliance technologies.

The regulatory streamlining efforts attempt three major tasks: coordinating the many federal and state agencies involved with oil and gas regulation, including EPA, the Bureau of Land Management (BLM), and relevant state agencies; incorporating more risk-based decision making into regulatory, enforcement, and compliance decisions; and reducing impediments to technology implementation.

In its efforts to coordinate regulatory agencies, DOE worked with a group including the Interstate Oil and Gas Compact Commission (IOGCC), BLM, industry, and environmental groups to standardize permit applications in different states and on federal lands. The group also identified seven areas of regulatory responsibility that could be transferred from federal to state agencies to reduce overlapping activities within states.

DOE is also attempting to broaden the use of risk-based decision making. In one project, DOE is working with California, Kansas, and Oklahoma to expand exemptions for costly Area of Review (AOR) analyses of surrounding areas prior to the permitting of a disposal or injection well. AOR analyses investigate the potential of aquifer contamination by a proposed disposal well; new DOE methodology would limit the necessity of AOR studies in areas predetermined to have little risk.

The DOE environmental program also works to remove impediments to technology implementation. An example is shown in the case of newly developed synthetic drilling fluids, which show promise in increasing drilling efficiency and safety, particularly in deepwater drilling. Existing EPA regulations, however, limit their use. In 1994, DOE worked with industry and EPA to re-evaluate the regulations that affect these synthetic fluids. Consequently, EPA is in the process of revising regulations to clarify the

terms under which industry may be allowed to use the technology. The use of these fluids could save the industry over \$50 million annually.

Finally, DOE is assisting in the development of pollution prevention and waste management technologies. DOE's Sandia National Laboratories are developing a laser-equipped camera that can detect methane leaks in pipes. Argonne National Laboratory is undertaking a study to determine whether naturally occurring radioactive material (NORM), which may be found in well fluids, can be disposed of on-site in some locations, in order to reduce disposal costs. DOE also performs or funds research on produced water disposal; this includes further investigation into underground injection systems and development of a treatment for produced water into potable water in arid regions such as California. (Contact: www.fe.doe.gov/oil_gas/oilgas7.html or William Hochheiser, Environmental Scientist, at (202) 586-5614 or e-mail william.hochheiser@hq.doe.gov.)

U.S. EPA Voluntary Self-Disclosure Policy

In 1996, EPA adopted its final policy on incentives for self-evaluation and self-disclosure of violations. Through this policy, the Agency aims to protect public health and the environment by reducing civil penalties and not recommending criminal prosecution for regulated entities that voluntarily discover, disclose and correct violations under the environmental laws that EPA administers.

Under the final policy, where violations are found through voluntary environmental audits or efforts that reflect a regulated entity's due diligence (i.e., systematic efforts to prevent, detect and correct violations, as defined in the policy), and all of the policy's conditions are met, EPA will not seek gravity-based penalties and will generally not recommend criminal prosecution against the company if the violation results from the unauthorized criminal conduct of an employee. Where violations are discovered by means other than environmental audits or due diligence efforts, but are promptly disclosed and expeditiously corrected, EPA will reduce gravity-based penalties by 75 percent provided that all of the other conditions of the policy are met. EPA retains its discretion to recover economic benefit gained as a result of noncompliance, so that companies won't be able to obtain an economic advantage over their competitors by delaying their investment in compliance.

In addition to prompt disclosure and correction, the policy requires companies to prevent recurrence of the violation and to remedy any environmental harm. Repeated violations or those which may have presented an imminent and substantial endangerment or resulted in serious harm are excluded from the policy's coverage. Corporations remain criminally liable for violations

resulting from conscious disregard of their legal duties, and individuals remain liable for criminal wrongdoing.

Although the final policy restates EPA's practice of not routinely requesting environmental audit reports, it does contain two provisions ensuring public access to information. First, EPA may require as a condition of penalty mitigation that a description of the regulated entity's due diligence efforts be made publicly available. Second, where EPA requires that a regulated entity enter into a written agreement, administrative consent order or judicial consent decree to satisfy the policy's conditions, those agreements will be made publicly available.

VIII.A.2. State Activities

The oil and gas industry is primarily regulated at the state level. Four organizations are discussed in this section that strongly influence state compliance assurance and waste minimization initiatives. Interstate Oil and Gas Compact Commission (IOGCC) coordinates oil and gas issues among oil and gas producing states, including environmental concerns. State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER, Inc.) is a non-profit corporation that develops guidelines for state oil and gas production waste regulatory programs and coordinates state reviews. The Ground Water Protection Council (GWPC) brings together state and federal regulators, industry, and others to address both underground injection control and groundwater protection issues. Finally, the Waste Minimization Program of the Texas Railroad Commission is in many ways a model for other states in disseminating cost-effective waste minimization solutions. While many states have waste minimization programs for underground injection wells, the Texas Railroad Commission has a unique structure among state governments of oil producing states as the regulator of nearly every aspect of the oil and gas extraction industry. The Waste Minimization Program therefore has a wider reach over the industry in the state.

Interstate Oil and Gas Compact Commission (IOGCC)

The IOGCC is an organization of the governors of 30 member states and seven associate states concerned with many aspects of the oil and gas industry. The primary purpose of the compact is to conserve oil and gas by the prevention of physical waste. IOGCC advocates for the rights of the states to govern oil and gas issues within their own borders, and coordinates regulatory efforts among the states to protect oil and gas resources and protect the environment. The organization serves as a forum for government, industry, environmentalists and others to share information and voice opinions on a wide range of topics.

Specifically relating to environmental issues, IOGCC is active in developing state regulatory standards, guidelines, and models for many aspects of the oil and gas industry, including bioremediation, waste disposal, waste minimization, beneficial use of waste, water and air quality, and abandoned sites. One of the most prominent of the IOGCC's efforts with respect to environmental issues has been the development of guidelines and reviews of state extraction and production waste management regulatory programs. Seventeen states representing over 90 percent of the onshore production in the United States have undergone these reviews, and summaries of the reviews are published in individual reports. These reports, in addition to other IOGCC publications, are an excellent source of state-specific regulations and programs. State reviews can be obtained from IOGCC by calling (405) 525-3556, and from the IOGCC Website at: www.iogcc.oklaosf.state.ok.us/. Since mid-1999, the state review program has been managed by STRONGER, Inc., a non-profit organization. Also, the IOGCC, through its annual Environmental Stewardship Awards recognizes major and independent operators that are performing environmentally beneficial projects.

State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER, Inc.)

The state review process described above, established by IOGCC, developed guidelines for state oil and gas exploration and production waste regulatory programs and coordinated reviews of state programs until 1997, when the process was terminated. During 1998, several meetings of interested stakeholders were conducted to determine how the process could be revitalized. In early 1999, the IOGCC proposed to EPA that the program be managed by a separate group of stakeholders equally representing the states, industry, and environmental organizations. Such a group was formed, and in June, 1999, was incorporated as a non-profit corporation, State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER, Inc.). STRONGER, Inc. develops updated and revised guidelines for adoption by IOGCC and coordinates state reviews. Guidelines, documents and state review reports are published and distributed by IOGCC. State participation in STRONGER, Inc. is coordinated through the IOGCC State Review Committee.

Ground Water Protection Council (GWPC)

The Ground Water Protection Council (GWPC) is a nonprofit organization whose members consist of state and federal ground water agencies, industry representatives, environmentalists, and concerned citizens. The council seeks to promote and ensure the use of best management practices and fair but effective laws regarding comprehensive ground water protection. The GWPC works with the oil and gas industry via its UIC Class II Division. GWPC can

be contacted by calling (405) 516-4972 or visiting their website at <http://gwpc.site.net/>.

Texas Waste Minimization Program

The Waste Minimization Program, run by the Texas Railroad Commission, is a voluntary program intended to provide oil and gas well operators with cost effective waste minimization solutions. The program serves as a technology transfer clearinghouse for information on specific waste streams, such as fugitive VOCs or produced water. The program also performs several forms of outreach:

- A manual outlining general techniques, *Waste Minimization in the Oil Field*.
- One-day workshops.
- A *Waste Minimization Newsletter*, which illustrates case studies of cost-effective programs implemented by operators (the newsletter is published two or three times a year).
- On-site assistance to help operators assess their operations and to develop individualized waste minimization programs.
- WasteMin, an easy-to-use waste minimization planning software package.

The program focuses on discovering and spreading innovative techniques that will add revenue for operators in addition to reducing environmental impacts. (Contact: Jack Ward, (512) 475-4580, or www.rrc.state.tx.us/divisions/og/key-programs/ogkwast.html.)

VIII.B. EPA Voluntary Programs

Natural Gas STAR

Natural Gas STAR is a voluntary partnership between EPA and the natural gas industry that was formed to find cost-effective ways of reducing emissions of methane. Methane is a significant concern with regard to the climate change issue; it is second only to carbon dioxide as a component of so-called “greenhouse gases.”

Fugitive emissions from the natural gas industry are a substantial source of anthropogenic methane. Natural Gas STAR has two programs: one focusing on production and the other concentrating on distribution and transmission.

The program for producers was launched in 1995, and participants represent approximately 35 percent of the U.S. natural gas production. The primary goals of the producers program are to promote technology transfer and implement best management practices (BMPs) that are cost-effective and that reduce methane emissions. Partners perform the following:

- Submit and execute BMP implementation plans
- Assist in the testing of emerging technologies
- Design new facilities to include BMPs when cost effective.

EPA serves to facilitate the transfer of new technology between members, perform outreach to inform and attract non-members, and address regulatory barriers that may threaten BMP implementation.

By mid-1998, partners had prevented the release of roughly 50 billion cubic feet (Bcf) of methane, worth approximately \$100 million. The program has achieved this mark and plans to continue improvements by holding workshops for satellite offices of both member and non-member companies and updating members on new developments through newsletters and reports, among other activities. (Contact: www.epa.gov/gasstar or Paul Gunning at (202) 564-9736).

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 joined the 33/50 Program (representing over 6,000 facilities) and 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.

Table 19 lists those companies participating in the 33/50 program that reported four-digit SIC codes within 13 to TRI. Some of the companies shown also listed facilities that are not producing oil and gas. The number of facilities within each company that are participating in the 33/50 program and that report oil and gas extraction SIC codes is shown.

Since oil and gas facilities are not currently required to report to TRI under EPCRA section 313 reporting requirements (TRI), only a few oil and gas extraction companies participated in the 33/50 program. 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. In each case, the participating oil and gas extraction operations of the partner companies performed significantly better than the company-wide goals, and nearly all facilities attained greater than 50 percent reductions in 33/50 chemicals.

Table 19 shows that six companies comprised of 80 facilities reporting SIC 13 participated in the 33/50 program. For those companies shown with more than one oil and gas facility, all facilities may not have participated in 33/50. The 33/50 goals shown for companies with multiple oil and gas facilities, however, are company-wide, potentially aggregating more than one facility and facilities not carrying out oil and gas extraction operations. In addition to company-wide goals, individual facilities within a company may have had their own 33/50 goals or may be specifically listed as not participating in the 33/50 program. Since the actual percent reductions shown in the last column apply to all of the companies' oil and gas facilities and only oil and gas facilities, direct comparisons to those company goals incorporating non-oil and gas facilities may not be possible. For information on specific facilities participating in 33/50, or to review case studies on corporate accomplishments in reducing waste contact David Sarokin, (202) 260-6907, at the 33/50 Program Office.

With the completion of the 33/50 program, several lessons were learned. Industry and the environment benefitted by this program for several reasons. Companies were willing to participate because cost savings and risk reduction were measurable and no additional record keeping and reporting was required. The goals of the program were clear and simple and EPA allowed industry to achieve the goals in whatever manner they could. Therefore, when companies can see the benefits of environmental programs and be an active part of the decision-making process, they are more likely to participate.

Table 19: Oil and Gas Industry Participation in the 33/50 Program

Parent Company (Headquarters Location)	Company-Owned Oil and Gas Facilities Reporting 33/50 Chemicals	Company- Wide % Reduction Goal ¹ (1988-1995)	1988 TRI Releases and Transfers of 33/50 Chemicals (pounds)	1995 TRI Releases and Transfers of 33/50 Chemicals (pounds)	Actual % Reduction for Oil and Gas Facilities (1988-1995)
Amerada Hess Corp. New York, NY	4	50%	2,241,601	567,251	75%
Atlantic Richfield Co. Los Angeles, CA	11	23%	835,443	451,818	46%
Dresser Industries, Inc. Dallas, TX	10	47%	230,202	17,578	92%
Exxon Corp. Irving, TX	17	50%	5,155,264	2,159,535	58%
Texaco, Inc. White Plains, NY	14	49%	713,136	251,152	65%
USX Corp. Pittsburgh, PA	24	25%	9,873,833	1,246,246	87%
TOTAL	80	--	19,049,479	4,693,580	75%

Source: U.S. EPA, OPPTS, 33/50 Program 1998

¹ Company-Wide Reduction Goals aggregate all company-owned facilities which may include facilities not involved with oil and gas production.

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: www.epa.gov/ProjectXL, or Christopher Knopes in EPA's Office of Reinvention, (202) 260-9298).

Energy Star® Buildings and Green Lights® Partnership

In 1991, EPA introduced Green Lights®, a program designed for businesses and organizations to proactively combat pollution by installing energy-efficient lighting technologies in their commercial and industrial buildings. In April 1995, Green Lights® expanded into Energy Star® Buildings-- a strategy that optimizes whole-building energy-efficiency opportunities.

The energy needed to run commercial and industrial buildings in the United States produces 19 percent of U.S. carbon dioxide emissions, 12 percent of nitrogen oxides, and 25 percent of sulfur dioxide, at a cost of 110 billion dollars a year. If implemented in every U.S. commercial and industrial building, Energy Star® Buildings' upgrade approach could prevent up to 35 percent of the emissions associated with these buildings and cut the nation's energy bill by up to 25 billion dollars annually.

The over 2,500 participants include corporations, small businesses, universities, health care facilities, nonprofit organizations, school districts, and federal and local governments. As of January 1, 1998, Energy Star® Buildings and Green Lights® Program participants have reduced their annual energy use by 7 billion kilowatt hours and annually save more than 517 million dollars. By joining, participants agree to upgrade 90 percent of their owned facilities with energy-efficient lighting and 50 percent of their owned facilities with whole-building upgrades, where profitable, over a seven-year period. Energy Star participants first reduce their energy loads with the Green Lights approach to building tune-ups, then focus on "right sizing" their heating and cooling equipment to match their new energy needs. EPA predicts this strategy will prevent more than 5.5 MMTCE of carbon dioxide by the year 2000. EPA's Office of Air and Radiation is responsible for operating the Energy Star Buildings and Green Lights Program. (Contact the Energy Star Hotline number, (888) STAR-YES ((888) 872-7937) or Maria Tikoff Vargas, Co-Director at (202) 564-9178 or visit the website at www.epa.gov/buildings.)

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 1998, the program had about 700 business, government, and institutional partners. Partners agree to identify and implement actions to reduce their solid wastes setting waste reduction goals and providing EPA with yearly progress reports for a three year period. EPA, in turn, provides partners with technical assistance,

publications, networking opportunities, and national and regional recognition. (Contact: WasteWi\$e Hotline at (800) 372-9473).

NICE³

The U.S. Department of Energy sponsors a grant program called *National Industrial Competitiveness through Energy, Environment, and Economics* (NICE³). The NICE³ program provides funding to state and industry partnerships (large and small business) for projects demonstrating advances in energy efficiency and clean production technologies. The goal of the NICE³ program is to demonstrate the performance and economics of innovative technologies in the U.S., leading to the commercialization of improved industrial manufacturing processes. These processes should conserve energy, reduce waste, and improve industrial cost-competitiveness. Industry applicants must submit project proposals through a state energy, pollution prevention, or business development office. The following focus industries, which represent the dominant energy users and waste generators in the U.S. manufacturing sector, are of particular interest to the program: Aluminum, Chemicals, Forest Products, Glass, Metal-casting, and Steel. Awardees receive a one-time, three-year grant of up to \$400,000, representing up to 50 percent of a project's total cost. In addition, up to \$25,000 is available to support the state applicant's cost share. (Contact: www.oit.doe.gov/Access/nice3, Steve Blazek, DOE, (303) 275-4723 or Eric Hass, DOE, (303) 275-4728)

Design for the Environment (DfE) Program

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 www.epa.gov/dfe.

Small Business Compliance Assistance Centers

The Office of Compliance, in partnership with industry, academic institutions, environmental groups, and other federal and state agencies, has established national Compliance Assistance Centers for nine specific industry sectors heavily populated with small businesses that face substantial federal regulation. These sectors are printing, metal finishing, automotive services and repair, agriculture, commercial transportation, paint and coating

applications, the printed wiring board industry, municipalities and small chemical manufacturers.

The purpose of the Centers is to improve compliance of the customers they serve by increasing their awareness of the pertinent federal regulatory requirements and by providing the information that will enable them to achieve compliance. The Centers accomplish this by offering the following:

- “First-Stop Shopping” - serve as the first place that small businesses and technical assistance providers go to get comprehensive, easy to understand compliance information targeted specifically to industry sectors.
- “Improved Information Transfer” - via the Internet and other means, create linkages between the small business community and providers of technical and regulatory assistance and among the providers themselves to share tools and knowledge and prevent duplication of efforts.
- “Compliance Assistance Tools” - develop and disseminate plain-English guides, consolidated checklists, fact sheets, and other tools where needed by small businesses and their information providers.
- “Links Between Pollution Prevention and Compliance Goals” - provide easy access to information and technical assistance on technologies to help minimize waste generation and maximize environmental performance.
- “Information on Ways to Reduce the Costs of Compliance” - identify technologies and best management practices that reduce pollution while saving money.

For general information regarding EPA’s compliance assistance centers, contact Tracy Back at (202) 564-7076.

VIII.C. Trade Association/Industry Sponsored Activity

VIII.C.1. Industry Research Programs

American Petroleum Institute- Strategies for Today’s Environmental Partnership (STEP)

The STEP (Strategies for Today’s Environmental Partnership) program was developed by API member companies to address public environmental concerns by improving the industry’s environmental, health, and safety performance; documenting performance improvements; and communicating

them to the public. The foundation for STEP is the API Environmental Mission and the API Guiding Environmental Principles. The program also includes a series of environmental strategic plans; a review and revision of existing industry standards; documentation of industry environmental, health, and safety performance; and mechanisms for obtaining public input. In 1992, API endorsed, as part of STEP, adoption of management practices as an API recommended practice. The management practices contain the following elements: pollution prevention, operating and process safety, community awareness, crisis readiness, product stewardship, proactive government interaction, and resource conservation. The management practices are an outline of actions to help companies incorporate environmental health and safety concerns into their planning and decision making. Each company will make its own decisions on how and whether to change its operations. API has developed a compilation of resources that provide recommendations and guidance on various operational areas of the oil industry to assist API members with their implementation of the management practices.

STEP is a program of the American Petroleum Institute (API) that strives to improve and promote the industry's commitment to environmental, health, and safety issues. The program encompasses many projects performed by member companies, plus research performed by API. STEP is involved with environmental issues on two fronts: research, and communications with both member companies and external entities.

STEP sponsors a wide range of research on environmental issues, including studies on releases, exposure assessments, and pollution prevention assessments. In many cases, the data leads toward the setting of API industry standards, which are often cited in EPA regulations.

The program also serves to disseminate information about environmental and health issues to the public. An example is the *Petroleum Industry Environmental Performance Annual Report*, which presents statistics on the progress of the industry in reducing its environmental impacts.

API's Upstream Department undertakes a range of activities focused on environmental issues facing the oil and gas extraction industry. Sponsored research may identify available, cost-effective techniques for control of emissions or remediation of a spill. Workshops are sponsored to assist companies (both members and nonmembers) in complying with new regulations or applying new technologies. As an example, API sponsored research on the remediation of soils affected by salt resulting from decades-old discharges or more recent spills of produced water. From this research has grown a series of workshops to transfer this information to companies and state agencies working to address these sites.

Gas Research Institute (GRI)

The Gas Research Institute is headquartered in Chicago and manages a cooperative research, development, and commercialization program for the mutual benefit of the natural gas industry. GRI works with research organizations, manufacturers and its member companies to develop gas technologies and to transfer new products and information to the marketplace.

GRI has published studies of waste generation and management in the natural gas industry. “Waste Minimization in the Natural Gas Industry: Regulations, Methodology, and Assessment of Alternatives” is of particular interest. The publication provides a thorough overview of waste generation in the industry and methods for minimizing many of the waste streams. (Contact: www.gri.org/ or (773) 399-8100.)

VIII.C.2. Trade Associations

American Petroleum Institute (API) 1220 L Street, NW Washington, DC 20005 Phone: (202) 682-8000 Fax: (202) 962-4797	Members: 500 Staff: 300 Budget: \$40,000,000 Contact: Mark Rubin www.api.org/
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The American Petroleum Institute (API) is the largest trade group for the oil and gas industry, with the largest membership and budget. API represents major oil companies, and independent oil producers, refiners, marketers, and transporters of crude oil, lubricating oil, gasoline, and natural gas. API conducts and promotes research in the oil and gas industry and collects data and publishes statistical reports on oil production and refining. Numerous manuals, booklets, and other materials are published on oil and gas exploration and production.

Independent Petroleum Association of America (IPAA) 1101 16th St., NW Washington, DC 20036 Phone: (202) 857-4722 Fax: (202) 857-4799	Members: 6,000 Staff: 25 Contact: Gil Thrum www.ipaa.org/
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IPAA was founded in 1929 to represent small oil and natural gas producers in legislative and regulatory issues at the federal level. Its members are principally well operators and royalty owners, plus others involved in the industry such as suppliers, and drilling contractors. IPAA collects production, consumption, and economic data on the industry and publishes documents including *The Oil and Natural Gas Producing Industry in Your State*.

Society of Petroleum Engineers (SPE) PO Box 833836 Richardson, TX 75083-3836 Phone: (214) 952-9393 Fax: (214) 952-9435	Members: 53,000 Staff: 92 Budget: \$15,000,000 Regional Groups: 13 Local Groups: 137 Contact: Dan K. Adamson www.spe.org/
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SPE was founded in 1922 to serve petroleum engineers involved with oil and gas exploration and production. The organization has 53,000 members and a budget of \$15 million. SPE publishes several journals and books, including the monthly *Journal of Petroleum Technology*, that report on reservoir characterization and management methods and industry statistics.

Association of Oilwell Servicing Contractors (AOSC) 6060 N. Central Expy., Ste. 428 Dallas, TX 75206 Phone: (214) 692-0771 Fax: (214) 692-0162	Members: 600 Staff: 4 Budget: \$500,000 Regional Groups: 16 Contact: M.L. Clark
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AOSC was founded in 1956, and represents oil well servicing and workover contractors, equipment manufacturers, and others related to the well servicing industry. The organization publishes the monthly *AOSC Newsletter*, which includes industry news, rig activity information, and legislative updates, and *Well Servicing*, a bimonthly journal that includes articles on new technology, equipment and products.

Mid-Continent Oil and Gas Association (MCOGA) 801 Pennsylvania Ave NW, Ste. 840 Washington, DC 20004-2604 Phone: (202) 638-4400 Fax: (202) 638-5967	Members: 7,500 Staff: 6 State Groups: 4 Contact: Albert Modiano
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The Mid-Continent Oil and Gas Association was founded in 1917 and represents oil and gas producers, royalty owners, refiners, gasoline manufacturers, transporters, drilling contractors, supply and equipment dealers and wholesalers, bankers, and other individuals interested in oil business.

Western States Petroleum Association (WSPA) 505 N. Brand Blvd., Ste. 1400 Glendale, CA 91203-1925 Phone: (818) 545-4105 Fax: (818) 545-0954	Members: 35 Staff: 32 Regional Groups: 4 Contact: Douglas Henderson www.wspa.org/
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The Western States Petroleum Association was founded in 1907 and represents companies involved with petroleum exploration, production, refining, transportation, and wholesale marketing in Arizona, California, Hawaii, Nevada, Oregon, and Washington. WSPA offers advisory services for industry members.

Offshore Operators Committee (OOC) P.O. Box 50751 New Orleans, LA 70150 Phone: (504) 593-7443 Fax: (504) 593-7544	Members: 110 Staff: 1 Contact: Mr. Virgil Harris e-mail: virgil_a_harris@cngp.cng.com
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OOC is an industry cooperative representing nearly all of the operators in the Gulf of Mexico. They sponsor research on the effects of oil and gas operations offshore and work with EPA on updates to offshore NPDES permits.

Petroleum Technology Transfer Council (PTTC) 1101 16th Street, NW, Suite 1-C Washington, DC 20036 Phone: (202) 785-2225 or (800)THE-PTTC Fax: (202) 785-2240	Regional Centers: 10 Contact: Deborah Rowell www.pttc.org/
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The Petroleum Technology Transfer Council (PTTC) was formed in 1994 by the U.S. oil and natural gas exploration and production industry to identify and transfer upstream technologies to domestic producers. PTTC's technology programs help producers reduce costs, improve operating efficiency, increase ultimate recovery, enhance environmental compliance, and add new oil and gas reserves. Through its 10 regional resource centers located at universities around the country, PTTC offers expert assistance, information resources, inter-disciplinary referrals, and demonstrations of E&P software solutions.

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IX. CONTACTS/ACKNOWLEDGMENTS/RESOURCE MATERIALS

For further information on selected topics within the oil and gas extraction industry, a list of contacts and publications are provided below.

Contacts⁴

Name	Organization	Telephone	Subject
Dan Chadwick	EPA/OECA (Office of Enforcement and Compliance Assurance)	(202) 564-7054	Compliance Assurance
Steve Souders	EPA/OSWER (Office of Solid Waste and Emergency Response)	(703) 308-8431	Oil and Gas Wastes
Dan Derkics	EPA/OSWER (Office of Solid Waste and Emergency Response)	(703) 308-8409	Oil and Gas Wastes
Bruce Kobelski	EPA/OW (Office of Water)	(202) 260-7275	Underground Injection
Tom Aalto	EPA/Region VIII	(303) 312-6949	RCRA / Problem Oil Pits
Ron Jordan	EPA/OW (Office of Water)	(202) 260-7115	NPDES Issues
Greg Nizich	EPA/OAQPS (Office of Air Quality Planning and Standards)	(919) 541-3078	Air Issues
Ralph Russell	DOE/EIA (Department of Energy, Energy Information Administration)	(214) 720-6196	Industry Processes
Mike Miller	Louisiana Department of Environmental Quality	(225) 765-0272	Industry Processes, State Waste Minimization Program
Charles Koch	North Dakota Industrial Commission, Oil and Gas Division	(701) 328-8020	Industry Processes
James Erb	Pennsylvania Department of Environmental Protection	(717) 772-2199	Industry Processes
Jack Ward	Texas Railroad Commission, Oil and Gas Division	(512) 475-4580	State Waste Minimization Programs, Pollution Prevention

⁴ 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.

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