

## VI. SUMMARY OF APPLICABLE FEDERAL STATUTES AND REGULATIONS

This section discusses the Federal regulations that may apply to this sector. The purpose of this section is to highlight, and briefly describe the applicable Federal requirements, and to provide citations for more detailed information. The three following sections are included.

- Section VI.A. contains a general overview of major statutes
- Section VI.B. contains a list of regulations specific to this industry
- Section VI.C. contains a list of pending and proposed regulations

The descriptions within Section VI are intended solely for general information. Depending upon the nature or scope of the activities at a particular facility, these summaries may or may not necessarily describe all applicable environmental requirements. Moreover, they do not constitute formal interpretations or clarifications of the statutes and regulations. For further information, readers should consult the Code of Federal Regulations and other state or local agencies. EPA Hotline contacts are also provided for each major statute.

### VI.A. General Description of Major Statutes

#### *Resource Conservation And Recovery Act*

The Resource Conservation And Recovery Act (RCRA) of 1976 which amended the Solid Waste Disposal Act, addresses solid (Subtitle D) and hazardous (Subtitle C) waste management activities. The Hazardous and Solid Waste Amendments (HSWA) of 1984 strengthened RCRA's waste management provisions and added Subtitle I, which governs underground storage tanks (USTs).

Regulations promulgated pursuant to Subtitle C of RCRA (40 CFR Parts 260-299) establish a "cradle-to-grave" system governing hazardous waste from the point of generation to disposal. RCRA hazardous wastes include the specific materials listed in the regulations (commercial chemical products, designated with the code "P" or "U"; hazardous wastes from specific industries/sources, designated with the code "K"; or hazardous wastes from non-specific sources, designated with the code "F") or materials which exhibit a hazardous waste characteristic (ignitability, corrosivity, reactivity, or toxicity and designated with the code "D").

Regulated entities that generate hazardous waste are subject to waste accumulation, manifesting, and record keeping standards. Facilities that treat, store, or dispose of hazardous waste must obtain a permit, either from

EPA or from a State agency which EPA has authorized to implement the permitting program. Subtitle C permits contain general facility standards such as contingency plans, emergency procedures, record keeping and reporting requirements, financial assurance mechanisms, and unit-specific standards. RCRA also contains provisions (40 CFR Part 264 Subpart S and §264.10) for conducting corrective actions which govern the cleanup of releases of hazardous waste or constituents from solid waste management units at RCRA-regulated facilities.

Although RCRA is a Federal statute, many States implement the RCRA program. Currently, EPA has delegated its authority to implement various provisions of RCRA to 46 of the 50 States.

Most RCRA requirements are not industry specific but apply to any company that transports, treats, stores, or disposes of hazardous waste. Here are some important RCRA regulatory requirements:

- **Identification of Solid and Hazardous Wastes** (40 CFR Part 261) lays out the procedure every generator should follow to determine whether the material created is considered a hazardous waste, solid waste, or is exempted from regulation.
- **Standards for Generators of Hazardous Waste** (40 CFR Part 262) establishes the responsibilities of hazardous waste generators including obtaining an ID number, preparing a manifest, ensuring proper packaging and labeling, meeting standards for waste accumulation units, and record keeping and reporting requirements. Generators can accumulate hazardous waste for up to 90 days (or 180 days depending on the amount of waste generated) without obtaining a permit.
- **Land Disposal Restrictions** (LDRs) are regulations prohibiting the disposal of hazardous waste on land without prior treatment. Under the LDRs (40 CFR 268), materials must meet land disposal restriction (LDR) treatment standards prior to placement in a RCRA land disposal unit (landfill, land treatment unit, waste pile, or surface impoundment). Wastes subject to the LDRs include solvents, electroplating wastes, heavy metals, and acids. Generators of waste subject to the LDRs must provide notification of such to the designated TSD facility to ensure proper treatment prior to disposal.
- **Used Oil** storage and disposal regulations (40 CFR Part 279) do not define **Used Oil Management Standards** impose management

requirements affecting the storage, transportation, burning, processing, and re-refining of the used oil. For parties that merely generate used oil, regulations establish storage standards. For a party considered a used oil marketer (one who generates and sells off-specification used oil directly to a used oil burner), additional tracking and paperwork requirements must be satisfied.

- **Tanks and Containers** used to store hazardous waste with a high volatile organic concentration must meet emission standards under RCRA. Regulations (40 CFR Part 264-265, Subpart CC) require generators to test the waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units. These regulations apply to all facilities who store such waste, including generators operating under the 90-day accumulation rule.
- **Underground Storage Tanks (USTs)** containing petroleum and hazardous substance are regulated under Subtitle I of RCRA. Subtitle I regulations (40 CFR Part 280) contain tank design and release detection requirements, as well as financial responsibility and corrective action standards for USTs. The UST program also establishes increasingly stringent standards, including upgrade requirements for existing tanks, that must be met by 1998.
- **Boilers and Industrial Furnaces (BIFs)** that use or burn fuel containing hazardous waste must comply with strict design and operating standards. BIF regulations (40 CFR Part 266, Subpart H) address unit design, provide performance standards, require emissions monitoring, and restrict the type of waste that may be burned.

*EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, responds to questions and distributes guidance regarding all RCRA regulations. The RCRA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., ET, excluding Federal holidays.*

#### *Comprehensive Environmental Response, Compensation, And Liability Act*

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a 1980 law commonly known as Superfund, authorizes EPA to respond to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response

costs incurred by EPA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 revised various sections of CERCLA, extended the taxing authority for the Superfund, and created a free-standing law, SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

The CERCLA **hazardous substance release reporting regulations** (40 CFR Part 302) direct the person in charge of a facility to report to the National Response Center (NRC) any environmental release of a hazardous substance which exceeds a reportable quantity. Reportable quantities are defined and listed in 40 CFR §302.4. A release report may trigger a response by EPA, or by one or more Federal or State emergency response authorities.

EPA implements **hazardous substance responses** according to procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300). The NCP includes provisions for permanent cleanups, known as remedial actions, and other cleanups referred to as "removals." EPA generally takes remedial actions only at sites on the National Priorities List (NPL), which currently includes approximately 1300 sites. Both EPA and states can act at other sites; however, EPA provides responsible parties the opportunity to conduct removal and remedial actions and encourages community involvement throughout the Superfund response process.

*EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, answers questions and references guidance pertaining to the Superfund program. The CERCLA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., ET, excluding Federal holidays.*

### *Emergency Planning And Community Right-To-Know Act*

The Superfund Amendments and Reauthorization Act (SARA) of 1986 created the Emergency Planning and Community Right-to-Know Act (EPCRA, also known as SARA Title III), a statute designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans by State and local governments. EPCRA required the establishment of State emergency response commissions (SERCs), responsible for coordinating certain emergency response activities and for appointing local emergency planning committees (LEPCs).

EPCRA and the EPCRA regulations (40 CFR Parts 350-372) establish four types of reporting obligations for facilities which store or manage specified chemicals:

- **EPCRA §302** requires facilities to notify the SERC and LEPC of the presence of any "extremely hazardous substance" (the list of such substances is in 40 CFR Part 355, Appendices A and B) if it has such substance in excess of the substance's threshold planning quantity, and directs the facility to appoint an emergency response coordinator.
- **EPCRA §304** requires the facility to notify the SERC and the LEPC in the event of a release exceeding the reportable quantity of a CERCLA hazardous substance or an EPCRA extremely hazardous substance.
- **EPCRA §311 and §312** require a facility at which a hazardous chemical, as defined by the Occupational Safety and Health Act, is present in an amount exceeding a specified threshold to submit to the SERC, LEPC and local fire department material safety data sheets (MSDSs) or lists of MSDS's and hazardous chemical inventory forms (also known as Tier I and II forms). This information helps the local government respond in the event of a spill or release of the chemical.
- **EPCRA §313** requires manufacturing facilities included in SIC codes 20 through 39, which have ten or more employees, and which manufacture, process, or use specified chemicals in amounts greater than threshold quantities, to submit an annual toxic chemical release report. This report, commonly known as the Form R, covers releases and transfers of toxic chemicals to various facilities and environmental media, and allows EPA to compile the national Toxic Release Inventory (TRI) database.

All information submitted pursuant to EPCRA regulations is publicly accessible, unless protected by a trade secret claim.

*EPA's EPCRA Hotline, at (800) 535-0202, answers questions and distributes guidance regarding the emergency planning and community right-to-know regulations. The EPCRA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., ET, excluding Federal holidays.*

The primary objective of the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA), is to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters. Pollutants regulated under the CWA include "priority" pollutants, including various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, oil and grease, and pH; and "non-conventional" pollutants, including any pollutant not identified as either conventional or priority.

The CWA regulates both direct and indirect discharges. The **National Pollutant Discharge Elimination System (NPDES)** program (CWA §402) controls direct discharges into navigable waters. Direct discharges or "point source" discharges are from sources such as pipes and sewers. NPDES permits, issued by either EPA or an authorized State (EPA has authorized approximately forty States to administer the NPDES program), contain industry-specific, technology-based and/or water quality-based limits, and establish pollutant monitoring requirements. A facility that intends to discharge into the nation's waters must obtain a permit prior to initiating its discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. The permit will then set forth the conditions and effluent limitations under which a facility may make a discharge.

A NPDES permit may also include discharge limits based on Federal or State water quality criteria or standards, that were designed to protect designated uses of surface waters, such as supporting aquatic life or recreation. These standards, unlike the technological standards, generally do not take into account technological feasibility or costs. Water quality criteria and standards vary from State to State, and site to site, depending on the use classification of the receiving body of water. Most States follow EPA guidelines which propose aquatic life and human health criteria for many of the 126 priority pollutants.

#### Storm Water Discharges

In 1987 the CWA was amended to require EPA to establish a program to address **storm water discharges**. In response, EPA promulgated the NPDES storm water permit application regulations. Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant (40 CFR 122.26(b)(14)). These regulations require that facilities with the following storm water discharges apply for an NPDES permit: (1) a discharge associated with industrial

activity; (2) a discharge from a large or medium municipal storm sewer system; or (3) a discharge which EPA or the State determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

The term "storm water discharge associated with industrial activity" means a storm water discharge from one of 11 categories of industrial activity defined at 40 CFR 122.26. Six of the categories are defined by SIC codes while the other five are identified through narrative descriptions of the regulated industrial activity. If the primary SIC code of the facility is one of those identified in the regulations, the facility is subject to the storm water permit application requirements. If any activity at a facility is covered by one of the five narrative categories, storm water discharges from those areas where the activities occur are subject to storm water discharge permit application requirements.

Those facilities/activities that are subject to storm water discharge permit application requirements are identified below. To determine whether a particular facility falls within one of these categories, the regulation should be consulted.

**Category i:** Facilities subject to storm water effluent guidelines, new source performance standards, or toxic pollutant effluent standards.

**Category ii:** Facilities classified as SIC 24-lumber and wood products (except wood kitchen cabinets); SIC 26-paper and allied products (except paperboard containers and products); SIC 28-chemicals and allied products (except drugs and paints); SIC 291-petroleum refining; and SIC 311-leather tanning and finishing.

**Category iii:** Facilities classified as SIC 10-metal mining; SIC 12-coal mining; SIC 13-oil and gas extraction; and SIC 14-nonmetallic mineral mining.

**Category iv:** Hazardous waste treatment, storage, or disposal facilities.

**Category v:** Landfills, land application sites, and open dumps that receive or have received industrial wastes.

**Category vi:** Facilities classified as SIC 5015-used motor vehicle parts; and SIC 5093-automotive scrap and waste material recycling facilities.

**Category vii:** Steam electric power generating facilities.

**Category viii:** Facilities classified as SIC 40-railroad transportation; SIC 41-local passenger transportation; SIC 42-trucking and warehousing (except public warehousing and storage); SIC 43-U.S. Postal Service; SIC 44-water transportation; SIC 45-transportation by air; and SIC 5171-petroleum bulk storage stations and terminals.

**Category ix:** Sewage treatment works.

**Category x:** Construction activities except operations that result in the disturbance of less than five acres of total land area.

**Category xi:** Facilities classified as SIC 20-food and kindred products; SIC 21-tobacco products; SIC 22-textile mill products; SIC 23-apparel related products; SIC 2434-wood kitchen cabinets manufacturing; SIC 25-furniture and fixtures; SIC 265-paperboard containers and boxes; SIC 267-converted paper and paperboard products; SIC 27-printing, publishing, and allied industries; SIC 283-drugs; SIC 285-paints, varnishes, lacquer, enamels, and allied products; SIC 30-rubber and plastics; SIC 31-leather and leather products (except leather and tanning and finishing); SIC 323-glass products; SIC 34-fabricated metal products (except fabricated structural metal); SIC 35-industrial and commercial machinery and computer equipment; SIC 36-electronic and other electrical equipment and components; SIC 37-transportation equipment (except ship and boat building and repairing); SIC 38-measuring, analyzing, and controlling instruments; SIC 39-miscellaneous manufacturing industries; and SIC 4221-4225-public warehousing and storage.

#### Pretreatment Program

Another type of discharge that is regulated by the CWA is one that goes to a publicly-owned treatment works (POTWs). The national **pretreatment program** (CWA §307(b)) controls the indirect discharge of pollutants to POTWs by "industrial users." Facilities regulated under §307(b) must meet certain pretreatment standards. The goal of the pretreatment program is to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the State or EPA.

EPA has developed technology-based standards for industrial users of POTWs. Different standards apply to existing and new sources within each category. "Categorical" pretreatment standards applicable to an industry on a nationwide basis are developed by EPA. In addition, another



kind of pretreatment standard, "local limits," are developed by the POTW in order to assist the POTW in achieving the effluent limitations in its NPDES permit.

Regardless of whether a State is authorized to implement either the NPDES or the pretreatment program, if it develops its own program, it may enforce requirements more stringent than Federal standards.

*EPA's Office of Water, at (202) 260-5700, will direct callers with questions about the CWA to the appropriate EPA office. EPA also maintains a bibliographic database of Office of Water publications which can be accessed through the Ground Water and Drinking Water resource center, at (202) 260-7786.*

### *Safe Drinking Water Act*

The Safe Drinking Water Act (SDWA) mandates that EPA establish regulations to protect human health from contaminants in drinking water. The law authorizes EPA to develop national drinking water standards and to create a joint Federal-State system to ensure compliance with these standards. The SDWA also directs EPA to protect underground sources of drinking water through the control of underground injection of liquid wastes.

EPA has developed primary and secondary drinking water standards under its SDWA authority. EPA and authorized States enforce the primary drinking water standards, which are, contaminant-specific concentration limits that apply to certain public drinking water supplies. Primary drinking water standards consist of maximum contaminant level goals (MCLGs), which are non-enforceable health-based goals, and maximum contaminant levels (MCLs), which are enforceable limits set as close to MCLGs as possible, considering cost and feasibility of attainment.

The SDWA **Underground Injection Control** (UIC) program (40 CFR Parts 144-148) is a permit program which protects underground sources of drinking water by regulating five classes of injection wells. UIC permits include design, operating, inspection, and monitoring requirements. Wells used to inject hazardous wastes must also comply with RCRA corrective action standards in order to be granted a RCRA permit, and must meet applicable RCRA land disposal restrictions standards. The UIC permit program is primarily State-enforced, since EPA has authorized all but a few States to administer the program.

The SDWA also provides for a Federally-implemented Sole Source Aquifer program, which prohibits Federal funds from being expended on projects that may contaminate the sole or principal source of drinking water for a given area, and for a State-implemented Wellhead Protection program, designed to protect drinking water wells and drinking water recharge areas.

*EPA's Safe Drinking Water Hotline, at (800) 426-4791, answers questions and distributes guidance pertaining to SDWA standards. The Hotline operates from 9:00 a.m. through 5:30 p.m., ET, excluding Federal holidays.*

### *Toxic Substances Control Act*

The Toxic Substances Control Act (TSCA) granted EPA authority to create a regulatory framework to collect data on chemicals in order to evaluate, assess, mitigate, and control risks which may be posed by their manufacture, processing, and use. TSCA provides a variety of control methods to prevent chemicals from posing unreasonable risk.

TSCA standards may apply at any point during a chemical's life cycle. Under TSCA §5, EPA has established an inventory of chemical substances. If a chemical is not already on the inventory, and has not been excluded by TSCA, a premanufacture notice (PMN) must be submitted to EPA prior to manufacture or import. The PMN must identify the chemical and provide available information on health and environmental effects. If available data are not sufficient to evaluate the chemicals effects, EPA can impose restrictions pending the development of information on its health and environmental effects. EPA can also restrict significant new uses of chemicals based upon factors such as the projected volume and use of the chemical.

Under TSCA §6, EPA can ban the manufacture or distribution in commerce, limit the use, require labeling, or place other restrictions on chemicals that pose unreasonable risks. Among the chemicals EPA regulates under §6 authority are asbestos, chlorofluorocarbons (CFCs), and polychlorinated biphenyls (PCBs).

*EPA's TSCA Assistance Information Service, at (202) 554-1404, answers questions and distributes guidance pertaining to Toxic Substances Control Act standards. The Service operates from 8:30 a.m. through 4:30 p.m., ET, excluding Federal holidays.*

### *Clean Air Act*

The Clean Air Act (CAA) and its amendments, including the Clean Air Act Amendments (CAAA) of 1990, are designed to “protect and enhance the nation's air resources so as to promote the public health and welfare and the productive capacity of the population.” The CAA consists of six sections, known as Titles, which direct EPA to establish national standards for ambient air quality and for EPA and the States to implement, maintain, and enforce these standards through a variety of mechanisms. Under the CAAA, many facilities will be required to obtain permits for the first time. State and local governments oversee, manage, and enforce many of the requirements of the CAAA. CAA regulations appear at 40 CFR Parts 50 through 99.

Pursuant to Title I of the CAA, EPA has established national ambient air quality standards (NAAQSs) to limit levels of "criteria pollutants," including carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide. Geographic areas that meet NAAQSs for a given pollutant are classified as attainment areas; those that do not meet NAAQSs are classified as non-attainment areas. Under §110 of the CAA, each State must develop a State Implementation Plan (SIP) to identify sources of air pollution and to determine what reductions are required to meet Federal air quality standards.

Title I also authorizes EPA to establish New Source Performance Standards (NSPSs), which are nationally uniform emission standards for new stationary sources falling within particular industrial categories. NSPSs are based on the pollution control technology available to that category of industrial source but allow the affected industries the flexibility to devise a cost-effective means of reducing emissions.

Under Title I, EPA establishes and enforces National Emission Standards for Hazardous Air Pollutants (NESHAPs), nationally uniform standards oriented towards controlling particular hazardous air pollutants (HAPs). Title III of the CAAA further directed EPA to develop a list of sources that emit any of 189 HAPs, and to develop regulations for these categories of sources. To date EPA has listed 174 categories and developed a schedule for the establishment of emission standards. The emission standards will be developed for both new and existing sources based on "maximum achievable control technology" (MACT). The MACT is defined as the control technology achieving the maximum degree of reduction in the emission of the HAPs, taking into account cost and other factors.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices,

and vapor recovery nozzles on gas pumps are a few of the mechanisms EPA uses to regulate mobile air emission sources.

Title IV establishes a sulfur dioxide emissions program designed to reduce the formation of acid rain. Reduction of sulfur dioxide releases will be obtained by granting to certain sources limited emissions allowances, which, beginning in 1995, will be set below previous levels of sulfur dioxide releases.

Title V of the CAAA of 1990 created a permit program for all "major sources" (and certain other sources) regulated under the CAA. One purpose of the operating permit is to include in a single document all air emissions requirements that apply to a given facility. States are developing the permit programs in accordance with guidance and regulations from EPA. Once a State program is approved by EPA, permits will be issued and monitored by that State.

Title VI is intended to protect stratospheric ozone by phasing out the manufacture of ozone-depleting chemicals and restrict their use and distribution. Production of Class I substances, including 15 kinds of chlorofluorocarbons (CFCs), will be phased out entirely by the year 2000, while certain hydrochlorofluorocarbons (HCFCs) will be phased out by 2030.

*EPA's Control Technology Center, at (919) 541-0800, provides general assistance and information on CAA standards. The Stratospheric Ozone Information Hotline, at (800) 296-1996, provides general information about regulations promulgated under Title VI of the CAA, and EPA's EPCRA Hotline, at (800) 535-0202, answers questions about accidental release prevention under CAA §112(r). In addition, the Technology Transfer Network Bulletin Board System (modem access (919) 541-5742)) includes recent CAA rules, EPA guidance documents, and updates of EPA activities.*

## **VI.B. Industry Specific Requirements**

The inorganic chemical industry is affected by nearly all federal environmental statutes. In addition, the industry is subject to numerous laws and regulations from state and local governments designed to protect and improve health, safety, and the environment. A summary of the major federal regulations affecting the chemical industry follows.

### Federal Statutes

*Toxic Substances Control Act*

The Toxic Substances Control Act (TSCA), passed in 1976, gives the Environmental Protection Agency comprehensive authority to regulate any chemical substance whose manufacture, processing, distribution in commerce, use, or disposal may present an unreasonable risk of injury to health or the environment. Three sections are of primary importance to the inorganic chemical industry. Section 5 mandates that chemical companies submit to EPA pre-manufacture notices that provide information on health and environmental effects for each new product and test existing products for these effects. To date, over 20,000 premanufacturing notices have been filed. Section 4 authorizes the EPA to require testing of certain substances. Section 6 gives the EPA authority to prohibit, limit, or ban the manufacture, process, and use of chemicals. Under Section 6 of TSCA, EPA has banned most uses of asbestos. In 1990, however, the chlor-alkali industry was able to show that it did not have difficulty meeting the required exposure limits for asbestos fibers, and the use of asbestos as a diaphragm material was exempted from the TSCA ban.

*Clean Air Act*

The Clean Air Act Amendments of 1990 set National Emission Standards for Hazardous Air Pollutants (NESHAP) from industrial sources for 41 pollutants to be met by 1995 and for 148 other pollutants to be reached by 2003. Several provisions affect the inorganic chemical industry. The EPA will promulgate maximum achievable control technology (MACT) standards and Lowest Achievable Emission Rates will be required in NAAQS non-attainment areas (Iliam Rosario, U.S. EPA, OAQPS, WAM for Chlorine Production NESHAP (919)-541-5308). An information collection request survey was sent out to the chlor-alkali industry in 1992. The data obtained from the survey will be analyzed and, based on the results, EPA will propose MACT standards (or EPA may propose that no new standards are necessary) for the chlor-alkali industry by 1997. For any subject facility, a six year extension of MACT requirements is available if they can demonstrate early emission reductions.

The Clean Air Act Amendments of 1990 contain provisions to phase out the use of ozone depleting chemicals such as chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform, as required by the Montreal Protocol on Substances that Deplete the Ozone Layer. The chlor-alkali industry has been and will continue to be significantly affected by these provisions due to decreases in the demand for chlorine as a feedstock in manufacturing these chemicals. In addition, many of these chemicals are used extensively by the industry to process chlorine.

*Clean Water Act*

The Clean Water Act, first passed in 1972 and amended in 1977 and 1987, gives EPA the authority to regulate effluents from sewage treatment works, chemical plants, and other industrial sources into waters. The act sets "best available technology" standards for treatment of wastes for both direct and indirect (to a Publicly Owned Treatment Works) discharges. Effluent guidelines for the chlor-alkali industry were last updated in 1984 (40 CFR Section 415). EPA is currently conducting a study to assess the need for new effluent guidelines. (Contact: George Zipf, U.S. EPA, Office of Water, 202-260-2275)

Restrictions on dioxin emissions in the wastewater from pulp mills are having significant effects on the chlor-alkali industry. Dioxins are formed during the chlorine bleaching process and are subsequently released to rivers and streams. Many mills are switching from chlorine to alternative bleaching agents in response to the effluent restrictions. Pulp mills accounted for about 15 percent of the chlorine demand in the U.S. in 1982 and 11 percent in 1992. The demand for chlorine for pulp bleaching is expected to continue to decrease through the 1990s.

*Resource Conservation and Recovery Act*

The Resource Conservation and Recovery Act (RCRA) of 1976 gives the EPA authority to establish a list of solid and hazardous wastes, and to establish standards and regulations for handling and disposing of these wastes. New wastes specific to the inorganic chemical industry have not been added to the RCRA list since the original waste listings in 1980. EPA is currently under a consent order, however, to propose new hazardous waste listings for the industry by March 1997, and to finalize by March 1998. (Contact: Rick Brandes, U.S. EPA, Office of Solid Waste, 202-260-4770) The Act also requires companies to establish programs to reduce the volume and toxicity of hazardous wastes. It was last amended in 1984 when Congress mandated some 70 new programs for the hazardous waste (Subtitle C) program. Included were tighter standards for handling and disposing of hazardous wastes, land disposal prohibitions, corrective action (or remediation) regulations, and regulations for underground storage tanks. The inorganic chemical industry is strongly affected by the RCRA regulations because of the disposal costs for hazardous waste and the record keeping requirements.

*Occupational Safety and Health Act*

The Occupational Safety and Health Act gave the Department of Labor the authority to set comprehensive workplace safety and health standards including permissible exposures to chemical in the workplace and authority to conduct inspections and issue citations for violations of safety and health regulations. The chemical industry is subject to hazard identification standards established by OSHA, which require extensive documentation of chemicals in trade and in the workplace and mandate warning labels on containers. The industry is also subject to OSHA's Hazard Communication Standard and various state and local laws, which give workers the right to know about hazardous chemicals in the workplace.

#### *Hazardous Materials Transportation Act*

The Hazardous Materials Transportation Act (HMTA) gives the Department of Transportation authority to regulate the movement of hazardous materials. Chemical manufacturers must comply with regulations governing shipment preparation, including packaging, labeling and shipping papers; handling, loading and unloading; routing emergency and security planning; incident notifications; and liability insurance. The chemical manufacturers must also comply with operating requirements for vehicle, vessel, and carrier transportation of hazardous materials by road, rail, air, and sea. The chemicals covered by the HMTA span a broad list of substances, including hazardous wastes normally regulated by RCRA and hazardous materials that DOT designates as hazardous for the purposes of transportation that may not be considered hazardous under RCRA. These regulations especially apply to chlorine gas which can cause significant risk during transport.

#### *Pollution Prevention Act*

The Pollution Prevention Act makes it a national policy of the United States to reduce or eliminate the generation of waste at the source whenever feasible. The EPA is directed to undertake a multi-media program of information collection, technology transfer, and financial assistance to enable the states to implement this policy and to promote the use of source reduction techniques. The reorganization of the Office of Compliance by industry sector is part of EPA's response to this act.

#### State Statutes

##### *Toxics Use Reduction Act, Massachusetts*

The Massachusetts Toxics Use Reduction Act affects those facilities that use, manufacture, or process more than a specified amount of substances that are on the Massachusetts toxic or hazardous substances list. Facilities must submit annual reports on the amounts of substances used, manufactured, or processed and must pay annual fees based on these amounts. In addition, facilities must prepare toxics use reduction plans which show in-plant changes in production processes or raw materials that would reduce, avoid, or eliminate the use or generation of toxic or hazardous substances. The Massachusetts toxic or hazardous substance list initially consists of those substances listed under §313 of EPCRA and will eventually include those substances listed under CERCLA. New Jersey has recently passed a similar act.

### VI.C. Pending and Proposed Regulatory Requirements

#### *Resource Conservation and Recovery Act (RCRA)*

The Resource Conservation and Recovery Act (RCRA) listed waste streams specific to the inorganic chemical industry have not been updated since the original RCRA hazardous wastes list developed in 1980. EPA is under a court-ordered deadline to propose and finalize additional waste listings for the industry by March 1997 and March 1988, respectively. The Office of Solid Waste will begin assessing the need for new listings by early 1996. (Contact: Rick Brandes, U.S. EPA, Office of Solid Waste, 202-260-4770)

#### *Clean Air Act*

The new NESHAP standards for the inorganic chemical industry are scheduled to be promulgated by EPA by 1997. (Contact: Iliam Rosario, U.S. EPA, OAQPS, WAM for Chlorine Production NESHAP, 919-541-5308) The standards required will, in most cases, be in the form of MACT standards. Lowest Achievable Emission Rates will be required in NAAQS non-attainment areas. An information collection request survey was sent out to the chlor-alkali industry in 1992. The data obtained will be analyzed and used to assess the need for NESHAP standards in the chlor-alkali industry.

The chlor-alkali industry will continue to be affected by the provisions to phase out the use of ozone depleting chemicals as required by the Montreal Protocol on Substances that Deplete the Ozone Layer. The demand for chlorine as a feedstock in manufacturing these chemicals, which accounted for about 15 percent of total domestic demand in 1990, will continue to decline through the 1990s. In addition, costs of purifying and liquefying



chlorine gas may increase as the cost of carbon tetrachloride and refrigerants increases, and as alternative processes are introduced.

## VII. COMPLIANCE AND ENFORCEMENT HISTORY

### *Background*

To date, 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.

### *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 or enforcement actions, and solely reflect EPA, state, and local compliance assurance activity 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 (August 10, 1990 to August 9, 1995) and the other for the most recent twelve-month period (August 10, 1994 to August 9, 1995). 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 regions for certain sectors.<sup>e</sup> This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

## Compliance and Enforcement Data Definitions

### General Definitions

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

**Integrated Data for Enforcement Analysis (IDEA)** -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FINDS identification number to

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

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

### Data Table Column Heading Definitions

**Facilities in Search** -- are based on the universe of TRI reporters within the listed SIC code range. For industries not covered under TRI reporting requirements, 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 facility inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 12 or 60 month period. This column does not count non-inspectional compliance activities such as the review of facility-reported discharge reports.

**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, that a compliance inspection occurs at a facility within the defined universe.

**Facilities with One or More Enforcement Actions** -- expresses the number of facilities that were party to 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 (facility with three

enforcement actions counts as one). All percentages that appear are referenced to the number of facilities inspected.

**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 (a facility with three enforcement actions counts as three).

**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 accorded 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** -- expresses how often enforcement actions result from inspections. This value is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This measure is a rough indicator of the relationship between inspections and enforcement. Reported inspections and enforcement actions under the Clean Water Act (CWA), the Clean Air Act (CAA) and the Resource Conservation and Recovery Act (RCRA) are included in this ratio. 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. 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 number and 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. Percentages within this column may exceed 100 percent because facilities can be in violation status without being inspected.

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. Inorganic Chemical Industry Compliance History

Exhibit 20 provides an overview of the reported compliance and enforcement data for the inorganic chemical industry over the past five years (August 1990 to August 1995). These data are also broken out by EPA Region thereby permitting geographical comparisons. A few points evident from the data are listed below.

- Slightly more than half of the TRI reporting inorganic chemical facilities in the EPA databases were inspected over the five year period resulting in an average of 11 months between inspections of these facilities.
- On average, the states carried out three times the number of inspections as the Regions; however, the percentage of state led actions varied across the Regions from 44 percent to 96 percent.
- The enforcement to inspection rate varied significantly from Region to Region. Region IX had the highest enforcement to inspection rate as well as the highest percentage of state led actions.

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

Exhibits 21 and 22 allow the compliance history of the inorganic chemical manufacturing sector to be compared to the other industries covered by the industry sector notebooks. Comparisons between Exhibits 21 and 22 permit the identification of trends in compliance and enforcement records of the industry by comparing data covering the last five years to that of the past year. Some points evident from the data are listed below.

- The inorganic chemicals industry has a relatively low frequency of inspections compared to most of the other sectors shown. On average, the number of months between inspections at inorganic chemicals facilities has been only about twice that of organic chemicals facilities.
- Over the past five years the inorganic chemical industry has had a ratio of enforcement actions to inspections lower than most of the other sectors listed including the organic chemicals sector. This difference has continued over the past year.
- Enforcement actions are brought against only about 10 percent of the facilities with violations; lower than most other sectors listed.

Exhibits 23 and 24 provide a more in-depth comparison between the inorganic chemicals industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in the previous Exhibits (21 and 22), the data cover the last five years (Exhibit 23) and the last one year (Exhibit 24) to facilitate the identification of recent trends. A few points evident from the data are listed below.

- Inspections of inorganic chemical facilities are split relatively evenly between Clean Air Act, Clean Water Act, and RCRA, although RCRA accounts for a significantly larger portion of the total actions brought against the inorganic chemicals industry over the past five years.
- Significantly more Clean Water Act inspections are carried out at inorganic chemicals facilities in comparison to the organic chemicals industry, although the Clean Water Act accounts for a smaller portion of the total actions brought against inorganic chemicals facilities.
- Over the past year RCRA inspections have accounted for a significantly smaller portion of the enforcement actions brought



against the industry and the Clean Air Act has taken a far greater share.

## 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 Supplementary Environmental Projects (SEPs). SEPs are compliance agreements that reduce a facility's stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility.

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

Historically, OECA's Enforcement Capacity and Outreach Office does not regularly compile information related to major cases and pending litigation within an industry sector. The staff are willing to pass along such information to Agency staff as requests are made. In addition, summaries of completed enforcement actions are published each fiscal year in the Enforcement Accomplishments Report. To date, these summaries are not organized by industry sector. (Contact: Office of Enforcement Capacity and Outreach 202-260-4140)

#### VII.C.2. Supplementary Environmental Projects

Supplemental environmental projects (SEPs) are an enforcement option that requires the non-compliant facility to complete specific projects. Regional summaries of SEPs undertaken in the 1993 and 1994 federal fiscal years were reviewed. Five SEPs were undertaken that involved inorganic chemical manufacturing facilities, as shown in Exhibit 25.

CERCLA violations engendered three out of the five SEPs identified; the fourth and fifth were due to a CAA violation and a TSCA violation. Due to regional reporting methods, the specifics of the original violations are not known and, for one SEP, details of the actual project were not available.

One of the five projects was conducted at a facility that manufactures both inorganic and organic chemicals. This project has been included in both industry sector project summaries. The FY 1993 and 1994 SEPs for inorganic chemical manufacturers fall into four categories: process related projects; control and recovery technology improvement or installation; leak prevention; and donations to the community.

- Process related projects

A Region IV project carried out in 1993 entailed specific process changes intended to reduce chlorinated wastes at the facility. In conjunction with other non-process components of the project, the implementation cost was \$93,000.

- Control and recovery technology improvement/installation

A Louisiana facility, the combined organic and inorganic chemical manufacturer, implemented a SEP to reduce emissions from returned gas canisters. The SEP involved the installation of recovery technologies to reduce emissions of residual CFC and HCFC from the used canisters. The cost to the company was \$158,400.

- Leak prevention

A Region IV facility constructed retaining walls around underground storage tanks to prevent hazardous leachate from reaching groundwater. The cost to the company was \$46,200.

- Donations to Community

Following a CERCLA violation, a facility in Texas donated emergency and computer equipment to the Local Emergency Planning Commission (LEPC) which could be used in the planning and responding to potential chemical emergencies. The facility also agreed to participate in LEPC activities and to provide technical assistance.

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

### VIII.A. Sector-related Environmental Programs and Activities

None identified.

### VIII.B. EPA Voluntary Programs

#### *33/50 Program*

The "33/50 Program" is EPA's voluntary program to reduce toxic chemical releases and transfers of seventeen chemicals from manufacturing facilities. Participating companies pledge to reduce their toxic chemical releases and transfers by 33 percent as of 1992 and by 50 percent as of 1995 from the 1988 baseline year. Certificates of Appreciation have been given out to participants meeting their 1992 goals. The list of chemicals includes seventeen high-use chemicals reported in the Toxics Release Inventory. Exhibit 26 lists those companies participating in the 33/50 program that reported the SIC code 281 to TRI. Many of the companies shown listed multiple SIC codes and, therefore, are likely to carry out operations in addition to inorganic chemicals manufacturing. The SIC codes reported by each company are listed in no particular order. In addition, the number of facilities within each company that are participating in the 33/50 program and that report SIC 281 to TRI is shown. Finally, each company's total 1993 releases and transfers of 33/50 chemicals and the percent reduction in these chemicals since 1988 are presented.

The inorganic chemicals industry as a whole used, generated or processed almost all of the seventeen target TRI chemicals. Of the target chemicals, chromium and chromium compounds, lead and lead compounds, and nickel and nickel compounds are released and transferred most frequently and in similar quantities. These three toxic chemicals account for about nine percent of TRI releases and transfers from inorganic chemical facilities. Seventy-five companies, representing 168 facilities, listed under SIC 281 (inorganic chemicals) are currently participating in the 33/50 program. This accounts for 30 percent of the facilities reporting to SIC code 281 to TRI which is significantly higher than the average for all

industries of 14 percent participation. (Contact: Mike Burns, 202-260-6394 or the 33/50 Program, 202-260-6907)

**Exhibit 26: 33/50 Program Participants Reporting SIC 281 (Inorganic Chemicals)**

Parent Company	City, State	SIC Codes Reported	# of Participating Facilities	1993 Releases and Transfers (lbs.)	% Reduction 1988 to 1993
3M MINNESOTA MINING & MFG CO.	ST. PAUL, MN	2821, 2816, 2899	1	16,481,098	70
AIR PRODUCTS AND CHEMICALS	ALLENTOWN, PA	2819, 2869	5	144,876	50
AKZO NOBEL INC.	CHICAGO, IL	2819, 2869	1	930,189	13
ALBEMARLE CORP.	RICHMOND, VA	2869, 2819	1	1,005,108	51
ALLIED-SIGNAL INC.	MORRISTOWN, NJ	2819, 2869	4	2,080,501	50
ASHLAND OIL INC.	RUSSELL, KY	2819	1	723,562	50
B F GOODRICH COMPANY	AKRON, OH	2812, 2821, 2869	1	621,207	50
BASF CORP.	PARSIPPANY, NJ	2869, 2865, 2819	1	1,157,548	50
BENJAMIN MOORE & CO.	MONTVALE, NJ	2851, 2812,	7	20,635	*
BORDEN CHEM & PLAS LTD PARTNR	COLUMBUS, OH	2813, 2821, 2869	1	12,662	***
CABOT CORP.	BOSTON, MA	3339, 2819	2	2,407,581	50
CALGON CARBON CORP.	PITTSBURGH, PA	2819	1	14,845	50
CIBA-GEIGY CORP.	ARDSLEY, NY	2819, 2865, 2869	2	1,875,028	50
CITGO PETROLEUM CORP.	TULSA, OK	2911, 2819, 2869	1	1,164,354	20
CONKLIN COMPANY INC.	SHAKOPEE, MN	2819, 2952, 2992	1	2,977	*
CORNING INC.	CORNING, NY	3339, 2819	1	1,521,528	14
CRITERION CATALYST LTD PARTNR	HOUSTON, TX	28190	3	3,716	*
CYTEC INDUSTRIES	WEST PATERSON, NJ	2819, 2869	2	1,074,646	50
DEGUSSA CORP.	RIDGEFIELD PARK, NJ	2819, 2869, 2879	1	676,418	***
DOW CHEMICAL COMPANY	MIDLAND, MI	2800, 2819, 2821	4	2,769,363	50
E. I. DU PONT DE NEMOURS & CO.	WILMINGTON, DE	2816	9	11,740,853	50
EAGLE CHEMICALS INC.	HAMILTON, OH	2899, 2819, 2841	1	500	33
EAGLE-PICHER INDUSTRIES INC.	CINCINNATI, OH	2816	1	227,242	50
ELF AQUITAINE INC.	NEW YORK, NY	2812	7	273,274	43
ENGELHARD CORP.	ISELIN, NJ	3714, 2819	6	236,302	50
ETHYL CORP.	RICHMOND, VA	2869, 2819,	1	251,519	46
FERRO CORP.	CLEVELAND, OH	2819, 2869	5	165,529	50
FMC CORP.	CHICAGO, IL	2812, 2819	4	502,318	50
GENERAL ELECTRIC COMPANY	FAIRFIELD, CT	2821, 2812, 2869	2	5,010,856	50
GEORGIA GULF CORP.	ATLANTA, GA	2865, 2812, 2819	1	39,480	80
GEORGIA-PACIFIC CORP.	ATLANTA, GA	2611, 2621, 2812	1	2,722,182	50
HANLIN GROUP INC.	EDISON, NJ	2812, 2819	3	6,174	75
HM ANGLO-AMERICAN LTD.	NEW YORK, NY	2816	4	1,265,741	2
HOECHST CELANESE CORP.	SOMERVILLE, NJ	2819, 2869, 2873	1	2,603,661	50
INTERNATIONAL PAPER COMPANY	PURCHASE, NY	28190	1	2,784,831	50
ISK AMERICAS INC.	SAN FRANCISCO, CA	2879, 2819	2	300,088	50
KEMIRA HOLDINGS INC.	SAVANNAH, GA	2816, 2819	1	394,070	*
KERR-MCGEE CORP.	OKLAHOMA CITY, OK	2819	3	374,098	35
LAIDLAW ENVIRONMENTAL SERVICES	COLUMBIA, SC	2819, 2869	1	8,167	***
LAROCHE HOLDINGS INC.	ATLANTA, GA	2812, 2869	1	81,470	*

<b>Exhibit 26: 33/50 Program Participants Reporting SIC 281 (Inorganic Chemicals)</b>					
MALLINCKRODT GROUP INC.	SAINT LOUIS, MO	2869, 2833, 2819	3	775,206	50
MAYO CHEMICAL CO. INC.	SMYRNA, GA	2819	2	15	67
MILES INC.	PITTSBURGH, PA	2819	3	1,095,504	40
MOBIL CORP.	FAIRFAX, VA	2869, 2819, 2821	1	4,263,284	50
MONSANTO COMPANY	SAINT LOUIS, MO	2865, 2869, 2819	3	1,683,580	23
MORTON INTERNATIONAL INC.	CHICAGO, IL	2819, 2869	1	721,216	20
NALCO CHEMICAL COMPANY	NAPERVILLE, IL	2899, 2819, 2843	2	107,651	50
OCCIDENTAL PETROLEUM CORP.	LOS ANGELES, CA	2812, 2819	8	8,896,126	19
OLIN CORP.	STAMFORD, CT	2819	4	574,673	70
PHILLIPS PETROLEUM COMPANY	BARTLESVILLE, OK	2911, 2819	2	2,367,877	50
PPG INDUSTRIES INC.	PITTSBURGH, PA	2812, 2816, 2869	3	2,772,331	50
PQ CORP.	VALLEY FORGE, PA	2819	3	19	50
PROCTER & GAMBLE COMPANY	CINCINNATI, OH	28190	1	612,520	*
RHONE-POULENC INC.	MONMOUTH JUNCTION, NJ	2821, 2819, 2841	6	1,437,778	50
ROHM AND HAAS COMPANY	PHILADELPHIA, PA	2819, 2869	1	1,210,244	50
SHELL PETROLEUM INC.	HOUSTON, TX	2869, 2819	1	3,240,716	55
SHEPHERD CHEMICAL CO.	CINCINNATI, OH	2819, 2869	1	828	72
SHERWIN-WILLIAMS COMPANY	CLEVELAND, OH	2816, 2851	1	1,352,412	50
STANDARD CHLORINE CHEM. CO.	KEARNY, NJ	2865, 2819	1	48,246	***
STAR ENTERPRISE	HOUSTON, TX	2911, 2819, 4463	1	601,640	50
STERLING CHEMICALS INC.	HOUSTON, TX	2869, 2865, 2819	1	182,216	65
SUD-CHEMIE NORTH AMERICA DE	LOUISVILLE, KY	2819	2	196,438	16
TEXACO INC.	WHITE PLAINS, NY	2869, 2865, 2819	1	514,803	50
TEXAS INSTRUMENTS INC.	DALLAS, TX	3674, 3812, 2819	2	344,225	25
UNILEVER UNITED STATES INC.	NEW YORK, NY	2819	1	164,034	50
UNIROYAL CHEMICAL CORP.	MIDDLEBURY, CT	2821, 2879, 2813	1	1,970,357	20
UNOCAL CORP.	LOS ANGELES, CA	2819	1	238,520	50
UOP	DES PLAINES, IL	2819, 2869	2	14,169	50
US DEPARTMENT OF ENERGY	WASHINGTON, DC	2819	4	148,198	50
VELSICOL CHEMICAL CORP.	ROSEMONT, IL	2865, 2819, 2869	1	224,664	50
VISTA CHEMICAL COMPANY	HOUSTON, TX	2869, 2865, 2819	2	106,497	50
VULCAN MATERIALS COMPANY	BIRMINGHAM, AL	2869, 2812	2	679,566	85
W R GRACE & CO INC.	BOCA RATON, FL	2819	2	615,509	50
WEYERHAEUSER COMPANY	TACOMA, WA	2621, 2611, 2812	1	1,006,356	*
WITCO CORP.	NEW YORK, NY	2819, 2869	1	327,611	50
* = not quantifiable against 1988 data. ** = use reduction goal only. *** = no numerical goal.					
Source: U.S. EPA, Toxic Release Inventory, 1993.					

*Environmental Leadership Program*

The Environmental Leadership Program (ELP) is a national initiative piloted by EPA and state agencies in which facilities have volunteered to demonstrate innovative approaches to environmental management and compliance. EPA has selected 12 pilot projects at industrial facilities and federal installations which will demonstrate the principles of the ELP program. These principles include: environmental management systems, multimedia compliance assurance, third-party verification of compliance, public measures of accountability, community involvement, and mentoring programs. In return for participating, pilot participants receive public recognition and are given a period of time to correct violations discovered during these experimental projects. Forty proposals were received from companies, trade associations, and federal facilities representing many manufacturing and service sectors. Two chemical companies (Ciba Geigy of St. Gabriel, LA and Akzo Chemicals of Edison, NJ), one pharmaceutical manufacturer (Schering Plough of Kenilworth, NJ), and one manufacturer of agricultural chemicals (Gowan Milling of Yuma, AZ) submitted proposals. (Contact: Tai-ming Chang, ELP Director, 202-564-5081 or Robert Fentress 202-564-7023)

*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 allowing participants to replace or modify existing regulatory requirements on the condition that they produce greater environmental benefits. EPA and program participants will negotiate and sign a final Project Agreement, detailing specific objectives that the regulated entity shall satisfy. In exchange, EPA will allow the participant a certain degree of regulatory flexibility and may seek changes in underlying regulations or statutes. 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 facilities, sectors, communities, and government agencies regulated by EPA. Applications will be accepted on a rolling basis and projects will move to implementation within six months of their selection. For additional information regarding XL Projects, including application procedures and criteria, see the May 23, 1995 Federal Register Notice. (Contact: Jon Kessler, Office of Policy Analysis, 202-260-4034)

*Green Lights Program*

EPA's Green Lights program was initiated in 1991 and has the goal of preventing pollution by encouraging U.S. institutions to use energy-efficient



lighting technologies. The program has over 1,500 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. EPA provides technical assistance to the participants through a decision support software package, workshops and manuals, and a financing registry. EPA's Office of Air and Radiation is responsible for operating the Green Lights Program. (Contact: Maria Tikoff 202-233-9178 or the Green Light/Energy Star Hotline, 202-775-6650)

#### *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 minimization, recycling collection, and the manufacturing and purchase of recycled products. As of 1994, the program had about 300 companies as members, including a number of major corporations. Members agree to identify and implement actions to reduce their solid wastes and must provide EPA with their waste reduction goals along with yearly progress reports. EPA, in turn, provides technical assistance to member companies and allows the use of the WasteWi\$e logo for promotional purposes. (Contact: Lynda Wynn 202-260-0700 or the WasteWi\$e Hotline, 800-372-9473)

#### *Climate Wise Recognition Program*

The Climate Change Action Plan was initiated in response to the U.S. commitment to reduce greenhouse gas emissions in accordance with the Climate Change Convention of the 1990 Earth Summit. As part of the Climate Change Action Plan, the Climate Wise Recognition Program is a partnership initiative run jointly by EPA and the Department of Energy. The program is designed to reduce greenhouse gas emissions by encouraging reductions across all sectors of the economy, encouraging participation in the full range of Climate Change Action Plan initiatives, and fostering innovation. Participants in the program are required to identify and commit to actions that reduce greenhouse gas emissions. The program, in turn, gives organizations early recognition for their reduction commitments; provides technical assistance through consulting services, workshops, and guides; and provides access to the program's centralized information system. At EPA, the program is operated by the Air and Energy Policy Division within the Office of Policy Planning and Evaluation. (Contact: Pamela Herman 202-260-4407)

*NICE<sup>3</sup>*

The U.S. Department of Energy and EPA's Office of Pollution Prevention are jointly administering a grant program called The National Industrial Competitiveness through Energy, Environment, and Economics (NICE<sup>3</sup>). By providing grants of up to 50 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, demonstrate, and assess the feasibility of 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 pulp and paper, chemicals, primary metals, and petroleum and coal products sectors. (Contact: DOE's Golden Field Office, 303-275-4729)

**VIII.C. Trade Association/Industry Sponsored Activity****VIII.C.1. Environmental Programs***Global Environmental Management Initiative*

The Global Environmental Management Initiative (GEMI) is made up of a group of leading companies dedicated to fostering environmental excellence by business. GEMI promotes a worldwide business ethic for environmental management and sustainable development to improve the environmental performance of business through example and leadership. In 1994, GEMI's membership consisted of about 30 major corporations including Amoco Corporation.

*National Pollution Prevention Roundtable*

The National Pollution Prevention Roundtable published *The Pollution Prevention Yellow Pages* in September 1994. It is a compilation of information collected from mail and telephone surveys of state and local government pollution prevention programs. (Contact: Natalie Roy 202-543-7272) The following state programs listed themselves as having expertise in pollution prevention related to inorganic chemical manufacture and use. The contacts listed below (Exhibit 27) are also likely to be aware of various state- and local-level initiatives affecting the inorganic chemical industry.

<b>Exhibit 27: Contacts for State and Local Pollution Prevention Programs</b>			
State	Program	Contact	Telephone
Alabama	AL Dept. of Env. Protection, Ombudsman and Small Business Assistance Program	Blake Roper, Michael Sherman	(800) 533-2336 (205) 271-7861
	AL WRATT Foundation	Roy Nicholson	(205) 386-3633
California	CA State Dept. of Toxic Substances Control	David Harley, Kim Wilhelm, Kathy Barwick	(916) 322-3670
	County Sanitation Districts of LA	Michelle Mische	(310) 699-7411
Colorado	Region VIII HW Minimization Program	Marie Zanowich	(303) 294-1065
Illinois	IL HW Research and Information Center	David Thomas	(217) 333-8940
Indiana	IN Dept. of Env. Mgmt.	Tom Neltner	(317) 232-8172
Iowa	IA Dept. of Natural Resources	Larry Gibson	(515) 281-8941
Kentucky	KY Partners, State Waste Reduction Center	Joyce St. Clair	(502) 852-7260
Massachusetts	Toxics Use Reduction Institute	Janet Clark	(508) 934-3346
Michigan	University of Detroit Mercy	Daniel Klempner	(313) 993-3385
New Mexico	Waste Management Education and Research Consortium	Ron Bhada	(505) 646-1510
North Dakota	Energy and Env. Research Center	Gerald Groenewold	(701) 777-5000
Ohio	Institute of Advanced Manufacturing Sciences	Harry Stone, Sally Clement	(513) 948-2050
Pennsylvania	Center for Hazardous Materials Research	Roger Price, Steven Ostheim	(412) 826-5320
Rhode Island	RI Center for P2, URI	Stanley Barnett	(401) 792-2443
South Carolina	Clemson University	Eric Snider	(803) 656-0985
Texas	TX Natural Resource Conservation Commission	Andrew Neblett	(512) 239-3100
Vermont	Retired Engineers and Professionals Program	Muriel Durgin	(802) 879-4703
Washington	WA State Dept. of Ecology	Peggy Morgan	(206) 407-6705
Wisconsin	WI Dept. of Natural Resources, Small Business Assistance Program	Robert Baggot	(608) 267-3136
Wyoming	WY Dept. of Env. Quality	Charles Raffelson	(307) 777-7391

*Center for Waste Reduction Technologies*

**Center for Waste Reduction Technologies**, under the aegis of the American Institute of Chemical Engineers, sponsors research on innovative technologies to reduce waste in the chemical processing industries. The primary mechanism is through funding of academic research.

*National Science Foundation and the Office of Pollution Prevention and Toxics*

The National Science Foundation and EPA's Office of Pollution Prevention and Toxics signed an agreement in January of 1994 to coordinate the two agencies' programs of **basic research related to pollution prevention**. The collaboration will stress research in the use of less toxic chemical and synthetic feedstocks, use of photochemical processes instead of traditional ones that employ toxic reagents, use of recyclable catalysts to reduce metal contamination, and use of natural feedstocks when synthesizing chemicals in large quantities.

*Chemical Manufacturers Association*

The **Chemical Manufacturers Association** funds research on issues of interest to their members particularly in support of their positions on proposed or possible legislation. They recently funded a study to characterize the environmental fate of organochlorine compounds.

*Responsible Care Program*

The **Responsible Care Program** of the Chemical Manufacturers Association requires members to pledge commitment to six codes that identify 106 management practices that companies must carry out in the areas of community awareness and emergency response, pollution prevention, process safety, distribution, employee health and safety, and product stewardship.

*ISO 9000*

**ISO 9000** is a series of international total quality management guidelines. After a successful independent audit of their management plans, firms are qualified to be ISO 9000 registered. In June of 1993, the International Standards Organization created a technical committee to begin work on new standards for environmental management systems. The new standards are called ISO 14000 and are expected to be issued in 1996.

## VII.C.2. Summary of Trade Associations

Chemical Industry

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American Chemical Society  
1155 16th Street, NW  
Washington, D.C. 20036  
Phone: (202) 872-8724  
Fax: (202) 872-6206

Members: 145,000  
Staff: 1700  
Budget: \$192,000,000

The American Chemical Society (ACS) has an educational and research focus. The ACS produces approximately thirty different industry periodicals and research journals, including *Environmental Science and Technology* and *Chemical Research in Toxicology*. In addition to publishing, the ACS presently conducts studies and surveys; legislation monitoring, analysis, and reporting; and operates a variety of educational programs. The ACS library and on-line information services are extensive. Some available on-line services are *Chemical Journals Online*, containing the full text of 18 ACS journals, 10 Royal Society of Chemistry journals, and five polymer journals, and the Chemical Abstracts Service (CAS), which provides a variety of information on chemical compounds. Founded in 1876, the ACS is presently comprised of 184 local groups and 843 student groups nationwide.

Chemical Manufacturers Association  
2501 M St., NW  
Washington, D.C. 20037  
Phone: (202) 887-1164  
Fax: (202) 887-1237

Members: 185  
Staff: 246  
Budget: \$36,000,000  
Contact: Joseph Mayhew

Presently, the principle focus of the Chemical Manufacturers Association (CMA) is on regulatory issues facing chemical manufacturers at the local, state, and federal level. At its inception in 1872, the focus of the CMA was on serving chemical manufacturers through research. Research is still ongoing at the CMA, however, as the CHEMSTAR program illustrates. CHEMSTAR consists of a variety of self-funded panels working on single-chemical research agendas. This research fits in with the overall regulatory focus of the CMA; CHEMSTAR study results are provided to both CMA membership and regulatory agencies. Other initiatives include the "responsible care" program. Membership in the CMA is contingent upon enrollment in the "responsible care" program, which includes six codes of management practice (including pollution prevention) that attempt to "go beyond simple regulatory compliance." The CMA also conducts workshops and technical symposia, promotes in-plant safety, operates a chemical emergency center (CHEMTREC) which offers guidance in chemical emergency situations, and operates the Chemical Referral Center which

provides chemical health and safety information to the public. Publications include: *ChemEcology*, a 10-issue-per-year newsletter covering environmental, pollution-control, worker-safety, and federal and state regulatory actions, and the *CMA Directory*, a listing of the CMA membership. The CMA holds an annual meeting in White Sulphur Springs, WV.

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### Chlor-alkali Industry

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The Chlorine Institute, Inc.  
2001 L Street, N.W.  
Suite 506  
Washington, D.C. 20036  
Phone: (202) 223-2790  
Fax: (202) 223-7225

Members: 200  
Budget: \$1,500,000  
Contact: Gary Trojak

The Chlorine Institute, Inc. was established in 1924 and represents companies in the U.S., Canada, and other countries that produce, distribute, and use chlorine, sodium and potassium hydroxides, and sodium hypochlorite; and that distribute and use hydrogen chloride. The Institute is a non-profit scientific and technical organization which serves as a safety, health, and environmental protection center for the industry.

Chlorine Chemistry Council  
2501 M Street, N.W.  
Washington, D.C. 20037  
Phone: (202) 887-1100  
Fax: (202) 887-6925

Members: 30  
Staff: 24  
Budget: \$14,000,000  
Contact: Kip Howlett Jr.

The Chlorine Chemistry Council (CCC), established in 1993, is a business council of the Chemical Manufacturers Association (CMA) and is made up of producers and users of chlorine and chlorine-related products. With involvement from all stakeholders, the CCC works to promote science-based public policy regarding chlorine chemistry and is committed to develop and produce only those chemicals that can be manufactured, transported, used, and disposed of safely. CCC facilitates risk-benefit analyses and product stewardship through the collection, development, and use of scientific data on health, safety, and environmental issues. CCC hopes to heighten public awareness of chlorine chemistry and its many societal benefits by collaborating with the public health and scientific community in assessing and communicating chlorine-related human health and environmental issues.

## IX. CONTACTS/ACKNOWLEDGMENTS/RESOURCE MATERIALS/BIBLIOGRAPHY

For further information on selected topics within the inorganic chemicals industry a list of contacts and publications are provided below:

**Contacts<sup>f</sup>**

Name	Organization	Telephone	Subject
Walter DeRieux	EPA/OECA	(202) 564-7067	Regulatory requirements and compliance assistance
Sergio Siao	EPA/NEIC	(303) 236-3636	Industrial processes and regulatory requirements
Iliam Rosario	EPA/OAQPS	(919) 541-5308	Regulatory requirements (Air), Chlorine NESHAPs
George Zipf	EPA/OW	(202) 260-2275	Regulatory requirements (Water)
Rick Brandes	EPA/OSWER	(202) 260-4770	Regulatory requirements (Solid waste)
Ed Burks	EPA/Region IV	(404) 347-5205	Inspections, regulatory requirements (RCRA)
Jim Gold	EPA/Region VI	(713) 983-2153	Inspections and regulatory requirements (Water, AIR and TSCA)

OECA: Office of Enforcement and Compliance Assistance

NEIC: National Enforcement Investigations Center

OAQPS: Office of Air Quality Planning and Standards

OW: Office of Water

OSWER: Office of Solid Waste and Emergency Response

**General Profile**

*U.S. Industrial Outlook 1994*, Department of Commerce

*1987 Census of Manufacturers, Industry Series, Industrial Inorganic Chemicals*, Bureau of the Census [Published every five years the next version will be available in September of 1994]

*1992 Census of Manufacturers, Preliminary Report Industry Series, Industrial Inorganic Chemicals*, Bureau of the Census [Data will be superseded by a more comprehensive report in September of 1994]

<sup>f</sup> Many of the contacts listed above have provided valuable background 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.

*Chlorine and Its Derivatives: A World Survey of Supply, Demand, and Trade to 1992*, Tecnon Consulting Group, London, 1988.

*North American Chlor-Alkali Industry Plants and Production Data Book*, Pamphlet 10, The Chlorine Institute, Washington, D.C., January, 1989.

**Process Descriptions and Chemical Use Profiles**

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*Riegel's Handbook of Industrial Chemistry*, 9th ed., Kent, James A., Ph.D., editor, Van Nostrand Reinhold, New York, 1993.

*Kirk-Othmer Encyclopedia of Chemical Technology*, Fourth edition, volume 1, John Wiley and Sons, New York, 1994.

Buchner, Schliebs, Winter, Buchel. *Industrial Inorganic Chemistry*, VCH Publishers, New York, 1989.

*Multi-media Assessment of the Inorganic Chemicals Industry*, Chapter 12-Salt Derivatives, Prepared for U.S. EPA Industrial Environmental Research Laboratory by Verser, Inc., Springfield, Virginia, 1980.

*Recommendations To Chlor-alkali Manufacturing Facilities for the Prevention of Chlorine Releases*, The Chlorine Institute, First Edition, October, 1990.

*Assessment of Solid Waste Management Problems and Practices in the Inorganic Chemicals Industry*, Final Report, Versar, Inc. for U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Cincinnati, Ohio, April 1979.

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