

ABSTRACT

Rachel Kron: A Comparison of Public Reporting of Environmental Regulatory
Information

(Under the direction of Dr. Richard Andrews)

A comparative data analysis of regulatory status and violation information reported to an academic study and mandated reporting data reported to EPA databases was conducted for 13 businesses and manufacturing facilities. The data compared included air, hazardous waste, and water regulatory statuses and violations to air, hazardous waste, and water regulations for the years 1995, 1996, and 1997. The results conclude that the regulatory status data of these two data sets were similar but the violation data did vary considerably. Of the 34 violations in the IRD for these 13 facilities, 3 violations matched information in the mandated reporting data. The problems of environmental reporting such as identification of sources, route of reporting, and lack of uniformity of reporting are some hypotheses suggesting why these two data sets diverge. This report suggests the greater implications of these problems and recommendations on how to obtain a more complete mandated reporting data set.

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LIST OF ABBREVIATIONS

AIRS	Aerometric Information and Retrieval System
AFS	AIRS Facility Subsystem
ARIP	Accidental Release Information Program
BRS	Biennial Reporting System
CAA	Clean Air Act
CEI	Comprehensive Evaluation Inspection
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability (CERCLA) Information System
CMS	Compliance Monitoring System
CRM	Criminal Enforcement Docket
CWA	Clean Water Act
DMR	Daily Monitoring Report
DOCKET	Civil Enforcement Docket
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERNS	Emergency Response Notification System
GIS	Geographic Information Systems
IDEA	Integrated Data for Enforcement Analysis system
IRD	ISO Reported Data
ISO	International Organization for Standardization
LQG	Large Quantity Generators
MRD	Mandated Reporting Data
NCDB	National Compliance Data Base
NOV	Notice of Violation
NRC	National Response Center
OECA	Office of Enforcement and Compliance Assistance
PCS	Permit Compliance System
QA	Quality Assessment
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
SETS	Site Enforcement Tracking System
SQG	Small Quantity Generators
TSD	Transfer, Storage, and Disposal
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
WHO	World Health Organization

1.0 Introduction

A comparative data analysis of violation information reported to the academic study, *The Effects of ISO14001 Environmental Management Systems on the Environmental and Economic Performance of Organizations*, (also called the ISO14001 EMS Pilot Project, throughout this report)¹ and EPA reported information was conducted for thirteen business and manufacturing facilities for the years, 1995, 1996, and 1997. The self-reported data set was derived from the facilities participating in the academic study, *The Effects of ISO14001 Environmental Management Systems on the Environmental and Economic Performance of Organizations*. Although most information reported to the EPA is self-reported by facilities, there are different reporting schemes with which the facilities must comply. This study asked for specific information in a format unlike the one in which they must report to state environmental agencies and the EPA. Therefore in this report the term "ISO Reported Data" (IRD) will refer to the information reported to the academic study mentioned above. This information was compared to violation information that is required to be regularly reported to the United States Environmental Protection Agency (EPA). The term "Mandated Reporting Data" (MRD) will refer to the data that ends up in the EPA databases. The ISO14001 EMS Pilot Project data are being used as a set of case studies to determine whether information that is self-reported by business and manufacturing facilities to institutions other than the EPA or state environmental agencies and studies matches information in public EPA databases about these same facilities. The purpose of the study was the following:

- Determine the accuracy of the IRD about regulatory status and air, water, and hazardous waste violations of thirteen business and manufacturing facilities from 1995-1997 by comparing them to the MRD that are available to the public through the EPA databases AIRS/AFS, ERNS, PCS, and RCRIS.

- Evaluate what information is reported to these databases, and how the information is entered into these databases,
- Discuss the problems of environmental reporting and publicly available environmental regulatory information and how these affected the comparative data analysis,
- Hypothesize why the IRD and MRD gathered from the databases diverged, and
- Provide recommendations for the reader on how to obtain a more accurate set of violation information.

The results indicated that information on regulatory status is very similar in the IRD and MRD. Regulatory statuses do not vary much. However, results also showed that the information on violations was quite different between these two data sets. These results also indicated that there are many possible reasons why the information on violations was reported differently in these two data sources. Understanding these differences and the reasons for them is very important not only for the users of the IRD, but to users of any of the public databases that are frequently cited as a basis for policy decisions and for evaluation of environmental performance and regulatory compliance. The recommendations suggest additional research methods to obtain more accurate and consistent information on environmental regulatory violations.

1.1 Scope and Objectives

In most cases, the databases sponsored by the EPA are compilations of the reports that facilities have submitted to the state environmental agency. These agencies then collect and organize the MRD and send it to the EPA, whereby the information is then made available to the public electronically. For this study the violation information from 1995-1997 for a sub-set of thirteen business and manufacturing facilities was chosen for analysis.

The first part of this report contains background information for the reader about the different elements of the study. It is comprised of a literature review and discussions

with environmental specialists from the North Carolina Department of Environment and Natural Resources (NCDENR). The following topics will be discussed:

- The components of the ISO14001 EMS Pilot Study that provided IRD (Section 1.2),
- The means by which the public can access environmental regulatory information (Section 1.3.2),
- The publicly available databases that were used in this report (Aerometric Information and Retrieval System/ AIRS Facility Subsystem {AIRS/AFS}, Emergency Response Notification System {ERNS}, Permit Compliance System {PCS}, and Resources Conservation and Recovery Information System {RCRIS}) and how the information is reported to them based on a case study of North Carolina's reporting system (Section 1.4 and all its subsections), and
- The problems of environmental reporting that the EPA and other constituents have identified (Section 1.5 and all its subsections).

It is the intent of this report to identify the problems that exist with the databases that the EPA provides through a series of comparative data analysis case studies. These case studies involved the collection of data about violations of hazardous waste from the Resource Conservation and Recovery Information System (RCRIS). The violations of air regulations were tracked with the Aerometric Information and Retrieval System/ AIRS Facility Subsystem, AIRS/AFS database. The water regulation violation for these facilities was collected from the Permit Compliance System (PCS) database. Finally, data on all of the spills for all of the facilities to all media (land, air, and water) were collected with the Emergency Response Notification System (ERNS) database.

Access to these databases was provided through the networks RTK net and Envirofacts. Each of these data sources as well as the specifics about the databases will be discussed in sections 1.3 and 1.4.²

Many of the reasons why the IRD violation information is not the same as the MRD violation information found in the EPA databases will be presented throughout this first section. When the results are presented in the third section of this report the specific reasons for the divergence will be further discussed.

Section 2.0 will discuss the characteristics of facilities for which the IRD environmental regulatory data was used, how the EPA MRD compilation occurred, and how the analyses were executed. In order to understand what type of information will be under analysis, it is important to first understand some of the constraints that were assigned to the facility selection and performance of the data analysis.

Section 3.0 will present the results about the regulatory status and violation information. First the regulatory status of each facility will be analyzed. The hazardous waste, water, and air IRD regulatory status and MRD obtained from the EPA will be compared. Next, the IRD violations reports will be presented. A comparison of this information to what is available through the publicly available databases, AIRS/AFS, ERNS, PCS and RCRIS will follow. Each comparison will be media specific. After the information is presented in a tabular form a discussion of the findings for that particular table will follow. These discussions will include hypotheses of why the information from these two sources may or may not be the same.

Section 4.0 will be a conclusion of the findings of this report and its greater implications.

Section 5.0 will focus on recommendations on how reader should go about obtaining a more complete and accurate set of violation information. This section will also discuss the means by which to maximize the quality of the publicly available data as well as its accessibility.

The links between the federal government, states, regulated entities, and citizens are all very important when it comes to environmental reporting and compliance verification. That is why some sort of consensus must be reached on how to report effectively and in a way that the data can be used in meaningful ways.

Objectives

The first objective is to evaluate whether or not there is a difference in the IRD of the thirteen facilities selected from the ISO14001 EMS Pilot Project as represented by a comparative sample of case studies. The second objective is to investigate why this

information differs. The third objective is to report on the problems that exist with the present environmental reporting system and how an attempt is being made by the EPA and state environmental agencies to rectify this situation. The findings conclude that the EPA databases, AIRS/AFS, ERNS, PCS, and RCRIS are not the best way to get MRD violation information.

1.2 Characteristics of the IRD

The regulatory status and violation data for 1995, 1996, 1997 of the thirteen business and manufacturing facilities comes from data collected in the baseline data protocol of the ISO14001 EMS Pilot Project.³

According to the ISO14001 EMS Pilot Project, "regulatory status" refers to the facility's categorization under many environmental programs (Andrews et al., 1999). The regulatory status is important to this study because it determines to which environmental regulations the facilities must comply and in which EPA databases the MRD violation information may appear. For the purpose of these case studies, the regulatory status as reported in the IRD will be compared to the MRD data that are reported to the EPA databases AIRS/AFS, PCS, and RCRIS.

Since the IRD only states that the violations are to air, hazardous waste, and water regulations occurred but does not specify to which regulations in particular the violation was (nor did the ISO14001 EMS Pilot Project ask for this information), the additional regulatory statuses reported to the IRD could be important to help identify to which regulation these violations may then be charged. Therefore, although the regulatory status parameters are not the same, by knowing to which databases the facility has to submit information and what are required for those reports, some comparison can be made. For example, in the baseline study information about the regulatory status for the facilities with NPDES permits is asked. In the databases, if one has a NPDES permit then there should be a PCS report for that facility. If a facility is a small quantity generator (SQG) or a large quantity generator (LQG), it must report to RCRIS. The fact that a

report is generated does not necessarily guarantee that the violation information will be in the report.

The IRD includes violations to air, hazardous waste, and water regulations.⁴ The following parameters of the violations will be compared:

- Violation Date
- Violation Description

These parameters will be compared for violations to air, hazardous waste, and water regulations.

1.3 Public Data Sources and Access

Because of the emergence of the Internet as a cheap and accessible way of getting information, EPA databases are more easily accessible to the general public. Since the emergence of the EPA and environmental regulations, facilities have had to comply with the applicable regulations and report to the EPA on their violations and emissions. With the passing of the Right-to-Know laws a new database, the Toxic Release Inventory (TRI), was mandated by law to be available to the public. The databases used in this study are a means by which the EPA maintains MRD violation and emission information for facilities. They were not originally meant to be used as public disclosure resources. However, with the emergence of the Internet and greater public interest, the EPA now provides these data sources to the public through a variety of systems that will be discussed in this section. A brief synopsis of the Right to Know movement and background information about the two networks used to obtain the MRD from the EPA for this study are presented in the following subsections of section 1.3.

1.3.1 About the RTK Laws

In 1986, Congress passed the Emergency Planning and Community Right-to-Know Act (EPCRA). The impetus for this legislation grew out of concern over recent environmental tragedies involving chemical facilities as well as from the growing concern for protection of the public from chemical emergencies and dangers that

businesses and industries pose on the public with the chemicals they use, treat, or store. EPCRA (<http://es.epa.gov/oeca/ore/tped/epacratp.html>).

In the 1970's when the pollution control statutes and regulations were being implemented by the Federal government, the wastes of many industries were beginning to be controlled. However, the production of materials before they became wastes was not controlled and regulated by the government. Therefore, the decision about chemical use and human and environmental exposure to these materials was primarily in the hands of the businesses. The general public was not pleased about this and a surge of "right-to-know" campaigns began at the state level. The Bhopal catastrophe that occurred in 1984 killing at least 2,500 people and seriously injuring at least 10,000 more was the impetus for the chemical disclosure requirements and discredited business's argument against it (Andrews, 1999). The idea of public disclosure of information that was required by EPCRA became a new incentive for environmental protection.

EPCRA consists of two parts. The first part requires the development of both state and local emergency planning committees for chemical releases. The second part requires the reporting of emissions of specified toxic chemicals to the EPA. Significant releases are to be reported immediately to emergency committees. These committees must also be informed about the chemicals that are used and stored at a facility. The emission information is then stored in a database called the Toxic Release Inventory (TRI). It is mandated by law that this data source be available to the public at no cost. The other part of the law requires that certain businesses report the release of extremely hazardous materials to both state and local authorities. Additionally, they are to disclose information about the types and quantities of these materials that they store on their grounds to the same authorities (<http://es.epa.gov/oeca/ore/tped/epacratp.html>).

The TRI is not the only source of environmental performance and chemical emission data that is available. Data from the following sources are also available (among others).

- Accidental Release Information Program (ARIP)
- Aerometric Information and Retrieval System (AIRS) / AIRS Facility Subsystem (AFS)
- Biennial Reporting System (BRS)
- Civil Enforcement Docket (DOCKET)

- Comprehensive Environmental Response, Compensation and Liability (CERCLA) Information System (CERCLIS)
- Criminal Enforcement Docket (CRM)
- Emergency Response Notification System (ERNS)
- National Compliance Data Base (NCDB)
- National Priority List (NPL)
- Permit Compliance System (PCS)
- RCRIS – Resource Conservation and Recovery Information System, and compliance subsystem
- Site Enforcement Tracking System (SETS)
- Toxic Chemical Release Inventory System (TRIS)

Each of these databases contains MRD that must be submitted to the EPA under some regulation or law. There are additional databases even beyond those listed above, but for the purposes of this paper, data from RCRIS, AIRS/AFS, PCS, and ERNS were used. These databases are the primary sources of violation information for air, hazardous waste, and water.

1.3.2 Public Access to MRD

The public can get MRD from the databases previously mentioned from the EPA as well as other sources. There are resources such as the Right-To-Know Network (<http://www.ombwatch.org/rtknet>), and Envirofacts, EPA's Data Warehouse (http://www.epa.gov/enviro/index_java.html), to name two that provide direct access to the EPA databases. These two resources were used for this study. The EPA web page will direct a user out of the EPA web site to sources such as these to search the databases.

1.3.2.1 EPA

According to EPCRA the public should be able to get information at no cost. The EPA provides an overwhelming amount of information for the public to access. With the recent explosion of Internet resources, a multitude of environmental reports, databases, and federal registries are more easily accessible direct from the Internet or can be ordered

from the EPA web-site. This information was always available to the public, now it is just more easily accessible because of the Internet.^{5,6}

1.3.2.2 The Right-To-Know Network

RTK Net is a "a network providing free access to databases, documents, and conferences on the environment, housing, and sustainable development. It was established in 1989 to support EPCRA and to empower citizen involvement in community and government decision-making."⁷

Through this network one can retrieve data from one database at a time or the data can be obtained through a master report. In this master report, the data from all of the databases is compiled for one facility, area, industry, etc. There is also technical support and training available through this network to learn how to use this resource.

When searching in the databases without the use of a query in this system, there is a selection of reports available to the user. Most often they include facility report, area report, and industry report. There are others depending on the database from which the information is being retrieved.⁸

The RCRIS reports and PCS reports were retrieved from this system in a facility-by-facility search. This system does not provide reports from the AIRS/AFS database.⁹

1.3.2.3 Envirofacts, EPA's Data Warehouse

This site provides another means by which to search or query MRD which the EPA has gathered about hazardous waste (and Superfund sites), releases to air, water, and the land of all materials, and compliance with different environmental regulations.¹⁰ The databases this system can obtain information from are PCS, TRI, RCRIS, BRS, AIRS/AFS, and CERCLIS.

The RTK Network and the Envirofacts EPA Data Warehouse are somewhat similar in overall content, but the information they provide is in some instances quite different. For example, in RTK Net violation information from RCRIS was obtained but in Envirofacts the violation information was not available. Both RTK Net and Envirofacts provided the same report for PCS.

The PCS reports and AIRS/AFS reports were retrieved from this data source. A special request was submitted to the EPA for the AIRS data from this system on 6/1/99.¹¹

1.4 Databases Used in This Study

With the discussions of each of the databases to follow the source of the data and the purpose of the database will be included. The process of how the information is reported and entered into the database will also be included. Information specific to this database about problems of accessibility and quality (if applicable) will also be presented in this section. It is important to note that most of the responsibilities of the federally sponsored air, hazardous waste, and water programs have been delegated to the states; and, therefore, the states may maintain the information in a different way that the federal government does.¹² This leads to potentially fifty one (every state and then the EPA) different reporting systems. This is important if one is trying to obtain MRD violation information from the EPA and determine its integrity.

1.4.1 Aerometric Information and Retrieval System (AIRS) / AIRS Facility Subsystem (AFS)

The Aerometric Information and Retrieval System (AIRS) is a global compilation of information about airborne pollution. This computer-based repository (database) contains data from the United States as well as various World Health Organization (WHO) member countries (<http://www.epa.gov/epahome/dmedia.htm>). AIRS maintains data about air quality and monitoring, but it is the AFS subsystem that is important here to determine the emissions from facilities and the compliance of the facilities. "AFS contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover the spectrum from large industrial facilities to relatively small operations such as dry cleaners. While AFS maintains data at several levels of detail, the primary information is at the plant level. This information includes general source information, plant compliance status, significant violator information, and air program information (<http://es.epa.gov/oeca/idea/data.html#AFS>). Access to this database is not provided through RTK net.

The different categories of air toxic producers are based on the size of the source. According to the Clean Air Act of 1990 the following definitions are used to determine the difference between a major and minor source of air pollutants.

"The term "major emitting facility" means any of the following stationary sources of air pollutants which emit, or have the potential to emit, one hundred tons per year or more of any air pollutant from the following types of stationary sources: fossil-fuel fired steam electric plants of more than two hundred and fifty million British thermal units per hour heat input, coal cleaning plants (thermal dryers), kraft pulp mills, Portland Cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than fifty tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process) primary lead smelters, fuel conversion plants, sintering plants, secondary metal production facilities, chemical process plants, fossil-

fuel boilers of more than two hundred and fifty million British thermal units per hour heat input, petroleum storage and transfer facilities with a capacity exceeding three hundred thousand barrels, taconite ore processing facilities, glass fiber processing plants, charcoal production facilities. Such term also includes any other source with the potential to emit two hundred and fifty tons per year or more of any air pollutant. This term shall not include new or modified facilities which are nonprofit health or education institutions which have been exempted by the State." (CAA, Title 1, Part C, Subpart 1, Sect. 169 (1); Federal Register 42 U.S.C. 7479)

The definition found for a "minor source" was a smaller (area) source. A small source is defined as the following:

"Small Source.- The term "small source" means a source that emits less than 100 tons of regulated pollutants per year, or any class of persons that the Administrator determines, through regulation, generally lack technical ability or knowledge regarding control of air pollution." (CAA, Title 3, Sect. 302 (x); Federal Register 42 U.S.C. 7602)

These definitions are used to identify categories of sources that release the 189 hazardous air pollutants listed by Congress in the 1990 Clean Air Act.

1.4.1 How Information is Reported to AIRS/AFS and Problems with this Database

As an example, environmental officials from the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Air Quality were contacted to investigate how information is reported to AIRS/AFS (in the state of North Carolina) and what problems exist with this reporting system. Therefore all of the information in this section was obtained during a conversation with Ms. Kimberly Davis, Environmental Engineer for the Division of Air Quality of NCDENR, and Mr. Lee Daniels, Section Chief for Technical Services for the Division of Air Quality of NCDENR, on June 7, 1999.

1.4.1.1 Air Inspections

Violations to any air regulation (federal or state) are reported through inspections. In North Carolina, major air polluters are inspected annually and every other classification of air polluters is inspected biannually. A facility may also be inspected based on a complaint. NCDENR is inclined to inspect a facility more often if the facility has had prior violations. Examples of the various kinds of violations that might be reported are the following:

- Violations of emissions standards of various regulations
- Violations of administrative reporting requirements (e.g. failure to file reports on time, failure to file the reports at all, falsification of reports, etc.)

It is possible that other states do not follow the same inspection procedures.

1.4.1.2 Air Violations

The violations are discovered by the regional offices (of which North Carolina has seven) during inspections and by submitting emission reports late. A violation to any federal or state standard is reported to AIRS/AFS. The Division of Air Quality determines whether or not the violation is worthy of assessing a penalty. These "worthy" violations are sent to the headquarters of NCDENR to be evaluated and a penalty is assessed. This information is then entered into a state-sponsored database. This state-sponsored database then transfers information to the AFS federal database once a month (the EPA can be 6-8 weeks behind in making this information public). A representative from the EPA then returns a report to the Environmental Engineer for the NCDENR Division of Air Quality and informs him/her which violations the EPA plans to track. The EPA usually does not track the violations to the state regulations, only the federal regulations. Some violations to federal regulations are reported in AIRS/AFS and then not penalized because follow up visits are not made. The violations to state regulations are reported and entered into the AIRS/AFS database but the EPA does not follow up on these regulations. Therefore any additional information about these violations may be contained in the state database (if one exists). Additional information may include

revisits to the facility to ensure that it has come back into compliance. The MRD in the AIRS/AFS database may then indicate that a violation of a state regulation occurred but that is all of the information that will be conveyed. The EPA is presently trying to decide if there are other good measures of compliance other than "bean-counting" the MRD violations.

1.4.1.3 Use of the AIRS/AFS Database

The EPA essentially uses this system to count MRD violations and does nothing more with this information. The state therefore just provides the "beans" to be counted. Since the AIRS/AFS system is an old mainframe system the NCDENR does not use it often. Most of the information in this system is coded. If one wishes to decode the information and know more, he or she must talk to an EPA or state specialist about it. The AIRS system though should tell that there was a violation and that some action was taken, but State Officials agree that if one is not an expert in reading these reports then they are useless.^{13,14} The NCDENR Division of Air Quality can provide ad hoc queries for \$25.00.

1.4.1.4 Fragmentation of the Reporting System

Neither of the EPA databases for other programs (hazardous waste and water) are related. Nor are the different states' air databases. Therefore, if one wishes to get air violation information about facilities, state officials suggest that one go to the state government rather than the federal AIRS/AFS database. The database was not designed to disseminate information to the public, but rather just to count up the violations and emissions in its own language and codes.

The technical support staff at NCDENR Division of Air Quality did conduct a specialized query of the AIRS/AFS database for this study to extract the violation information for these facilities. On 6/23/99 and 6/24/99 the results of this query were received which will be discussed in section 3.3.2.3. A query of the reports themselves from the EPA was requested on 6/1/99 and received on 6/2/99. A specific query for the

violation information was also requested from the EPA but the results of that query were not received.

1.4.2 Emergency Response Notification System (ERNS)

The Emergency Response Notification System (ERNS) is the database that contains information about the phone calls made to the National Response Center (NRC) about spill and accidental releases of hazardous substances. There is a data quality problem with this database however. "Although information from these calls was recorded in standard form, these phone calls have not been checked for accuracy and may represent incorrect information given during an event. This database is not updated as more current information about an already-recorded event becomes more available" (<http://www.rtk.net/www/datadoc/erns.html>). Therefore, if the original data were incorrect, they were not revised later. Also there is the problem of double counting of releases and amounts of releases if more than one phone call is was made about the same event.

1.4.3 Permit Compliance System (PCS)

The Permit Compliance System (PCS) was developed in 1974 and contains information about National Pollutant Discharge Elimination System (NPDES) permits that are mandated by the Clean Water Act. It contains data on the issuing of water-discharge permits to facilities, which require regulation under NPDES, as well as the limits in the permits. It also contains monitoring data and data that are relevant about the facilities that are regulated under the NPDES (<http://es.epa.gov/oeca/datasys/pcssys2.html>). In Envirofacts the data for this database was most recently retrieved from the source on 4/20/99 and posted on 4/22/99.

1.4.3.1 How Information is Reported to PCS and the Problems with this Data Source

As an example, an environmental official from the NCDENR Division of Water Quality was contacted to investigate how information is reported to PCS and the problems with this reporting system. All of the information from this section comes from a discussion with Robert C. Farmer, Environmental Specialist for the Division of Air Quality of NCDENR, on June 4, 1999. Again, the information is specific to the state of North Carolina.

1.4.3.2 State System Versus PCS System

The EPA has a completely different water database than NCDENR. The system that North Carolina uses is the Compliance Monitoring System (CMS). The CMS will automatically point out any violations of limits. Also the system will tell the measurement frequency, sampling location, and sampling type for each facility. The PCS and CMS systems do not match up and use different codes, therefore it is difficult to upload the information to the EPA PCS database. The state system and PCS are not very user friendly and the state plans to go to an independent database system soon that will make it even more difficult to transfer the MRD to the EPA system. The definition of major and minor facilities varies between states as well as with the federal government. Some states do not have any additional tracking tools.

1.4.3.3 Daily Monitoring Reports

Facilities with NPDES permits are required to maintain a DMR (Daily Monitoring Report) that reports certain parameters of the water at the facility (temperature, pH, etc.). These parameters are measured and recorded on a daily basis. There are certain limits mandated by law that cannot be exceeded. If one of the readings on a particular day is not within those limits then it is a violation.

1.4.3.4 Water Violations

For the facilities directly regulated by the EPA, if the DMR is not obtained at the end of the month, it is an automatic administrative violation for not getting the DMR to them on time. The state of NCDENR Division of Water Quality, however, has a 45-day time limit to get the report to them. State and federal environmental agencies have to trust that the facilities are not reporting fictitious numbers. If there is any suspicion, the state will go out to the particular facility, take its own water samples, and test for these same parameters. If the numbers match then the state officials know that the facility was reporting its values. If the numbers do not match, another round of samples may be taken and a violation will be issued for reporting fictitious numbers.

1.4.3.5 Water Inspections

The DMR is first reported to the appropriate regional office. This information is then sent to the headquarters where some of the violations (such as those that are due to late DMR reports) are dropped. Additionally, if there is a violation on a certain limit that was exceeded, the value must be greater than 20% of the maximum limit value to still be a violation. If it is less than 20%, the violation is dropped.

The errors that could occur with the data (that would ultimately cause it to be mismatched with the IRD) for water violations begin here. It is possible that a violation that was issued by the regional office may have been dropped at headquarters. Next there is room for error when the information from the DMR is keyed into the system and transferred electronically to PCS. The values in the DMR may also be in different units than what is used in PCS. The Division of Water Quality does a quality assessment (QA) on the data to try to eliminate as many errors as possible.

The parameter at which NCDENR looks is the violation information. Again, that is why it is important to evaluate the integrity of the violation information in studies such as this one. If violation information is what a state agency looks at most, then one must try to be sure that the IRD and MRD reported to the EPA or state agencies are the same.

1.4.4 Resource Conservation and Recovery Information System, and Compliance Subsystem (RCRIS)

The Office of Solid Waste within the EPA maintains the Resource Conservation and Recovery Information System (RCRIS) and compliance subsystem. This system contains information about the compliance and clean up activities of hazardous waste handlers (generators, transporters, and disposal facilities) that must comply with the Resource Conservation and Recovery Act (RCRA). Some of the parameters that the system tracks are violations, outstanding violations, enforcement actions, corrective actions, and penalties. Any information about compliance or violations is stored here and updated as the clean-up actions take place. The dates of any violations or enforcement actions as well as the date the correction action was complete are all in this data source (<http://www.epa.gov.epaoswer/hazwaste/data/index.htm#rcris>). In Envirofacts the data for this database was most recently retrieved from the source on 5/11/99 and posted on 5/12/99.

1.4.4.1 How Information is Reported to RCRIS and the Problems that Result

As an example, environmental state officials from the NCDENR Division of Waste Management were contacted to investigate how information is reported to RCRIS in the state of North Carolina, and what the problems (if any) with this reporting are. All of the information in the following section was obtained through discussions with Mr. Bud McCarty, Environmental Engineer and Mr. Jim Edwards, RCRIS/BRS DBA, both from the NCDENR Division of Waste Management. Violations are found during inspections; however, sometimes neighbors or disgruntled employees may also call the state government to inspect a facility.

1.4.4.2 Hazardous Waste Facility Inspections

Inspections rates by NCDENR officials are as follows:

- Two-thirds of the 500+ Large Quantity Generators (LQGs) are inspected annually

- Of the 2600-2800 Small Quantity Generators (SQGs) the ones that are inspected are chosen at random.
- For both LQGs and SQGs NCDENR is inclined to revisit a facility if it has had violations in the past.
- If there is a prior violation, then the facility will have to come back into compliance and will be revisited to check this. The inspector may conduct another full inspection at this time.
- Transfer, Storage, and Disposal facilities (TSDs) are inspected annually.

The inspections are called Comprehensive Evaluation Inspections (CEIs) and are complete evaluations of the facility. All records, manifests, and storage areas are inspected for generators. Normally violations are found in the pre-transport records, record-keeping, or personnel training. The intensity of the violation determines whether a Notice of Violation (NOV), Compliance Order, or just a warning is issued. An NOV is identified as a Written Information Administrative Action in RCRIS.

1.4.4.3 Entry into RCRIS

Once the inspector conducts an inspection, he/she writes up a coversheet and submits it for data entry. NCDENR reports directly to the federal RCRIS system on a daily basis and does not keep a separate system for hazardous waste violations like the Division of Water Quality and Division of Air Quality do. Not all states may report the MRD directly into RCRIS; they may have their own system that transfers information to the EPA RCRIS system.

1.5 Environmental Reporting

Both the EPA and other constituents feel that there are a number of problems with the present environmental reporting. The views of the EPA's other constituents such as Congressmen (both men and women), state enforcement officials, and citizens with experience in environmental enforcement on environmental reporting will be presented in all of the sub-sections of section 1.5. The views of these constituents were gathered at

the Colloquium on Federal-State Relations in Environmental Enforcement¹⁵, sponsored by the Environmental Law Institute in 1991.

1.5.1 Identification of Sources

It has been noted by the EPA and other constituents that the identification of the sources of pollution (facilities) differs from program to program in information as basic as name and address. Additionally, the EPA has recognized that one of the greatest challenges for finding data in these databases or any others sponsored by the EPA is the lack of continuity in the names of facilities, cities, etc. For example some reports may have the city of St. Petersburg as "St. Petersburg" while in another report in the same database or another one it would be "Saint Petersburg".¹⁶

Inconsistencies exist even among the EPA Identification Numbers used in each database.¹⁷ Since the facilities have separate Identification Numbers in each of the databases, just finding the information for which a user may be looking can be difficult.¹⁸

1.5.2 Route of Reporting and Identification of Enforcing Entity

There is a problem with the identification of the enforcing entity; and, therefore, with the route of environmental reporting, both of which lead to confusion with the current system of environmental reporting. Both the EPA and the Colloquium recognize this problem. Due to the inefficient means by which the MRD is reported many problems surface. As indicated in Figure 1: What's Wrong With This Picture?, problems arise from the way that MRD is reported and how it goes through the system first from the sources, and the laws and regulations with which they must comply. It is a confusing route and allows much room for error and duplication due to its inefficiencies. As one commentator noted, "Seen from an overall point of view, however, it is obvious that duplication and inefficiency are inherent in the current arrangement. It is equally clear that both regulators and the public – and probably the reporting facility itself – would find it difficult to consolidate the data being reported to obtain an overall picture of facility performance"

(<http://www.epa.gov/reinvent/onestop/about/strategy.htm>).

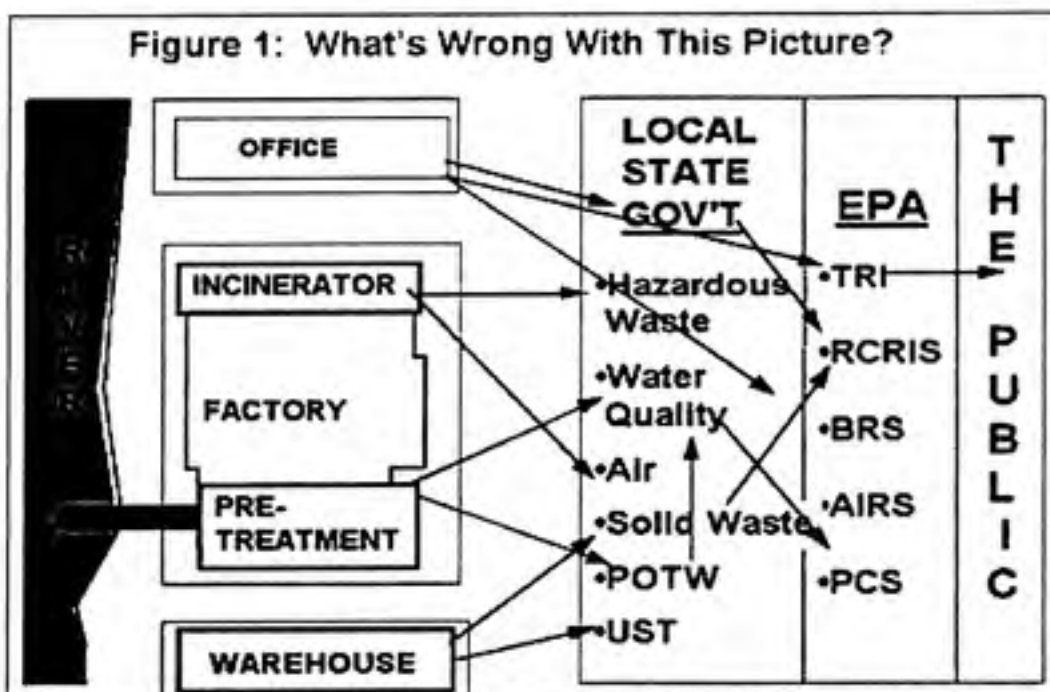


Figure 1.4.1: What's Wrong With This Picture?

Data Source: One Stop Reporting – One Stop Program Strategy and Award Criteria
<http://www.epa.gov/reinvent/onestop/about/strategy.htm>

The present reporting system is an “insiders” game where only the regulated entity and the regulators are the true players

(<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). The regulating agencies decide what data must be reported and the sources (regulated entities) must find the least costly way to control their environmental concerns to stay in compliance with these regulations and report this information to the state. The result of this system is “a disconnected collection of reports that cannot be easily linked and that do not serve the larger interest of either party”

(<http://www.epa.gov/reinvent/onestop/about/strategy.htm>).

The uncertainty of the identification of the enforcing entity is a major problem with environmental reporting (ELI, 1991). It can be argued that more than one agency should enforce for each case, or that this redundancy causes some of the duplication of reports and is an inefficient use of scarce resources (ELI, 1991).

1.5.3 Lack of Uniformity of Reporting and Fragmentation of the Design of the Reporting Process

The EPA feels that "there is no environmental reporting 'system'; rather there is a collection of independently defined and managed reporting processes designed to document compliance with individual regulations and track program results" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). Since the various federal and state laws and regulations have specific guidelines and requirements that are defined within its text, each separate medium (air, water, land, waste, etc.) has specific "reporting requirements to document performance under each of its major regulations" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>).¹⁹ States issue the permits to the sources of environmental pollutants and are the first agencies to receive the environmental reports. Additionally, the states are the primary users of these reports.

But "the fragmentation of the design of environmental reporting process impedes effective use of information technology."

(<http://www.epa.gov/reinvent/onestop/about/strategy.htm>)

The participants at the Colloquium in 1991 also felt this fragmentation of reporting systems was a problem. Common databases should be developed to increase the accessibility of information about the facilities that were regulated, and about government activities such as enforcement, permitting, or any other activities (ELI, 1991). Environmental reporting systems that present information about facilities in formats that are reasonable and accessible are needed (ELI, 1991). The databases that presently exist do indeed make the MRD available but not in any form that is easy to read or useful if larger quantities of it must be gathered since the systems are not common or even similar.

Different states have different reporting periods based on their budget year and enforcement actions may have different definitions and consequences in different states. Environmental performance is not reported in a meaningful way since the reports are based on numbers of violations or enforcement actions yet these terms are not standardized across the country (ELI, 1991). Yet, this is how this information is presently reported.

All of the data from the different states and the government are supposed to be integrated into one environmental reporting system. This is what the present reporting scheme is supposed to do, but from the previous discussion of how information is reported to AIRS/AFS and PCS, the reader can see that this is not so. "There is no conceivable way to satisfy stakeholder expectations for environmental reporting in the absence of a coherent system" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>).

1.5.4 Usefulness of Environmental Reporting

1.5.4.1 The Significance of the Information that is Reported

The EPA has to report enforcement success to Congress for legislative purposes. But "congress has come to expect annual increases in these enforcement numbers and uses these as a method of evaluating EPA's effectiveness and commitment to its mission" (ELI, 1991). How then is the EPA supposed to promote pollution prevention and voluntary standards such as ISO14001 that go above and beyond compliance? To enforce more actions means to report more information, but what good is the information if it is only generated to make Congress content? This approach of "bean counting," meaning the counting of MRD violations, compliance, and enforcement actions rather than seeing what actually happened and what environmental health risks it poses, is not part of the mission of the EPA, but it is the easiest information to obtain. Both a change in the process and a change in the outcomes are necessary. "Efforts to measure the effectiveness of environmental enforcement raises at least three interrelated questions: what is being measured or evaluated; how is the process of measurement accomplished; and what is done with the information once it is obtained?" (ELI, 1991)

1.5.4.2 Violation Information is not the Only Indicator of Environmental Performance

Violations are not the only data that can be compared to information such as the self-reported information reported to the ISO14001 EMS Pilot Project to MRD reported to the federal government. The following section describes other environmental measurements that could be compared.

Compliance is an important indicator of improvements in environmental performance, as evidenced by the following comments from the 1991 Environmental Law Institute Symposium on Environmental Reporting:

- "Enforcement activities can be judged as successful to the extent that they increase the rate of compliance with the law being enforced.
- Environmental enforcement could be judged by additional factors as well, such as improvements in environmental quality, practically everyone agreed that determining the rate of compliance in the regulated community as essential to assessing the success of an enforcement program.
- The primary goal of enforcement is to ensure compliance with the law, so you should look at the rate of compliance as the first indicator of success.
- Measures of compliance are informative only when they demonstrate changes in rates of compliance over time in particular regulated sectors or geographic regions." (ELI, 1991)

Some, however, believed that environmental quality should be the ultimate measure of environmental enforcement. "Effective environmental enforcement should mean one thing and one thing only, reduction of environmental degradation" (ELI, 1991). But the other external factors that can affect environmental degradation and quality are economic impacts, changes in the population of an area, variations of weather, and deficiencies in laws and enforcement agencies (ELI, 1991). The EPA and other constituents though for the most part feel that presently compliance is the only way to measure enforcement (ELI, 1991). Therefore, once again the reader can see why it is imperative that self-reported violation information like the information reported to the ISO14001 EMS Pilot Project (IRD) violation information be compared to the MRD that is indeed available to the public. If violations are the primary measurements of compliance then the analyses

such as the one in this report are very important for the evaluation of the integrity of both data sets.

1.5.5 Why Environmental Reporting is Important

Many of the stakeholders involved in the environmental reporting system are not pleased with the present methods and requirements of environmental reporting (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). Businesses and industry feel the paper work is laborious and arduous and that their work is fruitless because the regulators do very little with the data that they report (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). Regulators have the following complaints: "despite large investments to improve internal data systems and add new capabilities such as Geographic Information Systems (GIS), they [reporting systems] still lack the integrated data needed to detect trends, prevent pollution, deploy personnel and resources, answer public inquiries, or defend challenges to their fee systems" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). Lastly, the public is distraught with this system and would like a better means by which to evaluate environmental performance and a more easily accessible system by which to do so (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). They feel as though neither is available from the regulators or industry and therefore end up mistrusting both.

In a recent article in the Daily Environment Report, there is an article entitled, "EPA Admits Data Error, But Still Wants More Oversight of State Enforcement Actions" by Pamela Najor published in June, 1999, which is a prime example of the problems of environmental reporting. This article argues that incorrect MRD is reported to the EPA and that strife exists between the states and the federal government with respect to environmental reporting. The states report that they are waiting for new systems from the government to offer support. OECA states "that the reasons for the decline in enforcement include 'shifting state priorities and resources, less reliable surveillance and identification of violations, and poor enforcement data reporting by the states'" (Najor, 1999). This blame shifting is one of the major problems with environmental reporting. A description of the EPA program that is expected to overcome these problems will be discussed in section 5.0.

2.0 Methods

This section contains a discussion on the characteristics of the facilities examined in this study. Next, the process of how the MRD from the EPA was obtained will be discussed. Lastly, the types of evaluations this report will be make will be presented.

2.1 Facility Selection

There are approximately eighty facilities from ten states participating in the ISO14001 EMS Pilot Project. Since self-reported violation information was reported to this project, it provided a data set by which to compare self-reported violation information to the same sort of information that is reported to the federal government. The facilities in the ISO14001 EMS Pilot Project include both large and small business facilities, manufacturing facilities, government facilities, municipalities, and other public facilities (such as a state university). A sub-sample of thirteen facilities was taken from this data set to conduct case studies on the differences between IRD and MRD violations. Therefore there were certain parameters used to select a subset of facilities with the most complete data sets reported to the ISO14001 EMS Pilot Project and still be a good cross-section of the different facilities for which federal government information is reported.²⁰ The thirteen facilities are large businesses and manufacturing facilities.

The facilities used in this study represent a cross-section of facilities with respect to the states that are participating in the ISO14001 EMS Pilot Project and in the range of the types of violations that were in the IRD (air, hazardous waste, and water). The facilities are not a representation of factors of the facilities such as facility size, number of employees, number of people in the surrounding community, etc. At least one facility from almost every state participating in the ISO14001 EMS Pilot Project (AZ, CA, IL,

IN, NH, NC, OR, PA, VT, WI) is represented in the sub-sample. Some of the facilities in this study have a number of violations, while others reported having one or no violations. To present an equal amount of the types of violations (hazardous waste, water, and air) as a means to evaluate the data sources (AIRS/AFS, ERNS, PCS, and RCRIS versus the IRD information) was also a criterion. For confidentiality purposes the facilities will remain anonymous, and will be represented by the numbers 1 through 13.

2.2 Conducting the Study

All of the information in the ISO14001 EMS Pilot Project thus far is self-reported by the facilities for the years 1995, 1996, and 1997. The violation information is recorded in this study as violations to hazardous waste regulations, air regulations, and water regulations. The MRD that were collected were the violation and emission data from the following databases that the EPA makes available to the public.

- Aerometric Information and Retrieval System (AIRS) / AIRS Facility Subsystem (AFS)
- Emergency Response Notification System (ERNS)
- Permit Compliance System (PCS)
- Resource Conservation and Recovery Information System, and Compliance Subsystem (RCRIS)

The accuracy and validity of the IRD were checked to ensure that all of the violations of these facilities in the past three years were reported to the EPA.

It must be noted that the number of violations is not always descriptive of the violation itself or the material that was spilled, emitted, etc. It is important to recognize that every violation in every one of these databases cannot be evaluated. However, general overall comparisons and characterizations of the MRD can be helpful to identify trends among these facilities and to evaluate how useful the EPA sponsored database are for tracking this MRD.

2.3 Types of Analyses

The types of analyses that will be conducted are the following:

1. Presentation of the demographics of the facilities
2. Presentation and comparison of regulatory status of facilities
3. Presentation and comparison of IRD to MRD reported to the EPA on a facility by facility basis.
4. Hypotheses to why the data may differ or be the same.

3.0 Results

This section will present the results and a discussion of the results. Additionally it will provide a discussion section on the quality of the access to the MRD and the quality of this data.

3.1 Facility Representation

Table 3.1: State Representation in Sub-sample presents the number of facilities from each state in this study.

State	Number of Facilities in Sub-sample
Arizona	2
California	1
Illinois	2
Indiana	1
New Hampshire	1
North Carolina	1
Oregon	1
Pennsylvania	0
Vermont	3
Wisconsin	2
Total Number of States: 9	Total Number of Facilities in Sub-sample: 13

Table 3.1: State Representation in Sub-sample

3.2 Regulatory Status Comparison and Analysis

3.2.1 Regulatory Status from the EPA

Table 3.2.1A: Sub-sample Facility Characterizations indicates what releases were reported for these facilities based on the MRD collected from Envirofacts.

Facility Number	Permitted Discharges to Water	Hazardous Waste Handler	Air Releases Reported
1	YES	YES	YES
2	NO	YES	YES
3	NO	YES	YES
4	NO	YES	YES
5	NO	YES	NO
6	NO	YES	YES
7	YES	YES	YES
8	NO	YES	NO
9	NO	YES	YES
10	YES	YES	YES
11	NO	YES	YES
12	NO	YES	NO
13	NO	YES	YES
Total Yes:	3	13	10
Total No:	10	0	3

Table 3.2.1A: Sub-sample Facility Characterizations

According to Envirofacts and the EPA databases three of these thirteen facilities report discharges to water. All of the facilities are hazardous waste handlers. Ten facilities report air releases. Table 3.2.1B: List of National System Records shows the regulatory status for these facilities based on the MRD collected from Envirofacts.

Facility Number	PCS	RCRIS	AIRS/AFS
1	YES	YES	YES
2	NO	YES	YES
3	NO	YES	YES
4	NO	YES	YES
5	NO	YES	NO
6	NO	YES	YES
7	YES	YES	YES
8	NO	YES	NO
9	NO	YES	YES
10	YES	YES	YES
11	NO	YES	YES
12	NO	YES	NO
13	NO	YES	YES
Total Yes:	3	13	10
Total No:	10	0	3

Table 3.2.1B: List of National System Records

RTK Net and Envirofacts do not tell what year each of these facilities had these statuses but the IRD information does. Very few changes in status took place however from 1995-1997.²¹

The PCS database should be able to generate reports for facilities 1, 7, and 10. RCRIS reports should be generated for all of the facilities. Lastly, AIRS/AFS reports should be available for every facility except facilities 5, 8, and 12. An attempt was made to generate reports for all of the facilities just to test the systems to see the type of output that would be returned.

Seven ERNS reports were obtained.²² They did not prove to be very useful. Most of the spill information was not for the years for which they are needed for this study (1995-1997) and the reports were incomplete. Therefore more focus was placed on the information that was obtained from the AIRS/AFS, PCS, and RCRIS systems.

Table 3.2.1C: Reports Generated from RTK Net, Envirofacts, and Special Requests to EPA Personnel summarizes the actual reports that were received for each facility.²³

Facility #	PCS	RCRIS	AIRS/AFS	ERNS
1	YES	YES	NO	YES
2	YES	YES	YES	YES
3	NO	YES	YES	NO
4	NO	YES	YES	YES
5	NO	YES	NO	NO
6	NO	NO	YES	NO
7	YES	YES	YES	NO
8	NO	YES	NO	YES
9	NO	YES	NO	NO
10	YES	YES	YES	YES
11	NO	YES	YES	YES
12	NO	YES	NO	NO
13	NO	YES	YES	YES
Total Yes:	4	12	8	7
Total No:	9	1	5	6

Table 3.2.1C: Reports Generated from RTK Net, Envirofacts, and Special Requests to EPA Personnel

Neither Envirofacts nor RTK Net were able to generate a RCRIS report for facility 6, even though it is a hazardous waste facility. Reports were obtained for every other facility. No hazardous waste violations were reported to the study for this facility, however, so since a report was not generated for this facility by RCRIS, it is assumed there are none reported in the MRD. However, it should be noted that just because a report was generated does not mean that all of the violation information that was reported to the pilot study was there.

Although facility 2 is not a PCS-required facility, it was at one time in the late 1970's; therefore, it has a report from that time. All of the other facilities that are required to report to PCS did generate reports.

Of the ten facilities that should have had AIRS/AFS reports, eight were obtained. No report was generated for facility 1 or facility 9.²⁴ No air violations were reported to the study for these facilities so it is assumed the facilities were truthful when self-reporting this information. The technical staff at NCDENR Division of Air Quality stated that half of the Identification Numbers were incorrect. The EPA did provide a

report for three of these facilities when it was requested. The other two facilities for which NCDENR said the Identification Numbers were incorrect are also the facilities for which reports from the EPA were not received. After providing the NCDENR staff with additional facility information, violation information was found for the two other facilities that the EPA had provided reports. Therefore, in total violation information (queried from the reports) was reported for seven facilities.

For all of the following comparisons of regulatory status please refer to Appendix A for additional regulatory status information. It is the regulatory status report extracted from the database used to compile the ISO14001 EMS Pilot Project data.

3.2.2 Comparison of Hazardous Waste Generator Status

Table 3.2.2 : Comparison of Hazardous Waste Generator Status* compares the EPA hazardous waste generator status of the facilities to the IRD hazardous waste generator status. Statuses for 1995, 1996, and 1997 were in the IRD, while the EPA has one status reported for all years. There would be a note in the RCRIS report if it had changed and when the change occurred.

Facility #	EPA	IRD Information		
		1995	1996	1997
1	LQG	LQG	LQG	LQG
2	LQG	LQG	LQG	LQG
3	LQG	LQG	LQG	LQG
4	LQG	LQG	LQG	LQG
5	SQG	LQG	LQG	LQG
6	?	N/A	NEITHER	LQG
7	Conditionally exempt SQG	SQG	Conditionally exempt SQG	Conditionally exempt SQG
8	LQG	LQG	LQG	LQG
9	SQG	SQG	SQG	SQG
10	LQG	LQG	LQG	LQG
11	LQG	LQG	LQG	LQG
12	SQG	LQG	LQG	LQG
13	LQG	N/A	NEITHER	NEITHER

Table 3.2.2 : Comparison of Hazardous Waste Generator Status*

*Data Source for IRD: Please see Appendix A – Regulatory Status Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

N/A = Not Applicable

N/R = Not Reported

None of the facilities were TSDs. There were significant differences in the status of facilities 5 and 12. The Environmental Engineer and RCRIS/BRS DBA from the Division of Waste Management at NCDENR both said that it is possible that a facility may change its status annually based on the amount of waste produced. If it is less than 1000 kg/month, the facility is a SQG. If it is greater than 1000 kg/month, the facility becomes a LQG. Therefore the regulatory status could vary from year to year and not have been updated in the RCRIS system. It is possible that this information may be in the Biannual Reporting System (BRS)-database, which describes waste generation at each facility on a biannual basis, not compliance and violation information (like RCRIS). In the IRD, facility 13 reported itself to be a LQG in 1998. It is possible that the facility was not in production until this point, and that RTK net has already had the generator status updated, but these are only hypotheses about why the data sets do not converge. Poor data quality in RCRIS or given to the study could also explain this variance.

3.2.3 Comparison of Water Regulatory Status

Table 3.2.3: Comparison of Water Regulatory Status* compares the water permit status of the facilities. The EPA information is only for PCS. It is possible therefore that the water may be permitted for other water regulations than the NPDES permit portion of the Clean Water Act (such as the Safe Drinking Water Act or state permits for other regulations). The IRD statuses reported for NPDES Permits, State Water Permits, and Safe Drinking Water Act were the same for each facility in 1995, 1996, and 1997. Again the EPA does not specify a year.

Facility ID#	EPA Status	Self Reported Information for 1995-1997		
	For PCS	NPDES Water Permit 1995-1997	State Water Permit 1995-1997	Safe Drinking Water Act Permit 1995-1997
1	PCS	YES	YES	YES
2	Not PCS	NO	YES	NO
3	Not PCS	YES	NO	NO
4	Not PCS	NO	NO	NO
5	Not PCS	NO	NO	NO
6	Not PCS	NO	YES	NO
7	PCS	YES	NO	YES
8	Not PCS	NO	NO	NO
9	Not PCS	NO	NO	NO
10	PCS	YES	NO	NO
11	Not PCS	NO	NO	NO
12	Not PCS	NO	NO	YES
13	Not PCS	NO (1998-yes)	NO	NO

Table 3.2.3: Comparison of Water Regulatory Status*

*Data Source for IRD: Please see Appendix A – Regulatory Status Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

If a facility has a NPDES permit, its violations should be in the PCS system. However, as the Environmental Specialist from the Division of Water Quality at NCDENR indicated, the violation could have been rendered insignificant and therefore was not entered into PCS. The only variance in these statuses is with facility 3 and 13 in 1998. For facility 13 it could be that the system has not updated for 1998 yet. However, the reason for variance for facility 3 is not known. The fact that facility 7 is also permitted under the Safe Drinking Water Act could be the reason that the violations for this facility do not match what was found in the PCS report.

3.2.4 Comparison of Air Regulatory Status

Table 3.2.4: Comparison of Air Regulatory Status* compares the air regulatory status for the facilities. Any violation to any air regulation should appear in AIRS/AFS, unless the state decides that it is not a significant violation. Again the information

reported to the study is for 1995-1997 (the status was the same for those three years), and the EPA does not define for which year the status is.

Facility ID#	EPA status	IRD Status for 1995-1997			
	For AIRS/AFS	Waste Air Permitted	State Air Permit Holder	CAA Major /Minor	Other Air Regulations
1	AIRS/AFS	YES	YES	MAJOR	N/A
2	AIRS/AFS	NO	NO	MINOR	N/A
3	AIRS/AFS	YES	YES	MAJOR	N/R
4	AIRS/AFS	YES	YES	MINOR	N/R
5	Not AIRS/AFS	NO	NO	MINOR	N/R
6	AIRS/AFS	YES	Y-97, Y-96, N-95	MINOR	N/A
7	AIRS/AFS	YES	YES	MINOR	N/R
8	Not AIRS/AFS	YES	YES	MINOR	N/R
9	AIRS/AFS	YES	NO	MINOR	Permit Shield - 97, Permit Shield - 96, N/A - 95
10	AIRS/AFS	YES	YES	MAJOR	Asbestos
11	AIRS/AFS	YES	YES	MINOR	N/R
12	Not AIRS/AFS	YES	YES	MINOR	N/A
13	AIRS/AFS	YES	NO	97-MAJOR, 96-MINOR, 95-MINOR	N/R

Table 3.2.4: Comparison of Air Regulatory Status*

*Data Source for IRD: Please see Appendix A - Regulatory Status Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

N/A=Not Applicable

N/R=Not Reported

Nine of the facilities that should have AIRS/AFS reports do have their waste air permitted (Facility 1, 3, 4, 6, 7, 9, 10, 11, and 13). Only one facility (2) that the EPA says reports to AIRS/AFS did not self-report in the IRD to have its waste air permitted and was not a state air permit holder. This facility also states that no other air regulations apply to it. It is possible that it was some sort of air permit holder in the past (before 1995); and, therefore, has an AIRS/AFS report. One of the facilities (5) that the EPA stated does not report to AIRS/AFS reported that it did not have its waste air permitted, was a state air permit holder, and did not report to other air regulations. The EPA states that two facilities (8 and 12) do not report to AIRS/AFS, but they report that they do have

their waste air permitted and state air permits. Both did not report any other air permits required by any other regulations. It could be that these two facilities have never had any air violations and therefore have never reported to AIRS/AFS even though they are air permit holders. Three of the facilities (1,3, and 10) reported themselves to be major air pollutant sources. All three of these facilities have AIRS/AFS reports.

3.3 Violation Data Comparison & Analysis

3.3.1 ISO Reported Data

Of the thirteen facilities, there were thirty-seven entries into the "violations" table of the database that is being used to store the IRD. Again, the baseline protocol asked to which media there had been violations, not to which specific regulations. The baseline protocol then distinguished three different types of violations, hazardous waste violations, air regulation violations, and water violations. The violations occurred sometime from 1995-1997. One of the reasons that there may be some divergence in the data may be due to the timeframe of reporting. The facilities may not be on the same fiscal calendar or reporting calendar as the EPA so some of the IRD or the MRD may not be reported, when indeed it is in the same calendar time frame.²⁵ Some of the facilities reported that there were no violations over the past three years (1995-1997). The notation for this will be N/A. One of the facilities in this sample omitted the regulation (by media) to which the violations were. This facility was used for a number of reasons: First, because it had a significant number of violations and second to see how the information reported to the EPA may help to define the violations better should the reader run into similar problems with a self-reported violation data set like the one in the ISO14001 EMS Pilot Project. The specific types (air, hazardous waste, or water) and dates of violations were reported in the IRD. The number and type of violations (by media) for each facility are listed in Table 3.3.1A: Violations Reported to the ISO14001 Pilot Project (by media)*. For additional information about the violations please see Appendix B. It is the violation report extracted from the database used to compile the ISO14001 EMS Pilot Project data.

Facility #	HW	Water	Air	N/A	Omitted	Other	EPF
1	0	0	0	1	0	0	1
2	1	0	0	0	0	0	1
3	1	0	0	0	0	0	1
4	1	0	0	0	0	0	1
5	1	0	0	0	0	0	1
6	0	1	0	0	0	0	1
7	0	9	4	0	0	0	13
8	0	0	0	1	0	0	1
9	0	0	0	1	0	0	1
10	0	1	4	0	0	1	6
11	0	1	1	0	0	0	2
12	0	1	0	0	0	0	1
13	0	0	0	0	7	0	7
Total	4	13	9	3	7	1	37

Table 3.3.1: Violations Reported to the ISO14001 Pilot Project (by media)*

***Data Source for IRD:** Please see Appendix B – Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

HW= Violation to Hazardous Waste Regulations sometime in 1995-1997

Water= Violation to Water Regulations sometime in 1995-1997

Air= Violation to Air Regulations sometime in 1995-1997

N/A= No Violations Reported 1995-1997

Omitted= The information about the type of regulation that was violated was not reported to the ISO14001 Pilot Project.

Other= Violations to Other Regulations (not specified) sometime in 1995-1997

EPF= Total Entries Per Facility

There is a variance in the amount of each type of violation that was in the IRD. As the table reports some facilities had few to no violations while others had several. Except for facility 10 and possibly 13, most of the facilities had only one type of violation (hazardous waste, air, water).

Table 3.3.1B: Violations Reported to the ISO14001 Pilot Project (IRD)* indicates the specific types of violations that were in the IRD. It is important to remember that for hazardous waste and water, most of the violations are due to reporting errors and record-keeping. When one is looking at the greater picture of the actual indications of environmental harm, these violations are not as harmful. In the "bean-counting" perspective though, these violations, although only paper violations, are more significant in defining the violation history of the facility. The types of violations are listed below (more specifically)*:

- No Violations have occurred over the past three years - 3
- Violation of record-keeping, labeling, training, storage containers, management and/or training - 5
- Reporting Violation - 1
- Emission or Discharge Violation - 19
- Unauthorized Release of Pollutants Violation - 6
- Production Violation - 1
- Testing Violation - 1
- Monitoring and Sampling - 1

***Data Source for IRD:** Please see Appendix B – Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD). (For further descriptions of these types of violations please refer to Data Collection Protocols for ISO 14001 Pilot Project Research: Baseline Protocols, Version 1.4. It is available to be downloaded through the following web site <http://sunsite.unc.edu/villani/isonprojects.htm>).

Almost two-thirds of the IRD violations are emission/discharges or unauthorized releases of pollutants. These types of violations could be more significant if the materials that were released were harmful and were released in quantities that are harmful. In the IRD, only two of these violations were considered major. To get a better understanding of the difference between minor and major violations, please refer to the Baseline Protocol. (Andrews et. al, 1999)

3.3.2 Comparison of IRD to MRD Violations Found in the EPA Databases

The following sections will compare the violation information that was in the IRD to the MRD violation information that was found through the use of the AIRS/AFS, ERNS, PCS, and RCRIS databases that are sponsored by the EPA. The hazardous waste violations will first be compared then the water and air violations in turn will also be compared. A table will be used in each section to present the findings, then a discussion about the IRD and MRD will follow. This discussion will include information about why there may be a divergence in the two data sets and about the data sources themselves. For all three types of violation, the ERNS database was not a useful source of information. Therefore, no violations reported to this database were used in the analysis because of the poor quality and lack of information that it provided. It is important to remember too, that this is an evaluation of violations, and sometimes, non-compliances

and violations may be confused (please refer to endnote 4 for the distinction between these terms).

It was not specified specifically to which regulation the violation was. Therefore a facility may have a water violation but it will not appear in PCS if the facility does not have a NPDES permit, since only facilities with NPDES permits report to PCS. It is possible that the violations are to another water regulation and reported to another database. Also the violations could be to state not federal regulations, so databases about federal regulations would not include this information. It is important to note these issues for the following data analyses.

3.3.2.1 Comparison of the Hazardous Waste Violations

Table 3.3.2.1A: Comparison of Hazardous Waste Violations* presents the comparison of hazardous waste regulation violations for the sub-sample of facilities from 1995-1997.

Facility #	IRD Violations		RCRIS Reported Violations	
	Violation	Date	Violation	Date
1	N/R	N/A	Written Informal Administrative Action	8/21/96
2	Record-keeping, Labeling, Training, Storage	9/8/1997	N/R	N/A
3	Storage/Disposal/ Container Mgmt.	12/12/96	N/R	N/A
4	Record-keeping	3/27/95	Written Informal Administrative Action	2/2/95
5	Training	1/26/94	Written Informal Administrative Action	1/26/94
6	N/R	N/A	Unable to generate a report	N/A
7	N/R	N/A	N/R	N/A
8	N/R	N/A	N/R	N/A
9	N/R	N/A	N/R	N/A
10	N/R	N/A	N/R	N/A
11	N/R	N/A	N/R	N/A
12	N/R	N/A	N/R	N/A
13	N/R	N/A	N/R	N/A

Table 3.3.2.1A: Comparison of Hazardous Waste Violations*

*Data Source for Self Reported Information: Please see Appendix B - Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

N/A=Not applicable

N/R=None reported in 1995-1997

Table 3.3.2.1B: Causes of IRD Hazardous Waste Violations* is a description of the causes of the IRD violations. These may help to determine why or why not the violation may appear in the RCRIS database. They are in the same sequence as the violations listed above.

Facility #	Violation	Cause of Violation (IRD)
2	Record-keeping, Labeling, Training, Storage	The violation occurred when the facility was renovating existing operations. The renovations generated many containers of waste. Once the inspection took place and a notice of violation was filled, immediate action was taken. The violation occurred because of a lack of personnel training in proper waste handling procedures. Also, there was a lack of discipline and follow-up regarding improper waste storage.
3	Storage/Disposal/ Container Mgmt.	A hazardous waste inspection took place on 12/12/96. Several minor non-compliances were identified by the state inspector. 1) A waste solvent drum did not have a tight fitting cover, 2) a relatively small amount of oil- contaminant material ("speedi-dry") was observed to have been disposed of into a regular solid waste container, 3) lack of spill control equipment in one of the hazardous waste storage areas and 4) improper record-keeping of a short-term hazardous waste accumulation storage area.
4	Record-keeping	The inventory of materials in the hazardous waste area did not match the materials present.
5	Training	Annual training of hazardous waste personnel.

Table 3.3.2.1B: Causes of IRD Hazardous Waste Violations*

*Data Source for IRD: Please see Appendix B - Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

Please refer to Appendix C to review all of the hazardous waste regulatory status and violation information for these facilities from 1995-1997. All of the IRD hazardous waste violations were in the pre-transport phase of hazardous waste handling. As NCDENR state officials said, these are the types of violations for which a written informal administrative action is issued.

Two of the violations that were in the IRD were also found by using the RCRIS database. Facility 5 reported has the exact violation date that appeared in RCRIS for this violation. Facility 4 did report a violation, but the date of the violation is off by almost two months. For facilities 2 and 3, the IRD violations were not in the RCRIS database. For facilities 2 and 3, it was stated in the IRD that a NOV was issued and several non-

compliances issued were addressed respectively. For facility 2 the NOV may not have resulted in a formal violation. For facility 3, it may have been an error on the part of the person filling out the baseline protocol for this facility. Facility 1 also reported to the IRD no hazardous waste regulation violations. But a violation was found in the RCRIS database for this facility. Facility 10 also reported a "Storage/Disposal/Container Mgmt." violation to the IRD but said that it was a violation to some "other" regulation. It is suspected that it may be a hazardous waste violation of some sort just because it is the same type of violation reported for the hazardous waste violations. None of these types of violations appear in the water or air regulatory violations. However, it did not show up in RCRIS so there is no answer to what violation it may be.

All of these differences could be attributed to many other things as well. A violation may not show up in RCRIS is because RTK Net may not have yet been updated for the more recent years even though the information (at least in North Carolina) is reported by the state on a daily basis. Also since nine states are represented in this sub-sample, each could have a different reporting scheme. Even though one state may have reported for 1996 another may not. Or the EPA may have updated the information for some states and is in the process of adding the information for the others. State Officials from the Division of Waste Management from NCDENR also said that it is possible that a violation may be reported to the Division of Water if there is a release of toxic materials to groundwater(in which case the violation would not appear in RCRIS but in a water violation database). The difference in dates could be reporting or record-keeping errors.

Violations were not found in RCRIS for most of the facilities that did not report hazardous waste violations to the IRD. It could be possible too that those individuals who did fill out the baseline protocol may not have understood the terminology in the protocol and, therefore, reported information that is incorrect (such as confusing violations with non-compliances or warnings).

Of the four databases used in this report, the RCRIS database is the most straightforward for the purposes of finding MRD violation information. There is a section of the report that lists the number of violations that have occurred, any outstanding violations that a facility may have, and any penalties. Additionally, information about

each violation is then provided. This database also was the most user friendly. Therefore, the way in which the information is reported to this database is helpful for this type of study. Lastly, it is important to note that this is not the only hazardous waste regulation database. BRS is a database that documents the generation of hazardous waste on a biannual basis. CERCLIS reports the CERCLA status of hazardous waste sites.

3.3.2.2 Comparison of Water Regulation Violations

This section will compare the IRD violations to water regulations to the MRD violations that are reported in the PCS database. The facilities that have NPDES permits report to this system. As it was previously stated in this report, if a facility has to abide to water regulations other than this, the violations will not appear in the PCS database. Also state officials may have dropped some of the violations. For the most part, the states have stewardship over this program so the MRD violations may be reported to state databases and not the federal PCS database or other water regulation data systems.

Table 3.3.2.2A: Comparison of Water Violations** presents the water regulation violations that were in the IRD in 1995-1997 and the MRD reported to the EPA in the PCS database during this same time period for these thirteen facilities. The violations were in the IRD on specific dates, however, the MRD in the PCS database is reported at the end of the month, so the exact date is unknown. It can therefore be assumed that if the IRD occurred within the month in which the MRD violation was reported to PCS, then it is the same violation.

Facility #	IRD Violations		PCS Reported Violations	
	Violation	Date	Violation	Date
1	N/R	N/A	N/R	N/A
2	N/R	N/A	N/R	N/A
3	N/R	N/A	NRG	N/A
4	N/R	N/A	NRG	N/A
5	N/R	N/A	NRG	N/A
6	Report	4/16/97	NRG	N/A
7	Emission/ Discharge	2/9/95	Temperature Numeric Violation	3/31/96
	Unauthorized Release of Pollutants	2/11/95		
	Emission/ Discharge	3/19/96		
	Emission/ Discharge	7/3/96		
	Emission/ Discharge	9/23/96		
	Emission/ Discharge	6/25/97		
	Emission/ Discharge	7/1/97		
	Emission/ Discharge	8/29/97		
	Production	12/8/97		
8	N/R	N/A	NRG	N/A
9	N/R	N/A	NRG	N/A
10	Emission/ Discharge	10/96	N/R	N/A
11	Emission/ Discharge	12/9/96	NRG	N/A
12	Emission/ Discharge	No data	NRG	N/A
13	Unauthorized Release of Pollutants*	1/4/96	NRG	N/A
	Unauthorized Release of Pollutants*	1/5/96		
	Testing*	3/11/96		
	Emission/ Discharge*	3/28/96		
	Emission/ Discharge*	2/13/97		
	Monitoring/ Sampling*	3/17/97		
	Unauthorized Release of Pollutants*	8/18/97		

Table 3.3.2.2A: Comparison of Water Violations**

*The information in the field describing which regulatory program the facility had violations was omitted so it is unknown if the violations are air or water. Even though no PCS report was generated, there could still be water violations to other federal, state, and local water regulations.

**Data Source for IRD: Please see Appendix B – Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

N/A=Not applicable

N/R= None reported in 1995-1997

NRG=No report generated by the EPA (not required to report to PCS)

Table 3.3.2.2B: Causes of IRD Water Violations* is a description of the causes of the IRD violations. These may help to determine why or why not the violation may appear in the PCS database. They are in the same sequence as the violations listed above.

Facility #	Violation	Cause of the Violation (IRD)
6	Report	Wrong signature authority
7	Emission/ Discharge	unauthorized discharge to river
	Unauthorized Release of Pollutants	oil leak from transformer to cooling water as a result of pipe damage.
	Emission/ Discharge	NPDES unauthorized discharge - sump overflow
	Emission/ Discharge	unauthorized discharge - sump overflow
	Emission/ Discharge	NPDES unauthorized discharge - sump overflow
	Emission/ Discharge	unauthorized discharge - yard drain sump overflow
	Emission/ Discharge	unauthorized discharge from sump
	Emission/ Discharge	unauthorized discharge - yard sump overflow
	Production	inappropriate overflow pipe configuration
10	Emission/ Discharge	A release of soap lubricant from process equipment that entered sanitary pretreatment system
11	Emission/ Discharge	Operator forgot to turn off the valve, chill water was discharged into sanitary sewer. Failed to report to the Sanitary District immediately.
12	Emission/ Discharge	Exceeded discharge permit limits
13	Unauthorized Release of Pollutants*	omitted
	Unauthorized Release of Pollutants*	omitted
	Testing*	omitted
	Emission/ Discharge*	omitted
	Emission/ Discharge*	omitted
	Monitoring/ Sampling*	omitted
	Unauthorized Release of Pollutants*	omitted

Table 3.3.2.2B: Causes of IRD Water Violations*

*Data Source for IRD: Please see Appendix B - Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

Please refer to Appendix D to see all of the water regulatory status and violation information gathered for these facilities from 1995-1997. For the four facilities (1, 2, 7, 10) that did generate PCS reports, only one had a violation reported sometime in 1995-1997. Of these four facilities, two did self-report violations. Two of the facilities (1,2) that reported no water violations did not have any violations reported to PCS. Facility 10 did self-report a water violation, but it did not appear in the PCS report. This violation was in the IRD as a release of lubricant soap from process equipment that entered a

sanitary pretreatment system. Since it is not an NPDES permit violation it would not show up in PCS. Based on the regulatory status this facility reported to the study, it did not have a state water permit or Safe Drinking Water Act permit from 1995-1997. This violation may not show up in any federal database, even though there is still the chance that this facility is regulated under another water violation. The data in PCS is available through 1997 through RTK Net and even more recently in Envirofacts, so it is updated at least for the purposes of this study.

Facility 7 did have a violation in the PCS report, and it does coincide with one of the IRD violations reported as a NPDES unauthorized discharge. The only other violation then that should show up in PCS based on the IRD information is an Emission/Discharge that occurred on 9/23/96 due to a "NPDES unauthorized discharge - sump overflow" violation. This facility reported eight water violations to the study. In the PCS report, this facility did have many entries that were "absent concentration readings". It is unknown if they are reported violations, non-compliances or just warnings.²⁶ Nevertheless, none of the dates of these absent concentrations (monthly) occurred in the months that the violations that were in the IRD. This facility also had a Safe Drinking Water Act permit from 1995-1997, so it is possible that these violations fall under that permit. Only two of the IRD violations for this facility were NPDES unauthorized discharges, so only these two should have showed up in PCS anyway.

Five of the facilities (3, 4, 5, 8, 9) that did not report any water violations to the IRD for 1995-1997 also did not have PCS reports generated (are not required to report to PCS). Four facilities (6, 11, 12, 13) that did self-report water violations to the IRD are not required to generate PCS reports. None of these facilities reported to have NPDES Water permits from 1995-1997. Facility 6 did have a State Water permit from 1995-1997, so it is possible that this reporting violation falls under some other state regulation. Facility 11 and 13 did not have State Water permits or Safe Drinking Water Act permits from 1995-1997, so the violations for these facilities could be to some other water regulation. Facility 12 did have a Safe Drinking Water Act permit from 1995-1997 so it is possible that the violation is from this regulation.

3.3.2.3 Comparison of Air Regulation Violations

This section will compare the IRD violations to air regulations to the violations that are reported in the AIRS/AFS database. The facilities that have violations to their air permits report to this system. As it was stated in section 1.3.1 of this report as well as in section 3.2.4, if a facility has to abide to any state or local air regulations it is quite possible that the violations will not appear in the AIRS/AFS database. Also EPA or state officials may have dropped some of the violations. For the most part, the states have stewardship over this program so the violations may be reported to state databases and not the federal AIRS/AFS database or other air regulation data systems.

Table 3.3.2.3A: Comparison of Air Regulation Violations presents the air regulation violations that were in the IRD in 1995-1997 and to the AIRS/AFS database during this same time period for these thirteen facilities.

Facility #	IRD Violations**		AIRS/AFS reported Violations	
	Violation	Date	Violation	Date
1	N/R	N/A	NRR	
2	N/R	N/A	N/R***	N/A
3	N/R	N/A	N/R***	N/A
4	N/R	N/A	N/R***	N/A
5	N/R	N/A	NRG	N/A
6	N/R	N/A	N/R***	N/A
7	Emission/ Discharge	2/9/95	N/R***	N/A
	Emission/ Discharge	5/17/95		
	Emission/ Discharge	12/31/96		
	Emission/ Discharge	12/31/96		
8	N/R	N/A	NRG	N/A
9	N/R	N/A	NRR	
10	Unauthorized Release of Pollutants	2/95	7C State NOV Issued, Air Program code 9	4/7/97
	Unauthorized Release of Pollutants	6/95		
	Emission/ Discharge	10/96		
	Emission/ Discharge	3/97 & 4/97		
11	Emission/ Discharge	4/29/95	NRR	
12	N/R	N/A	NRG	N/A
13	Unauthorized Release of Pollutants*	1/4/96	N/R***	N/A
	Unauthorized Release of Pollutants*	1/5/96		
	Testing*	3/11/96		
	Emission/ Discharge*	3/28/96		
	Emission/ Discharge*	2/13/97		
	Monitoring/ Sampling*	3/17/97		
	Unauthorized Release of Pollutants*	8/18/97		

Table 3.3.2.3A: Comparison of Air Regulation Violations

*The information in the field describing which regulatory program the facility had violations was omitted so it is unknown if the violations are air or water. AIRS/AFS query was conducted but, they could still be air violations to other federal, state, and local air regulations.

**Data Source for IRD: Please see Appendix B – Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

*** According to the query conducted by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Air Quality, no violations were reported for these facilities. For the email messages reporting these results please see Appendix F.

N/A=Not applicable

N/R= None reported in 1995-1997

NRG=No report generated by the EPA (not required to report to AIRS/AFS)

NRR=No Violations Query Results Returned from NCDENR Division of Air Quality

Table 3.3.2.3B: Causes of IRD Air Violations** is a description of the causes of the IRD violations. These may help to determine why or why not the violation may appear in the AIRS/AFS database. They are in the same sequence as the violations listed above.

Facility #	Violation	Cause of the Violation (IRD)
7	Unauthorized Release of Pollutants	boiler opacity excess emissions -- low precipitation powers - six minute block average > 40%
	Unauthorized Release of Pollutants	boiler 5 opacity excess emissions - six minute block average > 40%
	Emission/ Discharge	boiler 5 excess opacity emission 4th quarter unacceptable - average quarterly monitoring results
	Emission/ Discharge	BK boiler opacity excess emissions for 3rd quarter unacceptable
10	Unauthorized Release of Pollutants	Excess emissions over permitted limit, excess operating hours above permit limits, and omissions in reporting requirements
	Unauthorized Release of Pollutants	Equipment operation without proper pollution control equipment maintenance, inadequate record keeping.
	Emission/ Discharge	Excess emissions over permit limit
	Emission/ Discharge	Excess emissions over permitted limit, excess operating hours above permit limits, and omissions in reporting requirements
11	Emission/ Discharge	Mercury exceedance from an office building was identified during the routine compliance testing. The potential cause could be from the clean up of broken florescent light tube from the janitorial service..
13	Unauthorized Release of Pollutants*	omitted
	Unauthorized Release of Pollutants*	omitted
	Testing*	omitted
	Emission/ Discharge*	omitted
	Emission/ Discharge*	omitted
	Monitoring/ Sampling*	omitted
	Unauthorized Release of Pollutants*	omitted

Table 3.3.2.3B: Causes of IRD Air Violations**

*The information in the field describing which regulatory program the facility had violations was omitted so it is unknown if the violations are air or water. AIRS/AFS query was conducted but, they could still be air violations to other federal, state, and local air regulations.

**Data Source for IRD: Please see Appendix B - Violation Report (generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the IRD).

According to the technical staff at the Division of Air Quality at NCDENR, the Identification Numbers were incorrect for a third of the facilities, but for the other third they found no violations (as indicated in the table above and noted by **).²⁷ Please refer to Appendix F for these email messages stating these results. The results of the query that the EPA conducted have not been returned as of July 7, 1999. Please refer to Appendix E to see all of the air regulatory status and violation information gathered for these facilities from 1995-1997.

Nine facilities (1,2,3,4,5,6, 8, 9, and 12) had no IRD air violations in 1995, 1996, and 1997. Of those nine facilities, four facilities had no MRD violations reported to AIRS/AFS according to the query conducted by the technical staff at the NCDENR Division of Air Quality. Of those nine facilities, no reports are generated by the EPA for three of the facilities, and for two of the facilities no results were reported from the technical staff at NCDENR due to information deficiencies in the information in the EPA database to generate the query.

Four facilities (7, 10, 11, and possibly 13) in the IRD had air regulation violations in 1995, 1996, or 1997. A total of sixteen air violations were reported. Of these four facilities, no violations were reported in AIRS/AFS according to the query conducted by the technical staff at NCDENR Division of Air Quality for facilities 7 and 13. Facility 7 is a State Air Permit holder and does have its waste air permitted so it is possible that these MRD violations are to state regulations that may appear in the state own tracking system (should that state have one). Facility 13 does have its waste air permitted but is not a State Air Permit holder. This facility was classified as a major facility in 1997 and as a minor facility in 1995 and 1996. Almost half of the violations occurred when the facility was a major facility. Since the violations for facility 13 are not reported in AIRS/AFS, PCS, or RCRIS, it is unknown to what regulations they are violations since this information was omitted in the IRD. This suggests that these databases may not be the best way to obtain MRD violation information if one does not have a complete data set.

No report was returned from NCDENR Division of Air Quality for facility 11 due to deficiencies in information in the EPA database to generate the query. One MRD

violation was reported in AIRS/AFS for facility 10 and matched the information that was in the IRD by date. The description of the violation from AIRS/AFS is coded so it is unknown if indeed it is the same violation, but since it occurred in the same month and year, for this study an assumption will be made that it is the same violation. Therefore out of sixteen violations, only one was found in the EPA AIRS/AFS database. Please refer to section 1.4.1 and 1.5 for further suggestions of why the information differs so severely.

3.4 Discussion

3.4.1 Summary of Results

To summarize the results, the IRD regulatory status for air, hazardous waste, and water did not vary much from the MRD. However, the IRD and MRD for violations for these thirteen facilities for the years 1995, 1996, and 1997 did vary considerably. Only three of the 34 violations reported in the IRD matched violation information reported in the MRD. Of the two facilities that reported no violations in the IRD for the years 1995, 1996, and 1997 one violation was found in the MRD for these facilities. Therefore out of 37 entries in total, only 4 matched. This is approximately 9.25%. This study has shown that the IRD and the MRD violation information reported to the EPA in AIRS/AFS, PCS, and RCRIS varies considerably.

3.4.2 Possible Explanations

If this report had concluded that more MRD violations than IRD violations were found in the EPA databases, then it might have been suspected that the facilities were untruthful about the reporting of their violations. But since this study found that there is a great divergence in the IRD violations and MRD violations reported to the EPA, there are many possible hypotheses of why this is so.

As stated in sections 1.4 and 1.5, the discrepancy of the data can be attributed to many things. Each system (AIRS/AFS, PCS, and RCRIS) in itself has its own reporting

problems. Some of the commonalities are that the MRD may be contained in a state database rather than a federal one. The MRD violation may also have been dropped by state officials. The differences in the state databases and federal databases could also cause uploading problems as well as errors in data entry.

Some of the more general problems with environmental reporting that could result in the divergence of this data include the incorrect identification of sources, and inconsistencies with how the information is reported between states, between the media within a state, and between the states and the federal government. There is no common guideline as to how to report the information or a system that the states should maintain. Ideally it should be compatible with the systems that the federal government maintains but the states complain that these systems are archaic and not user friendly. As figure 1.4.1 indicated, the route of reporting is rather confusing and leaves much room for error. The inconsistent identification of the enforcing entity also raises problems. For a more in depth description of these problems please refer back to sections 1.4 and 1.5 and the sub-sections therein.

An important reason why the IRD and MRD violation information does not match up is because the IRD violations were not reported in the same format that the MRD violations are reported to the EPA. The same terms were not used and therefore the violations may be of the same nature, but it would not be known because of the difference in the way the information was reported. The IRD violations that were reported were based on violations to hazardous waste regulations, water regulations, and air regulations, but the baseline protocol does not specify which particular regulations within each media.

It could be that the violation was a MRD violation of a specific state or local regulation and therefore did not need to be reported to the federal government. The violation may be a MRD violation to a regulation that is not tracked by these databases (although AIRS/AFS and ERNS should track all violations or any spills to any media respectively). The state environmental agency may also be the steward of this MRD violation information and have the most complete data set.²⁸ As it was mentioned for

half of the databases used in this report, the EPA is constantly threatening to take away funding due to the lack of reporting by the states to the EPA sponsored databases.

It could also be that the quality of these databases (and the information contained therein) is so poor that they do not provide the correct and complete information. This could be due to lack of reporting by the state, poor transfers of data, or poor technical functionality of the databases. The system may not have been updated on the EPA side or RTK net and therefore the information is not there although it has been reported already. For example, it was already stated that the information in the ERNS database may not be correct because follow up information is not recorded only the initial spill and possible responsible parties for the spill.²⁹

Therefore it was found that the IRD violations varied greatly from the MRD violation information obtained from AIRS/AFS, ERNS, PCS, and RCRIS. Recommendations on how to further research the integrity of this information will be discussed in section 5.1. For more information about how these problems could affect the MRD violation information for air, hazardous waste, and water please refer to section 3.3 and the sub-sections therein.

4.0 Conclusion

It is important to remember the nature of the ISO14001 EMS Pilot Project from which the IRD were derived. The ISO14001 EMS Pilot Project is voluntary and highly publicized. Therefore, it is suspected that the facilities participating in this study and in the sample of facilities used for this comparative data analysis are more inclined to report truthfully about their violations to environmental regulations. For this study, it is quite appropriate for the facilities to do so and expected of them. However, based on the results of this study, much investigative work needs to be done if one wishes to obtain MRD about a facility's violations of environmental regulations. Not only must federal records be searched, but state and local records must be investigated as well. Even then it is possible that there will be gaps and inconsistencies in the data.

The poor quality of the MRD that are available pose the following questions:

- Can the public believe what they are being told about what is reported by the facilities independently, or even what is reported to the EPA and state environmental agencies?
- Is this reporting system therefore allowing environmental polluters to get away with polluting and not being fined or penalized because the violations are tracked so poorly?
- Or are these facilities being penalizing inappropriately by subjecting them to criticism about their compliance based on incorrect inferences on the part of the MRD data users?

The answer to the first question is rather arbitrary and would require research beyond the scope of this study. In an article published by the Environmental Working Group in May of 1999, "Above the Law: How the Government Lets Major Air Polluters Off The Hook", it was stated that "citizens attempting to push industrial facilities to clean up their processes have frequently been met with the simple refrain that the facility is 'in compliance with the law'. Attempts to counter the claim require considerable efforts" (Coequyt et. all, 1999). In section 5.0, suggestions about how the investigator can further

research the integrity of the MRD information is presented, but as the Environmental Working Group stated in the quote above, it may require considerable effort. The public may not always believe what is being told about what is reported, and their inclinations of these untruths are indeed correct.

The answer to the second question unfortunately is yes. In an article published by the Environmental Working Group in May of 1999, it was stated that "in thirteen of the nineteen states [in that study] with five or more violators, more than 50 percent of all facilities violating the Clean Air Act in the past two years [1997 and 1998] escaped with no fines" (Coequyt et. all, 1999). According to the Environmental Working Group, that of 53 multi-billion dollar corporations violating the Clean Air Act every quarter of 1997 and 1998, they all escaped with small or nonexistent fines (Coequyt et. all, 1999). The total revenue of the parent corporations of these facilities in total in 1998 was \$24,171,666,667, while the penalties paid totaled \$318,290 (Coequyt et. all, 1999). Based on this example alone it is clear that the present reporting system is failing at penalizing those who are violating the environmental regulations. As the results of the comparative data analysis showed, it is not easy to track down the violation to follow up on them.

Although it is unfortunate that the environmental polluters are getting away with not paying their fines, it is not entirely their fault that follow-up site visits and inspections are made to ensure that these facilities come back into compliance. So to answer this last question, it is possible that the facilities are getting unduly criticized because the inspectors are not fulfilling their responsibilities with follow-up procedures. Of course the facilities could chose to be pro-active and voluntarily take care of these violations on their own but this was not the case in this particular example.

Therefore, based on these empirical results and the findings of other concerned constituents, it is clear that something must be done to improve the environmental reporting system of the EPA. A more cooperative way for the EPA and states to work together to maintain this MRD data in a uniform, consistent way must be achieved.

5.0 Recommendations

5.1 Violation Data Collection

5.1.1 Integrated Data for Enforcement Analysis System (IDEA)

When the reader uses publicly reported information systems to obtain MRD violation information, the federal data retrieval system that should be used is one that is available through the Office of Enforcement and Compliance Assistance (OECA) of the EPA. It is the Integrated Data for Enforcement Analysis system (IDEA). This data source "is the most comprehensive single-source of environmental performance on regulated facilities within EPA. With IDEA you can obtain a comprehensive historical profile of inspections, enforcement actions, penalties assessed, toxic chemicals released, and emergency hazardous spills for any EPA regulated facility. This single point of access provides information from the Agency's Air, Water, Hazardous Waste, Toxic Chemical Release Inventory, and Emergency Response Notification Systems. IDEA can be used to:

- produce the compliance history on a specific facility;
- retrieve data for performing multimedia analysis of regulated facilities;
- identify a group of facilities that meet a user's specific criteria; and
- produce aggregated data on selected industries" (<http://es.epa.gov/oeca/idea/>).

There are three reasons why the IDEA database would be the ideal means by which to gather the MRD for this study. The first reason is because of the problems with the query functionality of RTK net. The second is the amount of time it would take to go through each database facility by facility and then to input this data into a spreadsheet or another database so that a quantitative analysis could be performed. Thus because of these two, the use of the IDEA database became the method to gather MRD for this study through the process of elimination. Lastly, it also seems to be the most comprehensive and

integrated and would probably be the method of choice without the previously listed constraints regardless. This database, if it can be classified as an environmental information management system, as well as Envirofacts, are mentioned as two of the data integration utilities suggested by the EPA One Stop program to provide a "comprehensive meaningful and relevant view of environmental activities, environmental conditions, source and agency activities, and performance" (<http://www.epa.gov/reinvent/onestop/blocks/blocks.htm>). To use this database, however, without paying a fee, one must be an EPA employee. Therefore the general public must pay to use this service.³⁰

5.1.2 Query in Envirofacts or RTK net

If IDEA cannot be used, I would recommend that the query functionality of Envirofacts be used to get the MRD for as many of the databases as possible. For any of the databases listed in section 1.2.1.1 for which IDEA does not retrieve information, I would suggest that the investigator search these additional databases for violations as well.

5.1.3 Environmental Data Resources

Another resource to get a report for a facility of all of the databases that they have to report to at the federal, state, and local levels is through a company called Environmental Data Resources, Inc. (<http://www.edrnet.com>). For a price, this company can generate compliance reports and environmental reports, and provide the information that is needed for a study such as this one. This company can also search state and local databases which may provide more information.

5.1.4 Quality of the Data

It is important to note that the MRD retrieval system is only as good as the MRD that is being collected. Therefore even if the MRD collection mechanism is stellar, the

results could still be poor due to the quality of the MRD that is reported to the federal government in the first place.

I also suggest that if the investigator does wish to obtain this violation information, he/she go to the state and local environmental agencies of the states, counties, and municipalities where these facilities are located to obtain violation information. After speaking with state officials from NCDENR as well as with technical support personnel from the EPA, the best and most complete MRD set may be available from the state and local environmental agencies (state in particular).

5.1.4 Investigate Non-Compliances and Warnings

It is possible that the facilities did not report the violations and non-compliances correctly. Therefore I would also recommend that if the investigator also has access to non-compliance information or warning, then he/she also analyze this data and compare it to what is found in the databases sponsored by the EPA. It could be that some of these violations are actually non-compliances and some of the non-compliances reported may actually be the violations (please refer to endnote 4 for definitions of these terms from the IRD). Again, I would suggest using the IDEA database as well as state sponsored databases to obtain the information to compare to the non-compliances or warnings.

5.2 EPA One Stop Reporting Program

Fortunately, the EPA has recognized that there is a problem with the present reporting mechanisms. That is why the One Stop Reporting Program has evolved. It was established in March of 1995 by the President to alter the present reporting system. The primary goals of this program are "to reduce industry reporting burden, foster multimedia and geographic approaches to environmental problem solving, and provide the public meaningful, real-time access to environmental information" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). This program recognizes that the states are the primary collectors of environmental reporting data and expected to maintain this data. That is why this program is employing the strategies of collecting

MRD from a few states that are leaders in information integration. These strategies will be implemented by the EPA as well as other states agencies who lag in their information integration strategies. Twenty-one states are presently involved in this program.

Therefore "the One Stop Program is designed as a long-term coherent overall environmental reporting and data management 'system' that effectively serves all stakeholders, including the public, regulators and industry. One Stop's approach reflects current EPA and state reporting reforms, consultation with EPA and state officials, industry and environmental groups, and other stakeholders"

(<http://www.epa.gov/rcinvent/onestop/about/strategy.htm>). So with this program the reports will be sent directly to this data source and then they will be available for the public to evaluate. The reporting system will be changed so that the MRD for an entire facility can be viewed in a multi-media, integrated mechanism.

5.2.1 Strategy

This strategy has four key elements. These strategies focus on the means by which to make the reporting more efficient, the standardization of this reporting, the infrastructure changes that are needed, and the partnership of the EPA with the states for this program. They are listed in more detail below with excerpts from the descriptions of each found in the literature by the EPA.

Strategy	Description
Broaden the Goals of Environmental Reporting Reforms	• alleviates the first problem identified by the EPA that there is no "reporting system" • "environmental reporting must be viewed as a system, not just a collection of separate reporting processes" • "provides a basis for setting goals for the entire system, assessing its performance as a system" • "forces regulators to think very differently about infrastructure needs – the policies, the methods, and standards, the human resources, and the information technology – required to support effective environmental reporting across an array of programs and users"
Providing a Framework for Individual EPA and State Reporting Improvements	• "strengthens individual reporting processes by reducing burden and improving efficiency" • "ensures that the original purpose of most reports – documenting compliance and tracking program implementation – are well served" • "achieve immediate burden reductions – generate innovations that are a critical source of system-wide innovation" • "one stop will attempt to serve as a forum within which EPA and other stakeholders can work toward a consensus on the goals and essential characteristics of an effective environmental reporting system, can help define the policies, procedures, and technology for operating this system, and can link their individual reform efforts to this overall vision"
Defining and Developing the Information Management Structure	• "current "infrastructure" includes reporting policies, procedures, data definitions, and the technology used to store, process, and communicate data by both regulators and industry - reflects both history of environmental statutes and program organization - organized around individual media and programs each of which has its own approach to defining sources, pollutants, and compliance. - based on technology that is rapidly becoming obsolete – large, non-relational data bases, private network communications, and an absence of data standards" • One Stop program will work to help define the information management infrastructure and processes required for environmental reporting and data management" • "One Stop will also make carefully selected investments to develop and demonstrate key portions of this infrastructure"
Partnering with States to Demonstrate Full Scale Implementation	• "the unique role of the One Stop Program is to concentrate on demonstrating the feasibility of full-scale implementation of the basic elements of an effective environmental reporting and data management system" • "state environmental agencies have operational responsibility for most environmental reporting" • "states typically regulate sources and activities that, while important to environmental quality, do not fall under EPA jurisdiction"

Table 5.2.1: The One Stop Program Strategy*

Data Source: EPA – One Stop Reporting: One Stop Program and Award Criteria

<http://www.epa.gov/reinvent/onestop/about/strategy.htm>

*This table only contains excerpts from this document and is not the complete information source. For a more complete description please review the document that is available on the web at

<http://www.epa.gov/reinvent/onestop/about/strategy.htm>.

5.2.2 Objectives

There are five key objectives that this program with respect to reforms for reporting for individual facilities should achieve. Some states have others but these five constitute the foundation of this approach to improved information integration.

Table 5.2.2: One Stop Building Blocks identifies these five key elements.

Burden Reduction	Obsolete, duplicative and unnecessary monitoring, record-keeping and reporting requirements should be eliminated. Ensuring that data collection requirements are well coordinated within or across programs at local, state, regional and national government levels is of particular emphasis. States participating in One Stop are examining the feasibility of capitalizing on these and their own efforts.
Data Integration	Each system should have the ability to provide a comprehensive meaningful and relevant view of environmental activities, environmental conditions, source and agency activities, and performance. The first step toward achieving integrated state/EPA data management will be to reach consensus on a standard method for identifying facilities and other entities of concern to the public and regulators and to develop data standards. One Stop is one of several activities ongoing looking at data integration.
Stake Holder Process	Stakeholders are representatives from business, industry, states, Tribes, communities, federal, state and local governments and others who are directly and indirectly affected by the decisions and actions of the Agency.
State/EPA Reporting	The use of appropriate and innovative data transfer technologies to exchange data in a paperless computer-to-computer format. Several initiatives at the federal and state levels are underway exploiting the advances in technology to make electronic reporting a reality.
Public Access	Enhancing public access to environmental performance data, including data from sources, data about regulator performance, and data on environmental status and trends is a core goal for One Stop. One of the holistic results of the One Stop activities will be to dramatically increase the capability to make information available to the public in a timely, flexible, and easy to use manner that enables the information to be readily understood.

Table 5.2.2: One Stop Building Blocks

Data Source : EPA - One Stop Reporting - One Stop Building Blocks

<http://www.epa.gov/reinvent/onestop/blocks/blocks.htm>

Since the American public is using the Internet as a primary way to obtain information, the EPA is responding. The expansion of the capabilities through this and

other programs in the EPA will disseminate information about environmental issues that can affect the everyday routine of Americans. For example information about water quality can be used when planning trips to beaches and lakes. But this portion of the public is not the only stakeholder. The release of compliance information and emission information in an integrated way can help the business community to determine where each individual firm may be with regards to their environmental performance. As a benchmarking tool like this comparisons to other companies can be made. Additionally, trends in certain areas can be identified and the condition in these areas or regions evaluated. An example of this expansion of information sources for citizens is the Environmental Monitoring for Public Access and Community Tracking (EMPACT). This data system in the future will provide information to people in urban areas about ozone, water quality, etc. (<http://www.epa.gov/empact/>). A directory of other projects like this one that exist or that are to be developed in the future can be viewed at the EPA's Directory of Reinvention Projects that are committed to Improving Environmental Information (<http://www.epa.gov/reinvent/notebook/byinfo.htm>).

5.2.3 How the Program May Solve Reporting Problems

The EPA has set the objective to reduce the burden of environmental reporting by 25%. This agency is going rule-by-rule, program-by-program to do so. Additionally, it is working with industry, regulators and the public in this process to meet their expectations. The EPA believes that pollution prevention will lead to better performance, which will be a part of the reduction in reporting. Within this One Stop Reporting Program is what is called the Reinventing Environmental Information (REI) initiative. This is how the agency is working with the states and the public to standardize the national systems, "to develop and implement key data standards, beginning with common facility identifier, and to provide universal, voluntary access to electronic reporting" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>). Programs such as EMPACT are part of this initiative.

States must be committed to this program one hundred percent if it is to be effective. The strength of the partnership of the states with one another and with the

government are important if they wish to develop a comprehensive system of electronic reporting and data management.³¹ Since the states and the federal government are the stewards of this MRD this integration is not only important to improve the quality of the MRD, but also to improve the public's access to this data. For more information on One Stop grant expectations, award criteria, and administration, go to the document on the Internet that explains it further, "One Stop Program Strategy and Award Criteria" (<http://www.epa.gov/reinvent/onestop/about/strategy.htm>)

5.2.4 Effective Environmental Reporting "System"

The following section explains the characteristics that the EPA feels are necessary for an effective environmental reporting system. Since the current system was designed only to document compliance, violations, and enforcement, the MRD itself exists in a form that is not very useful. Through this program, the EPA hopes derive a system that provides MRD in a manner that is efficient, that is transparent, that can be utilized, that increases accountability, that provides universal access to electronic reporting and that has a greater velocity. These six characteristics are described in the table below.

Characteristic	Description
Efficiency	"efficiency means striking the best possible balance between quality or functionality and cost" "regulators might accept reporting via Internet Web sites established by the permittee -- which would immediately supply data to the public as well as to all of the several regulatory agencies that now obtain the data through expensive, government designed and operated data systems" "the result sought by regulatory program managers is reliable, timely reports to document compliance and track implementation of their programs" "the public wants to know if rules are being followed and assess their exposure to risks"
Transparency	"environmental progress requires more than simple documentation of compliance; it also requires the ability to see in full the performance of regulated sources and changes in the surrounding environment -- both natural, human, and economic" "a common facility identifier, standard protocols for recording chemical data, and similar data standards, if combined with increased emphasis on public access to these data, would greatly increase transparency of environmental protection" "transparency would encourage regulators, industry, academics, environmentalists and the general public to compare state and regional performance in delivering protection of human health and environmental quality, and allow comparisons among facilities, communities, and industries"
Utility	"both regulators and industry must be able to demonstrate, and earn recognition for, compliance, if either is to be allowed the flexibility to try new approaches to solving environmental problems" "environmental reports have important uses in addition to documenting compliance, even though these uses might not have been recognized when the reports were originally designed" "pollution prevention, comparative assessment of sources, industries, and communities, and designing community-based and industry-specific solutions to environmental problems are examples of new uses, new demands being made on environmental reporting" "a systems approach will force us to recognize and clarify all intended uses and users, and to develop measures of whether the system is performing as expected"
Accountability	"the current collection of environmental reports was not designed and is generally not viewed, as a system" "it is not surprising that few regulatory agencies have established an overall accountability for reporting and the associated data management processes" "there must be a clear assignment of 'data stewardship' i.e. responsibilities for data quality, conformance to standards, and accessibility"
Universal Access to Electronic Reporting	"electronic reporting appears to offer both significant gains in efficiency for the regulated community, if they find the initial investment manageable" "electronic reporting appears to offer significant advantages to regulators in reducing the cost of collection and greatly increasing the velocity of data flows to secondary users" "the infrastructure investment required to offer universal access for electronic reporting will not receive appropriate attention in the budgeting processes that are typical of EPA or most state agencies because electronic reporting is not a high priority for any single operating program"
Velocity	"delay is a major factor in the duplication and other inefficiencies that characterize environmental reporting, drive up regulatory agency costs, and undermine public trust"

Table 5.2.4: Key Characteristics on an Effective Environmental Reporting System*

Data source: One Stop Reporting - Attachment 1: Key Characteristics of an Effective Environmental Reporting System

(<http://www.epa.gov/reinvent/onestop/about/attach1.htm>)

*This table only contains excerpts from this document and is not the complete information source. For a more complete description please review the document that is available on the web at

<http://www.epa.gov/reinvent/onestop/about/attach1.htm>

It is important to remember that the purpose of environmental reporting is not just to document the compliance, violation, and enforcement actions but to serve a greater purpose. The public can use this data to help them make decisions about their everyday

life and the exposures to which they are susceptible. Additionally this information is important for academic research in the environmental sciences as well as public policy to assess the status of the state and the impacts that changes to the present system can have. Lastly, this data can be used by the industries themselves to see where they stand relative to their competitors. Each of these constituents may be looking at different sections of the MRD, but nevertheless a consistent, easily accessible reliable, up-to-date source of MRD must be available. This reporting system then should help improve the quality of the data, and the way to access it as well.

5.2.5 Limitations of the EPA One Stop Reporting System

Full reliance cannot be placed upon this One Stop Reporting Program to actually fulfill all of its objectives. Unfortunately as an EPA sponsored program this has become the general stigma attached to their projects. Therefore it is also recommend that a more extensive literature review of the One Stop Reporting Program and other programs trying to minimize the problems of environmental reporting. All of the information in this report about this program was provided by the EPA and therefore may be biased. As more information about this program is published by other sources, it would be useful to evaluate the progress of this program.

If and when this One Stop Reporting Program is implemented it is recommended that an evaluation be conducted to assess the process change as well as the outcomes. The process of implementing this program should be evaluated to see if there are things that could have been done better or to explain why certain objectives and goals could not be accomplished. As far as the outcome indicators are concerned, the process by which environmental aspects and issues are reported should be evaluated to determine whether or not it fulfills the objectives that EPA set for this program and its overall effectiveness. The usefulness and other criteria that were mentioned above that were key characteristics of this new data source should also be evaluated. A report of the institutional changes that took place (if any) while implementing this program (such as policy changes, changes in attitude of Congress, etc.) could be drafted.

This section focused on the means by which I recommend the problems of environmental reporting presented in this paper be rectified. In order to begin to fix the problems of environmental reporting, I recommend the adoption of the newly developing EPA One Stop Reporting Program.

5.3 Using EMSs and ISO14001 to Reform Reporting

In the discussion of the EPA One Stop Reporting Program two of the activities that could help with the building block of data integration were Environmental Management Systems (EMSs) and Envirofacts. It has already been discussed how Envirofacts attempts to use an integrated approach. The use of EMSs to better capture data in a multi-level approach is important for the refinement of the reporting scheme but also for the attractiveness of the ISO14001 EMS. By standardizing the process by which the environmental aspects and issues of a facility are addressed a comprehensive analysis can be conducted. The means by which to compare the environmental concerns of different industries will then be more standardized and easier to discern.

Standardization and integration are the key concepts here. If the EMSs are standardized and the information is reported in a way that is multi-media, the environmental issues of a facility should be easier to evaluate. Although the different environmental concerns are reported in a media-specific metric, it does not mean that this is how it actually is released nor does it fully characterize the full environmental performance of the facility. Sometimes it is necessary to break things down into different compartments for easier analysis, but in this case, to fully conceptualize environmental impact of a facility an integrated approach must be taken. If then an industry is to evaluate its environmental issues this way, it would be beneficial to also report them in this integrated approach. That is the reporting scheme that the One Stop Reporting Program is suggesting. Technologies and environmental practices have changed significantly since the time the original reporting schemes were developed. Although amended, it has not provided this alternative new integrated approach. Together, the EMS

and changed reporting mechanism could provide a reinvention of the way that environmental concerns are addressed and reported.

Although the initial EMS is a snapshot of the corporate performance at one particular time, it does offer a window to the public. Through the ISO14001 EMS however, the EMS will be constantly updated to reflect the changes that are occurring in their processes or environmental performance. This report will provide information of the "future goals and how policies work to achieve them, and in the end, assist targeted stakeholders in better understanding the challenges and strengths of the disclosing organization" (Fletcher et. all, 1999). By using an EMS "internally, the demands for credible and useful information require the development of environmental performance metrics to answer public expectations - those that go beyond traditional measures of financial performance and compliance-based data" (Fletcher et all, 1999). The public reporting could then help the public to see if indeed these efforts on the part of the corporation are reducing violations and enforcement actions.

I would recommend that further research be conducted to evaluate how (if at all) the implementation of EMSs and the ISO14001 EMS in particular helped to alleviate the problem of environmental reporting. It would be interesting to see if it really was the revision of the reporting system that brought about better environmental reporting or the preventive environmental practices that reduce the reporting responsibilities or permits that a facility must have. Lastly, an evaluation of the changes of attitudes of the different constituent that this program would affect could be useful. For example, if all of this data was now more available and accessible to the public, are they actually using it? Is industry using it? Are the regulators using it?

APPENDIX A – REGULATORY STATUS REPORT

Facility ID	Reporting Year	Type of Generator	TSD Facility	Other Waste Reg 1
1	1997	LQG	FALSE	n/a
1	1996	LQG	FALSE	n/a
1	1995	LQG	FALSE	n/a
2	1997	LQG	FALSE	n/a
2	1996	LQG	FALSE	n/a
2	1995	LQG	FALSE	n/a
3	1997	LQG	FALSE	
3	1996	LQG	FALSE	
3	1995	LQG	FALSE	
4	1997	LQG	FALSE	
4	1996	LQG	FALSE	
4	1995	LQG	FALSE	
5	1997	LQG	FALSE	
5	1996	LQG	FALSE	
5	1995	LQG	FALSE	
6	1998	LQG	FALSE	n/a
6	1997	LQG	FALSE	n/a
6	1996	not LQG or SQG	FALSE	n/a
7	1997	conditionally exempt SQG	FALSE	
7	1996	conditionally exempt SQG	FALSE	
7	1995	SQG	FALSE	
8	1997	LQG	FALSE	
8	1996	LQG	FALSE	
8	1995	LQG	FALSE	
9	1998	SQG	FALSE	n/a
9	1997	SQG	FALSE	n/a
9	1996	SQG	FALSE	n/a
10	1998	LQG	FALSE	Special waste, medical waste
10	1997	LQG	FALSE	Special waste, medical waste
10	1996	LQG	FALSE	Special waste, medical waste
11	1997	LQG	FALSE	
11	1996	LQG	FALSE	
11	1995	LQG	FALSE	
12	1997	LQG	FALSE	n/a
12	1996	LQG	FALSE	n/a
12	1995	LQG	FALSE	n/a
13	1998	LQG	FALSE	n/a
13	1997 - Data are omitted.	not LQG or SQG	FALSE	
13	1996 - Data are omitted.	not LQG or SQG	FALSE	

Facility ID	Reporting Year	Air Unpermitted	CAA Major /MinorSource	Other Air Reg 1
1	1997	No	Major	n/a
1	1996	No	Major	n/a
1	1995	No	Major	n/a
2	1997	Yes	Minor	n/a
2	1996	Yes	Minor	n/a
2	1995	Yes	Minor	n/a
3	1997	No	Major	
3	1996	No	Major	
3	1995	No	Major	
4	1997	No	Minor	
4	1996	No	Minor	
4	1995	No	Minor	
5	1997	Yes	Minor	
5	1996	Yes	Minor	
5	1995	Yes	Minor	
6	1998	No	Minor	n/a
6	1997	No	Minor	n/a
6	1996	No	Minor	n/a
7	1997	No	Minor	
7	1996	No	Minor	
7	1995	No	Minor	
8	1997	No	Minor	
8	1996	No	Minor	
8	1995	No	Minor	
9	1998	No	Minor	Permit shield
9	1997	No	Minor	Permit shield
9	1996	No	Minor	n/a
10	1998	No	Major	Asbestos
10	1997	No	Major	Asbestos
10	1996	No	Major	Asbestos
11	1997	No	Minor	
11	1996	No	Minor	
11	1995	No	Minor	
12	1997	No	Minor	n/a
12	1996	No	Minor	n/a
12	1995	No	Minor	n/a
13	1998	No	Major	n/a
13	1997 - Data are omitted.	No	Minor	
13	1996 - Data are omitted.	No	Minor	

Facility ID	Reporting Year	Water Unpermitted	State Water Permit Holder	NPDES Permit Holder	Tier I Stormwater Permit	Tier II Stormwater Permit	POTW Discharge Permit	Other Water Reg 1
1	1997	No	Yes	Yes	No	Yes	No	n/a
1	1996	No	Yes	Yes	No	Yes	No	n/a
1	1995	No	Yes	Yes	No	Yes	No	n/a
2	1997	No	Yes	No	No	No	No	n/a
2	1996	No	Yes	No	No	No	No	n/a
2	1995	No	Yes	No	No	No	No	n/a
3	1997	No	No	Yes	No	No	No	
3	1996	No	No	Yes	No	No	No	
3	1995	No	No	Yes	No	No	No	
4	1997	Yes	No	No	No	No	No	
4	1996	Yes	No	No	No	No	No	
4	1995	Yes	No	No	No	No	No	
5	1997	Yes	No	No	No	No	No	
5	1996	Yes	No	No	No	No	No	
5	1995	Yes	No	No	No	No	No	
6	1998	No	No	No	No	No	Yes	n/a
6	1997	No	No	No	No	No	Yes	n/a
6	1996	No	No	No	No	No	No	n/a
7	1997	No	No	Yes	No	No	No	general stormwater permit
7	1996	No	No	Yes	No	No	No	general stormwater
7	1995	No	No	Yes	No	No	No	general stormwater
8	1997	Yes	No	No	No	No	No	
8	1996	Yes	No	No	No	No	No	
8	1995	Yes	No	No	No	No	No	
9	1998	No	No	No	No	No	No	n/a
9	1997	No	No	No	No	No	No	n/a
9	1996	No	No	No	No	No	No	n/a
10	1998	No	No	Yes	No	No	Yes	
10	1997	No	No	Yes	No	No	Yes	
10	1996	No	No	Yes	No	No	Yes	
11	1997	Yes	No	No	No	No	No	
11	1996	No	No	No	No	No	Yes	
11	1995	No	No	No	No	No	No	
12	1997	No	No	No	No	No	Yes	n/a
12	1996	No	No	No	No	No	Yes	n/a
12	1995	No	No	No	No	No	Yes	n/a
13	1998	No	No	Yes	Yes	Yes	Yes	n/a
13	1997 - Data are omitted.	No	No	No	No	No	No	
13	1996 - Data are omitted.	No	No	No	No	No	No	

Facility ID	Reporting Year	TRI Reporter	Superfund PRP	Safe Drinking Water Act	UST Regulations	Facility Comments/Notes
1	1997	TRUE	No	Yes	TRUE	none
1	1996	TRUE	No	Yes	TRUE	none
1	1995	TRUE	No	Yes	TRUE	none
2	1997	TRUE	Yes	No	FALSE	none
2	1996	TRUE	No	No	FALSE	none
2	1995	TRUE	Yes	No	FALSE	none
3	1997	TRUE	No	No	FALSE	
3	1996	TRUE	No	No	FALSE	
3	1995	TRUE	No	No	FALSE	
4	1997	FALSE	Yes	No	TRUE	
4	1996	FALSE	Yes	No	TRUE	
4	1995	FALSE	Yes	No	TRUE	
5	1997	TRUE	No	No	FALSE	
5	1996	TRUE	No	No	TRUE	
5	1995	TRUE	No	No	TRUE	
6	1998	TRUE	No	No	FALSE	none
6	1997	TRUE	No	No	FALSE	The facility began production in 1997.
6	1996	FALSE	No	No	FALSE	The facility was not in production during 1996.
7	1997	FALSE	No	Yes	TRUE	
7	1996	FALSE	No	Yes	TRUE	
7	1995	FALSE	No	Yes	TRUE	
8	1997	TRUE	No	No	TRUE	
8	1996	TRUE	No	No	TRUE	
8	1995	TRUE	No	No	TRUE	
9	1998	FALSE	No	No	FALSE	none
9	1997	FALSE	No	No	FALSE	none
9	1996	FALSE	No	No	FALSE	none
10	1998	TRUE	No	No	FALSE	
10	1997	TRUE	No	No	TRUE	
10	1996	TRUE	No	No	TRUE	
11	1997	TRUE	No	No	FALSE	
11	1996	FALSE	No	No	FALSE	did not meet TRI reporting threshold this year
11	1995	TRUE	No	No	FALSE	
12	1997	TRUE	No	Yes	FALSE	none
12	1996	TRUE	No	Yes	FALSE	none
12	1995	TRUE	No	Yes	FALSE	none
13	1998	TRUE	No	No	TRUE	
13	1997 - Data are omitted.	FALSE	No	No	FALSE	
13	1996 - Data are omitted.	FALSE	No	No	FALSE	

APPENDIX B – VIOLATION REPORT

Facility ID (for this report)	Entry Date	Internal QA Check Done?	External QA Check Done?	Type of Violation
1	12/98	TRUE	TRUE	No violations have occurred over the past 3 years
2	12/98	TRUE	TRUE	Record-keeping, Labeling, Training, Storage
3	12/98	FALSE	FALSE	Storage/Disposal/Container Mgmt.
4	12/98	TRUE	TRUE	Record-keeping
5	12/98	TRUE	TRUE	Training
6	4/3/99	TRUE	FALSE	Report
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Unauthorized release of pollutants
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Emission/Discharge
7	12/98	TRUE	TRUE	Production
8	12/98	TRUE	TRUE	No violations have occurred over the past 3 years
9	4/2/99	TRUE	FALSE	No violations have occurred over the past 3 years
10	5/3/99	TRUE	FALSE	Unauthorized release of pollutants
10	5/3/99	TRUE	FALSE	Unauthorized release of pollutants
10	5/3/99	TRUE	FALSE	Storage/Disposal/Container Mgmt.
10	5/3/99	TRUE	FALSE	Emission/Discharge
10	5/3/99	TRUE	FALSE	Emission/Discharge
10	5/3/99	TRUE	FALSE	Emission/Discharge
11	12/98	TRUE	TRUE	Emission/Discharge
11	12/98	TRUE	TRUE	Emission/Discharge
12	12/98	TRUE	TRUE	Emission/Discharge
13	5/21/99	TRUE	FALSE	Unauthorized release of pollutants
13	5/21/99	TRUE	FALSE	Unauthorized release of pollutants
13	5/21/99	TRUE	FALSE	Testing
13	5/21/99	TRUE	FALSE	Emission/Discharge
13	5/21/99	TRUE	FALSE	Emission/Discharge
13	5/21/99	TRUE	FALSE	Monitoring/Sampling
13	5/21/99	TRUE	FALSE	Unauthorized release of pollutants

Facility ID (for this report)	Regulatory Program	Other Regulatory Program	Date Discovered	Violation Classification
1	n/a	n/a	n/a	n/a
2	Hazardous Waste Regulations	n/a	9/8/1997	Minor
3	Hazardous Waste Regulations	n/a	12/12/96	Minor
4	Hazardous Waste Regulations	n/a	3/27/95	Minor
5	Hazardous Waste Regulations	n/a	January 26, 1994	Minor
6	Water Regulations	n/a	4/16/97	Minor
7	Air Regulations	n/a	2/9/95	Minor
7	Water Regulations	n/a	2/9/95	Minor
7	Water Regulations	n/a	2/11/95	Minor
7	Air Regulations	n/a	5/17/95	Minor
7	Water Regulations	n/a	3/19/96	Minor
7	Water Regulations	n/a	7/3/96	Minor
7	Water Regulations	n/a	9/23/96	Minor
7	Air Regulations	n/a	12/31/96	Minor
7	Air Regulations	n/a	12/31/96	Minor
7	Water Regulations	n/a	6/25/97	Minor
7	Water Regulations	n/a	7/1/97	Minor
7	Water Regulations	n/a	8/29/97	Minor
7	Water Regulations	n/a	12/8/97	Minor
8	n/a	n/a	n/a	n/a
9	n/a	n/a	n/a	n/a
10	Air Regulations	n/a	2/95	Minor
10	Air Regulations	n/a	6/95	Minor
10	Other (please specify)	omitted	7/96	Minor
10	Air Regulations	n/a	10/96	Minor
10	Water Regulations	n/a	10/96	Minor
10	Air Regulations	n/a	3/97 and 4/97	Minor
11	Water Regulations	n/a	12/9/1996	Minor
11	Air Regulations	n/a	4/29/1995	Major or Significant
12	Water Regulations	n/a	blank	Major and Minor
13	omitted	omitted	1/4/96	omitted
13	omitted	omitted	1/5/96	omitted
13	omitted	omitted	3/11/96	omitted
13	omitted	omitted	3/28/96	omitted
13	omitted	omitted	2/13/97	omitted
13	omitted	omitted	3/17/97	omitted
13	omitted	omitted	8/18/97	omitted

Facility ID (for this report)	Discovery Method	Other Discovery Method	Days before Discovery	Days before Correction
1	n/a	n/a	n/a	n/a
2	an inspection by regulators	n/a	11-30 days	2-10 days
3	an inspection by regulators	n/a	more than 2 months	2-10 days
4	an inspection by regulators	n/a	2-10 days	1 day or less
5	an inspection by regulators	n/a	more than 2 months	2-10 days
6	other (please explain below)	Facility report was reviewed by state agency personnel, who discovered the violation.	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	unable to respond	unable to respond
7	routine procedures/inspections by operators	n/a	unable to respond	unable to respond
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
7	a regulatory inspection	n/a	more than 2 months	unable to respond
8	n/a	n/a	n/a	n/a
9	n/a	n/a	n/a	n/a
10	a regulatory inspection	n/a	more than 2 months	more than 2 months
10	a regulatory inspection	n/a	more than 2 months	more than 2 months
10	a regulatory inspection	n/a	more than 2 months	more than 2 months
10	a regulatory inspection	n/a	1 to 2 months	1 to 2 months
10	a regulatory inspection	n/a	1 day or less	1 day or less
10	a regulatory inspection	n/a	more than 2 months	more than 2 months
11	an inspection by regulators	n/a	1 day or less	1 day or less
11	routine procedures/inspections by operators	n/a	1 day or less	1 day or less
12	an inspection by regulators	n/a	1 day or less	1 day or less
13	omitted	omitted	omitted	omitted
13	omitted	omitted	omitted	omitted
13	omitted	omitted	omitted	omitted
13	omitted	omitted	omitted	omitted
13	omitted	omitted	omitted	omitted
13	omitted	omitted	omitted	omitted
13	omitted	omitted	omitted	omitted

Facility ID (for this report)	Cause of Violation
1	n/a
2	The violation occurred when the facility was renovating existing operations. The renovations generated many containers of waste. Once the inspection took place and a notice of violation was filled, immediate action was taken. The violation occurred because of a lack of personnel training in proper waste handling procedures. Also, there was a lack of discipline and follow-up regarding improper waste storage.
3	A hazardous waste inspection took place on 12/12/96. Several minor non-compliances were identified by the state inspector. 1) A waste solvent drum did not have a tight fitting cover, 2) a relatively small amount of oil- contaminant material ("speedi-dry") was observed to have been disposed of into a regular solid waste container, 3) lack of spill control equipment in one of the hazardous waste storage areas and 4) improper record-keeping of a short-term hazardous waste accumulation storage area.
4	The inventory of materials in the hazardous waste area did not match the materials present.
5	Annual training of hazardous waste personnel.
6	Wrong signature authority.
7	boiler opacity excess emissions -- low precipitation powers - six minute block average > 40%
7	unauthorized discharge to river
7	oil leak from transformer to cooling water as a result of pipe damage.
7	boiler 5 opacity excess emissions - six minute block average > 40%
7	NPDES unauthorized discharge - sump overflow
7	unauthorized discharge - sump overflow
7	NPDES unauthorized discharge - sump overflow
7	boiler 5 excess opacity emission 4th quarter unacceptable - average quarterly monitoring results
7	BK boiler opacity excess emissions for 3rd quarter unacceptable
7	unauthorized discharge - yard drain sump overflow
7	unauthorized discharge from sump
7	unauthorized discharge - yard sump overflow
7	inappropriate overflow pipe configuration
8	n/a
9	n/a
10	Excess emissions over permitted limit, excess operating hours above permit limits, and omissions in reporting requirements
10	Equipment operation without proper pollution control equipment maintenance, inadequate record keeping.
10	Plant wastes were not being handled in a timely fashion and storage area was not well-managed.
10	Excess emissions over permit limit
10	A release of soap lubricant from process equipment that entered sanitary pretreatment system
10	Excess emissions over permitted limit, excess operating hours above permit limits, and omissions in reporting requirements
11	Mercury exceedance from an office building was identified during the routine compliance testing. The potential cause could be from the clean up of broken florescent light tube from the janitorial service.
11	Operator forgot to turn off the valve, chill water was discharged into sanitary sewer. Failed to report to the Sanitary District immediately.
12	Exceeded discharge permit limits
13	omitted
13	omitted
13	omitted
13	omitted
13	omitted
13	omitted
13	omitted

Facility ID (for this report)	Corrective Actions
1	n/a
2	The facility immediately began an internal audit process on environmental affairs. Corrective actions were taken to right any noted violations. A full time environmental waste manager was hired. An outside consulting firm was brought in to audit facility and aid in finding any regulatory non-compliances which may have been missed.
3	1) replaced cover on waste solvent drum with a new, tight fitting cover and discussed importance of this with operators. 2) explained this was NOT a normal procedure and what the circumstances were behind it. Removed speedi-dry from above mentioned container and placed into hazardous waste drum. Labeled each drum so as to easily differentiate one from the other (regular solid waste vs. hazardous waste). Discussed importance of following proper procedures with affected employees. 3). Installed necessary spill control equipment in the mentioned hazardous waste storage area. 4). Instituted new record-keeping procedure of mentioned short term hazardous waste accumulation storage area.
4	Inventory list was separated from inspection report. Inspection duties were confined to the responsible party.
5	Conducted training. Established calendar for training and report requirements.
6	The facility updated the designated signature authorities to include other potential signers.
7	restored precipitators
7	none
7	water cooling system for transformers replaced with air cooling system
7	unable to respond
7	unable to respond
7	unable to respond
7	unable to respond
7	unable to respond
7	unable to respond
7	unable to respond
7	unable to respond
7	installed secondary power source to ensure power supply to sump
7	permitting sump overflow in the next round of NPDES permit cycle
8	n/a
9	n/a
10	Make equipment modification and instituted.
10	Instituted daily weekly and monthly formal equipment inspections. Repaired and replaced equipment. Updated fugitive dust control permit and submitted outdated reports.
10	Improved management of solid waste and dispose of waste in proper disposal facility.
10	improved record-keeping and awareness of requirements
10	plugged floor drain in area to prevent future releases and repaired containment areas
10	Calibrated flow meters, corrected operating hours on annual reports and supplied omitted data to agency.
11	Provided training to the janitorial service personnel on the handling of broken florescent light tubes. Also purchased mercury clean up kits for future mercury clean up.
11	Conducted operator training on the reporting requirements.
12	Improved WWTS
13	omitted
13	omitted
13	omitted
13	omitted
13	omitted
13	omitted
13	omitted
13	System was immediately stopped. All plumbing tied-in during that period was traced to ensure correct tie-in to proper systems.

**APPENDIX C – HAZARDOUS WASTE REGULATORY STATUS AND
VIOLATION INFORMATION GATHERED FROM ISO14001 EMS PILOT
PROJECT AND EPA (ENVIROFACTS AND RTK NET)**

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

Facility #	Regulatory Status Report				Violation Information				
	EPA	Self-Reported Information*			RCRIS Reported		Self-Reported Information*		
		1995	1996	1997	Violation	Date	Violation	Cause of Violation	Date
1	LQG	LQG	LQG	LQG	Written Information Administrative Action	8/21/96	N/R	N/A	N/A
2	LQG	LQG	LQG	LQG	N/R	N/A	Record-keeping, Labeling, Training, Storage	The violation occurred when the facility was renovating existing operations. The renovations generated many containers of waste. Once the inspection took place and a notice of violation was filed, immediate action was taken. The violation occurred because of a lack of personnel training in proper waste handling procedures. Also, there was a lack of discipline and follow-up regarding	9/8/97
3	LQG	LQG	LQG	LQG	N/R	N/A	Storage/ Disposal/ Container Mgmt.	A hazardous waste inspection took place on 12/12/96. Several minor non-compliances were identified by the state inspector. 1) A waste solvent drum did not have a tight fitting cover, 2) a relatively small amount of oil-contaminant material ("speedi-dry") was observed to have been disposed of into a regular solid waste container, 3) lack of spill control equipment in one of the hazardous waste storage areas and 4) improper recordkeeping of a short-term	12/12/96
4	LQG	LQG	LQG	LQG	Written Information Administrative Action	2/2/95	Record-keeping	The inventory of materials in the hazardous waste area did not match the materials present.	3/27/95

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

Facility #	Regulatory Status Report				Violation Information				
	EPA	Self-Reported Information*			RCRIS Reported		Self-Reported Information*		
		1995	1996	1997	Violation	Date	Violation	Cause of Violation	Date
5	SQG	LQG	LQG	LQG	Written Information Administrative Action	1/26/94	Training	Annual training of hazardous waste personnel.	1/26/94
6	??	N/A	NEITHER	LQG	Unable to generate report	N/A	N/R	N/A	N/A
7	Conditionally	SQG	Conditionally	Conditionally	N/R	N/A	N/R	N/A	N/A
8	LQG	LQG	LQG	LQG	N/R	N/A	N/R	N/A	N/A
9	SQG	SQG	SQG	SQG	N/R	N/A	N/R	N/A	N/A
10	LQG	LQG	LQG	LQG	N/R	N/A	N/R	N/A	N/A
11	LQG	LQG	LQG	LQG	N/R	N/A	N/R	N/A	N/A
12	SQG	LQG	LQG	LQG	N/R	N/A	N/R	N/A	N/A
13	LQG	N/A	NEITHER	NEITHER	N/R	N/A	N/R	N/A	N/A

*Data Source for the IRD: Please See Appendix A and Appendix B (both generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the self-reported data of the facilities.

**APPENDIX D – WATER REGULATORY STATUS AND VIOLATION
INFORMATION GATHERED FROM ISO14001 EMS PILOT PROJECT AND
EPA (ENVIROFACTS AND RTK NET)**

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to PCS)

Facility #	Regulatory Status Report				Violation Information				
	EPA (STATUS FOR PCS)	Self-Reported Information*			PCS Reported		Self-Reported Information*		
		NPDES Water Permit 1995-1997	State Water Permit 1995-1997	Safe Drinking Water Act Permit 1995-1997	Violation	Date	Violation	Cause of Violation	Date
1	PCS	YES	YES	YES	N/R	N/A	N/R	N/A	N/A
2	Not PCS	NO	YES	NO	N/R	N/A	N/R	N/A	N/A
3	Not PCS	YES	NO	NO	NRG	N/A	N/R	N/A	N/A
4	Not PCS	NO	NO	NO	NRG	N/A	N/R	N/A	N/A
5	Not PCS	NO	NO	NO	NRG	N/A	N/R	N/A	N/A
6	Not PCS	NO	YES	NO	NRG	N/A	Report	Wrong signature authority	4/16/97
7	PCS	YES	NO	YES	Temperature Numeric Violation	3/31/96	Emission/ Discharge	unauthorized discharge to river	2/9/95
							Unauthorized Release of Pollutants	oil leak from transformer to cooling water as a result of pipe damage	2/11/95
							Emission/ Discharge	NPDES unauthorized discharge - sump overflow	3/19/96
							Emission/ Discharge	unauthorized discharge - sump overflow	7/3/96
							Emission/ Discharge	NPDES unauthorized discharge - sump overflow	9/23/96
							Emission/ Discharge	unauthorized discharge - yard drain sump overflow	6/25/97
							Emission/ Discharge	unauthorized discharge from sump	7/1/97

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to PCS)

Facility #	Regulatory Status Report				Violation Information				
	EPA (STATUS FOR PCS)	Self-Reported Information* NPDES Water Permlt 1995-1997	State Water Permit 1995-1997	Safe Drinking Water Act Permit 1995-1997	PCS Reported Violation	Date	Self-Reported Information* Violation	Cause of Violation	Date
7 (Con't)							Emission/ Discharge	unauthorized discharge - yard drain sump overflow	8/29/97
							Production	inappropriate overflow pipe configuration	12/8/97
8	Not PCS	NO	NO	NO	NRG	N/A	N/R	N/A	N/A
9	Not PCS	NO	NO	NO	NRG	N/A	N/R	N/A	N/A
10	PCS	YES	NO	NO	N/R	N/A	Emission/ Discharge	A release of soap lubricant from process equipment that entered sanitary pretreatment system	Oct-96
11	Not PCS	NO	NO	NO	NRG	N/A	Emission/ Discharge	Operator forgot to turn off the valve, chill water was discharged into sanitary sewer. Failed to report to the Sanitary District immediately	12/9/96
12	Not PCS	NO	NO	YES	NRG	N/A	Emission/ Discharge	Exceeded discharge permit limits.	No data
13	Not PCS	NO (1998 YES)	NO	NO	NRG	N/A	Unauthorized Release of Pollutants**	omitted	1/4/96
							Unauthorized Release of Pollutants**	omitted	1/5/96
							Testing**	omitted	3/11/96
							Emission/ Discharge*	omitted	3/28/96

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to PCS)

Facility #	Regulatory Status Report				Violation Information				
	EPA (STATUS FOR PCS)	Self-Reported Information*			PCS Reported		Self-Reported Information*		
		NPDES Water Permit 1995-1997	State Water Permit 1995-1997	Safe Drinking Water Act Permit 1995-1997	Violation	Date	Violation	Cause of Violation	Date
13 (Con't)							Emission/ Discharge*	omitted	2/13/97
							Monitoring/ Sampling*	omitted	3/17/97
							Unauthorized Release of Pollutants**	omitted	8/18/97

*Data Source for the Self-Reported Information: Please see Appendix A and Appendix B (both generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the self-reported data of the facilities.

** The information in the field describing to which regulatory program the facility had a violation was omitted. It is unknown if the violations are to air or to water. Even though there was no PCS report generated the facility could still have violations to other federal, state, and local water regulations.

**APPENDIX E – AIR REGULATORY STATUS AND VIOLATION
INFORMATION GATHERED FROM ISO14001 EMS PILOT PROJECT AND
EPA (ENVIROFACTS AND RTK NET)**

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to AIRS)

NRR= No Violations Reported Query Results Returned from NCDENR Division of Air Quality

Facility #	Regulatory Status Report					Violation Information				
	EPA (STATUS FOR AIRS/AFS)	Self-Reported Information*				AIRS/AFS		Self-Reported Information*		
		Waste Air Permitted	State Air Permit Holder	CAA Major /Minor	Other Air Regs.	Violation	Date	Violation	Cause of Violation	Date
1	AIRS/AFS	YES	YES	MAJOR	N/A	NRR		N/R	N/A	N/A
2	AIRS/AFS	NO	NO	MINOR	N/A	N/R***	N/A	N/R	N/A	N/A
3	AIRS/AFS	YES	YES	MAJOR	N/R	N/R***	N/A	N/R	N/A	N/A
4	AIRS/AFS	YES	YES	MINOR	N/R	N/R***	N/A	N/R	N/A	N/A
5	Not AIRS/AFS	NO	NO	MINOR	N/R	NRG	N/A	N/R	N/A	N/A
6	AIRS/AFS	YES	Y-97, Y-96, N-95	MINOR	N/A	N/R***	N/A	N/R	N/A	N/A
7	AIRS/AFS	YES	YES	MINOR	N/R	N/R***	N/A	Unauthorized Release of Pollutants	boiler opacity excess emissions - low precipitation powers - six minute block average > 40%	2/9/95
								Unauthorized Release of Pollutants	boiler 5 opacity excess emissions - six minute block average > 40%	5/17/95
								Emission/ Discharge	boiler 5 excess opacity emission 4th quarter unacceptable - average quarterly monitoring results	12/31/96
								Emission/ Discharge	8K boiler opacity excess emissions for 3rd quarter unacceptable	12/31/96

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to AIRS)

NRR= No Violations Reported Query Results Returned from NCDENR Division of Air Quality

Facility #	Regulatory Status Report					Violation Information				
	EPA (STATUS FOR AIRS/AFS)	Self-Reported Information*				AIRS/AFS		Self-Reported Information*		
		Waste Air Permitted	State Air Permit Holder	CAA Major /Minor	Other Air Regs.	Violation	Date	Violation	Cause of Violation	Date
8	Not AIRS/AFS	YES	YES	MINOR	N/R	NRG	N/A	N/R	N/A	N/A
9	AIRS/AFS	YES	NO	MINOR	Permit Shield - 97, Permit Shield - 96, N/A - 95	NRR		N/R	N/A	N/A
10	AIRS/AFS	YES	YES	MAJOR	Asbestos	7C - State NOV Issued Air Program Code 9	4/7/97	Unauthorized Release of Pollutants	Excess emissions over permitted limit, excess operating hours above permit limits, and omissions in reporting requirements	2/1/95
								Unauthorized Release of Pollutants	Equipment operation without proper pollution control equipment maintenance, inadequate record keeping.	6/1/95
								Emission/ Discharge	Excess emissions over permit limit	10/1/96

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to AIRS)

NRR= No Violations Reported Query Results Returned from NCDENR Division of Air Quality

Facility #	Regulatory Status Report					Violation Information				
	EPA (STATUS FOR AIRS/AFS)	Self-Reported Information*				AIRS/AFS		Self-Reported Information*		
		Waste Air Permitted	State Air Permit Holder	CAA Major /Minor	Other Air Regs.	Violation	Date	Violation	Cause of Violation	Date
10 (Con't)								Emission/ Discharge	Excess emissions over permitted limit, excess operating hours above permit limits, and omissions in reporting requirements	3/97 & 4/97
11	AIRS/AFS	YES	YES	MINOR	N/R	NRR		Emission/ Discharge	Mercury exceedance from an office building was identified during the routine compliance testing. The potential cause could be from the clean up of broken florescent light tube from the janitorial service.	Apr-95
12	Not AIRS/AFS	YES	YES	MINOR	N/A	NRG	N/A	N/R	N/A	N/A
13	AIRS/AFS	YES	NO	97-MAJOR, 96 MINOR, 95 MINOR	N/R	N/R***	N/A	Unauthorized Release of Pollutants*	omitted	1/4/96
								Unauthorized Release of Pollutants*	omitted	1/5/96

N/A=Not Applicable

N/R=None reported in 1995, 1996, or 1997

NRG= no report generated by the EPA (not required to report to AIRS)

NRR= No Violations Reported Query Results Returned from NCDENR Division of Air Quality

Facility #	Regulatory Status Report					Violation Information				
	EPA (STATUS FOR AIRS/AFS)	Self-Reported Information*				AIRS/AFS		Self-Reported Information*		
		Waste Air Permitted	State Air Permit Holder	CAA Major /Minor	Other Air Regs.	Violation	Date	Violation	Cause of Violation	Date
13 (Con't)								Testing*	omitted	3/11/96
								Emission/ Discharge*	omitted	3/28/96
								Emission/ Discharge*	omitted	2/13/97
								Monitoring/ Sampling*	omitted	3/17/97
								Unauthorized Release of Pollutants*	omitted	8/18/97

*Data Source for the IRD: Please see Appendix A and Appendix B (both generated from the database that is being used by the ISO14001 EMS Pilot Project to compile all of the self-reported data of the facilities.

** The information in the field describing to which regulatory program the facility had a violation was omitted.

It is unknown if the violations are to air or to water. Even though there was no PCS report generated the facility could still have violations to other federal, state, and local water regulations.

*** According to the query conducted by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Air Quality, no violations were reported for these facilities. For the email messages reporting these results please see Appendix F.

**APPENDIX F - EMAIL CORRESPONDENCE FOR RESULTS OF QUERY FOR
VIOLATIONS REPORTED IN AIRS/AFS FROM TECHINCAL STAFF AT
NCDENR DIVISION OF AIR QUALITY**

(Facility Names mentioned in email messages have been replace with Identification numbers to maintain confidentiality of the facilities.)

Email correspondence with Kimberly Davis, Environmental Engineer at NCDENR Division of Air Quality, 6/24/99, 8:36am.

Rachel,

Here are the results of our search. I hope it helps. Good luck.

Kim Davis

1. Facility 1	Did not have the correct ID No
2. Facility 2	No violations
3. Facility 3	No violations
4. Facility 4	No violations
5. Facility 6	Did not have the correct ID No
6. Facility 7	No violations
7. Facility 9	Did not have the correct ID No
8. Facility 10	Did not have the correct ID No
9. Facility 11	Did not have the correct ID No
10. Facility 13	No violations

Email correspondence with Carol Walker, NCDENR Division of Air Quality, 6/25/99, 10:10am

Rachel,

I am trying to download one file from EPA on Facility 10.
I am having some problems with it. NCC help line is trying to help me
with this problem. This company did have some violation.
will get back with you soon.
Facility 6 Had NO VIOLATIONS.

Carol Walker

Email correspondence with Carol Walker, NCDENR Division of Air Quality, 6/29/99, 9:41am

Rachel,

I am still having problems in transferring my files from EPA, so I will try to let you know what it gives me.

Facility 10 was the only site that shows any violations.

Now, the violations are coded. 7C - State NOV Issued on 98-05-01
Air program code 08C - State Administrative order on 98-08-21
Air program code 07C - State NOV Issued on 97-04-07.
Air program code 9 and 8C - State Administrative order on 98-06-28
Air program code 9.

Now these codes are all at the plant level.

Carol Walker

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Coequyt, John; Campbell, Christopher; Wiles, Richard. May 1999. *Above the Law: How the Government Lets Major Air Polluters Off The Hook*. Washington, DC. Environmental Working Group/The Tides Center.

Environmental Law Institute. January 1991. *Report of the Colloquium on Federal-State Relations in Environmental Enforcement*. Washington, D.C.; Environmental Law Institute.

Federal Register

CAA, Title 1, Part C, Subpart 1, Sect. 169 (1); Federal Register 42 U.S.C. 7479

CAA, Title 3, Sect. 302 (x); Federal Register 42 U.S.C. 7602

Web Sites

Right to Know and Public Report Data Sources

<http://es.epa.gov/oeca/ore/tped/epacratp.html>

EPA - Office of Enforcement and Compliance Assurance - The Emergency Planning and Community Right-to-Know Act (EPCRA)

Last Updated: 5/29/98

<http://www.epa.gov/epahome/Citizen.html>

EPA - Concerned Citizens

Last Updated: 7/7/99

<http://www.ombwatch.org/rtknet/>

Right To Know Network

Last Updated: May 1999

<http://www.ombwatch.org/rtknet/resources.html>

RTK net - Right to Know Resources

Date Visited: 5/21/99

http://www.epa.gov/enviro/index_java.html

EPA - Envirofacts Data Warehouse and Applications

Last Updated: June, 1999.

Databases

<http://www.epa.gov/epahome/dmedia.htm>

EPA - Databases & Software - Media Specific Tools

Last Updated: 7/7/99

<http://es.epa.gov/oeca/idea/data.html#AFS>

EPA - Office of Enforcement and Compliance Assurance - IDEA Data Sources

Last Updated: 2/5/99

<http://www.rtk.net/www/datadoc/erns.html>

RTK net - ERNS Data Sheet

Last Updated: 1/6/97

<http://www.epa.gov/epaoswer/hazwaste/data/#rcris>

EPA Office of Solid Waste - Hazardous Waste Data

Last Updated: 6/30/99

EPA One Stop Reporting Program and Other Recommendations

<http://www.epa.gov/onestop/>

EPA - Reinvention One Stop Reporting

Last Updated: 3/25/99

<http://es.epa.gov/oeca/idea>

EPA - Office of Enforcement and Compliance Assurance - IDEA

Last Updated: 2/5/99

<http://www.epa.gov/reinvent/onestop/blocks/blocks.htm>

EPA- One Stop Reporting - One Stop Building Blocks

Last Updated: 6/2/99

<http://www.epa.gov/empact/>

EPA - EMPACT - Environmental Monitoring for Public Assessment and Community Monitoring

Last Updated: 2/8/99

<http://www.epa.gov/reinvent/notebook/byinfo.htm>

EPA - Directory of Reinvention Projects - Improving Environmental Information

Last Updated: 1/20/99

<http://www.edrnet.com>

Environmental Data Resources, Inc. Homepage

Last Data Visited: 7/12/99

Email Correspondence

Keiner, Suellen (keiner@eli.org). "Compliance Data". Email to Rachel Kron (rachel.kron@sph.unc.edu) 3 May 1999.

Deborah Amaral (amarda@mindspring.com) "Reader". Email to Rachel Kron (Rkron@bemsys.com) 21 June 1999.

Kimberly Davis (Kimberly_Davis@ncair.net) "AIRS/AFS SEARCH FOR VIOLATION INFORMATION". Email to Rachel Kron (Rkron@bemsys.com) 24 June 1999.

Carol Walker (Carol_Walker@ncair.net) "AIRS/AFS Search for Violation Information"
Email to Rachel Kron (Rkron@bemsys.com) 25 June 1999.

Carol Walker (Carol_Walker@ncair.net) "AIRS/AFS Search for Violation Information"
Email to Rachel Kron (Rkron@bemsys.com) 29 June 1999.

Conversations

Conversation with John Villani, 4/9/99

Conversation with Nicole Darnall, 5/12/99

Conversation with Ms. Kimberley Davis, Environmental Engineer, and Mr. Lee Daniels,
Section Chief for Technical Services, NCDENR Division of Air Quality, 6/7/99

Conversation with Mr. Robert Farmer, Environmental Specialist, NCDENR Division of
Water Quality, 6/4/99

Conversation with Mr. Jim Edwards, RCRIS/BRS DBA, NCDENR Division of Waste
Management, 6/7/99

Conversation with Mr. Bud McCarty, Environmental Engineer, NCDENR Division of
Waste Management, 6/7/99

Conversation with Mr. Kevin Stefanski, AIRS Technical Information and User Support
Specialist, 6/23/99 and 6/24/99

Endnotes

¹ The academic study, *The Effects of ISO14001 Environmental Management Systems on the Environmental and Economic Performance of Organizations*, (also called the ISO14001 EMS Pilot Project, throughout this report), is a research project that began in 1996. Officials from ten states and the EPA, researchers from the University of North Carolina at Chapel Hill, and the Environmental Law Institute (ELI), joined together to try to find out how and to "what extent will the implementation of an ISO14001 Environmental Management System (EMS) change a facility's behavior with respect to environmental performance, regulatory compliance, economic performance (costs and benefits), pollution prevention, interested party involvement, and environmental condition indicators" (Andrews et al, 1999). For further information on the objectives, study questions, and data collection and their importance in this study, please refer to the first project summary, *The Effects of ISO14001 Environmental Management Systems on the Environmental and Economic Performance of Organizations*, 3/29/99. (Available to be downloaded from <http://sunsite.unc.edu/villani/isoprojects.htm>).

² Although the Toxic Release Inventory (TRI) is a publicly available information source of environmental information and is mandated by law and receives much publicity, it does not provide information on specific releases or compliance violations and therefore will not be a source of information for this particular study.

³ In the "Data Protocol for Use in EMS/ISO 14001 Projects" there is a specific section called "The Compliance Baseline". This portion asks for regulatory status and for compliance, violation, and emission information from these thirteen facilities for 1995, 1996, 1997. There are two sections are pertinent to this study. They are entitled "Regulatory Status and "Violations, Non-compliances, and Potential Compliances" respectively. The specific part of the latter section that was important to this study was the "Violations" portion. For further information please refer to the baseline protocol, Data Collection Protocols for ISO14001 EMS Pilot Project Research: Baseline Protocols, Version 1.4. (Available to be downloaded from <http://sunsite.unc.edu/villani/isoprojects.htm>)

⁴ The following definitions are used in the last part of the Compliance Baseline to report violations:
"Violation": non-compliance discovered by environmental agency personnel or reported to agency personnel which results in a formal enforcement action against the facility.
Formal Enforcement Action: an NOV, administrative order, civil action seeking civil penalties, or referral for a criminal prosecution for violation of an environmental requirement.
Non-compliance: non-conformity in fulfilling legal requirements.
Potential non-compliance: any situation in which a non-compliance would occur without action by the facility." (Andrews et al., 1999)" The information that was reported to this section of the baseline protocol as "violations" is what was used as the data for analysis (the way that it was entered into the database only allows for tables for violations or non-compliances). Some facilities reported many violations while others reported none. There were also some protocols that came back with this section incomplete.

⁵ Environmental information about industrial activity and spills and releases is not the only environmental information that the public can obtain. There are additional databases that provide information to the public about chemicals that are regulated under the Toxic Substances Control Act (TSCA) and databases that provide information about innovative technologies that are used in industry. There are also many databases on environmental health information. Other agencies such as the Agency of Toxic Substances and Disease Registry (ASTDR) have much information available to the public about the environmental health concerns of various chemical, physical, and biological factors.

⁶ The EPA web site also has web pages specifically targeted for citizens for general environmental information about ways that they can learn about the different regulations and about how they can each become more environmental conscious. For example, the EPA-Concerned Citizen page (<http://www.epa.gov/epahome/Citizen.html>) provides the following introduction to what is available at this site "Become familiar with environmental issues and potential environmental and human health risks caused by pollution. Learn how you, your family, and your community can protect the environment." At the bottom of this page there is additional links for citizens about solid waste, water, pesticides, Superfund, and compliance to name a few. Because of technological advances there is much more information available to the public about environmental regulation and compliance. The EPA also provides a number of hotlines for each of the different offices and/or regulations that citizens can call and retrieve information. Even when laws and regulation are being written there is a period of public comment in which anyone is allowed to comment on the proposed law and/or regulation. These comments are then collected and published again for public disclosure.

⁷ Access to RTK NET is available via www, telnet, gopher, ftp, email, and modem dial-up (<http://www.ombwatch.org/rtknet/>).

⁸ RTK net does provide other resources to raise environmental awareness. This network has an entire page of links to federal right to know sites, non-profit toxic organizations, and national environmental organizations (<http://www.ombwatch.org/rtknet/resources.html>).

⁹ It was found in this study that the help functionality in this system was inefficient. For example for the entire time that this study was conducted (February – July 1999) an error message was continually returned when trying to use the RTK network's query utility. Even after persistently trying to contact the network to let them know of this error, this amenity proved to be useless. Additionally, others that have used this capability when it was functioning state that it is not very user friendly (Conversation with John Villani, 4/9/99). An important factor for public access to information is that it is easily accessible. Also, this site says that training sessions are conducted across the nation to provide the public with the skills necessary to use this site, however there have not been any training sessions since 1997. Both the RTK network and Envirofacts provides information about which years the data is available. Depending on when the data is updated, these two sources could provide different data, one being more recent than the other.

¹⁰ Just as with RTK net there is an option to do a master report of a facility. This would retrieve information from the databases for information on one facility/area/industry. This master report capability though still requires the user to go into each database for each facility, it just provides the links from one central page. There is a way to do customized reports but it is suggested that only skilled users use this capability. Therefore for the average citizen, in order to characterize the aggregate data and then compare it to an industry average one would have to go through facility by facility to retrieve the data.

¹¹ Envirofacts is designed more for the people that are already trained to use it, such as EPA personnel and experienced environmental scientists. There is a lack of data as well. In RTK net, the RCRIS search provided information about the violations, enforcement actions, and compliance actions. Additionally, the different process information is available. When searching Envirofacts however for violation information in RCRIS, only basic facility information and process information is returned as output. If one is trying to obtain violation information, then this system is not the means by which to obtain the data. Also when using the PCS database to obtain information about the violation to water violations, there is a message that notes that only experiences users should attempt to query for information. How is this a good source for publicly available information if the public cannot use it?

¹² According to Robert Farmer, Environmental Specialist at the NCDENR Division of Air Quality, most of the responsibilities of the water program are delegated to the states, but the federal government tracks some facilities. Often there is some tension among the states and the federal government when they do take over tracking for a facility because the EPA does not feel that the state is doing an adequate job

¹³ On June 24, 1999 a conversation was had with Kevin Stefanski, AIRS Technical Report and User Support Specialist, and he attempted to explain the violation information received in the AFS reports. Not only does a user have to be familiar with the format of the report, but he/she must also be well educated in what all of the codes mean. The report may tell that a facility was out of compliance between two months but the last action reported may have been six months prior. Mr. Stefanski said that the best way to get this information would be to go to the state Division of Air Quality and to speak to someone there. Additionally on the reporting side of this issue, Mr. Stefanski said that many states do not report thoroughly to AFS. Although the states may have the information, they are in constant conflict with the EPA about how to enter the data into AFS because it is such a laborious task. He continued to tell me that the EPA system is archaic. There are potentially fifty different systems from the fifty states that would have to transfer data then to this outdated system. The states have their own way to track the air violation information and the EPA expects them to report this information to AFS without any glitches or data errors.

¹⁴ Through email correspondence with Deborah Amaral, Adjunct Professor at UNC, she informed me that when the consulting company, for whom she works needs AIRS/AFS reports to be read, they hire a specialist to do so. Therefore as a publicly available database, AIRS/AFS is not very useful to the public.

¹⁵ The Colloquium on Federal-State Relations in Environmental Enforcement was a meeting sponsored by the Environmental Law Institute (ELI) to evaluate the roles of federal, state, and local governments in environmental enforcement. The purpose was to redefine these roles and find innovative ways to increase the effectiveness of environmental enforcement. Mostly importantly, the purpose of this meeting was not to come to a consensus but rather to get the different viewpoints of the different constituents in the environmental enforcement community. The group consisted of Congressmen (men and women), EPA and state enforcement officials, and citizens with experience in environmental enforcement. It is important to note that environmental enforcement is related to environmental reporting. The enforcement of these laws and statutes is vital to their compliance. So by discussing the problems with enforcement, it is also a discussion of one of the preliminary (indirect) problems of environmental reporting.

¹⁶ There is an option to use a wildcard search where an asterisk "*" is used either before, after, or before and after a certain term for which one is searching. Even with this wildcard capability, it is time consuming and aggravating to find the data.

¹⁷ The second step in this data collection process after finding the facility itself was to obtain the EPA Identification Number. With this Identification Number it was thought that it would be useful to access the information from all of the databases. A discrepancy in the EPA Identification Number of one of the 13 facilities used in this study was still found (based on which facility the number represented) and many errors in the EPA Identification numbers themselves existed (inconsistencies from one database to the next). Under one search mechanism it was one number and under another mechanism it differed by one or more characters.

¹⁸ After attempting to conduct master report queries through the Envirofacts EPA Data Warehouse, however, it was found that the system has different identification numbers based on the data system that is being searched. For example, for one facility five different Identification numbers for five different databases (BRS1995 [meaning the search from the BRS database for the year 1995], TRIS, AIRS/AFS, RCRIS, CERCLIS). (Search conducted for facility on 5/15/99) were found. But for some facilities the handler identification number in RCRIS may be the same as the EPA Identification Number while for others it is not. Due to this lack of uniformity, it made it rather difficult to obtain the data for more than one facility at a time.

¹⁹ Different laws require different reporting schemes. It depends on the regulation and the media to which the pollutant is discharged. For example, for the Resource Conservation and Recovery Act (RCRA), generators, transporters, and disposers of hazardous waste are required to fill out biannual reports. However, the reason they are biannual is because there is not enough staff to go through the reports on an annual basis. The lack of efficacy of some of these reports therefore may be overlooked because of this shortage of resources in the EPA. "It is not clear how much, if at all, the accuracy of the reports is checked and, in fact, their reliability probably varies greatly from state to state, EPA region to region, and even facility to facility or report to report. On rare occasions, state or EPA enforcement staff are able to document discrepancies but they are woefully short-handed" (Correspondence with Suellen Keiner Senior Attorney at Law at the Environmental Law Institute, 5/3/99). Additionally, as it was stated previously the means by which the data is reported is not uniform and therefore the impacts of these environmental releases may not be properly quantified or qualified based on the information that is reported to all of these data systems.

²⁰ It was attempted to get a sub-sample of facilities that was representative of the entire sample set. There were certain restrictions however, that did limit this complete representation. Since information for municipalities and certain small businesses in this the ISO14001 Pilot Project are not reported to the federal government, these facilities were automatically eliminated from the selection pool, even though these types of facilities may have reported information to the Project. The next criteria that further limited the pool from which a sub-sample could be selected was if baseline violation information was reported to the study.

as of June 1, 1999. If there was no violation information reported to the study, then obviously there was no self-reported information with which to compare it to federally reported information.

²¹ There is a way in Envirofacts to get all of the different Identification Numbers for the facilities in the different databases (since for each facility there is a different number for it in each database). This was not discovered until later in the research, however. Therefore for the facilities for which information could not be found based on the name of the facility (or any part of it using the *wildcard capability) or the EPA Identification, these new numbers were used to get the rest of the information

²² For the ERNS information a facility by facility search based on the name of the facility was conducted. However, later an EPA official was contacted from their web site that allowed a user to ask for a customized search. An email was sent on 6/1/99 and output report was received on 6/2/99. Even these reports had information for facilities that was not correct. Multiple reports for facilities with the same name were sent, it was necessary to sift through them to make sure the data that was reported was correct.

²³ Going through these databases and collecting the information was problematic. These problem were so excessive that it delayed the data compilation for the study until early in June of 1999, when the research began originally in February of 1999. Either the RTK net system was not functioning properly (even after several notifications of the problems were sent to RTK net administrators), the capabilities of the data sources were not functional, or the output of the database was not what was needed. Originally, it was planned to conducting queries to obtain massive amounts of data at once, this capability was not functional during the time period of this study. When the RTK net changed its web site, the telnet capability was not able to be located in this study to conduct queries.

²⁴ Mr. Stefanski, AIRS Technical Report and User Support Specialist, suggested then that reports many not have been generated for two facilities for two reasons. One is that there indeed may be no violations. But there are numerous other aspects of air quality that are reported in the AFS report than violation information. Even if a facility is in compliance the report should state this. Second, he said that the states may not have uploaded this information yet. But again this information should be available since the 1980's so some information for the facilities even if they are in compliance should be available.

²⁵ The time frames for which the data in databases is available varies. It could range anywhere from 1986 to the present with any cutoff point therein as a possibility. Therefore when comparing it to information that was self-reported it was difficult to do because the data is not available at least through these resources. The ISO14001 EMS Pilot Project researchers at UNC (Deborah Gallagher, Nicole Darnall, and John Villani) and I agreed that it would be most difficult to get the information for 1997 but I found this to be true only for RCRIS. The PCS data and AIRS/AFS data (although it was not used) were updated. Additionally, if it was a local or state agency that found a violation it could be documented in the state or local governments files, but not in the databases mentioned before.

²⁶ An attempt was made contact Robert Farmer to find out this information on 6/16/99, but as of 7/6/1999 there has not been a response.

²⁷ As stated earlier, the Envirofacts data source did not provide air violation information. Then the EPA personnel were asked to query the database for the reports. Once the reports were received (not all of which they state are required to report to AIRS/AFS) they were not discernable because they are written in a coded format that only experienced users could understand. At the same time State Officials from the NCDENR Division of Air Quality asked their technical staff to conduct queries on these facilities for the specific violation information. The results of this query were received on June 23rd and 24th of 1999.

²⁸ The conversations with both Mr. Stefanski, AIRS Technical Report and User Support Specialist, about AIRS/AFS and Mr. Robert Farmer, Environmental Specialist for NCDENR Division of Water Quality, about PCS, both conveyed the message that much conflict exists among the states and the EPA about

reporting violation information. Both stated that the EPA constantly threatens to take away funding if the states' reporting rates do not improve, but these threats never come to fruition.

²⁹ When the EPA Emergency Planning and Community Right-to-Know (EPCRA) hotline (1-800-424-9346) was contacted on 6/2/99 a Regulatory Information Specialist said that if a report cannot be generated for a facility it could be for a few reasons. First, it may be that the data was not reported. Second, it could be a spill in violation of a state regulation and therefore does not need to be called into ERNS. This goes back to the argument that was made at the Colloquium that depending on who is the primary reporting entity, the quality of data can differ for different regions. This information specialist did not suggest to go to the RCRIS, AIRS/AFS, or PCS system to get other violation information when asked how else one might get violation information. Ironically, it was the information from the ERNS that was not used.

³⁰ Due to processing time to get a user ID, this data collection mechanism was not able to be used for this although it probably would have been the most efficient to collect the data.

³¹ After seeing how different the air and water reporting systems are in North Carolina, it is important that this partnership be strong. As stated in section 1.6, the strife that presently exists between federal and state environmental agencies is hindering the quality of the data reported.