Puerto Rico Project Group 09
c/o Dr. Susan Vernon-Gerstenfeld
Director Puerto Rico Project Center
Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609-2280

Sr. Nelson Cruz
McNeil Consumer Health Care
Road 183 Kilometer 19.6
P.O. Box 2009
Las Piedras, PR 00771

May 4, 1999

Dear Sr. Cruz,

Enclosed is our completed report for the project commissioned by McNeil Consumer Health Care in conjunction with Worcester Polytechnic Institute. The report was written at McNeil during the period March 15 through May 4, 1999. Preliminary work was completed in Worcester, Massachusetts, prior to our arrival in Puerto Rico. Copies of this report are being submitted to Professors Addison and Rissmiller for evaluation. Upon faculty review, the original copy of this report will be catalogued in the Gordon Library at Worcester Polytechnic Institute. We appreciate the time which you, Sr. Gerson Nazario, and Sr. Julio Lopez have devoted to us.
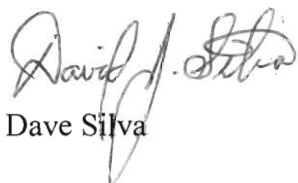
Sincerely,

Brooke D Clark

Brooke Clark

Jeremiah Pratt

Jeremiah Pratt

David J. Silva

Dave Silva

ISO EXCITED: A JOURNEY THROUGH CERTIFICATION
At McNeil Consumer Products, Puerto Rico

Report submitted to:

Professor Kent Rissmiller
Professor Bland Addison

Puerto Rico, Project Center

By

Brooke D. Clark

Jeremiah W. Pratt

David J. Silva

In Cooperation With

Nelson Cruz

McNeil Consumer Products Company, Las Piedras, PR.

May 4, 1999

Abstract

Our project assisted the McNeil Consumer Healthcare ISO 14000 team in preparing the company for ISO 14001 certification at the Las Piedras, Puerto Rico facility. Our specific tasks involved analyzing and modifying current job descriptions to meet ISO 14001 specifications. An important part of the project involved accounting for worker's knowledge, attitudes, and emotions concerning the specific identification of their environmental responsibilities and aiding them in understanding such responsibilities as much as possible.

Authorship Page

Most of this project involved a combined effort from all three students which we

believe has produced a written report unified in both style and tone. The following

sections, however, were initially written by individual members of the group:

Brooke wrote the environmental laws section of the literature review, the "On the Inside," the glossary, the Introduction, and Appendix F from second interviews with employees.

Jeremiah wrote the logs, the meeting minutes from all the interviews, the interview with the specialist from Markem Corp., and the transmittal letter.

Dave wrote all the recommendations derived from the meeting minutes, the analysis, and the abstract.

Acknowledgements

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Executive Summary

Our objective was to focus on a small facet of McNeil's implementation of ISO 14001. This involved modifying job descriptions to include a new heading entitled Environmental Responsibilities. These responsibilities were identified through a set of two interviews with all supervisors and managers for each of McNeil's nine departments for a total of 68 interviews. The purpose of the first interview with supervisors was to verify the accuracy of the department's organizational chart and to discuss its environmental aspects and impacts. For the most part, the activities were already being practiced but not formally designated to a specific job title. After identifying the environmental responsibilities for each position, we returned to these employees for a second interview where they read and remarked on our suggestions and answered a series of our questions, allowing us to grasp their degree of environmental awareness.

We were working in parallel with a legal consultant who was revising and updating the job descriptions from 1995. She gathered information from both employees and from the ISO team. We provided her with our recommendations which she incorporated into each job description.

The overwhelming majority of the management staff was extremely enthusiastic about the implementation of ISO 14001. Their biggest question pertained to when they would receive more information and training. We also saw a lot of support from the supervisors and employees. They did not mind the addition to their job descriptions if it would improve the environment their children and families would live in. Our recommendations focus on the need for more communication, information, and training on ISO 14001 and its implementation. In conclusion, McNeil is well on their way to

becoming certified. We feel they could further the implementation by communicating the goals and targets of implementation to the entire company. McNeil has the ability, to not only raise environmental consciousness for its employees, but also to persuade all of its workers to take their newfound environmental awareness back to their communities and homes to raise consciousness there as well.

1.0 Introduction

Twenty years ago, an organic synthetic chemist, employed in the pharmaceutical industry, could be found pouring benzene, toluene or other hazardous chemicals down the sink. Gloves were not always worn and chemicals were sometimes handled freely. Today, the world is well aware of the potential hazards involved with chemicals. Many studies have shown that chemists did not take the proper precautions when handling chemicals during past decades. Side effects due to exposure to particular chemicals have been shown to arise from long term contact. The world now knows that all chemicals have a potential to be harmful and certain chemicals are very dangerous to human health and to the environment. Therefore, McNeil Consumer Health Care, a leader in the pharmaceutical industry, decided to install an environmental management system. They chose specifically to adopt the ISO 14000 series and concentrated on installing the first standard, ISO 14001. In order to do so, extensive research and preparation was essential.

In general, McNeil was interested in developing procedures to ensure the continuing suitability, adequacy, and effectiveness of the environmental management system. One of the features of this process was the addition of environmental responsibilities to all employee job descriptions. That is where the WPI-McNeil ISO team came in to being. In order to prepare for such a task, it was important to research and become familiar with the ISO 14001 standards. Once the standards were fully understood, the project team began work.

Consequently, our first step was to schedule meetings with all the supervisors and managers in the plant. The purpose of this first meeting was to identify all the environmental responsibilities of each employee whose job directly has an impact on the

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environment and to ensure a correct designation of responsibilities for each employee.

With the raw data gathered from the first meeting, we analyzed the environmental aspects

of each assignment and made appropriate recommendations for an appendix to their job

description under a heading called environmental responsibilities. After creating these

recommendations, we returned to the supervisors and managers for a second meeting, not

only to seek their approval and feedback for our recommendations, but also to survey

their personal feelings on McNeil's implementation of ISO 14001 and their degree of

environmental awareness. In the end, we had about 70 meetings which resulted in about

100 job description appendix recommendations.

Our project entailed a long process of trial and error in determining the correct

items to include under environmental responsibilities. Although, our project demanded

much work of the team, we hope it will be a great help to McNeil, it is in fact only a

small fraction of McNeil's overall implementation process. After achieving the rest of its

targets, and the ISO 14001 system has been successfully implemented, McNeil will

register for ISO certification.

Thus far, we have spoken only of McNeil and what McNeil seeks from our

involvement in the implementation process.

The report is broken into four main parts: Literature Review, Methodology,

Findings, and Appendices. The Literature Review is a compilation of topics related to

the authors we researched for this project, from the ISO 14000 series. The Methodology

explains our strategy in accomplishing the project and the project goals. The Findings

portion of this report consists of several sections labeled Analysis, On the Inside, and

Conclusions & Recommendations. This portion of the paper gives outside interested

parties a condensed and comprehensive look at our finished project. The last section to this paper is the Appendices section. This section includes all our notes, logs, and meeting minutes in rough form. The section is included because these minutes and logs are the basis for our conclusions. This report, in its completed state, is part of a WPI Interactive Qualifying Project.

The Interactive Qualifying Project (IQP) is a required project for all Worcester Polytechnic Institute graduates. The project is geared for group work and focuses not only on technical issues but also the relationship of technology to society. Not only was our project team faced with actual technical issues, ISO Standards, but also the planning and implementing of these standards required interaction with employees of McNeil and consideration of a variety of social and management issues. We believe the importance of this project is apparent in its potential benefit to the environment.

The world is becoming standardized and environmentally conscious, one company at a time. In order for McNeil to remain a major player in international trade, these ISO standards must be implemented. Our involvement in this project has been, we hope, beneficial to McNeil because what we get accomplished brings them that much closer to certification. However, not only does McNeil benefit, but the WPI-McNeil ISO project team benefits by gaining a thorough hands-on experience in industry, college credit, and an incredible cultural experience in Puerto Rico. Furthermore, WPI gains by establishing a reliable friendship with McNeil Consumer Products Company.

2.0 Literature Review

The goal of this literature review is to provide the reader with a general understanding of ISO 14001. First, we begin with an overview of the environmental laws of Puerto Rico and the nature of environmental management systems particularly ISO systems including a more descriptive discussion of the ISO 14000 series. This section will include necessary background information useful in grasping the legal and environmental concepts presented in our report.

2.1 Environmental Laws of Puerto Rico

The Commonwealth of Puerto Rico was created in 1952 and organized through the formation of a constitutional government consisting of executive, legislative, and judicial branches. Puerto Rico is a non-incorporated territory of the United States. The relationship between the governments of the United States and Puerto Rico is defined in the Puerto Rico Federal Relations Act of 1950 (Fiddler, Gonzalez & Rodriguez, 1996).

Accordingly, the statutory laws of the United States have the same force and effect in Puerto Rico as in the United States. The United States Congress has specifically extended the applicability of the environmental statutes to Puerto Rico. Therefore, the protection of natural resources and the environment is afforded constitutional status in Puerto Rico. Further, the Constitution of Puerto Rico specifically states that:

> It shall be the public policy of the Commonwealth to conserve, develop, and use its natural resources in the most effective manner possible for the general welfare of the community....

(Fiddler, Gonzalez & Rodriguez, 1996, p. 4).

The material discussed below comes from the Puerto Rico Environmental Law Handbook, developed and written by the law firm Fiddler, Gonzalez & Rodriguez. This handbook contains a general overview of the environmental statutes and regulations of Puerto Rico, as well as a description of the interaction between the local and federal regulations. The book also provides the reader with a detailed discussion of specific environmental issues pertaining to local laws (Fiddler, Gonzalez & Rodriguez, 1996).

2.1.1 Public Policy Environmental Act

The Public Policy Environmental Act establishes an environmental public policy for Puerto Rico. The Act also states that it is the continuous responsibility of the Commonwealth of Puerto Rico to use every way possible, including technical and financial aid, to encourage and promote the general welfare of the island of Puerto Rico. The Act is very similar to part of the National Environmental Policy Act (NEPA) (Fiddler, Gonzalez & Rodriguez, 1996).

One article of the Public Policy Environmental Act demands that all government entities comply with environmental public policy. The article also requires that all entities consider the environment in all decision-making, as well as submit a detailed written statement for any decisions that have a significant impact on the environment. Fiddler, Gonzalez & Rodriguez state that the submitted report should address the following items: environmental impacts, any adverse environmental effects which cannot be avoided, alternatives to the proposed action, the relationship between short-term uses and the maintenance of long-term productivity, and any irreparable commitment of resources (Fiddler, Gonzalez & Rodriguez, 1996).

The Public Policy Environmental Act also grants the authority to implement environmental public policy to the Environmental Quality Board (EQB).

2.1.2 Environmental Quality Board

The Environmental Quality Board (EQB) is the team that directs the implementation of environmental public policy, the environmental review process, as well as the regulations included in the Public Policy Environmental Act (Fiddler, Gonzalez & Rodriguez, 1996).

The EQB has three associate members who are appointed by the Governor with the advice and consent of the Senate. The Governor also designates one chairperson for the team. The six main areas of the EQB are air quality, water quality, land pollution control, scientific assessment (environmental review), environmental emergency, and complaints (Fiddler, Gonzalez & Rodriguez, 1996).

The Public Policy Environmental Act grants the EQB the authority to exercise, execute, receive, and administer the delegation of federal programs. The EQB is also granted the authority to establish and implement regulations as well as a permit system that is related, but not limited to, the following federal acts: Clean Water Act, Clean Air Act, Solid Waste Disposal Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, and any other environmental legislation that might be enacted by Congress (Fiddler, Gonzalez & Rodriguez, 1996).

The EQB is allowed to enforce all environmental laws of Puerto Rico, as well as any laws or regulations that the board may have passed. Since the commencement of the

EQB, the board has published the following regulations (listed in the <u>Puerto Rico</u>

<u>Environmental Law Handbook</u>) :

- Regulation for Environmental Impact Statements
- Regulation for the Control of Atmospheric Pollution
- Water Quality Standards Regulation
- Underground Injection Control Regulation
- Underground Storage Tank Control Regulation
- Regulation for the Control of Noise Pollution
- Regulation for the Control of Hazardous and Non-Hazardous Solid Wastes
- Non-Hazardous Solid Waste Management Regulation
- Regulation for the Management of Medical Waste
- Regulation for Certification of Maps and Documents before the EQB
- Rules of Administrative Procedures for Hearings in the Environmental Quality Board

(Fiddler, Gonzalez & Rodriguez, 1996, p. 7).

According to Fiddler, Gonzalez & Rodriguez, regulations are currently under consideration in the areas of water pollution, and erosion and sedimentation control.

In addition, the EQB has the authority to bring a civil action to any local or federal court in order to recover damages caused to the environment or to natural resources due to violations of the public policy act or its regulations (Fiddler, Gonzalez & Rodriguez, 1996).

2.1.3 Enforcement

The United States Environmental Protection Agency (EPA) has the authority to enforce all federal environmental laws and regulations in Puerto Rico. However, the EQB of Puerto Rico only enforces the Public Policy Environmental Act and all regulations declared thereunder. Therefore, all facilities in Puerto Rico are not only subject to those environmental agencies on the island, but also subject to enforcement of

those environmental agencies of the United States. There are a few conditions for which the EPA has given full authority to the EQB, nevertheless, if the EQB fails to carry out its enforcement responsibility, the EPA still retains its enforcement authority (Fiddler, Gonzalez & Rodriguez, 1996).

2.1.4 Environmental Review

According to Fiddler, Gonzalez & Rodriguez, the EQB has conducted environmental reviews since May of 1984. An environmental review is an analysis of a company's environmental impacts. Companies seeking environmental evaluation write and submit an environmental document to the environmental boards. The EQB requires such documentation from all companies with over five acres of property. There are three types of environmental documents: environmental assessment (EA), negative environmental impact statement, and environmental impact statement (EIS). According to Fiddler, Gonzalez & Rodriguez, these documents must define the proposed action and the impact it may have on the environment (Fiddler, Gonzalez & Rodriguez, 1996).

2.1.4.1 Environmental Assessment

An environmental assessment (EA) is a document often prepared by a company that describes the objectives, targets, and impacts of an environmental project. There are three circumstances in which an agency must prepare an environmental assessment: first, when an agency has not yet determined whether or not it is necessary to prepare an EIS; second, when the action being proposed is similar to an action that would require an EIS but due to special circumstances, the proposed action does not have an impact on the

environment; and last, when the presented action does not require an EIS, but does have an environmental impact.

The law firm of Fiddler, Gonzalez & Rodriguez states that an EA must include the following information (listed in the Puerto Rico Environmental Law Handbook) :

- description of the proposed site with its physical and biotic components
- maps and plans of the project area (soil, topographic and geological analyses)
- description of the adjacent natural resources
- assessment of the impact of the infrastructure
- description of the proposed action
- assessment of the impact on and of the use of the natural resources
- description of wastewater and water treatment facilities
- proposals for solid waste and hazardous waste management
- description of pollution control equipment
- assessment of the environmental impact
- description of mitigation measures to reduce such impacts

(Fiddler, Gonzalez & Rodriguez, 1996, p. 14).

The assessment must also be written in Spanish and submitted to a government agency, such as the EQB, for review, remark, and approval. The assessment is not complete until the government agency, in this case the EQB, sends the company a letter stating the approval and compliance of the assessment (Fiddler, Gonzalez & Rodriguez, 1996).

2.1.4.2 Negative Environmental Impact Statement

A negative environmental impact statement is also an environmental document, prepared by the agency, which declares that the proposed action does not have a significant environmental impact. Data that supports this is pertinent for approval of this type of statement. Environmental questionnaires or environmental assessments provide satisfactory data for authorization. For any action being proposed in the construction,

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mining, and/or earth crust extraction cases, a CES Plan is required. This statement must also be submitted in Spanish and be reviewed by the EQB for approval (Fiddler, Gonzalez & Rodriguez, 1996).

2.1.4.3 Environmental Impact Statement

An environmental impact statement (EIS) is an explicit report written in order to inform the EQB of all the possible environmental impacts as well as the public health risks of the action being proposed. The EQB requires an EIS for the instances listed below (listed in the Puerto Rico Environmental Law Handbook) :

- actions that have primary or secondary adverse effects on the environment
- actions which may violate environmental quality standards established by EQB regulations, or which may reduce the beneficial uses of the environment
- actions that will use a substantial part of the available infrastructure
- actions where the nature of pollution is such that it may cause adverse effects to health and public welfare
- actions that may significantly impact natural resources or values of ecological, recreational, social, cultural, or archaeological importance
- stages of actions which individually do not require an EIS, but that together might have accumulative significant impact
- hazardous and non-hazardous solid waste landfills
- major air emission sources

(Fiddler, Gonzalez & Rodriguez, 1996, p.16).

In all of these circumstances, an EIS must be written in Spanish and a preliminary report must be turned in to the EQB for review. Then a final report, addressing all comments, is submitted again.

According to Fiddler, Gonzalez & Rodriguez, an EIS must consist of the following information (listed in the Puerto Rico Environmental Law Handbook) :

- description of the proposed action
- development and population trends of the area

- location and site maps
- probable environmental impact of the proposed actions in terms of human health and welfare, land use, infrastructure, air and water quality, and minerals of economic value
- unavoidable environmental impacts and measures which would be taken to reduce such impacts
- justification for the proposed use of resources
- description of any irreversible and irretrievable commitment of resources
- cost benefit analysis
- analysis of alternatives to the proposed action
- CES Plan (for any actions in construction, mining, and/or earth crust extraction cases)

(Fiddler, Gonzalez & Rodriguez, 1996, p. 17).

Environmental assessments, negative environmental impact statements, and environmental impact statements are all part of the environmental review process. These documents are prepared by the company seeking environmental evaluation and then critiqued by the EQB. All companies in Puerto Rico are required to comply with the environmental laws and regulations of Puerto Rico. A well-supported method to accomplish this is to install an environmental management system (Fiddler, Gonzalez & Rodriguez, 1996).

2.2 Environmental Management System

An environmental management system (EMS) is an approach that enables an organization of any type or size to govern the impact of its activities, products, or services on the environment (ISO/TC 207 FAQ, 1/26/99). The elements of an effective EMS include creating an environmental policy, setting goals, implementing a program for achieving those goals, monitoring its effectiveness, and correcting problems (Tibor & Freeman, 1996).

2.2.1 Benefits of an EMS

The benefits of an EMS can be tabulated in many ways. Various sources speak of cost savings, enhanced corporate image, favorable insurance premiums, and marketing opportunities. One basic facet of an EMS is the evaluation of all opportunities for cost savings, specifically those deriving from a review of resource and energy utilization, including the efficiency with which these resources are used. Minimization of waste, reduction of disposal costs, consideration of alternative energy sources, reuse of recyclable material, and their cost effectiveness are part of the broad spectrum that involves environmental management ("Benefits," 1/26/99).

Furthermore, many customers also have certain environmental expectations of their suppliers, wanting proof of good environmental performance to ensure that the parts or services of their suppliers and subcontractors do not detract from their own reputation. According to Tom Tibor, author of ISO 14000: A Guide to the New Environmental Management Standards (1996), a way of fulfilling these expectations or requirements is by implementing an EMS. He also maintains that taking the first step is important. Initiation in demonstrating responsibility and a progressive environmental attitude can bring positive publicity from society and better relations with stakeholders. The reverse may also be true, and a lax approach may be equally detrimental ("Benefits," 1/26/99).

Stronger environmental management delivers better environmental performance, greater efficiency, and a larger return on investment according to the article "ISO 14000: Environment and Business Friendly" in the journal of Aerospace Engineering. For the reasons mentioned above, today's stakeholders are often interested in a company's environmental management standing. This is true, not only in terms of cost savings

through better management, but also in terms of consumer concern for the environment and their willingness to buy environmentally-friendly products versus those which are not (Tibor & Freeman, 1996).

An article by Quality Networks points out that companies with an effective environmental standard are often less likely to be fined or shut down by government agencies for incorrect treatment or handling of materials and processes during a time when the scope of environmental legislation and the severity of punishment is increasing. Quality Networks adds that when a company avoids environmental prosecution, negative publicity is also averted ("Benefits," 1/26/99). Consumer demand is escalating for environmentally-friendly products (Tibor & Freeman, 1996). This and other factors make investors more willing to invest in companies with environmental portfolios. Insurance companies offer lower premiums to corporations with sound and efficient environmental management systems because these companies pose less risk. Some insurance companies now require an environmental audit of a company prior to coverage ("Benefits," 1/26/99).

The following pie chart gives a quantitative analysis of those benefits that worldwide companies have considered important.

Figure 1. Benefits
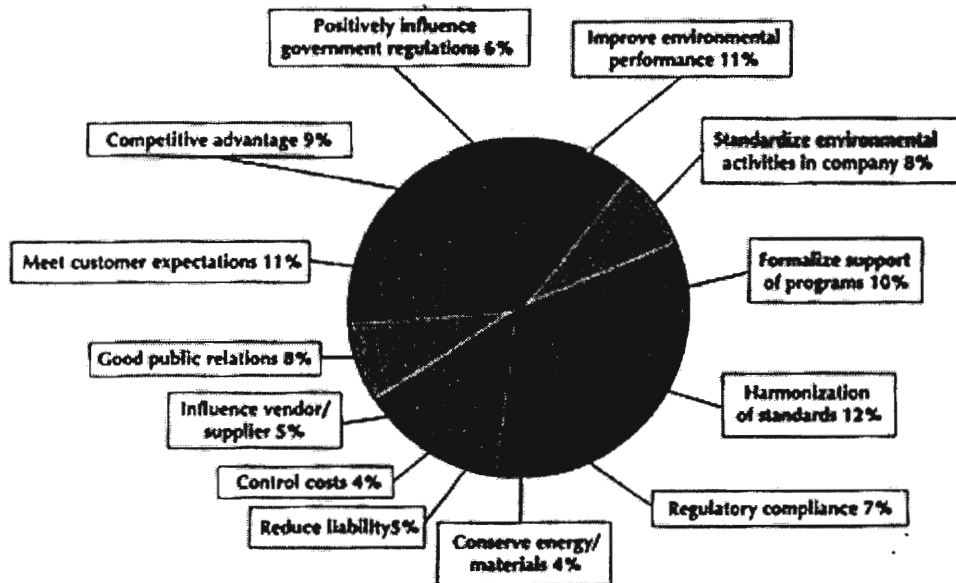
Positively influence government regulations 6%
Improve environmental performance 11%
Competitive advantage 9%
Standardize environmental activities in company 8%
Meet customer expectations 11%
Formalize support of programs 10%
Good public relations 8%
Harmonization of standards 12%
Influence vendor/ supplier 5%
Regulatory compliance 7%
Control costs 4%
Reduce liability 5%
Conserve energy/ materials 4%

Source: Joseph Cascio. The ISO 14000 Handbook 1996. Fairfax, Virginia. CEEM

Information Services with ASQC Quality Press, p. 662.

2.3 Current Environment Management Systems

Currently, there are three environmental management systems practiced

throughout the world, specifically EMAS, BS7750, and ISO 14000. They will be

discussed in the following sections.

2.3.1 EMAS

EMAS is Europe's Eco-Management and Audit Scheme regulation. The system is

usually a site-based system that can also encompass outside products and services. The

system was developed in Europe to coincide with the British Standard, BS7750 (see 2.3.2). EMAS takes a process and performance approach to environmental management. This implies that procedures are first devised and reviewed, then revisions are made based upon the outcome. EMAS requires companies to have an environmental policy. An environmental policy is a written statement by the company explaining its goals and objectives in the area of the environment. Companies wishing to achieve EMAS registration must begin with a preparatory review of the present environmental management system. EMAS contains certain standards within itself, thus outside regulations are unnecessary. This differs from the ISO series since ISO 14000 is a guide to facilitate the regulations set by the government (see 2.5). The EMAS regulations require companies to communicate their goals and objectives to the public and also to keep the public updated as to the progress of these goals and objectives (Cascio et al, 1996; "EMAS," 1/26/99).

2.3.2 BS7750

BS7750 is the British standard system that deals with environmental issues. This system, while not finalized, was being implemented by companies in 1991. At that time, the International Organization of Standardization began to draft the international environment standards system now referred to as ISO 14000. Since the BS7750 was, at the time, the model environmental management system, it had a major influence on the development of the ISO 14000 series. Many standards are exactly the same between these two programs. BS7750 was then revised and rewritten in 1994. The system is compatible with Europe's Eco-Management and Audit Scheme system (EMAS) as well

as the ISO 14001 system. BS7750 requires companies to have an environmental policy. Adopting the policy is a company's commitment to environmental management which includes conformance to law and a commitment to continuously improve environmental management. Corporate policies are relayed to the public and to the employees. Companies wishing to achieve BS7750 registration are not required to do a preparatory review or to define the organization's environmental effects, although these preliminary aspects are highly suggested. A preparatory review will identify environmental aspects of the company that will or have had an impact on the environment. The review will also identify all legislation relevant to the company (Cascio et al, 1996; "British Standard 7750," 1/26/99).

2.4 ISO Systems

The International Organization for Standardization (ISO) is a universal affiliation of national standards. ISO was founded in 1947 in order to promote the development of manufacturing, trade, and communication standards internationally. The goal of the organization is stated as follows:

> ...to promote the development of standardization and related activities in the world with a view to facilitating the international exchange of goods and services and to developing cooperation in the sphere of intellectual, scientific, technological, and economic activity.

(Cascio, 1996, p. 4)

All the work completed by ISO is published as International Standards (Sayre, 1996).

2.4.1 What is a Standard?

A standard, in the eyes of the International Organization for Standardization is a documented agreement consisting of technical specifications or other precise criteria to be used constantly as a guideline to ensure services, products, procedures, and materials are used with the correct intention. Standards are meant to promote international trade by increasing the dependability of goods and services (Tibor & Feldman, 1996).

2.4.2 Why is International Standardization Necessary?

Many companies worldwide have yet to implement an ISO system. There is such diversity among corporate environmental standards that they pose an obstacle to international trade. For years, industries involved in international business have had a need for standardization. ISO was established for this reason (ISO Online, 1/26/99).

The global-market continues to encourage a varied source of supplies. ISO Online points out that in order for competition to remain fair, the need for products to be recognizable from one country to the next is essential. Industry-wide standards provide a solution to this international trade barrier (ISO Online, 1/26/99).

Global standardization in the computer industry, for example, offers worldwide compatibility and generates vigorous competition among users. Universal communication system standards afford improved productivity and cost cutting. As similar technology is harmonized into standards, the world's trade market improves greatly (ISO Online, 1/26/99).

2.4.3 How are Standards Developed?

International standardization requires consensus agreements between all companies involved in foreign sales, including suppliers, users, and governments. Joseph Cascio, the author of The ISO 14000 Handbook, states that proposed standards ease trade, exchange, and technology transfer via the following:

- enhanced product quality and reliability at a reasonable price
- greater compatibility and interoperability of goods and services
- simplification for improved usability
- reduction in the number of models, and thus reduction in costs
- increased distribution efficiency, and ease of maintenance

("ISO Online," 1/26/99; Cascio et al, 1996).

The introduction of an international standard is a multi-stage operation. First, members of ISO draft a proposal and then submit it to the entire committee. As soon as five members approve the proposal, the project is delegated to the appropriate group and a team leader is appointed. Within the group, a final draft, committee draft (CD), draft international standard (DIS), as well as a final draft international standard (FDIS) are all composed. Each is reviewed before the organization and in order to become an international standard, it is required that the proposal be approved by 75% of the voting members. The process takes from three to eight years to complete (Cascio, 1996).

Figure 2. The Proposition of Standards
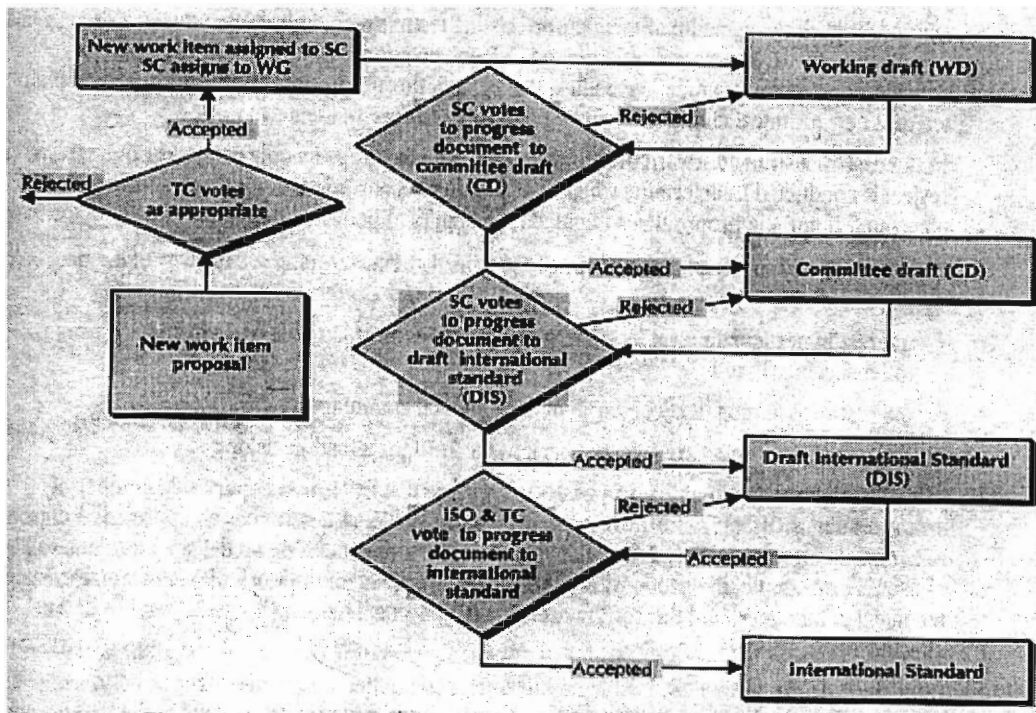
Source: Joseph Cascio. The ISO 14000 Handbook. 1996. Fairfax, Virginia. CEEM

Information Services with ASQC Quality Press, p. 5.

2.4.4 History of ISO

The most primitive form of standardization began in 1906, when the International

Electrotechnical Commission (IEC) was founded in the field of electrotechnology. Then

in 1926, the International Federation of the National Standardizing Association (ISA)

began devising standards geared specifically towards mechanical engineering. After

ISA's activities came to a halt in 1942 due to World War II, representatives from twenty-

five countries all met in London in 1946. The group decided to contrive a new

international organization in order to expedite coordination worldwide and unify

industrial standards. This generated ISO, which began operations on February 23, 1947

in Geneva, Switzerland. The first published ISO standard was in 1951 ("ISO 14000 History," 1/26/99).

2.4.5 ISO 9000

ISO 9000 is a quality assurance system. The system is based on a set of documents called the ISO 9000 quality system standards, which are universally accepted. Universal acceptance means that the entire business community agrees to use the system. In order for the system to be accepted by a wide range of business communities, the standards have to be written as generically as possible. It is then up to the company's management to decide for itself how to interpret a given standard, and how to apply it. ISO 9000 was written as generically as possible for this purpose. The companies using ISO 9000 must determine how to apply the standards to its processes (Cascio et al, 1996).

The ISO 9000 series consists of five different documents. The latest revision of these documents was done in 1994. The set of documents includes three different sets of standards for various aspects of a company, a guideline document that suggests the best practical way to develop a quality management system that complies with each of the three, and a guideline document to help in the selection and interpretation of these standards. The ISO 9000 document is the guideline to understanding what constitutes a quality system and which of the directives the company will need. The directives themselves are the 9001, 9002, 9003 documents. ISO 9001 is a set of directives for companies that have in-house design or development. ISO 9002 is a set of directives for a company that focuses on production and services but does not do its own design and

development. ISO 9003 is a set of standards for companies that only perform final inspection and testing. Finally, ISO 9004, is a guideline to help in the set up and compliance to the chosen standards. The ISO 9000 standards are what are called consensus standards. The acceptance of a standard has to be voted on by the total ISO membership. Each member country has a single vote. This means that the ISO standards are not necessarily the state of the art standards used by other systems. ISO standards do, however, allow for the incorporation of the newer standards of other quality systems (Cascio et al, 1996; Wilson, 1996).

2.5 ISO 14000

The ISO 14000 series is a continuation of the standardization process. Unlike the ISO 9000 series of standards for quality control, ISO 14000 is a set of international standards developed to manage environmental impacts. ISO 14000 allows for a common system of managing environmental issues throughout the world. This shared systematic standard is intended to improve environmental management, trade, and environmental performance in the global marketplace (Nakamura, 1999).

Isis Fredericks and David McCallum, the authors of "International Standards for Environmental Management Systems: ISO 14000," suggest that ISO 14000 be integrated smoothly with the company's functioning management structure. The following figure shows a general interaction between ISO 14000 and common sections of management systems.

Figure 3. Relationship between Management Systems
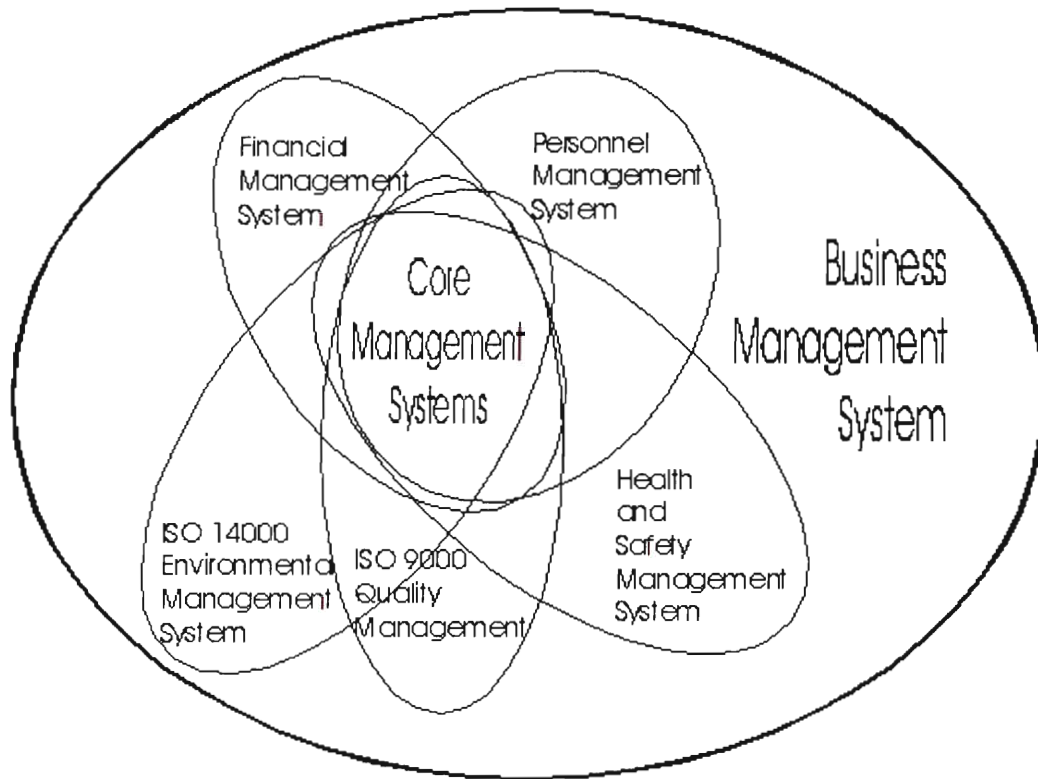
Source: Isis Fredricks and David McCallum, http://www.mgmt14k.com/ems.html. 26 January 1999.

ISO 14000 is a system in which companies adopt ISO standards and put them to use in hopes of receiving ISO certification. Figure 4 shows how the 14000 series of standards splits into two categories: organization (process-oriented standards) and product oriented standards.

Figure 4. Categories of ISO 14000
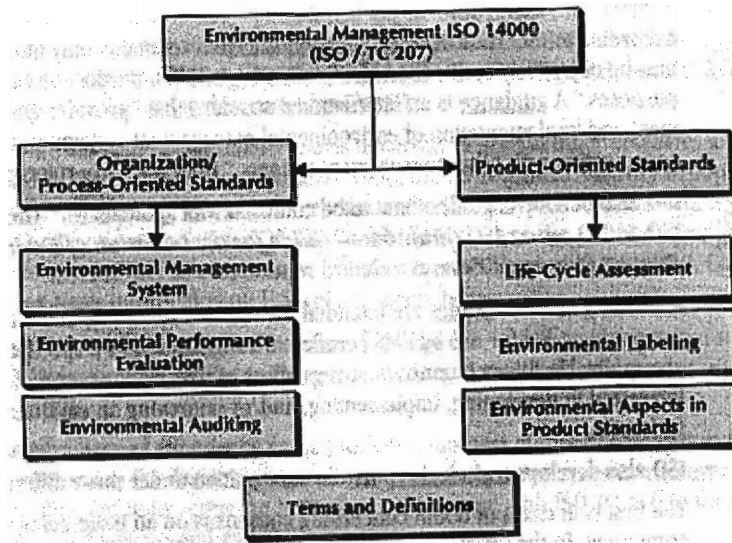
Source: Joseph Cascio. <u>The ISO 14000 Handbook</u>. 1996. Fairfax, Virginia. CEEM

Information Services with ASQC Quality Press, p. 16.

Further categorization of the ISO 14000 series is shown below.

Figure 5. List of Standards in the ISO 14000 Series

Standard	Title / Description
14000	Guide to Environmental Management Principles, Systems and Supporting Techniques
14001	Environmental Management Systems - Specification with Guidance for Use
14010	Guidelines for Environmental Auditing - General Principles of Environmental Auditing
14011	Guidelines for Environmental Auditing - Audit Procedures-Part 1 Auditing of Environmental Management Systems
14012	Guidelines for Environmental Auditing - Qualification Criteria for Environmental Auditors
14013/15	Guidelines for Environmental Auditing - Audit Programmes, Reviews & Assessments
14020/23	Environmental Labeling
14024	Environmental Labeling - Practitioner Programs - Guiding Principles, Practices and Certification Procedures of Multiple Criteria Programs
14031/32	Guidelines on Environmental Performance Evaluation
14040/43	Life Cycle Assessment General Principles and Practices
14050	Glossary
14060	Guide for the Inclusion of Environmental Aspects in Product Standards

Source: "International Standard ISO 14000." Quality Networks. Online.

http://www.quality.co.uk/quality/iso14000.htm. 2 February 1999.

In general, the ISO 14000 series specifies a set of ten principles for organizations interested in implementing an environmental management system. They are as follows:

1. recognize that environmental management is one of the highest priorities of any organization,
2. establish and maintain communications with both internal and external interested parties,
3. determine legislative requirements and those environmental aspects associated with your activities, products, and services,
4. develop commitment by everyone in the organization to environmental protection and clearly assign responsibilities and accountability,
5. promote environmental planning throughout the life cycle of the product and the process,
6. establish a management discipline for achieving targeted performance,
7. provide the right resources and sufficient training to achieve performance targets,
8. evaluate performance against policy, environmental objectives and targets, and make improvements wherever possible,
9. establish a process to review, monitor, and audit the environment management system to identify opportunities for improvement in performance, and
10. encourage vendors to also establish environmental management systems

(Hersey, 1996).

Don Sayre, the author of Inside ISO 14000, states that if a company incorporates the above list of simple principles into its business operation, then these activities become part of the everyday business procedure.

2.5.1 Comparing ISO 9000 and 14000

The ISO 9000 and ISO 14000 systems are similar in many ways; both have common goals of developing process standards rather than performance standards. Since, the two ISO systems are compatible with each other, many companies with ISO 9000 in place will find that ISO 14000 can easily be added because the existing ISO 9000 management structure is the same. Companies that already have ISO 9000 can maintain

the management structure and then add the ISO 14000 standards. The main difference comes from the fact that ISO 9000 is a quality management system and ISO 14000 is an environmental management system. Quality issues from ISO 9000 only impact companies and customers while environmental issues impact the company, the company's neighbors, the company's employees, the eco-system around the company, and anyone else who comes in contact with the company's products or processes. These systems also do not replace other regulations, but rather provide a management structure to channel and control those regulations. For both ISO 9000 and ISO 14000, legislation is needed in order to set company goals and objectives. Some aspects that are specific to the ISO 14000 system include environmental labeling and life cycle assessment. Both the ISO 9000 system and the ISO 14000 system use auditing to continually check and aid in improvement of the system, however the requirements for auditing an ISO 14000 system are much more stringent (Fredrick & McCallum, 1999; Cascio et al, 1996).

2.5.2 History of 14000

In 1972, the United Nations Conference on Human Environment was held in Stockholm, Sweden. Over 1,000 delegates represented some 113 countries. The conference led to the formation of the United Nations Environmental Program (UNEP), which immediately became responsible for worldwide environmental awareness. In 1988, more than fifty world leaders were supporting the environmental awareness project and then in 1992, ISO made the commitment to generate ways to advocate the project. ISO's solution was the creation of the Strategic Advisory Group in the Environment (SAGE). SAGE was given the task of resolving the technical trade barrier. The

organization spent a year analyzing the BS7750 environmental system looking for tips on starting. SAGE decided on designing a systematic series of standards, known as ISO 14000, in order to unify standards around the world and to facilitate international trade. In January of 1993, SAGE formulated the ISO Technical Committee 207 (ISO TC 207) in order to devise an international environmental system of standards. Both committees modeled the ISO 14000 series after the BS7750 system ("International Standard," 2/2/99).

In the journal article, "Critical Factors for Evaluating ISO 14000 Environmental Management System Standards Implementation," Kwai-Sang Chin and his co-authors state that as standards are being proposed, approved, and published, companies worldwide are beginning to follow by implementing the ISO 14000 system. Many companies have already installed the ISO 9000 series and for this, ISO assembled the TC 176/207 group. This committee is the liaison for companies with ISO 9000 that are beginning the implementation of the 14000 series. The committee members are experts in harmonizing the two systems. According to Cascio, with ISO 9000 already initiated, the implementation of ISO 14000 is relatively easy to implement without an already installed ISO system (Chin et al, 1998).

The ISO 14000 Handbook, written by Joseph Cascio, provides an explicit analysis of the ISO 14000 series. The book contains ISO's documented 14001 standards as well as their interpretation. All aspects of the series are covered in great detail, such as the planning, preparation, and implementation. The book guides the reader through the installation of an environmental management system and encompasses any tangents that the ISO 14000 team may encounter. Cascio's expertise is used throughout this report

2.6 ISO 14001

ISO 14001 is the prevalent model of an environmental management system. It specifies factors appropriate for any organization, no matter the type or size. It describes the necessary conditions for certification of an environmental management system. Under ISO 14001, companies identify environmental aspects and then institute objectives and targets concerning the preservation of the environment (Hersey, 1996).

ISO 14001 is split up into the following five categories: General, Planning, Implementation and Operation, Checking and Corrective Action, and Management Review. The General category is based on the environmental management policy. Planning includes identifying environmental aspects, researching legal requirements, defining objectives and targets, and also establishing training programs. Implementation and Operation encompasses definition of responsibilities, communications, document control, operating procedure as well as emergency preparedness. Checking and Corrective Action monitor the conformance to the company's policy. This section also incorporates EMS audits, which are planned and well-documented assessments to ensure all requirements are constantly being met. Lastly, Management Review includes the organization's administrative review and evaluation of its system at regularly scheduled intervals. This is to ensure continual improvement together with the effectiveness of the environmental management system (Cascio, 1996; Chin, 1998).

The ISO 14001 regulations require commitment to the policy. Once committed, a company can begin planning. Cascio asserts that planning is crucial and that the success of implementation depends on the extent of preparation that was done. After the preparation, the formal execution begins. The system is audited regularly to ensure

maintenance of the environmental policy and standard compliance as well as management reviews (Casio, 1996).

2.7 How to Get Started

Even the decision to spend the time evaluating the pros and cons of ISO 14001 should be carefully thought out according to Cascio. There should be a compelling driver that gives an organization the reason it needs to take the first step and ask, "Why should we even think about implementing ISO 14001?" (Cascio, 1996). For large companies, the motivator is a single standard with the potential to remove the redundancy of dealing with many different standards in terms of international, national, and regional environmental standards. It may remove disadvantages for a corporation in comparison to its less regulated international competitors by setting a minimum procedural standard in dealing with environmental responsibilities. Large companies generally already have an environmental management system in place. Changing the current system into ISO 14001 may involve only a small adjustment. Experience with ISO 9000 provides the chance for an even more efficient switchover. Lastly, being ISO 14001 certified may become a market requirement in some cases and ISO 14001 standardized companies may decide not to do business with organizations that are not certified (Cascio, 1996).

Smaller companies often have to look at their own reasons for ISO standardization slightly differently than large companies. This is due, in part, to a phenomenon called "trickle-down" requirements (Cascio, 1996). Suppliers may be required by the large companies to conform to ISO 14001 in order to do business. The ISO 14000 Handbook asks "Why wait?" and suggests that companies should not wait for

a requirement to arise in order to comply, but should begin analyzing potential conditions now.

Accordingly, firms with only one facility may implement or conform to ISO 14001 as a good environmental management tool. The structured process may go far in solving compliance problems with regulatory environmental agencies. Declared conformance without third-party certification points to developing a program with low costs. Environmental awareness is often a plus on the side of stakeholder assurance. There are also government incentives that are available to companies which develop formal environmental management programs along the lines of ISO 14001 (Chin et al, 1998).

2.8 Planning

After a company commits to an environmental policy, ISO 14000 requires that the company develop a plan to implement the policy. There are four basic steps in the planning stage. They are identifying environmental aspects, identifying legal requirements, documenting environmental objectives and targets at each job function, and creating an environmental program aimed at achieving the objectives (Cascio et al, 1996).

2.8.1 The Four Steps

Joseph Cascio considers it important to thoroughly consider environmental aspects, impacts, and the environmental management system when implementing ISO 14000. The environment for a company is everything that makes up the surroundings in

which a company operates. These include air, water, land, natural resources, plants, and animals. ISO environmental aspects are the parts of a company's activities and services that interact with the environment. A significant aspect is one that can have a severe impact on the environment. Some examples of environmental aspects include waste generation, wastewater discharge, chemical use operations, water use operations, energy use operations, and product disposal. ISO researchers agree that determining environmental aspects, significant or not, can sometimes be a great challenge for a company. A company's environmental impact is any change in the environment due to the activities and processes of the company, and could either be harmful or beneficial to the environment. Some examples of environmental areas that a company may impact include ecology, natural resources, and pollution. Areas within ecology include plants, animals, landscape, and biological diversity; areas within natural resources include water supplies, minerals, rain forests, energy resources, and wetlands; and areas of pollution include air, water, radiation, and waste generation. An environmental management system is based on identified current and potential environmental problems. A company with significant environmental aspects and impacts often calls for an extensive management system (Cascio et al, 1996).

An environmental management program provides a framework for a company to achieve its policies, to conform to requirements, and to continue to improve. This framework includes management, training, and resources. The environmental management program designates responsibility and sets a time frame for goals to be achieved (Cascio et al, 1996).

ISO 14000 objectives are goals derived from environmental policies. These objectives are quantified whenever possible. Targets are detailed performance requirements and are also derived from the environmental policy. Some examples of objectives and targets are quantifiable reduction of waste, evaluation of environmentally safe vendors, and reduction in energy usage (Cascio et al, 1996).

A company wishing to achieve ISO 14000 registration must identify all pertinent legal issues that apply to the environment. If a company does business in more than one country, the company follows the appropriate laws. Some examples of these laws are the clean air act, clean water act, and endangered species act (Cascio et al, 1996).

2.9 Implementation of an ISO 14001 System

Once a company has completed the preparation and planning processes, formal implementation can begin. ISO 14001 specifies seven components for implementation and operation of an environmental management system. The seven are listed below:

1. structure and responsibility (2.9.1),
2. training, awareness, and competence (2.9.2),
3. communication (2.9.3),
4. EMS documentation (2.9.4),
5. document control (2.9.5),
6. operational control (2.9.6), and
7. emergency preparedness and response (2.9.7)

(Cascio, 1996).

2.9.1 Organizational Structure and Responsibilities

In order for the ISO 14001 system to be executed accurately, an internal management structure is organized. Roles needed to keep this entire implementation process under control are designed and then delegated to proper employees. Each role

has a designated responsibility and the assigned employee is well prepared and trained.

Below is the general ISO 14001 allocation of environment management roles and

responsibilities (Cascio, 1996; Sayre, 1996).

Table 1. Roles and Responsibilities

Environmental Responsibility	Person Responsible
Establish overall direction	President, CEO, Board of Directors
Develop environmental policy	President, CEO, Chief Environmental Manager
Monitor overall system performance	Chief Environmental Manager, Environmental Committee
Assure regulatory compliance (external)	Senior Operating Manager
Ensure continual improvement	All managers
Identify customers' expectations	Sales and Marketing Staff
Identify suppliers' expectations	Purchasers, Buyers
Develop and maintain accounting Procedures	Finance/Accounting, Managers
Comply with defined procedures	All Staff

Source: Don Sayre. Inside ISO 14000. 1996. Delray Beach, Florida. St. Lucie Press.

Many ISO experts consider the above allocation to be standard for an EMS,

however, roles and responsibilities may vary from one company to the next, depending

on the size of a particular company. Sayre adds that a successful implementation of an

environmental management system is due to how well the company can delegate

responsibility (Cascio, 1996; Sayre, 1996).

2.9.2 Training, Awareness, and Competence

ISO 14001 requires that all personnel involved in the implementation process be well trained, knowledgeable, and competent. The degree of training, knowledge, and competency necessary will depend upon the particular roles. ISO 14001 does require five fundamental types of environmental training as a minimum for those involved with implementation. The following five types of basic training were taken directly from Inside ISO 14000 (Sayre, 1996).

Table 2. Basic Training

Type of Training	Audience	Purpose
Raising awareness of the strategic importance of environmental management	Senior Management	To gain commitment and alignment to the organization's environmental policy
Raising general Environmental awareness	All	To gain commitment to the environmental policy, objectives and Targets and to instill a sense of individual responsibility
Skills enhancement	Employees with environmental responsibilities	Improve performance in specific areas- operations, Rand D, engineering
Compliance	Employees whose actions can affect compliance	Ensure regulatory and internal requirements for training are met

Source: Don Sayre. Inside ISO 14000. 1996. Delray Beach, Florida. St. Lucie Press.

If a company decides to further the training of a specific employee, in order to remain in conformance with the standards, ISO 14000 recommends recognizing the training needs of that role, devising a plan to fulfill these needs, confirming that each training program meets all requirements, training target employee groups, and documenting the training (Sayre, 1996).

In addition to the required training, ISO 14001 demands that each employee be aware of the following (taken directly from Inside ISO 14000):

- importance of conformance with environmental policy
- importance of conformance with environmental management requirements
- actual and potential significant environmental impacts associated with work
- benefits of improved personal performance
- roles and responsibilities, including emergency preparedness and response
- consequences of departure from standard operating procedures

(Sayre, 1996).

ISO 14001 also requires competence as a quality of those working on the execution of the ISO 14001 system. Sayre offers five categories of competency for an organization, consisting of job competence, interpersonal and communication competence, background competence, organizational competence and lastly self-management competence (Sayre, 1996).

2.9.3 Communication

The ISO 14000 series also requires communication, which consists of the development of plans and processes for the organization to report internally and externally about environmental activities. According to ISO 14000, communication is important in order to demonstrate management commitment to the environment, to deal

with concerns and questions about environmental issues, to raise awareness of environmental policies, objectives, targets, and programs, and also to inform interested parties about the organization's environmental performance (Chin, 1998).

The ISO 14000 series provides suggested methods for external and internal communication. Some external communication techniques include annual reports, regulatory submittals, public records, industry association publications, media, paid advertising, open house and published telephone/fax numbers for complaints and/or questions. Internal communication can be executed through bulletin board postings, newsletters, meetings, and electronic mail. The ISO 14000 system encourages two-way communication in order to ensure consistency throughout implementation (Sayre, 1996; Chin, 1998).

2.9.4 Documentation

Documentation is a requirement of the ISO 14001 system. According to Chin, documentation may be in paper or computer-based form, however, in order to meet ISO 14001 standards, the "core elements" of the organization's environmental management system must be included. The ISO 14000 series also states that these documents be reviewed and updated periodically. Chin also mentions that thorough documentation allows for an easier evaluation of company's EMS performance (Chin, 1998).

2.9.5 Document Control

Documents are evidence of an operating system. Similar to ISO 9000, ISO 14001 outlines proper document control procedures for companies. The processes must comply with the subsequent conditions (listed in the ISO 14000 Handbook):

- define responsibilities for the creation and modification of ISO 14001 mandated documents
- ensure required documents are periodically reviewed, revised as necessary, and approved by authorized personnel
- ensure that current versions of required documents are available at all locations where they are needed for the effective functioning of the EMS
- ensure that obsolete documents are promptly removed from all points of issue and points of use

(Cascio, 1996, p. 146).

Cascio insists that accurate management of these records is crucial for a successful implementation.

2.9.6 Operational Control

Operational controls are precise procedures that guarantee conformance to the required standards. The controls assure that all activities are executed in the proper manner, without violating standards or limits. In order to comply with ISO 14001's operational control requirements, a company must first identify every operation/activity related to the specific environmental aspects, keeping in mind, the organization's environmental policy and objectives. For each operation, a documented control procedure must be contrived. Each document must include all potential situations that would lead to deviation from the organization's environmental policy. Cascio mentions

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that this section of the ISO 14001 system is somewhat confusing and allows for a variety

of interpretations (Cascio, 1996; Chin, 1998).

2.9.7 Emergency Preparedness and Response

Sayre believes that all possible emergency situations should be anticipated and

plans to respond accordingly should be devised. He also argues that organizations that

are well prepared and fully aware of the emergency plans and procedures will be more

likely to avoid sudden dilemmas. Preparedness, according to Sayre, provides such

organizations with the ability to deal quickly and properly with any emergency situation.

ISO 14001 has explicit regulations regarding emergency preparedness and

response. These emergency operations consider accidental release to the atmosphere,

unintentional spills to water or land, and environmental effects of accidental release from

incorrect operating techniques (Cascio, 1996; Sayre, 1996).

The ISO 14001 requirements, taken directly from ISO 14000 Handbook, are as

follows:

- Emergency procedures must identify the potential for accidents and emergency situations (identify the potential accident and emergency scenarios) and make provisions for preventing and mitigating any associated environmental impacts.

- Emergency procedures must be reviewed periodically- particularly after the occurrence of an accident or emergency situation- and revised (when necessary) in order to incorporate "lessons learned" from the experience and new techniques for coping with emergencies.

(Cascio, 1996, p. 150).

The ISO 14001 standard also recommends that all emergency procedures be practiced

intermittently (Cascio, 1996).

2.10 Certification

The process of certification follows a five-step guideline, taken directly from Cascio; the steps are shown below:

1. application or contract
2. initial or preliminary assessment/document review
3. certification assessment
4. certification; and
5. certification maintenance/surveillance

(Cascio, 1996, p. 331).

2.10.1 The Five Steps

First, the certification bodies request an application or contract, containing the rights of the certification body as well as the organization to be audited. The contracts also include information about confidentiality, complaint procedures, and liability issues. The certification body then stresses that there will not be a compliance audit, but there will be an assessment of the organization's conformity with the requirements and the organization's performance (Cascio, 1996).

The preparatory assessment, usually completed on-site, is a review of the organization's preparedness for the formal certification auditing process. The certification body is not a consultant for the organization, but will provide constructive guidance throughout open discussions (Cascio, 1996).

Certification assessment is the next phase of the operation. This step is similar to an internal audit in its level of professionalism, but according to Cascio, this step is more of a formality. Generally, the body reviews all manuals and other records that pertain specifically to the EMS, and all levels of personnel are interviewed. The organization should make evident that the implemented EMS conforms to the ISO 14001 standards.

Prior to completion of this procedure, the certification body provides the organization with a report comprised of recommendations, either restrictive or open to further review (Cascio, 1996).

Certification is split into three categories: approval, conditional approval, and disapproval. Approval is given to those organizations with an EMS that is essentially in conformance to the standards with only minor deviations. As an approved organization, the process continues. Conditional approval is given when an organization addresses all appropriate elements but does not document or implement them fully. Companies with many minor deviations also fall into this category. As a conditionally approved group, corrective action must be taken, documented, and submitted for reevaluation. Disapproval is given to those companies whose EMS is not well documented or implemented, or does not comply with the standards. In this case, reassessment is necessary. Once approved, the organization can register and certification is granted. The organization will receive a certificate with a detailed description of the audit and be placed on a publicly displayed list of registered companies (Cascio, 1996).

The final step in certification is surveillance. Once certified, certification bodies return to these sites periodically (usually every six months) in order to evaluate continuing compliance with the companies EMS and with the ISO 14001 requirements. Cascio states that the certification bodies concentrate on the continual improvement of the system within the organization. He also emphasizes that certification is important, but continual conformity is more important (Cascio, 1996).

3.0 Methodology

In order to fully comprehend ISO 14000, both the ISO 14000 standards and McNeil's interpretation of these standards were reviewed. We accomplished this by gathering specific data regarding ISO 14000, including The Handbook to ISO 14000 and other guides to the series. This information provided our team with a good understanding of the ISO series. After examining a list of national companies that are ISO 14000 certified, we decided on a set of well-established and accessible companies to contact. The project team conducted interviews with the employees involved in the implementation of the environmental management system within their company. These interviews enabled our team to acquire knowledge of previously installed ISO 14000 systems and allowed us to familiarize ourselves with the actual performance of the series. This also allowed our team to identify potential difficulties in implementation and helped us to avoid mistakes other companies have made.

Our team collected all pertinent ISO 14000 information specific to McNeil. The team requested from the McNeil environmental management team any information that would inform us of McNeil's progress with the ISO 14000 system. At the same time, we began conducting interviews with particular employees. We were surprised to learn that McNeil already had a legal consultant working on updating McNeil's job descriptions. This only slightly altered our first impression of our tasks because she was not specifically updating environmental responsibility descriptions. McNeil's environmental management team had already identified the environmental aspects of many departments within the company. For instance, McNeil defined equipment washdown as an

environmental aspect with a potential impact on water pollution. We interviewed the departmental supervisor of those employees with environmental aspects in their work.

We started by acknowledging that all positions can have an effect on the environment, from the biologist dealing with biohazard waste in the Microbiology Lab to the Document Coordinator dealing with paper waste in Document Control, every employee can have an effect on the environment around them. The McNeil ISO team had already identified most of the environmental aspects and impacts of the company's production process. Thus, our first step was simply to choose the first department to analyze. We wanted to work in parallel with the legal consultant so we began with the Quality Assurance department because McNeil's legal consultant had already updated those job descriptions in terms of validity and legality. However, the environmental impacts were not addressed in these descriptions. Those were to be provided by our project. Beginning with Quality Assurance, we analyzed the department's organizational chart to ensure that the job titles listed had a corresponding job description and to familiarize ourselves with each job descriptions sufficiently in order to speak intelligently with the supervisor about it. The descriptions were in Spanish, and it became our responsibility to translate them to gain a full understanding of the employee's tasks.

Our next step was to contact each department's supervisor to set up a first meeting to confirm the accuracy of the department's organizational chart, and then discuss its environmental aspects and impacts. During these meetings, we inquired about the structure of the department, comparing the results of our interviews with our organizational chart. If new occupations had been created or if any positions had been removed, we would then have to consider those jobs for unidentified environmental

aspects. With the guidance of the supervisor, we identified the environmental responsibilities of each employee. Not only did we interview the supervisor, but we also spoke with sub-level employees. Everyone interviewed was informed of our project and its objectives. Due to our own interest and curiosity, we also asked them for their feelings on the implementation of an environmental management system. We were very interested in determining the employee's interest in participating in such a system and in their degree of environmental awareness. We asked those involved in the ISO volunteer teams why they had chosen to participate, and how their environmental consciousness affected their lives in or out of the workplace.

After developing a list of environmental aspects for each job description and the procedures by which those aspects are managed, we drafted a set of recommendations, which we thought appropriate for inclusion in the job descriptions under the new heading of environmental responsibilities. These recommendations were inserted into a template, which we created and which is described below. We did not directly change the job descriptions but rather our final goal was to present McNeil with a pamphlet including all recommendations for additions to the revised descriptions. The legal consultant will take our material and "legalize" it as she inserts it into the job description. Once these recommendations were drafted, we returned to the supervisors of each department for a second meeting to allow them to read and remark on our suggestions. This not only helped us gain a better understanding of their views about the job description, but also helped them feel valued as a part of the overall environmental system. The second meeting is also when we asked them questions directed at probing their thoughts and attitudes. After taking the supervisor's comments into consideration, we ran the revised

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recommendations by Nelson Cruz, Gerson Nazario, and Julio Lopez of the McNeil ISO 14000 team. We then brought our recommendations to the Department Manager for approval and further input. Finally, with all comments taken into account and review completed, we submitted the finalized recommendations to Nelson Cruz for inclusion in the job descriptions.

The template is a document we designed based on what McNeil requires in a formal job description. The template was used for all job description recommendations and contained certain systematic entries for all job descriptions such as department, job title, and other information common to all jobs. The template also included an in-depth description of the job's environmental responsibility and the activities related to such responsibilities. For top managers, the addendums are in paragraph form to follow typical manager job descriptions. For most other employees, however, the additions are numbered to follow the typical employee job description format.

The information included in the job recommendations was not only taken from the interviews with particular employees, but also from McNeil's environmental analysis. This analysis was conducted prior to our arrival and is discussed further in the next chapter, On the Inside.

Overall, the main objective of our methodology was to evaluate how the McNeil company affects the environment and to establish a means for it to address, correct, and assign responsibility for those issues which are unacceptable to ISO 14000 and environmental laws. We evaluated the environmental aspects through observation and interviews. We not only addressed the severity of the environmental impacts and recommended additions to the job descriptions to account for these impacts, but we also

explored the general attitudes that McNeil employees have towards the environment around them.

4.0 On the Inside

McNeil's Las Piedras facility encompasses 350,000 square feet of a headache's worst nightmare. The plant is a manufacturer of nonprescription pharmaceuticals, whose main product is Tylenol®. From start to finish, the plant can produce over 900,000 pills in one 24-hour cycle. The process begins in the warehouse, where all the raw materials are received. The warehouse provides the manufacturing area with the ingredients specific for a particular batch of Tylenol®. There, the product is granulated and compressed, then the tablets and caplets are either coated or gel-dipped. Next, the product is stamped with the Tylenol® logo and sent off to packaging. Afterwards, the fully packaged material is stored in the warehouse until it is shipped off to a distributor.

The entire production process, including the quality of the final product, is under the very careful supervision of the employees in white uniforms. These operators have an important role. Not only do they monitor the machinery, but they also are responsible for the documentation of each batch. McNeil insists that all standard operating procedures and emergency preparedness response operations are always followed to promote safety within the plant. McNeil is also very concerned with the possible strain of the plant on the environment. It has such a strong commitment to the preservation of the environment that McNeil has developed an environmental team, also referred to as the ISO 14000 team. Currently, the team is upgrading its existing environmental management system to meet the standards of the ISO 14000 series. The series consists of standards that, when implemented and followed correctly, work towards the preservation of the environment.

The ISO 14000 team consists of thirty employees who volunteer their time to the maintenance of an environmental management system throughout the facility. In order to coordinate such a large plant, sub-teams are designated to particular areas. The team would prefer to have the ISO volunteers working with the environmental aspects of their own area, but with so few members, it is difficult. One Gel-dipping operator, however, volunteers his time to the Gel-dipping sub-team. He has been very involved throughout the entire process of implementation. He works the second shift, so he comes into work around 2pm and monitors closely the gel-dipping machine for three hours. Then on his five o'clock break he takes half an hour to nourish himself and back to work he goes. Another four hours later, he takes an hour break. The first half-hour to have a glass of juice and relax, and the second half-hour to sit down at a computer and work on ISO. He has dedicated this same 30-minute period every shift for the past 18 months to the ISO 14000 team. During this time, he is usually working on improvements for the environmental programs, or he is organizing a presentation to update his department on the status of ISO 14000, specifically in the Gel-dipping area. This is just one of the many members showing extreme enthusiasm for implementation of this system. The entire team is hard at work trying to complete the implementation process. The guidelines for ISO 14000 certification are so rigid that a company needs to make the implementation a top priority. At McNeil, ISO 14000 is definitely a top priority.

The most important step in preparing for the implementation of such a series is the environmental analysis, which is conducted by the environmental team. An environmental analysis is a well-documented review of identified environmental aspects in each department of the plant. These aspects are ranked in order of severity and those

of high rank are further researched for possible solutions to decrease the impact on the environment. Once the entire analysis is finished the environmental issues and proposed solutions are presented by the environmental team to the appropriate departments in order to keep everyone informed.

So far at McNeil, the ISO 14000 team has completed the environmental analysis and devised methods to lessen the impact on the environment. These ideas have been shared with the management of each department and the team plans on informing the rest of the staff as soon as possible.

After the environmental analysis, the implementation begins. One step of implementation is the identification and designation of environmental responsibilities for each employee throughout the plant. These responsibilities will become additions to the position's job description. These additions are then incorporated as an addendum to each current job description. This was our specific task at hand, and the completion of our project provided the ISO 14000 auditors with striking evidence of McNeil's compliance to the standards.

In order to accomplish our project goal, we needed to familiarize ourselves with each area of the plant. So, an employee from each department gave us a very detailed tour of his or her area and supervisors and managers of these divisions discussed with us the environmental aspects specific to their department. We also discussed the organizational structure of each area, as we needed to know which positions had certain environmental responsibilities.

The Las Piedras plant is McNeil's largest facility, thus containing a wide-variety of departments full of environmental issues. The following sections provide an inside

view of McNeil's production in Puerto Rico. An area is described and the environmental aspects of highest rank are discussed. The sequence of the presentation parallels the production process, starting with the warehouse since the manufacture of Tylenol® both begins and ends there.

4.1 Warehouse

Down the main corridor of the manufacturing area to the left, there is an enormous room with a cold cement floor, racks rising to the ceiling, large boxes, and horns beeping. This is the warehouse, McNeil's storage center for all the raw materials, packaging components, operating supplies and hazardous chemicals. All of these items are stored on green racks until requested by one of the operating units. Then, upon request, the materials are transported either outside the plant via trucks, or inside the plant via forklifts. The finished goods are also sent from the production units back to the warehouse to be shipped to distribution centers.

Of all the activities and materials involved in the warehouse, the issue of greatest environmental concern is the movement of hazardous chemicals. Methanol, hydrochloric acid, and many other chemicals enter the plant weekly. Methanol, the most common chemical received, enters the warehouse at about 1.2 drums a week. With one drum containing 55 gallons, the McNeil plant receives around 66 gallons of methanol in one week. These drums are unloaded either at the entrance to the warehouse or in front of the hazardous chemical storage room. Thus, there is potential for an outer bounds spill, maybe one occurring outside the plant during the transfer of a drum, that can cause contamination of the storm water runoff and/or generate air emissions. Storm water

runoff is the water that falls from the sky, rainwater, and then empties back into other bodies of water. In the event of a methanol spill during the drum transfer at the entrance of the McNeil warehouse, the surrounding grounds will be contaminated. The next time it rains, the storm water runoff is immediately contaminated and flushed right into Los Muertos Creek. A few spills and there will be one very contaminated creek on McNeil grounds. For this, it is imperative that all warehouse employees be trained in the proper handling, storage, disposal, and clean-up of hazardous materials. Consequently, our project team has added the environmental responsibility of maintaining awareness as well as participation in all training with regards to hazardous chemicals to all employees of the warehouse. As stipulated in their job description, McNeil expects that all employees will comply with these responsibilities, but moreover, McNeil hopes that and hopes that the employees go home and encourage environmental awareness throughout their neighborhoods.

4.2 Manufacturing

From the warehouse, the raw materials are loaded onto a tall forklift machines and transported to Granulation & Compression areas in the Manufacturing department. The forklift operators exit the warehouse area, beep their horn as they take a right turn out into the main corridor. They head all the way down the hallway to the last department on the right, Granulation & Compression, but before going inside one must stop and cover his or her hair thoroughly. A cap for one's head and for some men this protective wear may even include a beard cover.

Granulation & Compression are two closely related steps, and for that, these two areas are inside the same room, just on different floors. As for Granulation, first the materials are emptied into the machines. The process begins and the ingredients are physically blended together to produce a homogeneous mixture, otherwise known as a granulation. At McNeil, there are a variety of granulations that all contain the same excipients but different active ingredients. There is a separate granulation for the regular adult analgesic Tylenol®, Tylenol® Sinus, Tylenol® PM, and another for Children's Tylenol®.

The granulation process is simply the mixing of all the ingredients, including the active ingredient of acetaminophen. Throughout the granulation, air and water are both pumped through to the granulator until the correct consistency of granulation is reached. Once correct, the batch is ready for compression. So, it is filtered into a large tote, moved and raised above the compression machinery. The granulation is gravity fed into the compressor where the tablets are formed using pressure from a series of punches and dies. The compressors have two production lines, one for caplets and the second for tablets. Once the tablets are pressed, they are ready for immediate packaging, however the caplets are sent to Coating.

In both of these particular areas, the majority of the raw materials are powders, so there is a very strong potential for air emissions. Both areas are fully equipped with dust collectors that are used to control emissions to the environment, however this aspect has been given the highest rank on the severity scale for the Granulation & Compression areas. For this reason, it is pertinent that the dust collectors be inspected regularly to ensure proper operation. The dust that is collected must also be disposed of regularly in

an environmentally friendly manner. The Utilities department has recently decided to take responsibility for these inspections. So, to those in the Utilities department, we have recommended their awareness of the operation of the dust collectors throughout the plant, including those in Granulation & Compression. We have also recommended the proper disposal of the dust collected.

When the processes are complete, both the granulators and the compressors are first cleaned with water and then with isopropyl alcohol. The water used for the cleaning is immediately polluted, as it has been exposed to leftover product. This water is now "wastewater" and thus drains straight into the Wastewater Treatment Plant. There, the appropriate action is taken to cleanse the water through a series of steps. The Wastewater Treatment Plant is responsible for the decontamination of the wastewater throughout the plant. Since, McNeil has an award winning wastewater treatment system, it is not so much the polluted water that concerns the environmental team, but rather the second reagent used, the isopropyl alcohol.

There in the Coating area, the caplets are emptied into a large machine, slightly resembling an oversized washing machine. Inside the pills are rotated in a circular motion and then the lubricant solution is slowly released into the machine through tiny holes on the inside walls of the machine. The coating is added slowly to ensure even coating for each pill. The pills are swirled around in the machine for a while longer. When dry, they are funneled out of the machine directly into a large plastic crate. At this stage, depending on the batch, the product either goes straight to Printing or to Gel-dipping and then Printing. To maintain our forward discussion, we will continue with Gel-dipping and then move on to Printing.

From Coating, each batch of about 100,000 pills is brought down to Gel-dipping, two areas down on the right from the warehouse. Entrance to this particular part of the manufacturing plant is monitored due to its high sensitivity. Complete coverage with the appropriate clothing is required, as the Gel-dipping area is extremely susceptible to contamination. Once head caps, lab jackets, beard covers, and booties are in place, entrance is permitted.

More than half of the production of the plant relies on the Gel-dipping department, 53% to be exact. The Las Piedras Gel-dipping area has fifteen gel-dipping machines, specifically eight gel-cap and seven gel-tab. This allows the gel-dipping area to produce 13 batches of Tylenol® in one 24-hourcycle. Five of the thirteen batches are produced on the gel-tab machines and the other eight come off the gel-cap machines. Each day the gel-tab machines produce three batches of regular Tylenol® and two batches of Tylenol® PM. Similarly, the gel-cap machines can pump out six batches of regular Tylenol® and two batches of Tylenol® PM a day. This particular plant is responsible for 85% of McNeil's gel-dipped production. The other two McNeil plants, in Pennsylvania and Texas, make up for the last 15% of all gel-dipped Tylenol® products. This area is extremely fascinating in its amazing production capability as well as the area itself. Due to McNeil's confidential gel-dipping process, the area is highly sensitive and entrance must be monitored.

In the gel-dipping process, the gelatin used is made of pork and bone skin. It arrives to the warehouse in bags in powder form and is then fed to the Transporter where it is cooked with water to form the gel-like gelatin. Once the colors are added, the gelatin only has a 48-hour shelf life so it is taken immediately to the gel-dipping machines. Then

the Transporter is cleaned thoroughly with isopropyl alcohol. Each pill is half dipped, allowed to dry and then flipped and dipped again. This gives the gel-dipped product its two tone color scheme. As soon as the pills are taken out of the Transporter, the mixing station propellers are cleaned with water and then with isopropyl alcohol, the second reagent.

Since the gelatin mixers are first cleaned with water, the gel-dipping area encounters the possibility of water contamination. However, it is directly drained into the Wastewater Treatment plant and is decontaminated there. The second reagent used for the disinfecting of the equipment has a bigger impact on the environment.

Similar to the Granulation & Compression areas, isopropyl alcohol is also used to further disinfect the equipment in the gel-dipping area. The same potential for hazardous material spillage exists and for this, trainings for handling, storage and proper disposal of the alcohol must be encouraged for all employees handling these materials. This includes any materials exposed to the alcohol such as pads, gloves, and clothing as well. As our recommendation, we added that it is the responsibility of all gel-dipping employees to participate in such training.

Next, the dip pans used to hold the color are sanitized periodically. The material operators use to clean these pans is a 1% Chlorine solution. This obviously contaminates the water used during the cleaning, the major problem with is that it eventually gets back to the Wastewater Treatment Plant. The plant has an enormous system set up, with six different stages and testing throughout. One step is the addition of bacteria to the waste. This is so that the bacteria can help consume some of the waste. The chlorine, however, if it was drained into the wastewater system would kill off the bacteria, as chlorine kills

all bacteria. Thus, that particular batch of wastewater would not pass inspection, as it would not be fully decontaminated. This poses a large problem, so the environmental team at McNeil has identified this as a severe aspect. What we have done is include that all employees are responsible for the correct handling of all hazardous materials.

Another very significant aspect of this particular area is the amount of waste generated. The area is looking to reduce the total amount by 10%. On average, the waste produced represents 1% of the gel-dipped batch. This is 5kg of waste per batch. This directly impacts the surrounding landfill of Puerto Rico, as this waste is disposed there. The waste management of the area needs to be controlled, so we have suggested as a recommendation to their job descriptions that they monitor carefully the entire process and assure the quality of the product. This should help to detect any mechanical problems that may occur, and allow enough time to take care of the problem and to assure the quality of the product. This should help control generated product wastes.

From the Gel-dipping area, the product will then go back to the Coating area, as the Printing area is within the same room. There, the pills are emptied into another machine that places the caplets flat on a conveyor belt. The belt moves forward sending the product through the machine, a few second later the pills are released and are all stamped with the Tylenol® logo. Here, the main aspect is the ink used for the printing. Its handling, storage and disposal must be carried out properly. For this, each employee is responsible for attending training sessions on the handling of such materials. We have added this as one of their responsibilities as a Printing employee. The proper disposal is extremely important as the ink can easily contaminate the water and land.

Once the printing of the product is complete, the final step in the Manufacturing area is Packaging. McNeil's packaging area consists of twelve lines. Three lines are used to package the plastic blisters, and the remaining nine lines are used to package the product into plastic bottles. These lines are equipped with optical sensors to monitor all the steps within the process to assure that everything is packaged according to the standards of quality. Within this department, the pills are first counted, then packaged into bottles, sealed, and capped automatically. The filled bottles are then sent to another area of packaging area where labels are added to the bottles. Then, the bottles are packaged into small boxes, stacked together and shrink-wrapped around the sides to keep it all together, this is how the final product is shipped to the distributors.

Within the packaging area there are three dust collectors used to collect and retain dust particles. Thus, there is a potential for a malfunction such as a broken bag or any other malfunction, in which case would release a large amount of dust into the area. As mentioned above, the Utilities department monitors the dust collectors. They are responsible for the inspection of each dust collector in order to ensure correct operation. They are also responsible for the proper disposal of the dust collected there. These responsibilities have been added to the job descriptions of the employees in the Utilities area.

Packaging is another part of the plant that uses isopropyl alcohol to clean their equipment. There, pads with alcohol are used to remove dust and contamination on the equipment surface. The alcohol is used to prevent the growth of microorganisms on the equipment and to maintain good quality of the product to be packaged. After the cleaning, the pads and any other material exposed to the alcohol are discarded as

hazardous material and stored in the appropriately identified area. For this, we have incorporated such responsibilities in all the job descriptions throughout the Packaging area. They are responsible for the correct handling, storage and disposal of alcohol and inks. They are also responsible for participating in trainings related to the handling, storage and disposal of hazardous materials.

For the entire Manufacturing department, there is a designated maintenance crew for each particular area. So, there are five maintenance teams, Granulation, Compression, Coating & Printing, Gel-Dipping, and Packaging. These groups are specifically responsible for the upkeep of all the equipment in their area. The mechanics are in charge of all the spare parts for their area and also in charge of fixing any machine that is not operating properly. During the repair of a machine, rags and paper towels are used for the application of grease, lubricants, and oils. All of these materials are very harmful for the environment if simply thrown into the trash. For this, each maintenance mechanic is responsible for the proper disposal of such materials.

4.3 Quality Assurance

The Quality Assurance department consists of a microbiology and analytical laboratory, where tests are performed to maintain the good quality of the product. A compliance, documentation, and engineering department are also included in the QA area. These three areas are all of the office type. They do not have any interaction with the manufacturing of the Tylenol®, only the documentation of the product. So, the environmental team has considered paper consumption as the major environmental aspect in those three sections. For this, we have included that it is the responsibility of all

employees within these departments to minimize paper waste as much as possible. For instance, some of the responsibilities that we added were to use electronic mail as often as possible, recycle and reuse paper, plastic, glass, and cardboard, and to make double-sided copies as well. Just following these three recommendations could help reduce the amount of paper waste generated and increase the amount of materials recycled, thus, having a positive impact on the environment.

The microbiology and analytical laboratories have a longer list of environmental aspects. This of course then resulted in a longer list of environmental responsibilities in the corresponding job descriptions. Both laboratories work very closely with the product, performing tests to ensure the purity. The microbiologists, for example, receive a sample of every batch of Tylenol®. They perform a numerous amount of tests each sample, ensuring that their product is pure and safe. During these tests, biological wastes are generated, and the employees there participate in trainings, held regularly, to aid them in the learning and understanding of biological wastes and how to handle, store and dispose of them in the proper manner. The negative impact on the environment is quite apparent, however the responsibilities must all be documented, in order to satisfy the ISO 14001 standards. Also, in this area, there are brightly colored and clearly labeled bins strictly for the disposal of all biohazardous materials. These bins should be used and all employees throughout the area are responsible for carrying out such disposal. Our team completed the recommendations for this area with an additional responsibility of participating in the trainings for the proper handling, storage and disposal of biohazardous as well as hazardous materials.

Also, within both areas, the use of hazardous chemicals poses a potential risk for contamination, either with the water, the land, or the air. Chemicals like isopropyl alcohol, chloroform, ether, and potassium chromate are used frequently, more so in the analytical lab but both labs are responsible for the proper handling, storage and disposal of the hazardous materials. The analytical lab has a specified area, called a satellite station, for the storage of such chemicals. Every employee is responsible for the disposal of chemicals in the clearly identified drums stored in the satellite station. They are also responsible for keeping liquid hazardous materials separate from solid materials. All these precautions must be taken in order to lessen the impact of such materials on the environment.

4.4 Plant-wide

The preceding discussion illustrates that throughout the McNeil production process there are severe environmental aspects and impacts, mostly specific to one particular area. However, there are a few aspects that McNeil's environmental team identified as being plant-wide. One such aspect is the consumption of paper. This is a severely important aspect at this plant. A large amount of paper waste is generated throughout the day. We found that this is most frequent in the office setting and less frequent in the manufacturing area. McNeil does have an excellent recycling program installed and the plant is full of recycling bins. Although the employees are recycling in general, there is still an overuse of paper. Documents are printed, single-sided and only to indicate something to another employee. So, for this, we have recommended that all

employees make double-sided copies and use electronic mail as much as possible. This should reduce the amount of paper waste and save a few trees.

Another plant-wide responsibility that we have designated to everyone is the reduction of energy consumption. We have added that equipment and lights should be turned off when not in use to conserve energy. Most of McNeil's offices are equipped with motion detector lights. So, when there is no motion in a room for a specified amount of time, the lights are shut off automatically. This helps to reduce energy consumption, especially for those who may forget to turn off their lights.

A third recommendation to all job descriptions is to recycle and reuse paper, glass, cardboard, and any other recyclable material. With McNeil's excellent recycling program installed throughout the facility, they have an awesome opportunity to assist their labor force in achieving a routine of environmental awareness. Many of the employees that we have interviewed have told us that they have become more environmentally aware since they have begun work at McNeil. Some have even brought their awareness back to their homes and into their community.

This concludes our discussion of McNeil on their environmental analysis of the production process. Understanding how McNeil operates provided us with an explicit comprehension of the data necessary for an environmental analysis as well as allowed us to use the environmental data to our advantage when completing our project.

5.0 Analysis

Our analysis closely studies the thoughts and feelings of employees we interviewed concerning their awareness of environmental protection and its importance in their lives. As mentioned in our methodology, our approach involved at least two meetings with supervisors and managers and in some cases one meeting with different sublevel employees. The purpose of the analysis is to understand fully the extent of awareness among McNeil's employees about their environmental responsibilities and to analyze the company's readiness for an environmental audit.

At the first meetings we retrieved the data necessary to write up recommendations for all the current job descriptions. This data consisted of a detailed job analysis, including a list of tasks, and any environmental aspects of a particular job. These recommendations were compiled to produce a final pamphlet and were presented to McNeil's ISO 14000 team. McNeil will then, in turn, have these recommendations written in legal form, translated into Spanish, and attached as an addendum to each corresponding job description. With the completion of this work, McNeil will conform to the ISO 14000 standard that states that every job title should have a job description that includes specific environmental responsibilities.

The second meeting was organized toward getting approval of the recommendations as well as gathering their thoughts and opinions about the implementation of the ISO 14000 series. This meeting allowed our project team to determine how the employees of McNeil are adapting to this new system.

Although we were adding responsibilities to individual jobs, we were surprised to find that employees did not mind. We concluded that the cooperative response was due to the fact that the employees had already adapted to the extensive environmental management system that McNeil had in place prior to ISO 14000. In fact, in many cases, we were just writing down on paper what these employees were already practicing. Throughout the plant we found that there was a general attitude of concern for the environment and for the future of this earth for them and for their children. McNeil's employees seem, indeed, to have a heightened sense of responsibility concerning environmental awareness. Not all employees, of course, have shown extreme enthusiasm about our project, but for the most part, they are very receptive. A select few, however, have seen the process of identifying the environmental responsibilities of individual jobs as a nuisance. We attempted to remedy this situation by making it known that adding small responsibilities to the job description was necessary to prove to ISO 14000 auditors that McNeil has prepared and implemented the actions necessary for certification. Generally, this approach worked well during the few times we had to use it. Our liaison would have reassured especially resistant employees and managers, but no major problems of this order were encountered.

Most employees had office type jobs for which we recommended appendixes to job descriptions that were very basic. For example, these included additions such as: use all office materials efficiently; recycle or reuse paper, glass, cardboard and any other recyclable material; use electronic mail whenever possible to minimize paper waste; use double-sided copies to minimize use of paper; turn off lights and equipment when not in use to reduce energy consumption. These seem very small and inconsequential, however,

as part of the larger scheme of ISO 14000, they are extremely important. "Every little bit helps" was a common phrase used when people described how they feel about their own actions toward the environment, and how they feel taking part affects the future.

We interviewed extensively the higher tier of McNeil's management ladder. For ISO 14001 implementation to be a success, it is imperative that the implementers have management's full backing. The management level is where one would gain approval for such a project and slowly solicit such approval down the ladder, step by step. McNeil is at the point where most of the managers and supervisors have heard of ISO 14001 and most knew who we were before we stepped into their offices to ask them for their time.

At first, we mistakenly believed that everyone in the company was completely environmentally aware and knew about ISO 14001. Brooke and Dave decided to test this assumption and found it to be untrue. In addition to formal interviews, we decided to go around to operators while they were on break and ask them what they knew about our activities and about the ISO process. Some operators were oblivious to the whole topic of an EMS. Another interviewee had not heard of ISO 14001, although he was familiar with the idea of environmental protection. "Yeah, I try to recycle," the operator said as he puffed on his cigarette, "but, I use electricity like crazy...." Another fellow smoker stated, "I think I saw ISO 14000 somewhere." According to the three, none of them had attended any environmental training at McNeil.

Since we only asked three random operators, it is entirely possible that we asked three unaware employees in a pool of environmentally conscious employees. However, even if this is true, it is necessary for every employee to be familiar with the terms environmental management system, ISO 14001, and environmental training. We asked

the same type of questions that ISO 14000 auditors will ask. What happens if the auditors find the same group of smokers that we found? Everyone, from the plant manager to the temporary employee on the packaging line must be aware of the system we are trying to implement.

6.0 Recommendations and Conclusions

Our project was a necessary step in the certification of McNeil's Consumer Healthcare facility in Las Piedras, PR. It gave proof, through the addition of an environmental responsibilities section to all job descriptions, that McNeil has begun to take the necessary steps for ISO certification. Nowhere in the ISO handbook does it say one must have all implemented ISO standards written down, however, it is advised that this is done. Having it written down gives undeniable proof that the proper steps have been taken during implementation. Not only will the result of our work be an important factor in McNeil's certification, but having the environmental responsibilities spelled out in the job descriptions gives the employee accountability and knowledge of what will be required if he or she accepts the position.

After 60 interviews, we concluded that the majority of McNeil's management is tremendously aware of their environmental responsibilities. For most employees, this is mainly due to their experience at McNeil, one of the few companies in Puerto Rico striving for ISO 14001 certification. McNeil had an already extensive EMS prior to its decision to adopt ISO 14001 standards. The company has been in the forefront of environmental awareness in Puerto Rico for many years, and expects certification to be a big advantage in international pharmaceutical markets because, in some cases, many companies already require certification to do business. By becoming certified beforehand and taking the initiative, it is not only gaining a competitive advantage, but also gaining positive publicity for Johnson & Johnson as a corporation in the US and as a company operating in Puerto Rico.

Although McNeil is a leader in the environmental forefront, there are always ways to improve one's operation. Our recommendations are as follows:

- First, we suggest having training three times a year, to keep staff fully aware of all environmental issues. Right now training occurs only once a year when the ISO team meets with the entire staff.

- Second, McNeil should coordinate a basic training program for all new employees, to provide them with a more complete understanding of McNeil's commitment to environmental protection. This training should be conducted much like the training for Good Management Practices and Safety.

- Third, paper waste can be dramatically reduced if information is read off computer programs as opposed to being printed out. Questions can be verified through the computer and printed only when a hard copy is necessary. Also, many people print out their emails to read them. Reading them on the computer will greatly reduce paper waste. Along the same lines, the warehouse department wants to implement an electronic database computer program to save paper in that area.

- Fourth, maintenance personnel state that parts come into the department with packaging that is not recyclable. We suggest that they contact suppliers to ask them to use packaging that is recyclable.

- Fifth, Geldipping is currently the only department in McNeil that has had informational meetings on ISO 14001. The presentations and material were prepared by an ISO team member who is an operator in that area. We feel that the ISO team should recruit at least one volunteer from each area. These

volunteers could give the same type of informational meetings to their own department and thus ready themselves for ISO 14001 certification. It is advantageous for the volunteer to be an operator because the other operators will relate better to one of their peers.

In conclusion, McNeil is well on their way to certification. However, we feel that management must further the implementation by communicating the goals and targets of the implementation to the entire company. McNeil has the ability, to not only raise environmental consciousness for its employees, but should persuade all of its workers to take their newfound environmental awareness back to their communities and homes to raise consciousness there as well. Overall, we believe that McNeil will become certified when it is audited in the months to come due to its excellent environmental management system and its commitment to this process. McNeil has a great environmental department and a great set of volunteers on the ISO team. We have gained many friends here at McNeil, and we will miss them all.

References

"About McNeil Consumer Products Company." Online.
http://www.climadata.com/profile/mcneil.htm. 26 January 1999.

"Benefits of Eco-Management Systems." Quality Networks. Online.
http://www.quality.co.uk/quality/eco/benefits.htm. 26 January 1999.

Berg, Bruce. 1998. Qualitative Research Methods for the Social Sciences. Boston.
Allyn and Bacon.

"British Standard 7750." Quality Networks. Online.
http://www.quality.co.uk/quality/bs7750.htm. 26 January 1999.

Cascio, Joseph. 1996. The ISO 14000 Handbook. Fairfax, Virginia. CEEM
Information Services with ASQC Quality Press.

Cascio, Joseph, Gayle Woodside and Philip Mitchell. 1996. ISO 14000 Guide. New
York. McGraw-Hill.

Chin, Kwai-Sang. 1998. "Critical Factors for Evaluating ISO 14000 Environmental
Management System Standards Implementation." International Journal of
Management. Volume 15, Number 2, pp. 237-247.

"EMAS: European Eco Management & Audit Scheme." Quality Networks. Online.
http://www.quality.co.uk/quality/emas.htm. 26 January 1999.

Fiddler, Gonzalez, & Rodriguez. 1996. Puerto Rico Environmental Law Handbook
Rockville, Maryland. Government Institutes, inc.

Fredricks, Isis and David McCallum, http://www.mgmt14k.com/ems.html. 26 January
1999.

Hersey, Kevin. "A Close Look at ISO 14000." Professional Safety. Volume 43,
Number 7, pp. 26-30.

"International Standard ISO 14000." Quality Networks. Online.
http://www.quality.co.uk/quality/iso14000.htm. 2 February 1999.

"ISO 14000: Environment and Business Friendly." Aerospace Engineering 1998.
Volume 18, Number 7, pp. 28.

"ISO 14000 History." Online.
http://www.iso14000.net/empire/?SubSystemID=1&ComponentID=14937. 26
January 1999.

"ISO/TC 207 Frequently Asked Questions." Online.
        http://www.tc207.org/faqs_main.html.   26 January 1999.

"ISO Online." Online.   http://www.iso.ch/. 26 January 1999.

"McNeil Consumer Products." Online.
        http://www.dep.state.pa.us/dep/DEPUTATE/POLLPREV/P2_Features/govawards
        1998. 26 January 1999.

"McNeil Consumer Products Company." Online. http://www.dep.state.pa.us/gov-
        awards/winners/20.htm. 26 January 1999.

"McNeil Consumer Products Company, Strengthening World Wide Lead in OTC Pain."
        Online. http://releases.twoten.press.net/releases/date/1997/06/05/BUSINESS-
        Pain_Reliever.html. 26 January 1999.

Nakamura, Lisa M. 1999. "Establishing an Environmental Management System Using
        ISO 14001 as a Model." Iron and Steel Engineer, Volume 76, Number 1, pp. 51-
        53.

"Recognizing Our Achievements." Online. http://www.johnson-and-johnson.com. 26
        January 1999.

Sayre, Don. 1996. Inside ISO 14000. Delray Beach, Florida. St. Lucie Press.

Tibor, Tom and Ira Feldman. 1996. ISO 14000: A Guide to the New Environmental
        Management Standards. Chicago. Irwin.

Wilson, Lawrence A. 1996. Eight-Step Process To Successful ISO 9000. Milwaukee.
        ASQC Quality Press.

Environmental Recommendations for Revision of Job Description
Appendix A

Appendix A is our completed set of job description recommendations.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Engineering Manager
Department:	Engineering

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Engineering Manager to ensure that all Engineering has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. It is also the duty of the manager to ensure that supervisors maintain and coordinate necessary training programs for all Engineering employees in terms of dealing with hazardous materials. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail and the use of double sided copies whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment.

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Administrative Assistant
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Engineering Utilities Manager
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Recycle or reuse paper, glass, cardboard, and any other recyclable material
2. Ensure the storage and disposal of alcohol, oils, grease, cleaners, lubricants, and batteries in identified areas
3. Ensure the weekly recording of dust collector pressure changes to track pressure differential
4. Encourage the use of the backflow preventor to avoid water contamination
5. Ensure conservation and reuse of water in the utilities operations to reduce water consumption and generation of waste water
6. Monitor operation of boilers and emergency power generators to prevent generation of smoke
7. Promote the minimization of generated used oil and the proper disposal of this oil
8. Prevent contamination of storm water by controlling its exposure to contaminated equipment, debris, or any other material
9. Provide training to mechanics for proper operation and maintenance of dust collectors and waste disposal of material collected in dust collectors
10. Maintain records of diesel fuel consumption for the boilers and emergency power generators to be included in monthly reports to government agencies
11. Obtain and maintain license for operation of Potable Water System
12. Maintain administration of the energy conservation program and prepare as an alternate emergency coordinator
13. Monitor utilities operations to prevent spills, releases, and environmental permit violations
14. Ensure utilities personnel receive the necessary training to comply with environmental regulations, permits, and procedures
15. Ensure preventative maintenance on equipment related to environmental permits or which could cause a spill or release
16. Use electronic mail whenever possible to minimize paper waste
17. Use double sided copies to minimize use of paper

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Maintenance Technician
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Recycle or reuse paper, glass, cardboard, and any other recyclable material
2. Participate in training necessary to comply with environmental regulations, permits, and procedures
3. Promote the proper use of alcohol, oils, grease, and lubricants
4. Ensure the storage and disposal of alcohol, oils, grease, cleaners, lubricants, and batteries in identified areas
5. Ensure the weekly recording of dust collector pressure changes to track pressure differential
6. Encourage the use of the backflow preventor to avoid water contamination
7. Ensure that concentrate from the Reverse Osmosis process is reused in the cooling tower system to conserve natural resources
8. Monitor operation of boilers to prevent generation of smoke
9. Promote the minimization of generated used oil and the proper disposal of this oil
10. Ensure records of diesel fuel consumption for the boilers and emergency power generators to be included in monthly reports to government agencies are maintained
11. Prevent spills, releases, and environmental permit violations
12. Ensure preventative maintenance on equipment related to environmental permits or which could cause a spill or release
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Utilities Maintenance Mechanics
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Recycle or reuse paper, glass, cardboard, and any other recyclable material
2. Be aware of and participate in training related to hazardous material handling and training necessary to comply with environmental permits, regulations, and procedures
3. Use, store and dispose of alcohol, oils, grease, cleaners, lubricants, and batteries properly and in identified areas
4. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
5. Inspect the vacuum cleaners and dust collectors daily to verify that filter is properly installed to prevent releases to the air and dispose of dust filters properly
6. Record dust collector pressure differential as required by air emissions permit
7. Use the backflow preventor to avoid water contamination
8. Ensure that concentrate from the Reverse Osmosis process is reused in the cooling tower system to conserve natural resources
9. Monitor operation of boilers and emergency power generators to prevent generation of smoke
10. Prevent contamination of storm water by controlling its exposure to contaminated equipment, debris, or any other material
11. Verify the air conditioning drains to ensure reuse of water in cooling tower system to conserve natural resources
12. Verify and inspect the diesel truck before the fuel transfer occurs to prevent a spill or leak and record the level of the diesel storage tanks
13. Maintain records of diesel fuel consumption for the boilers and emergency power generators to be included in monthly reports to government agencies
14. Obtain and maintain license for operation of Potable Water System
15. Prevent spills, releases, and environmental permit violations
16. Use double sided copies to minimize use of paper
17. Turn off lights and equipment when not in use to reduce energy consumption

Note: These responsibilities are to be divided between the different mechanics. Supervisors or Managers will evaluate mechanics based on the responsibilities assigned to them.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Building & Grounds Supervisor
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Ensure the proper use and disposal of all chemicals
5. Assure the separate disposal of epoxy and water-based paint
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Building & Grounds Operator
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training programs related to hazardous material handling
4. Ensure the proper use and disposal of all chemicals
5. Assure the separate disposal of epoxy and water-based paint
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Plant Engineer
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Promote the proper use of alcohol, oils, grease, cleaners, and lubricants
5. Ensure the storage and disposal of alcohol, oils, grease, cleaners, lubricants, and batteries in identified areas
6. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
7. Advocate good engineering practices to avoid noise pollution
8. Coordinate and maintain the Emergency Response Team
9. Use electronic mail whenever possible to minimize paper waste
10. Use double sided copies to minimize use of paper
11. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Engineering Services Supervisor
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure the proper disposal of batteries
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Maintenance Supervisor for Compression
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Promote the proper use of alcohol, oils, grease, cleaners, and lubricants
5. Ensure the storage and disposal of alcohol, oils, grease, cleaners, lubricants, and batteries in identified areas
6. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
7. Advocate good engineering practices to avoid noise pollution
8. Participate in the Emergency Response Team
9. Use electronic mail whenever possible to minimize paper waste
10. Use double sided copies to minimize use of paper
11. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Maintenance Supervisor for Coating & Printing
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
5. Advocate good engineering practices to avoid noise pollution
6. Participate in the Emergency Response Team
7. Use electronic mail whenever possible to minimize paper waste
8. Use double sided copies to minimize use of paper
9. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Maintenance Supervisor for Packaging
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
5. Advocate good engineering practices to avoid noise pollution
6. Participate in the Emergency Response Team
7. Use electronic mail whenever possible to minimize paper waste
8. Use double sided copies to minimize use of paper
9. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Maintenance Supervisor for Geldipping
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling and ISO 14001
4. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
5. Participate in the Emergency Response Team
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Maintenance Supervisor for Granulation
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
5. Advocate good engineering practices to avoid noise pollution
6. Participate in the Emergency Response Team
7. Use electronic mail whenever possible to minimize paper waste
8. Use double sided copies to minimize use of paper
9. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Electronic Technician
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling and ISO 14001
4. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and anti-corrosives
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Environmental Manager
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and perform environmental training for all employees
4. Coordinate and maintain training programs related to hazardous material handling
5. Maintain awareness of all environmental activities and new environmental regulations
6. Encourage environmental awareness throughout the plant
7. Maintain a compliance calendar
8. Negotiate environmental contracts
9. Obtain and renew licenses for potable water system and all environmental permits in the plant
10. Approve and issue purchase orders for all incoming chemicals
11. Maintain inventories of chemicals, drinking water, and waste water
12. Ensure correct operation of waste water treatment plant
13. Encourage development and maintenance of documentation for environmental area including all environmental compliance reports for government agencies
14. Promote interaction between environmental agencies and the plant
15. Maintain plant-wide recycling program
16. Support local selected schools in environmental awareness
17. Ensure the upkeep of emergency preparedness response manuals, spill prevention documents, and pollution prevention documents
18. Prepare environmental assessments for all projects
19. Promote the implementation and maintenance of the ISO 14000 series and the proper supervision of the ISO 14000 team
20. Prepare for environmental audits and handling inspections
21. Manage all regulations that apply to the environment
22. Use electronic mail whenever possible to minimize paper waste
23. Use double sided copies to minimize use of paper
24. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Environmental Engineer
Department:	Engineering

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and perform environmental training for all employees
4. Coordinate and maintain training programs related to hazardous material handling
5. Provide support to the Environmental Department in the planning and organization of environmental activities
6. Maintain awareness of all environmental activities and new environmental regulations
7. Encourage environmental awareness throughout the plant
8. Maintain compliance calendar
9. Obtain and renew license for potable water system
10. Ensure correct operation of waste water treatment plant
11. Develop and maintain documentation for environmental area including all environmental compliance reports for government agencies
12. Prepare environmental assessments for all projects
13. Prepare for environmental audits and handling inspections
14. Manage all regulations that apply to the environment
15. Use electronic mail whenever possible to minimize paper waste
16. Use double sided copies to minimize use of paper
17. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Plant Comptroller
Department:	Finance

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Plant Comptroller to ensure that all Finance has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail, the use of double sided copies, and the use of a database program system whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Finance Accountant
Department:	Finance

Recommendations:

Environmental Responsibilities:

6. Ensure that employees use all office materials efficiently
7. Recycle or reuse paper, glass, cardboard and any other recyclable material
8. Use electronic mail and the database program system whenever possible to minimize paper waste
9. Use double sided copies to minimize use of paper
10. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Finance Coordinator
Department:	Finance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail and the database program system whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Cost Accountant
Department:	Finance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail and the database program system whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Cost Accountant
Department:	Finance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail and the database program system whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Human Resources Manager
Department:	Human Resources

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Human Resources Manager to ensure that all Human Resources has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail, the use of double sided copies, and the use of a database program system whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Human Resources Administrator
Department:	Human Resources

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail and the database program system whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	HR Coordinator
Department:	Human Resources

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail and the database program system whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Information Management Director
Department:	Information Management

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Information Management Director to ensure that all of Information Management has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. It is also the duty of the manager to ensure that supervisors maintain and coordinate necessary training programs for all Information Management employees in terms of environmental awareness. Validation of computer systems to ensure plant compliance with FDA standards should also be encouraged. Proper disposal of printer toner should be advocated. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail and the use of double sided copies whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment when not in use.

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	IM Manager
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Validate computer systems to ensure plant compliance with FDA standards
4. Encourage the proper disposal of printer toner
5. Promote the minimization of paper use throughout the plant
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. System Engineer (Business Systems)
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Validate computer systems to ensure plant compliance with FDA standards
4. Encourage the proper disposal of printer toner
5. Promote the minimization of paper use throughout the plant
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. System Engineer
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Validate computer systems to ensure plant compliance with FDA standards
4. Encourage the proper disposal of printer toner
5. Promote the minimization of paper use throughout the plant
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Inf. Management Specialist
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Validate computer systems to ensure plant compliance with FDA standards
4. Dispose of printer toner in the proper manner
5. Promote the minimization of paper use throughout the plant
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Decision Support Analyst
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Validate computer systems to ensure plant compliance with FDA standards
4. Encourage the proper disposal of printer toner
5. Promote the minimization of paper use throughout the plant
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	CIM Support Analyst
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Validate computer systems to ensure plant compliance with FDA standards
4. Dispose of printer toner in the proper manner
5. Promote the minimization of paper use throughout the plant
6. Use electronic mail whenever possible to minimize paper waste
7. Use double sided copies to minimize use of paper
8. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Administrative Clerk
Department:	Information Management

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Manufacturing Manager
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Manufacturing Manager to ensure that all Manufacturing has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. It is also the duty of the manager to ensure that supervisors maintain and coordinate necessary training programs for all Manufacturing employees in terms of dealing with hazardous materials. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail and the use of double sided copies whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Administrative Assistant
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

11. Use all office materials efficiently
12. Recycle or reuse paper, glass, cardboard and any other recyclable material
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Granulation Manager
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Encourage supervisors to develop methods to reduce energy consumption
6. Promote the proper use of raw material chemicals, alcohol, oils, grease, cleaners, and lubricants
7. Ensure the storage and disposal of raw material chemicals, alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling raw material chemicals, alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Ensure daily inspection of dust collectors, verification that operation is within parameters, documentation of all data and weekly documentation of pressure changes
10. Ensure proper disposal of dust
11. Advocate the use of earplugs to avoid noise pollution
12. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Granulation Supervisor
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Develop methods for reduction of energy consumption
6. Promote the proper use of raw material chemicals, alcohol, oils, grease, cleaners, and lubricants
7. Ensure proper storage and disposal of raw material chemicals, alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling raw material chemicals, alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Ensure daily inspection of dust collectors, verification that operation is within parameters, documentation of all data and weekly documentation of pressure changes
10. Ensure proper disposal of dust
11. Advocate the use of earplugs to avoid noise pollution
12. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Granulation Mechanics
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Use raw material chemicals, alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of raw material chemicals, alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling raw material chemicals, alcohol, solvents, and cleaners
9. Inspect dust collectors daily, verify that operation is within parameters, record all data, and document pressure charges weekly
10. Dispose of dust properly
11. Use earplugs to avoid noise pollution
12. Perform preventative maintenance on mechanical equipment in the area to avoid product waste
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Granulation Operators
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Operate equipment efficiently to minimize energy consumption
5. Use raw material chemicals, alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of raw material chemicals, alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling raw material chemicals, alcohol, solvents, and cleaners
9. Use earplugs to avoid noise pollution
10. Notify mechanic of any mechanical failures that could cause product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compression Manager
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Support training programs related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Encourage supervisors to develop methods to reduce energy consumption
6. Promote the proper use of alcohol, oils, grease, cleaners, and lubricants
7. Ensure the storage and disposal of alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Ensure inspection of dust collectors and verification that operation is within parameters
10. Ensure proper disposal of dust
11. Advocate the use of earplugs to avoid noise pollution
12. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compression Supervisor
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Develop methods for reduction of energy consumption
6. Promote the proper use of alcohol, oils, grease, cleaners, and lubricants
7. Ensure proper storage and disposal of alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Ensure inspection of dust collectors and verification that operation is within parameters
10. Ensure proper disposal of dust
11. Advocate the use of earplugs to avoid noise pollution
12. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compression Mechanics
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Use alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, and cleaners
9. Inspect dust collectors and verify that operation is within parameters
10. Dispose of dust properly
11. Use earplugs to avoid noise pollution
12. Perform preventative maintenance on mechanical equipment in the area to avoid product waste
13. Use electronic mail whenever possible to minimize paper waste
14. Use double sided copies to minimize use of paper
15. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compression Operators
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Operate equipment efficiently to minimize energy consumption
5. Use alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, and cleaners
9. Use earplugs to avoid noise pollution
10. Notify mechanic of any mechanical failures that could cause product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Coating & Printing Manager
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Encourage supervisors to develop methods to reduce energy consumption
6. Promote the proper use of alcohol, oils, grease, cleaners, inks, and lubricants
7. Ensure the storage and disposal of alcohol, oils, grease, cleaners, inks, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, or when working in a dusty environment
9. Advocate the use of earplugs to avoid noise pollution when needed
10. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Coating & Printing Supervisor
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Develop methods for reduction of energy consumption
6. Promote the proper use of alcohol, oils, grease, cleaners, and lubricants
7. Ensure proper storage and disposal of alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, or when working in a dusty environment
9. Advocate the use of earplugs to avoid noise pollution when needed
10. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Coating & Printing Mechanics
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Use alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, cleaners, or when working in a dusty environment
9. Use earplugs to avoid noise pollution when needed
10. Perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Coating & Printing Operators
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Operate equipment efficiently to minimize energy consumption
5. Use alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, cleaners, or when working in a dusty environment
9. Use earplugs to avoid noise pollution when needed
10. Notify mechanic of any mechanical failures that could cause product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeiD

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Geldipping Manager
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Encourage supervisors to develop methods to reduce energy consumption
6. Promote the proper use of alcohol, oils, grease, cleaners, inks, and lubricants
7. Ensure the storage and disposal of alcohol, oils, grease, cleaners, inks, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Advocate the use of earplugs to avoid noise pollution
10. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Geldipping Supervisor
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Develop methods for reduction of energy consumption
6. Promote the proper use of alcohol, oils, grease, cleaners, and lubricants
7. Ensure proper storage and disposal of alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Advocate the use of earplugs to avoid noise pollution
10. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Geldipping Mechanics
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Use alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, and cleaners
9. Use earplugs to avoid noise pollution
10. Perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Geldipping Operators
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Operate equipment efficiently to minimize energy consumption
5. Use alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, and cleaners
9. Use earplugs to avoid noise pollution
10. Notify mechanic of any mechanical failures that could cause product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Packaging Manager
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Encourage supervisors to develop methods to reduce energy consumption
6. Promote the proper use of inks, alcohol, oils, grease, cleaners, and lubricants
7. Ensure the storage and disposal of inks, alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Advocate the use of earplugs to avoid noise pollution when needed
10. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Ensure that rejections are reworked
12. Use electronic mail whenever possible to minimize paper waste
13. Use double sided copies to minimize use of paper
14. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Packaging Supervisor
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Develop methods for reduction of energy consumption
6. Promote the proper use of inks, alcohol, oils, grease, cleaners, and lubricants
7. Ensure proper storage and disposal of inks, alcohol, oils, grease, cleaners, and lubricants in identified areas
8. Encourage the use of proper clothing and protective equipment when handling alcohol, solvents, cleaners, and when changing filters in the dust collectors
9. Advocate the use of earplugs to avoid noise pollution when needed
10. Ensure that mechanics perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Ensure that rejections are reworked
12. Use electronic mail whenever possible to minimize paper waste
13. Use double sided copies to minimize use of paper
14. Turn off lights and equipment when not in use to reduce energy consumption

Environmental Recommendations for Revision of Job Description

Title:	Packaging Mechanics
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Ensure efficient operation of equipment to minimize energy consumption
5. Use inks, alcohol, oils, grease, cleaners, and lubricants properly
6. Store and dispose of inks, alcohol, oils, grease, cleaners, and lubricants in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling alcohol, solvents, and cleaners
9. Use earplugs to avoid noise pollution when needed
10. Perform preventative maintenance on mechanical equipment in the area to avoid product waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Packaging Operators
Department:	Manufacturing

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Operate equipment efficiently to minimize energy consumption
5. Use inks and alcohol properly
6. Store and dispose of inks and alcohol in identified areas
7. Clean equipment periodically
8. Use proper clothing and protective equipment when handling inks, alcohol, and solvents
9. Use earplugs to avoid noise pollution when needed
10. Notify mechanic of any mechanical failures that could cause product waste
11. Rework all rejections
12. Use electronic mail whenever possible to minimize paper waste
13. Use double sided copies to minimize use of paper
14. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Materials Manager
Department:	Materials

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Materials Manager to ensure that all of Materials has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. It is also the duty of the manager to ensure that supervisors maintain and coordinate necessary training programs for all Materials employees in terms of environmental awareness. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail, the use of double sided copies, and the use of Electronic Data Interchange systems whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off equipment and non-halogen lights when not in use.

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	MRO Coordinator
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Obtain approval from Environmental Manager for all hazardous chemical purchases
4. Minimize use of paper through the use of the electronic purchasing software
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	MRO Buyer
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Obtain approval from Environmental Manager for all hazardous chemical purchases
4. Minimize use of paper through the use of the electronic purchasing software
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Messenger
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Purchasing Supervisor
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Support the McNeil Materials Review Board
4. Encourage the use of the electronic purchasing software to minimize use of paper
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Buyer/ Planner
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Support the McNeil Materials Review Board
4. Encourage the use of the electronic purchasing software to minimize use of paper
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Buyer/ Planner
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Support the McNeil Materials Review Board
4. Minimize use of paper through the use of the electronic purchasing software
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Warehouse / Traffic Supervisor
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off non-halogen lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Warehouse Supervisor
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off non-halogen lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Traffic / Warehouse Clerk
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off non-halogen lights and equipment when not in use to reduce energy consumption

McNeiD
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Warehouse Group Leaders and Operators
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off non-halogen lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Planning Manager
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Support the McNeil Materials Review Board
4. Encourage the use of the electronic planning software for all production data and planning to minimize use of paper
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Master Scheduler
Department:	Materials

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Minimize use of paper through the use of the electronic planning software for all production data and planning
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Business Improvement Project / Validation Manager
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Project / Validation Manager to ensure that all Project / Validation has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. It is also the duty of the manager to ensure that employees participate in necessary training programs in terms of dealing with hazardous materials. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail and the use of double sided copies whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Project Manager
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Ensure all new equipment and processes has been approved by the environmental engineer
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	SR Project Supervisor
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Ensure all new equipment and processes has been approved by the environmental engineer
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Project Coordinators
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Ensure all new equipment and processes has been approved by the environmental engineer
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Validation Manager
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Validation Specialist
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Validation Coordinator
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Validation Specialist
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Quality Engineering Technician
Department:	Project / Validation

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Participate in training related to hazardous material handling when necessary
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Quality Assurance Manager
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

It is the responsibility of the Quality Assurance Manager to ensure that all Quality Assurance has a recycling system in place to recycle or reuse paper, glass, cardboard and any other recyclable material. It is also the duty of the manager to ensure that supervisors maintain and coordinate necessary training programs for all QA employees in terms of dealing with biological, hazardous, and non-hazardous wastes. Conservation of natural resources, such as paper and water, is also a function of the manager. The manager should promote the use of electronic mail and the use of double sided copies whenever possible to minimize paper waste. The manager should also encourage reduction of energy consumption through methods such as turning off lights and equipment.

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Administrative Assistant
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeiD
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. Compliance Supervisor
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Coordinate and maintain training programs related to hazardous material handling
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compliance Specialist
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compliance Auditors
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Dispose of testing material in the proper manner
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	GMP Coordinator
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard, and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	QA Technician Packaging
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Dispose of testing material in the proper manner
5. Use electronic mail whenever possible to minimize paper waste
6. Use double sided copies to minimize use of paper
7. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Compliance Technician
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous material handling
4. Use electronic mail whenever possible to minimize paper waste
5. Use double sided copies to minimize use of paper
6. Turn off lights and equipment when not in use to reduce energy consumption

McNeiⅅ
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Microbiology Lab Supervisor
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard, and any other recyclable material
3. Coordinate and maintain training programs related to biological waste handling
4. Create programs for the preparation, handling, and disposal of media, testing materials, and equipment in a manner that protects the environment
5. Implement methods to minimize waste
6. Enforce recycling or reuse of paper, glass, cardboard and any other recyclable material
7. Coordinate and ensure sterilization of biological wastes generated by analysis through autoclaving
8. Identify any non-sterile waste or equipment by using the universal biohazard label
9. Ensure maintenance of generated and sterilized biological waste records
10. Identify storage areas for sterilized and non-sterilized biological waste
11. Distinguish sterilized biological waste
12. Use electronic mail whenever possible to minimize paper waste
13. Use double sided copies to minimize use of paper
14. Turn off lights and equipment when not in use to reduce energy consumption

Worcester Polytechnic Institute / McNeil Project Group
Brooke Clark, Jeremiah Pratt, Dave Silva

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Microbiologist
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to biological waste handling
4. Prepare, handle, and dispose of media, testing materials, and equipment in a manner that protects the environment
5. Propose methods to minimize waste
6. Sterilize by autoclaving biological wastes generated by analysis
7. Identify any non-sterile waste or equipment by using the universal biohazard label
8. Maintain records of generated and sterilized biological waste
9. Define storage areas for sterilized and non-sterilized biological waste
10. Identify sterilized biological waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Microbiology Lab Technician
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard, and any other recyclable material
3. Be aware of and participate in training related to biological waste handling
4. Prepare, handle, and dispose of media, testing materials, and equipment in a manner that protects the environment
5. Propose methods to minimize waste
6. Sterilize by autoclaving biological wastes generated by analysis
7. Identify any non-sterile waste or equipment by using the universal biohazard label
8. Maintain records of generated and sterilized biological waste
9. Define storage areas for sterilized and non-sterilized biological waste
10. Identify sterilized biological waste
11. Use electronic mail whenever possible to minimize paper waste
12. Use double sided copies to minimize use of paper
13. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Analytical Lab Supervisor
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard, and any other recyclable material
3. Coordinate and maintain training programs related to hazardous waste handling
4. Ensure the identification and separation of carcinogens
5. Create programs for the preparation, handling, and disposal of testing materials and equipment in a manner that protects the environment
6. Implement methods to minimize waste
7. Enforce recycling or reuse of paper, glass, cardboard and any other recyclable material
8. Identify containers of hazardous waste
9. Ensure maintenance of generated chemical waste records
10. Define separate storage areas for the disposal of solid and liquid hazardous waste
11. Maintain organized and identified hazardous satellite accumulation areas
12. Keep containers of hazardous waste closed tightly
13. Do not mix hazardous and non-hazardous waste
14. Ensure that all drums are labeled with a listing of its contents, void spaces within drums are filled with a suitable absorbent material, and incompatible chemicals are not stored in the same drum
15. Use electronic mail whenever possible to minimize paper waste
16. Use double sided copies to minimize use of paper
17. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Sr. QA Analyst 2nd Shift
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous waste handling
4. Identify and separate carcinogens
5. Prepare, handle, and dispose of testing materials and equipment in a manner that protects the environment
6. Propose methods to minimize waste
7. Identify containers of hazardous waste
8. Maintain records of generated hazardous waste
9. Dispose of solid and liquid hazardous waste in separate storage areas
10. Maintain organized and identified hazardous satellite accumulation areas
11. Keep containers of hazardous waste closed tightly
12. Do not mix hazardous and non-hazardous waste
13. Label all drums with a listing of its contents, fill void spaces within drums with a suitable absorbent material, and do not store incompatible chemicals in the same drum
14. Use electronic mail whenever possible to minimize paper waste
15. Use double sided copies to minimize use of paper
16. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	QA Analyst
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous waste handling
4. Identify and separate carcinogens
5. Prepare, handle, and dispose of testing materials and equipment in a manner that protects the environment
6. Propose methods to minimize waste
7. Identify containers of hazardous waste
8. Maintain records of generated hazardous waste
9. Dispose of solid and liquid hazardous waste in separate storage areas
10. Maintain organized and identified hazardous satellite accumulation areas
11. Keep containers of hazardous waste closed tightly
12. Do not mix hazardous and non-hazardous waste
13. Label all drums with a listing of its contents, fill void spaces within drums with a suitable absorbent material, and do not store incompatible chemicals in the same drum
14. Use electronic mail whenever possible to minimize paper waste
15. Use double sided copies to minimize use of paper
16. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	QA Technicians (Incoming)
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous waste handling
4. Identify and separate carcinogens
5. Prepare, handle, and dispose of testing materials and equipment in a manner that protects the environment
6. Propose methods to minimize waste
7. Identify containers of hazardous waste
8. Maintain records of generated hazardous waste
9. Dispose of solid and liquid hazardous waste in separate storage areas
10. Maintain organized and identified hazardous satellite accumulation areas
11. Keep containers of hazardous waste closed tightly
12. Do not mix hazardous and non-hazardous waste
13. Label all drums with a listing of its contents, fill void spaces within drums with a suitable absorbent material, and do not store incompatible chemicals in the same drum
14. Use electronic mail whenever possible to minimize paper waste
15. Use double sided copies to minimize use of paper
16. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Analytical Lab Technician
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Be aware of and participate in training related to hazardous waste handling
4. Identify and separate carcinogens
5. Prepare, handle, and dispose of testing materials and equipment in a manner that protects the environment
6. Propose methods to minimize waste
7. Identify containers of hazardous waste
8. Maintain records of generated hazardous waste
9. Dispose of solid and liquid hazardous waste in separate storage areas
10. Maintain organized and identified hazardous satellite accumulation areas
11. Keep containers of hazardous waste closed tightly
12. Do not mix hazardous and non-hazardous waste
13. Label all drums with a listing of its contents, fill void spaces within drums with a suitable absorbent material, and do not store incompatible chemicals in the same drum
14. Use electronic mail whenever possible to minimize paper waste
15. Use double sided copies to minimize use of paper
16. Turn off lights and equipment when not in use to reduce energy consumption

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McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	SR Documentation Supervisor
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
7. Recycle or reuse paper, glass, cardboard and any other recyclable material
8. Use electronic mail whenever possible to minimize paper waste
9. Use double sided copies to minimize use of paper
10. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Mfg. Doc. Coordinator
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Label Room Technician
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Disposition Coordinator
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeiL
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Doc. Review Technician
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeiD

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Quality Engineer Supervisor
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Ensure that employees use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Quality Engineer
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil
Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	QE Computer System Specialist
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

McNeil

Consumer Healthcare

Environmental Recommendations for Revision of Job Description

Title:	Quality Engineering Technician
Department:	Quality Assurance

Recommendations:

Environmental Responsibilities:

1. Use all office materials efficiently
2. Recycle or reuse paper, glass, cardboard and any other recyclable material
3. Use electronic mail whenever possible to minimize paper waste
4. Use double sided copies to minimize use of paper
5. Turn off lights and equipment when not in use to reduce energy consumption

Appendix B

McNeil Consumer Products Company, a division of Johnson & Johnson, is a manufacturer of nonprescription pharmaceuticals, including all lines of Tylenol® and Motrin®. There are currently two plants, one located in Fort Washington, PA and the second in Las Piedras, Puerto Rico. The two plants operate with 1,500 and 1,800 employees, respectively.

McNeil offers a wide range of products for various conditions. The products include arthritis relief medication, children's pain relievers, sinus pain relievers, cough/cold preparations, anti-diarrheal remedies, children's vitamins, lactose-intolerance products, and most recently, a series of products to help consumers stop smoking. In six out of nine categories, McNeil leads the markets. These include Adult Analgesics (TYLENOL®), Sinus (TYLENOL® Sinus), Children's Analgesics (Children's TYLENOL®), Anti-diarrheal Products (IMODIUM® A-D), Lactase Enzyme Supplements (LACTAID®), and Pediatric Ibuprofen (Children's MOTRIN®). The number-one ranked pediatrician-recommended cough and cold product for infants is McNeil's PEDIACARE®.

The following corporate history for McNeil was compiled from the World Wide Web:

In 1879 Robert McNeil opened 'McNeil's Pharmacy' in Philadelphia, where he manufactured and sold medications to hospitals and doctors throughout the city. In 1904 Robert McNeil's son began his 50-year management career at McNeil, shifting the business away from retail and into the expanding pharmaceutical market. In 1933 The firm was incorporated into McNeil Laboratories, specializing in the direct marketing of prescription pharmaceuticals to doctors, pharmacists and hospitals. In 1955 McNeil introduced TYLENOL acetaminophen elixir for children -- the first aspirin-free pain reliever.

In 1959 Johnson & Johnson purchased McNeil Laboratories and acquired TYLENOL, its flagship product line, in one of the biggest acquisitions of that year. McNeil moved to one of its current facilities, a 110-acre facility in Fort Washington, Pa. In 1960 TYLENOL elixir became available over-the-counter. In 1975 Extra Strength TYLENOL®, which delivers 33 percent more acetaminophen per dose, was added to the non-prescription TYLENOL line. In 1978 The company was divided into two separate organizations -- McNeil Consumer Products Company, which provided over-the-counter products for retail sales, and McNeil Pharmaceuticals, which continued the research and marketing of prescription products. In 1979 TYLENOL became the nation's best-selling product in the health and beauty aid category, surpassing Crest® toothpaste, the 18-year leader. In 1982 McNeil expanded the TYLENOL line with the introduction of TYLENOL Sinus and Children's CoTYLENOL®. In 1986 McNeil created and

introduced the "caplet," a solid dosage form of TYLENOL, to replace the capsule. In

1988 McNeil introduced one of its most innovative forms of drug delivery -- the

TYLENOL gelcap.

In 1993 McNeil acquired the marketing rights to prescription Children's Motrin®,

the leading brand of pediatric ibuprofen. In 1995 Children's Motrin became the first

pediatric brand of ibuprofen to be available over-the-counter (OTC). In 1996, the

company received FDA clearance to market its NICOTROL® NS, the first prescription

nicotine nasal spray.   McNeil also set another benchmark in the smoking-cessation

market, when it became the first company to receive FDA clearance to sell a nicotine

patch OTC. In 1997, Strengthening its position as a world leader in pain relief products,

McNeil acquired the worldwide over-the-counter marketing rights to adult Motrin.

Motrin was the first ibuprofen brand to receive U.S. Food and Drug Administration

clearance for marketing in the U.S.

Along with the increasing societal interest in environmental protection, In 1992

McNeil established its own program in which the issues of pollution prevention would be

addressed. McNeil set up specific goals to achieve pollution prevention. Some of the

many steps in the process involved moving to a water based cleaner as opposed to the

solvent they had been using, installing climate control systems and energy efficient

lighting, and conformance to the Energy Star Standards. McNeil also began to recycle

various materials on a large scale. It also patented GELKOTE, a process in which

products are covered in a gel. This process reduces waste and the byproducts are useful

as animal food. The company is currently attempting to receive ISO 14000 certification.

Because of the improvements, McNeil reduced its water and waste water by 7.3 million gallons. McNeil reduced its solid waste by 1,018 tons by recycling. McNeil also saved 769 million BTU of energy. This means that, annually, the company saves $2.6 million, with a savings of $92,000 in water and wastewater costs and $112,000 from reducing and recycling waste streams.

McNeil Consumer Products in Las Piedras won an award in 1996 for the best industrial waste treatment plant. The award was given by the Puerto Rico Water Environment Association. McNeil was selected for its use of wastewater for cooling purposes, for its strict compliance to regulations, and for treatment of the waste water.

The information for Appendix A was taken from the following sources, which also appear in the reference section.

http://www.dep.state.pa.us/gov-awards/winners/20.htm
http://www.climadata.com/profile/mcneil.htm
http://www.johnson-and-johnson.com
http://www.dep.state.pa.us/dep/DEPUTATE/POLLPREV/P2_Features/govawards1998
http://releases.twoten.press.net/releases/date/1997/06/05/BUSINESS-Pain_Reliever.htm

Logs

McNeil *Consumer Healthcare*

Appendix C is a complete log of our daily activities at McNeil Consumer

Company.

McNeil Logs

Consumer Healthcare

Subject:	Second day

Entry Type:	Note
Company:	McNeil

Start:	Tue 3/16/99 8:00 AM
End:	Tue 3/16/99 5:00 PM
Duration:	9 hours

First day:

We got picked up at 2:00 PM to go get the company car. We met with Nelson Cruz and went over some safety issues and dress codes. We got safety glasses. We requested a meeting time for Nelson, our advisors and us. Looks like Wednesdays but no set time yet. We met several other people that will help us when needed.

Second day:

8 AM training for Documentation, GMP, Safety, and Human Resources. We then visited the wastewater treatment facility. We visited the lab where they test the sludge for percent of water. Then we visited the professional building where our offices are. We met the people that we will be working next to. We took a tour of both the professional building gym and the McNeil gym. We left work at 3 so we could stop at Iron Age in Caguas to get safety shoes.

McNeil *Consumer Healthcare*

Subject:	Third day
Entry Type:	Note
Company:	McNeil
Start:	Wed 3/17/99 8:00 AM
End:	Wed 3/17/99 5:00 PM
Duration:	9 hours

8 AM meeting with the ISO 14000 team. Our plant tour schedule was decided on. We toured Utilities, Air Compression, Coating and Printing, Chem. lab, Microbiology lab, Granulation, Compression, Gel dipping.

Subject:	Fourth day
Entry Type:	Note
Company:	McNeil

Start:	Thu 3/18/99 8:00 AM
End:	Thu 3/18/99 5:00 PM
Duration:	9 hours

Accomplished:

8:30 tour of the warehouse area with Jaime Villalobos. We requested confirmation for the job descriptions we had obtained. We found that there was an individual already working on job descriptions, however this individual is not involved in environmental issues. The revisions of the job descriptions are only to confirm that they are accurate.
We toured the chewable area.
We began working on the revisions to the Literature review. First tasks are to read completely the review and make notes as to what to add, change, or delete.

General Notes:	9 AM meeting Wednesday the 24 with lady who revises job descriptions.
Group Member:	JW
Heading:	McNeil ISO 14000

Notes for Tomorrow:

Continue with the initial steps of revising the Literature review. JW page7
Obtain safety training for professional building.
Get situated into our office in the professional building.
Tour the packaging area.

Does McNeil use an outside consultant or is it completely internal?
No, not really. They use an internal consultant named Jean Fullerton. She is a J and J employee, but not specifically a McNeil employee. She has extensive experience in the ISO 14000.

Did the Whole team receive ISO 14000 training?
Yes, The environmental department received outside ISO 14000 training. The other team members received training via Jean Fullerton.

Is 11:00 on Wednesday alright for a meeting time starting the 24th?
Wednesday sounds good to Gerson, but Nelson is out until Monday.

All answers from Environmental Engineer, Gerson.

McNeil **Logs**

Consumer Healthcare

Subject: Fifth day
Entry Type: Note
Company: McNeil

Start: Fri 3/19/99 8:00 AM
End: Fri 3/19/99 12:00 AM
Duration: 4 hours

Accomplished: Continued to review the Literature review. Toured the packaging area.
General Notes: Possibility of the training program we will work on being one for new
                      employees since there is no current initial ISO training.
Group Member: JW
Heading: McNeil ISO 14000
Notes for Presentation: The outside consultant was brought in to do a gap analysis.
Notes for Tomorrow: Finish reviewing literature review.

                      Elaborate on the gap analysis?

Subject:	Sixth day
Entry Type:	Note
Company:	McNeil
Start:	Mon 3/22/99 8:00 AM
End:	Mon 3/22/99 5:00 PM
Duration:	9 hours

Accomplished:

Meeting for Wednesday set up. 11:00 AM in the administrative conference room. We moved into our offices in the professional building. We finished reviewing the literature review and began to revise it. We found a source of information on environmental laws in Puerto Rico that we will include as a reference. We decided to add a new section to the literature review to accommodate the environmental laws source.

We inquired briefly as to a more detailed description of our project. Nelson told us that we should research the given environmental aspects and make recommendations as to how they should be incorporated into the job descriptions which currently contain nothing on environmental issues.

As it seems, we will need to determine which aspects apply to a given area, interview the people in the area, and recommend additions to the job descriptions accordingly.

General Notes:

Brooke needs to fix the lists.
Standardize all titles.
Standardize all citations for spacing and commas.

Group Member:	JW
Heading:	McNeil ISO 14000

Notes for Tomorrow:

Add source from environmental laws to our reference section.
Continue to revise the literature review.
start to gather information necessary to incorporate environmental aspects into the job descriptions.

How many members are there in an ISO committee. Lit review page 10.

McNeil

Consumer Healthcare

Logs

Subject:	Seventh day
Entry Type:	Note
Company:	McNeil

Start:	Tue 3/23/99 8:00 AM
End:	Tue 3/23/99 5:00 PM
Duration:	9 hours

Accomplished: Standardized the lists throughout the literature review. Searched the McNeil Website. Wrote up our own interpretation of our project and what we think the current methodology looks like (see "weekly meeting" on Weds March 24th). Got ISO 14001 notebook with all current data included from Nelson, includes attendance to the 14001 meetings, discussions... Also got a notebook from Gerson that includes the gap analysis done by an outside auditor, very good material included!

General Notes:	To scan something talk to Lidia Mercado.
Group Member:	Brooke
Heading:	McNeil ISO 14000
Notes for Presentation:	

Find out what presentation is on?
What we have done at McNeil so far

Dress, casual?
Yes

Overheads?
No

Same as ID or what we have done so far??
What we have done so far

Do we need to include all the info we have already provided the audience with??
No

Notes for Tomorrow: Find out who the Lab Supervisor is for the Microbiologist lab
Set up meeting with Microbiologist Lab Supervisor

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McNeil

Consumer Healthcare

Logs

Subject:	Eighth day
Entry Type:	Note
Company:	McNeil
Start:	Wed 3/24/99 8:00 AM
End:	Wed 3/24/99 5:00 PM
Duration:	9 hours

Accomplished:

We were introduced to the engineering staff at McNeil, so that when or if we had questions, they would know who we were and we would be familiar with them.

We also had our first liaison/advisor meeting. Addison and Cruz both spoke extensively with us in determining what the grand scope of our project was. We set up a meeting with Nelson at 2:30 today to help us with a plan of attack for accomplishing interviews with different areas and determining which departments to focus on and in which order.

We also set up the meeting with the legal consultant for Friday at 10 AM because she was unable to attend today's meeting.

General Notes:

General Procedure: from Nelson Cruz

1. Meet with supervisor to confirm organizational chart.
2. Check to see if we have a job description for every branch of the organizational chart. List recommendations for an environmental section of the job description.
3. Submit recommendations to supervisor for review.

All managers must include responsibility for training, policy, and record keeping.

All operators should include record keeping for disposal and packaging of waste.

Group Member:	Dave
Heading:	McNeil ISO 14000

Notes for Presentation:

We should have some interviews under our belt by Friday so that we can explain the format of the interviews and what we are trying to gather from the employees to our audience.

Notes for Tomorrow: We should interview areas of McNeil tomorrow, or at least set up times and dates for future interviews with different departments and specific employees.

McNeil

Consumer Healthcare

Logs

Subject: 9th Day
Entry Type: Note
Company: McNeil

Start: Thu 3/25/99 8:00 AM
End: Thu 3/25/99 5:00 PM
Duration: 9 hours

Accomplished: Figured out how we will work our project. Fixed the logs and saved them as
                      word documents. Set up a template for entering our recommendations for the
                      job descriptions. Set up a template to organize our parts of the presentations.
                      We called the microbiology lab and left a message for someone to call us to
                      set up a meeting time. We called and left a message for Nelson asking about
                      how many people would be in attendance for our final presentation. Read
                      over the microbiology job descriptions. Began to plan out our presentation for
                      tomorrow night.
General Notes: Get the green notebook on policies from Gerson. Copy the information from
                      the board in Nelson's office.
Group Member: JW
Heading: McNeil ISO 14000
Notes for Tomorrow: Project: On way home and back in San Juan work on Project
                      Presentation. Book a room for the final presentation as soon as we find out
                      an approximate number.

                      How long has the ISO team been working on the implementation?

Logs

Subject: 10th day
Entry Type: Note
Company: McNeil

Start: Fri 3/26/99 8:00 AM
End: Fri 3/26/99 5:00 PM
Duration: 9 hours

Accomplished: We met with Nareda, there was a miscommunication, we got Nelson, the two
                  discussed the matter, final decision... We will work on the same dept as her,
                  then we will present her with a folder of recommendations for that particular
                  dept. She will translate them (or Nelson will find someone else to, we don't
                  have to!) and add them into the current job descriptions as an appendix!
                  (after she revises them of course!)

                  Met with Wanda and Angel from the microbiology and the chem. labs
                  respectively

                  Set up two meetings for Monday one at 9 and the other at 3. (Wanda then
                  angel)

                  Made copies of the newly revised QA job descriptions, Nareda has already
                  finished these
General Notes: Engineering is next topic
Group Member: Brooke
Heading: McNeil ISO 14000
Notes for Presentation: GOOD LUCK THIS AFTERNOON!

Subject:	11th Day
Entry Type:	Note
Company:	McNeil

Start:	Mon 3/29/99 8:00 AM
End:	Mon 3/29/99 5:00 PM
Duration:	9 hours

Accomplished:

We had two meetings, one in the morning at 9:00 with Wanda Cancel, supervisor of the Microbiology section of the QA department, and one at 3:00 with Raul Miranda, supervisor of the analytical lab, and his assistant Nancy Crooke, senior quality analyst.

Both meetings went very well, and both sections of the QA department have correct organizational charts. The aspects of the analytical lab, however, did not go into as much detail as the microbiological lab. We came up with some more aspects for that section, many of which overlapped with the micro lab.

We finished the first drafts of the micro lab recommendations and gave them to Nelson to read over.

We also set up two more meetings for tomorrow, the first at 9:00 with Armando Fajardo, supervisor of the Quality Engineering section of the Quality Assurance department, and the second at 10:00 with Annie Carrion, supervisor for the Documentation Control section of QA.

General Notes:
QA-Micro-LS..........Lab Supervisor
QA-Micro-MB.........Microbiologist
QA-Micro-LT..........Lab Technician

Group Member:	Dave
Heading:	McNeil ISO 14000
Notes for Tomorrow:	Meetings

9:00 Armando Fajardo, Quality Engineering, QA
10:00 Annie Carrion, Documentation Control, QA

McNeil Logs

Consumer Healthcare

Subject:	12th Day
Entry Type:	Note
Company:	McNeil
Start:	Tue 3/30/99 8:00 AM
End:	Tue 3/30/99 5:00 PM
Duration:	9 hours

Accomplished: Met with Armando Fajardo (Quality Engineering Supervisor) and Annie Carrion (Documentation Supervisor). They both gave us information, enough to write the rough draft of our recommendations. Worked on interview write ups, finished them all, clear slate now for interviews, now we just need to do the recommendations for the 3 departments of QA that we have already gotten info for! We talked to Jean Fullerton, she loved our proposal, she wants it on disk to keep!! Wow! We are authors now! She also suggested we use the policy notebook from J&J towards our final paper! We also worked on our methodology, the boys revised it and printed it again, revised it one more time! Tried to set up meeting with Carmen, the compliance lady for the QA compliance dept. She wasn't in, not till tomorrow, we will try then!

General Notes: Motion to leave work early... Motion denied.

Group Member:	Brooke :)
Heading:	McNeil ISO 14000
Notes for Tomorrow:	Go to ISO meeting at 8am (at the Video Room)

Call Cecilia at 9am to set up quick meeting with Carmen sometime today! Or Monday!
She will be around on Monday!

Meet Jean Fullerton at 9, for Dave and lotus notes

Meet Addison and Rissmiller at 11am for weekly meeting

Write up the recommendations for QA Analytical and QA Engineering and QA Documentation, set up meeting with Compliance (Cecilia)

McNeil

Consumer Healthcare

Logs

Subject:	13th Day
Entry Type:	Note
Company:	McNeil
Start:	Wed 3/31/99 8:00 AM
End:	Wed 3/31/99 5:00 PM
Duration:	9 hours

Accomplished: 8am meeting with ISO team, then 11am meeting with advisors and liaisons, 1:30 plant wide meeting, then brought Gerson to Hato Rey for his car

General Notes: 8am meeting went well, the ISO team will from now on, split up who is in charge of the meeting, Nelson usually does it, but he wants to get everyone involved, so he assigned the next three coordinators.

11am meeting was great, see Weekly Meeting

1:30 meeting, was just a three hour very long farewell to their General Manager, he is leaving to take a job at Jansen in the U.S. Interesting to see how much these employees will miss him. Lots of tears, lots of hugs and lots of presents!

Group Member:	Brooke
Heading:	McNeil ISO 14000

McNeil

Consumer Healthcare

Logs

Subject:	14th Day
Entry Type:	Note
Company:	McNeil
Start:	Thu 4/1/99 8:00 AM
End:	Thu 4/1/99 12:00 PM
Duration:	4 hours

Accomplished: Registered for classes. Finished revising methodology. Left at noon, today was considered our "meeting day"

Group Member: Brooke

Heading: McNeil ISO 14000

Notes for Presentation: Brooke wanted to remember about that the purpose of revising job descriptions comes in at the structure and responsibility part of the ISO document (ISO handbook, structure and resp, for job description, provides the correlation between ISO 14000 and revising job descriptions)

McNeil Logs

Consumer Healthcare

Subject:	15th Day
Entry Type:	Note
Company:	McNeil
Start:	Mon 4/5/99 8:00 AM
End:	Mon 4/5/99 5:00 PM
Duration:	9 hours

Accomplished: Set up meeting room for Final Presentation
May 4th, 1:30 Coating and Printing Lab

Interviewed Vilma Bermudez from the QA Compliance Dept.

Discussed the previously written recommendations with Nelson Cruz, made the corrections to them (see meeting with Nelson for more details)

(Got lit review back from advisors Sunday)

Group Member:	Brooke
Heading:	McNeil ISO 14000

McNeil

Logs

Subject:	16th Day
Entry Type:	Note
Company:	McNeil
Start:	Tue 4/6/99 8:00 AM
End:	Tue 4/6/99 5:00 PM
Duration:	9 hours

Accomplished: updated log, wrote up meeting reports also in the log about the meetings we had yesterday, with QA Compliance and Nelson. See those meetings for more details

Group Member:	Brooke
Heading:	McNeil ISO 14000

Notes for Presentation: write up agenda sheet for meeting tomorrow

Notes for Tomorrow: Prepare for the meeting with Prof. VG, Assistant Provost Durgin, and Natalie Mello, as well as our advisors.

Question:

are supervisors in charge of making sure their employees do all the general training or are they solely in charge of the training specific for their dept.?

McNeil

Consumer Healthcare

Logs

Subject:	17th Day
Entry Type:	Note
Company:	McNeil
Start:	Wed 4/7/99 8:00 AM
End:	Wed 4/7/99 5:00 PM
Duration:	9 hours

Accomplished: Finalized the drafts of the QA recommendations. Finalized plans for Vieques this weekend. Met with our advisors, Prof. VG, the GE group and the assistant provost. We ended the meeting on a good note and headed over to the McNeil cafeteria for lunch with the GE-WPI project group. We added more stuff to the logs. We also decided that tomorrow we would split up by one of us going to engineering to set up interviews with supervisors and another of us going back to QA to get their feelings and inputs on the latest drafts of the recommendations.

Group Member:	JW
Heading:	McNeil ISO 14000
Notes for Tomorrow:	Set up meetings with engineering.

McNeil

Consumer Healthcare

Logs

Subject:	18th Day
Entry Type:	Note
Company:	McNeil

Start:	Thu 4/8/99 8:00 AM
End:	Thu 4/8/99 5:00 PM
Duration:	9 hours

Accomplished: Returned to Wanda Cancel and Nancy Crooke to check the recommendations with them and ask them questions about their feelings towards the environmental process. Quick meeting with Brian Boyd to ask about the organizational chart of the Engineering department. Met with Nelson again to go over the recommendations further.

General Notes: From Nancy Crooke (we couldn't talk to Raul, he was busy!) and from Wanda Cancel we got a few of their dept employee names to go and ask them about what we have done and for their input, as extra!

MB Lab
Edna- MB
Jose Andres- MB
Vilda- Tech
Alvir- Tech

A Lab
Analyst
Lab Tech

Nancy also suggested that we go to Eva Pena to ask her about the new employee orientation training programs. We should mention that there should be one solely for environmental awareness.

Group Member:	JW
Heading:	McNeil ISO 14000
Notes for Tomorrow:	Ruff draft of results chapter.

McNeil — Consumer Healthcare

Logs

Subject:	19th Day
Entry Type:	Note
Company:	McNeil
Start:	Fri 4/9/99 8:00 AM
End:	Fri 4/9/99 5:00 PM
Duration:	9 hours
Accomplished:	We went to an environmental fair for the first couple of hours today. It was at central park in San Juan. We adopted a tree to plant. We then went to McNeil to finish the first draft of our results and conclusions chapter. We left at noon since it was a meeting day. We met with the advisors at 2:00 to go over our methodology.
Group Member:	JW
Heading:	McNeil ISO 14000

McNeil

Consumer Healthcare

Logs

Subject:	20th Day
Entry Type:	Note
Company:	McNeil
Start:	Mon 4/12/99 8:00 AM
End:	Mon 4/12/99 5:00 PM
Duration:	9 hours

Accomplished: Set up meeting with Armando Fajardo, QA, to get his input on the whole implementation. Wanda, Carmen, and Annie were all busy, we will try to set up meetings with them later today or tomorrow morning. Spoke with Nancy Crooke, she added a comment for the analytical lab, we will fix that and bring them back to her tomorrow. Dave worked on literature review, editing it. We still need to go back and make it flow as an essay rather than a pamphlet. J.W. and I went to an interview with Luis Diaz in the Engineering Dept. We didn't get to talk to him till 10:30, he was a bit late, a miscommunication problem. See meeting notes for details. J.W. and I felt a bit confused after the meeting, we will have to interview those underneath him to get a better idea as to how his dept operates. Called Nancy Crooke, asked her what she considers these wastes- hazardous, non-hazardous, if hazardous- nelson considers #7 to be inclusive of this, if non-hazardous- keep all gloves, kimwipes, and paper towels in a separate container, dispose of ... - she said HAZARDOUS, but she is looking into how they will dispose of it, with other solid chemical or by itself separately

Group Member: Brooke

Heading: McNeil ISO 14000

Notes for Tomorrow: Bring back corrections tomorrow to Nancy Crooke, then leave with her, show Raul. Make lit. review flow.

McNeil
Consumer Healthcare

Logs

Subject:	21st Day
Entry Type:	Note
Company:	McNeil
Start:	Tue 4/13/99 8:00 AM
End:	Tue 4/13/99 5:00 PM
Duration:	9 hours

Accomplished: Made a chart of all those we need to interview still, and those that we need to do a recall. J.W. called all of them, to set up interviews for the next couple of weeks. Set up a bunch of meetings. Worked on Lit. Review.

Group Member: Brooke

Heading: McNeil ISO 14000

Notes for Tomorrow: 8:30 Hector Davila
9 Hugh Davis
10 Emilio Escobar
11 Juan Carlos back of line 10

McNeil
Consumer Healthcare

Logs

Subject:	22nd Day
Entry Type:	Note
Company:	McNeil

Start:	Wed 4/14/99 8:00 AM
End:	Wed 4/14/99 5:00 PM
Duration:	9 hours

Accomplished: ISO meeting at eight AM was cancelled due to a lack of attendance. Brook and Dave took the 8:30 meeting with Hector Davila and the 9 AM meeting with Hugh Davis. JW and Dave had a meeting with Emilio Escobar at 10, while Brooke went to see Annie Carrion. Annie rescheduled for 1:00 PM and then again for tomorrow. Brooke and JW took the 11:30 meeting with Juan C. Lugo. JW and Dave had a meeting with Nelson Berdecia at 2:00 PM. We also finished the Lit review, the methodology, and began the analysis page in between all the interview meetings.

we set up a meeting with H. Davis for Monday at 10:30
we set up a meeting with N Berdecia for Monday at 2:00
we set up a meeting with H Davilla for Tuesday at 9:00
we set up a meeting with E Escobar for Wednesday at 10:00

Group Member:	JW
Heading:	McNeil ISO 14000
Notes for Tomorrow:	Set up a meeting with Annie Carrion.
	Set up meeting with Igneris Negron
	Set up a meeting with Carmen Diaz

McNeil Logs

Consumer Healthcare

Subject:	23rd Day
Entry Type:	Note
Company:	McNeil
Start:	Thu 4/15/99 8:00 AM
End:	Thu 4/15/99 5:00 PM
Duration:	9 hours

Accomplished: Started out the day with an interview at 8:30, Two at 9, and another at 10. Spent the majority of the remaining time entering in our notes on the meetings and trying to stay organized. We had a meeting at 1 with the project manager, who is not as enthusiastic about this process as the rest. We feel that there may be a bit of resistance here and will work toward a solution. We did get the information we needed to draft up the recommendations for his department. We are unsure how he will react if we bring them back to him to review. We also began drafting the recommendations that we had collected data for all week. We will continue drafting tomorrow until all recommendations are done that are possible at this point.

Group Member: JW
Heading: McNeil ISO 14000

McNeil **Logs**

Subject:	24th Day
Entry Type:	Note
Company:	McNeil
Start:	Fri 4/16/99 8:00 AM
End:	Fri 4/16/99 5:00 PM
Duration:	9 hours
Accomplished:	We Had a clear schedule for the day so we worked it out with our liaison that we would work at home to save two hours commuting. We work all morning until our weekly meeting. We finished all the recommendations that we had interviewed people for throughout the week. We also talked about our results conclusions and analysis chapters.
Group Member:	JW
Heading:	McNeil ISO 14000

McNeil

Consumer Healthcare

Logs

Subject:	25th Day
Entry Type:	Note
Company:	McNeil
Start:	Mon 4/19/99 8:00 AM
End:	Mon 4/19/99 5:00 PM
Duration:	9 hours

Accomplished: First interview with Mildred Guzman, the maintenance geldipping supervisor
Second interview with Hugh Davis, planning manager
First interview with Carmen Diaz, commodity manager
second interview with Armando Fajardo, QE supervisor
second interview with Nelson Berdecia, Bldg & Grds supervisor

Heading: McNeil ISO 14000
Notes for Presentation: Mention on site recycling program that McNeil has and that many
employees use to recycle their personal recyclable

McNeil Consumer Healthcare
Logs

Subject:	26th Day
Entry Type:	Note
Company:	McNeil
Start:	Tue 4/20/99 8:00 AM
End:	Tue 4/20/99 5:00 PM
Duration:	9 hours
Accomplished:	second meeting with engineering services coordinator, Hector Davilla
	second meeting with maintenance supervisor compression, Carlos Espinosa
	first meeting with packaging manager, Edwin Rosado
	first meeting with coating and printing manager, Modesto Negron
	second meeting with compliance specialist, Vilma Bermudez
Group Member:	Dave
Heading:	McNeil ISO 14000

McNeil
Consumer Healthcare

Logs

Subject:	27th day
Entry Type:	Note
Company:	McNeil

Start:	Wed 4/21/99 8:00 AM
End:	Wed 4/21/99 5:00 PM
Duration:	9 hours

Accomplished: JW went to the ISO meeting
second meeting with Human Resources Manager, Ramon Labarca
first meeting with purchasing supervisor, Zeneida Lopez
second meeting with materials manager, Emilio Escobar
weekly meeting with advisors, said we were making good progress, they also had a lot of suggestions for our paper. Passed back all our handed in work. Literature review, methodology, and analysis chapters.
first meeting with engineering utilities manager, Ildefonso Ayala
first meeting with sr. warehouse supervisor, Jaime Villalobos

Group Member: Dave
Heading: McNeil ISO 14000

McNeil **Logs**

Consumer Healthcare

Subject:	28th Day
Entry Type:	Note
Company:	McNeil
Start:	Thu 4/22/99 8:00 AM
End:	Thu 4/22/99 5:00 PM
Duration:	9 hours
Accomplished:	Mostly worked on paper today. We had a couple of interviews. One with IM and one with the plant comptroller.
Group Member:	Dave
Heading:	McNeil ISO 14000

McNeil   **Logs**

Consumer Healthcare

Subject:	29th Day
Entry Type:	Note
Company:	McNeil
Start:	Fri 4/23/99 8:00 AM
End:	Fri 4/23/99 5:00 PM
Duration:	9 hours

Accomplished: We worked in San Juan today. Mostly on recommendations. We were able to draft all the recommendations that we had interviews for this week. We also began to organize the final paper. We started to put all the logs into a single file as well as all the meeting notes. We also had a practice presentation in the evening. It went okay. Still needs work.

Heading: McNeil ISO 14000

McNeil

Consumer Healthcare

Logs

Subject:	30th Day
Entry Type:	Note
Company:	McNeil
Start:	Mon 4/26/99 8:00 AM
End:	Mon 4/26/99 5:00 PM
Duration:	9 hours

Accomplished: We split up the first few pages of the report. They are all individual files now. We also split the intro from the Lit review. We asked our liaison how he wanted the final report. He said double sided and bound. We printed out our Lit review double sided and it looks good. We were unable to have our meeting this morning with Ildafonso Ayala due to a time conflict in getting the recommendation finalized for his department. We will meet with him tomorrow. We met with Carmen Diaz in the afternoon for a second meeting. We began to discuss how the paper was coming and how our presentation will go. We decided that in the interest of time we will make rounds in the morning with the recommendations and question sheets and if people are not there or not available we will just leave them there for them to look over. Then we will stop back later.

Heading: McNeil ISO 14000

McNeil

Consumer Healthcare

Logs

Subject:	31st Day
Entry Type:	Note
Company:	McNeil

Start:	Tue 4/27/99 8:00 AM
End:	Tue 4/27/99 5:00 PM
Duration:	9 hours

Accomplished: We continued work on the paper. We are shooting to have it done for Thurs.

Group Member: Brooke
Heading: McNeil ISO 14000
Notes for Presentation: Do not forget to add that confidentiality thing into our analysis chapter
Notes for Tomorrow: call Nerada at 9
see Mildred at 10
Jaime at 10

McNeil

Consumer Healthcare

Logs

Subject:	32nd Day
Entry Type:	Note
Company:	McNeil

Start:	Wed 4/28/99 8:00 AM
End:	Wed 4/28/99 5:00 PM
Duration:	9 hours

Accomplished: Today we wrote up the recommendations for a few of the areas, and worked on different parts of the paper. We went over to McNeil to meet with some people. Mildred Guzman was in a meeting, we will see her tomorrow. Juan Carlos Lugo left us word that the recommendations are fine and he will get us the social impact sheet as soon as possible. Jose Sanchez was in a meeting, we will stop by tomorrow. Set up practice time in Coating and Printing Room via Annie Carrion for Monday at 10:30am until 12:00 noon. We went to see Jorge Colom, he gave us his input on the recommendations, see his meeting for notes. He also gave us his opinion on the implementation. We met with Jaime Villalobos, he did not have time for us, so we will see him tomorrow at 10:30am. Set up meeting with Aldalberto Fernandez, GDipping, for tomorrow at 11am. Talked to nurse for the plant about her environmental responsibilities, and how they use biohazard containers, etc.

Group Member:	Brooke
Heading:	McNeil ISO 14000
Notes for Tomorrow:	Go to Meetings with Jose Suarez, Mildred Guzman, Ileana Zavala, Aldalberto Fernandez

Go see Nelson for his 2nd Interview

Subject:	33rd Day
Entry Type:	Note
Company:	McNeil

Start:	Thu 4/29/99 8:00 AM
End:	Thu 4/29/99 4:00 PM
Duration:	8 hours

Accomplished: The paper is almost done. Brooke continued with her part. JW has been dealing with the formatting of the paper. I was finishing recommendations

Group Member: Dave

Heading: McNeil ISO 14000

Notes for Tomorrow: Try to finalize the last set of recommendations for engineering and manufacturing. Talk to luis huertas tomorrow. Need to write conclusions & recommendations chapter and executive summary.

McNeil   **Logs**

Consumer Healthcare

Subject:	34th day
Entry Type:	Note
Company:	McNeil
Start:	Fri 4/30/99 8:00 AM
End:	Fri 4/30/99 4:00 PM
Duration:	8 hours

Accomplished: Finished as many recommendations as we could. Put finance in the done pile after talking to Luis Huertas. Two more departments to go, and they are only steps away from being done. JW continued with the formatting of the paper and brooke continued with her "On the Inside"

Group Member: Dave

Heading: McNeil ISO 14000

Notes for Tomorrow: Get results from Walter Santiago, Edwin Ramos, email Jorge Ros, his finished department. Talk to Brian Boyd about engineering. Get Nelson's input for social page. Write executive summary and Conclusions and Recommendations.

Appendix D

Appendix D is a complete journal of all our interviews and meetings. The information in this journal is the basis for our recommendations.

McNeil — *Consumer Healthcare*

Subject:	Weekly meeting
Entry Type:	Meeting
Company:	McNeil

Start:	Wed 3/24/99 11:00 AM
End:	Wed 3/24/99 11:00 AM
Duration:	1 hour

Last week to this week: Picked up the company car. Attended training in the areas of Documentation, GMP, Safety, and Human Resources. Got set up in our offices. Got a pair of safety shoes. We stopped for gas twice and retained the receipts from the gas and from the toll booths. We had a meeting with the ISO 14000 team to set up times for us to tour different areas. We toured the entire plant. We found that there is an individual already working on reviewing the job descriptions, however, the environmental part of the jobs are not taken into account. We have a meeting with this individual Wednesday morning around 9:15. We began to revise our literature review. We decided to add a section on the environmental laws in Puerto Rico.

This week to next week: Reserve a room for the presentation. Begin to revise our methodology. Visit the Microbiology lab to talk to the supervisor and get the management structure of the department. Begin to find the environmental aspects relative to the specific jobs.

Project by JW: Reviewing job descriptions and making recommendations to include environmental aspects. In order to accomplish this we will have to: obtain current job descriptions, identify pertinent environmental aspects, interview employees as to how the environmental aspects are handled, organize the collected data as a recommendation.

Project Statement by Brooke: To research a particular department of the McNeil Company well enough to be able to put together a pamphlet of recommendations toward revised job descriptions. The recommendations will have to be specific to environmental aspects and impacts. Each recommendation will be specific for a job title and will conform to the standards of ISO 14001.

Project Goal by Brooke: To complete a well-organized pamphlet for as many departments of McNeil as possible. It will have a special template setup which we be standard for each recommendation

Methodology by Brooke:
1. pick a department
2. get the organizational chart
3. confirm chart with supervisor
4. set up meeting with supervisor
5. review env. aspects/impacts
6. read over previous job descriptions to see if the chart matches them or what needs to be added deleted (ask supervisor for
    confirmation at next meeting)
7. try to come up with some recommendations
8. talk to ISO team, Gerson, Nelson for approval (or help with) of our recommendations

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9. Meet with supervisor
-show him our ideas
-ask for any revisions he may have
-be sure to have info on each job title and find out what blocks have the same job description
-ask if we should talk to anyone below him
10. Revise our recommendations
11. Give to Nelson, Gerson, ISO team for final review
12. start again! :)

Interview Notes
&
Meeting Minutes

Subject:	QA Microbiology
Entry Type:	Meeting
Contact:	Wanda Cancel
Company:	McNeil
Start:	Mon 3/29/99 9:00 AM
End:	Mon 3/29/99 10:00 AM
Duration:	1 hour

Meet with Wanda Cancel in her office in the Micro Lab at 9am Monday morning!

Bring: Organizational Chart
Environmental Impacts/Aspects Sheet
Previous Job descriptions

The Meeting:

Met with Wanda Cancel at 9am. We talked about our project and then began the discussion.

The organizational chart is correct, the Quality Assurance Microbiology Department consists of a Lab Supervisor, Microbiologists, and Lab Technicians. Wanda went over our environmental aspect list and matched up those aspects/impacts with the particular job title that it pertained to.

Microlab Supervisor
Training
Water system
Gelatin
Swabs
Media Preparation
M-endo Agar
Organisms Identification
Raw Materials & Products
Housekeeping
Biological Waste
Autoclave

Microbiologist
Water system
Gelatin
Swabs
Media Preparation
M-endo Agar
Organisms Identification
Raw Materials & Products
Housekeeping
Biological Waste
Autoclave

Lab Technician
Water system

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Gelatin
Swabs
Media Preparation
Raw Materials & Products
Housekeeping
Biological Waste
Autoclave

The supervisor has to be familiar with the processes and be trained to use them, but does not generally come in contact with the bench testing.

The supervisor is also responsible for all training and update of SOPs

The sr. tech is the tech with the most experience

There are 9 lab tech temps who do the same thing as the permanent workers and also have the same job descriptions

There are SOPs for all processes

Vilma Bermudez ext. 7632 deals with certification, lesson plans, and job descriptions

McNeil
Consumer Healthcare

Interview Notes
&
Meeting Minutes

Subject:	QA Analytical
Entry Type:	Meeting
Contact:	Angel R. Miranda
Company:	McNeil
Start:	Mon 3/29/99 3:00 PM
End:	Mon 3/29/99 4:00 PM
Duration:	1 hour

Meet with Angel Miranda at 3pm on Monday afternoon in his office

Bring: Previous Job Descriptions
Environmental Aspects/Impacts Sheet
Organizational Chart

Meeting:

Met at 3pm with Angel R. Miranda to discuss his department. He introduced us to Nancy Crooke, the 2nd shift Supervisor (known as the Senior Analyst). She confirmed the structure of the department that we had been given previously. Then we began the discussion.

The main hazardous wastes are methanol and acetonitrile.

The other wastes consist of the following hazardous materials:

Organic	Inorganic
dilute chloroform	sodium hydroxide
dilute ether	thioacetamide iodine
reagent alcohol	glycerin base ts
	acetate buffer
	potassium chromate
	silver nitrate
	crystal violet ts
	methyl red ts
	sodium thiosulphate
	EDTA
	zinc sulfate

The incoming hazardous material is alcohol.

Job Titles:

QA Analytical Supervisor

Responsible to ensure that all employees follow the following:

Training
Water System
Swabs- cleaning, validations (w/ methanol)
Housekeeping- outside contractor
Documentation

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Wastes- disposal of methanol and acetonitrile

QA Analyst

Responsible for the following:

Water System
Swabs- cleaning, validations (w/ methanol)
Housekeeping- outside contractor
Documentation
Wastes- disposal of methanol and acetonitrile

QA Lab Technician

Water System
Swabs- cleaning, validations (w/ methanol)
Housekeeping- outside contractor
Documentation
Wastes- disposal of methanol and acetonitrile

2 lab techs deal with acetonitrile, but they have the same job description as the rest of the lab techs, so we'll write both chemicals down

Only lab techs with experience/training can work with the HPLC (all analysts can!)

Non-hazardous materials (including cardboard, paper, ink cartridges, and other) have also been identified as an environmental aspect, with conservation of resources as its impact on McNeil

***When writing up the recommendations, be sure to include the non-hazardous components and how all employees in this department should conserve natural resources

***When writing up the recommendations, be sure to include that those analysts with designated projects (given by the supervisor) follow all environmental policies while working on them

***When writing up the recommendations, be sure to check that satellite thing out, ask Brooke Its a storage for solid waste, they have satellite ones for liquid, how about for solid?

William Melendez ?? Ask Dave

Interview Notes
&
Meeting Minutes

McNeil — Consumer Healthcare

Subject:	Quality Engineering
Entry Type:	Meeting
Contact:	Armando Fajardo
Company:	McNeil

Start:	Tue 3/30/99 9:00 AM
End:	Tue 3/30/99 9:30 AM
Duration:	30 minutes
	Meeting:

Met Armando Fajardo at 9:10am, we first spoke about our project and then Armando told us a little bit about each QA Dept. Then we got to his dept. Then we began our environmental meeting.

Quality Engineering

Quality Engineer (process oriented)	1
QA Computer Specialist	2
Technicians	2

Total:	5 employees in the Dept.

Environmental Aspects:	Environmental Impacts:
Non-hazardous office wastes resources (i.e. paper)	Conservation of natural

***For this aspect, the company recycles, there are recycling bins all around, as well as confidentiality bins, too. Those are shredded while all the regular paper is recycled.

***Technicians are responsible for the evaluation of the machines, they must report the well-being of the machine.

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Interview Notes
&
Meeting Minutes

Subject:	QA Documents
Entry Type:	Meeting
Contact:	Annie Carrion
Company:	McNeil
Start:	Tue 3/30/99 10:00 AM
End:	Tue 3/30/99 10:30 AM
Duration:	30 minutes

Met Annie in her office at 9:55am. We introduced ourselves, and then began the discussion with her. She first told us about her dept. And then we told her what we would be doing and how it would affect her. We told her we would make a recommendation to her departments employee's job titles, and then we would take any input she may have.

She is responsible for the updating of the SOP's and she is also responsible for her dept.'s proper disposal of non-hazardous waste. (paper, office supplies...)

Same deal here with the recycling. Two ways to dispose of paper, seen below:

One: Regular paper, simply recycle
Two: confidential, put in marked basket

Interview Notes
&
Meeting Minutes

Subject:	Weekly
Entry Type:	Meeting
Company:	McNeil
Start:	Wed 3/31/99 11:00 AM
End:	Wed 3/31/99 12:00 PM
Duration:	1 hour
	Weekly Meeting

Gerson, Nelson, Addison, Rissmiller, us

Heart of this project: the social and technological interface, the impact of implementing this system into this company, revising job descriptions, so we need to consider the legal factors as well as the employees' attitudes

These working people need to be trained and the environmental issues need to be addressed. They need to be educated so when/if an auditor evaluates their dept. and asks them what they know about the ISO implementation, they will be able to present some info and an opinion

Subject:	QA compliance
Entry Type:	Meeting
Contact:	Carmen Andino
Company:	McNeil
Start:	Mon 4/5/99 1:00 PM
End:	Mon 4/5/99 1:30 PM
Duration:	30 minutes

Carmen Andino, the QA Sr. Compliance Supervisor, was not available to speak with, so she referred us to the Compliance Specialist, Vilma Bermudez. She was very helpful and provided us with the following information.

When she reviewed the organizational chart, she informed us that there were two positions missing.

     Compliance Technicians - Compliance Dept.
     QE Technicians - QE Dept.

She added them in to our chart, we will make Nelson and Nareda aware of this.

Also from the organizational chart she pointed out to us a few name changes.
     QA Lab Technicians --> Micro Lab Technicians
     Lab Technicians --> Analytical Lab Technicians
     QA Computer System Specialists --> QE Computer System Specialists

We will make sure that Nelson and Nareda are also aware of this.

QA Compliance Sr. Supervisor
-approve or coordinate training for employees
-record keeping/reviews
-aware of all hazardous materials that come into contact somehow with her dept/employees
-use email
-use 2 sided copies (recycling purposes)

Compliance Specialist
-

QA Technician Packaging
-aware of hazardous materials
- that one about checking into training programs for yourself?
-email
-2 sided copies

Compliance Auditors
-aware of hazardous materials in all areas they will be auditing
-safety in all areas they will be ...
-SOP's " " " "   " " "
-training for themselves again?

-email
-2 sided copies

GMP Coordinator
-aware of hazardous materials
-aware of environmental issues
-do they need to be always looking for training??

Compliance Technicians
-aware of hazardous materials
-looking for training programs, participating

Label Room Technician- needs Equipment training, but is that really related to the environment?

Subject:	Nelson
Entry Type:	Meeting
Company:	McNeil
Start:	Tue 4/6/99 3:30 PM
End:	Tue 4/6/99 4:30 PM
Duration:	1 hour

Nelson and us went over our recommendations for the Micro Lab Supervisor, through that we came up with a few general notes:

-don't reference any other material in these recommendations
-follow the format of the rest of the job descriptions
-look at those "environmental plans" and then reword their objective
-handle "properly" is OK
-email
-both sided copies
-selecting training groups for yourself, then getting it approved by the supervisor of your dept.
-participate in the training, learn something
-supervisors do the approving, little guys do the going to the training
-reduce waste
-documentation is important- supervisors need to enforce this
-following policy must be in there too, but we need to word it somehow without referring the reader to the handbook of laws

Always start the recommendation with the command for of the verb

Try to use:

recycle
handle/dispose
minimize
reduce
label/identify
document
sterilize

We need to go see Edna again, or ask her somehow, who is in charge of the sterilization of the stuff that goes in and out of the autoclave

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Subject:	Weekly (+7)
Entry Type:	Meeting
Company:	McNeil
Start:	Wed 4/7/99 11:00 AM
End:	Wed 4/7/99 12:00 PM
Duration:	1 hour
	Introduction
	Scope
	What we have done

-met the ISO team
-toured the company and all the plants
-met with the legal consultant who is working on updating the job descriptions
- just an annual thing
-Series of training (safety, Good Manufacturing Practices)
-set up in our offices
-researched the environmental laws of Puerto Rico
-clarified project objectives and methodology with Nelson
-Decided to first start interviewing the Quality Assurance Dept, since we want to work parallel to her
-Started interviewing the supervisors in the QA Dept.
-At each interview
    -show them the organizational chart
    -see if it is correct
    -ask them about the already identified environmental aspects and how they are handled within the dept.
    -find out who is responsible for each of these aspects/impacts
    -we set up a template for the recommendations that we make
    -we also set up a naming system, for organizational reasons
    -so with each interview, we took all the data obtained and formulated recommendations that will be appendixes to the current job descriptions

-We turned in our rough draft of one of the QA labs to Nelson for his input, he gave us very helpful feedback
-We made those revisions and plan to give them back to him today along with the four other sub-departments

-We also met with Jean Fullerton, McNeil's ISO coordinator, she requested a copy of our proposal and returned it with many compliments
    she said it was well written and quite informative
    she asked for an electronic copy
    she also mentioned the possibility of focusing a newsletter on the WPI/McNeil ISO team

What we are doing this week

-Hope to finalize the first Dept this week, and move them into our results section
-We plan to start in on the Engineering section and we have considered splitting up the work for the rest of the departments in order to work more efficiently

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What we are going to do

-We hope to keep working until we have finished interviewing every dept. and have completed the recommendations for each job title within the dept.

Seemed to make good impressions on all present. Nelson made a good showing also by showing that his engineer mindset still thought about the social aspect of what the ISO 14001 certification is doing not only for the company but for the employees involved, also. He brought up how we could add to our project by finding out how the employees felt about what we were doing and how they thought our recommendations would affect their lives. The advisors agreed wholeheartedly.

Interview Notes
&
Meeting Minutes

Subject:	Plant Engineering
Entry Type:	Meeting
Contact:	Luis Diaz
Company:	McNeil

Start:	Mon 4/12/99 10:00 AM
End:	Mon 4/12/99 10:30 AM
Duration:	30 minutes

Engineering Department- Organizational Chart (Revised)

Plant Engineering Overall Plant Maintenance
Luis Diaz

Maintenance Supervisor- Chewables & Compression/ P&D
Carlos Espinosa

Engineering Services Coordinator/ Spare Parts/ Calibration
Hector Davila

Maintenance Supervisor- Coating & Printing

Maintenance Supervisor- Granulation
Jose Suarez

Maintenance Supervisor- Packaging Maintenance
Juan Lugo

Electronic Technician- Packaging

Maintenance Supervisor- Geldipping
Mildred Guzman

Electronic Technician- Geldipping

Luis Diaz, Plant Engineering Overall Plant Maintenance

SOP's- he reviews and approves (the employees under him, review and let him know)

MSDS- employees must be aware of these at all times, continually (any new chemicals go through nelson first to be purchased then to the dept. and entered into the MSDS, so each employees should always be checking them)

Emergency Response Coordinator- in charge of spills and confined spaces, and in charge of training for these for his emergency response team (not his employees, but the rest on the team)

processing excludes packaging

**contact Mayra or Lucy for a follow-up meeting

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Subject:	Environmental Manager
Entry Type:	Meeting
Contact:	Nelson Cruz
Company:	McNeil

Start:	Tue 4/13/99 3:00 PM
End:	Tue 4/13/99 3:30 PM
Duration:	30 minutes

Nelson doesn't have a job description yet, as Env. Mgr. it will consist mostly of environmental responsibilities anyway.

Environmental Responsibilities

Maintain aware of all env. related activities
Keep facilities aware as well
Manage all regulations that apply to the env. aspects (go through green notebook)
Maintain a compliance calendar
Negotiate contracts with: waste water plant, non-hazardous waste company, hazardous waste company
Responsible for renewal of permits in plant
Approve all chemicals and issue purchase orders
Maintain chemical inventory, maintain inventories of drinking water
Responsible for operation of waste water treatment plant
Coordinate and perform env. training for all employees throughout the plant
Be a liaison between all env. agencies and the McNeil, Las Piedras plant (EPA, PRASA, PREPA, Dept. of Health)
Responsible for recycling program
Responsible for program that sponsors 4 schools to have a recycle day (Supporting local schools in environmental awareness)
Responsible for license of potable water system
Responsible for audits
Responsible for handling inspection
Responsible for revision of pollution prevention documents, spill prevention documents
Maintain manuals of emergency response system
Responsible for management of Johnson & Johnson guidelines requirement
Responsible for preparation of Environmental Assessments (for all projects in the plant)
Obtain environmental permits
Responsible for ISO 14000 team
Responsible for the implementation and operation of the ISO 14000 series in the plant

Clark, Pratt, Silva

Subject:	Eng. Services. Coord
Entry Type:	Meeting
Contact:	Hector Davilla

Start:	Wed 4/14/99 8:30 AM
End:	Wed 4/14/99 9:00 AM
Duration:	30 minutes

Recycle Bronze, stainless steel

paper, (plastic), cardboard (receive parts in)

coordinate services w/ manufacturing....there services are spare parts

recycle parts that they don't use

stainless steel punch- damage - fix recycle, sell it
bronze copper

no environmental training
no env. in SOP's

contractors
stock attendants report to him
maintenance Eng. soon will too

calibration
oils used to calibrate
good for year
bring it to waste
not in SOPs

Interview Notes
&
Meeting Minutes

Subject:	Planning Manager
Entry Type:	Meeting
Contact:	Hugh Davis
Company:	McNeil
Start:	Wed 4/14/99 9:00 AM
End:	Wed 4/14/99 9:30 AM
Duration:	30 minutes

Meeting Notes:

Supervisor of three employees

He is mostly in his office all day long, his 3 employees may go into the manufacturing area sometimes to do inventory control tasks

His job consists of strictly planning, its all hypothetical, they make the plans and then send it to the floor for execution

Use email, ERP (Enterprise Resource Planning)-SAP (the actual program)

He wants all those in the Materials Dept. to use this electronic program rather than printing everything out and wasting paper

SAP will eliminate the use of hard copy

Materials Review Board Team: (Wanda Rosario) They are the driving force behind the destruction of materials here at the plant. The validation batches usually end up on the shelf, until this team pushes for its proper destruction and disposal. They also create destruct orders, and make the final decision as to whether a product is destroyed or released

He is the main contact with national planning of McNeil

Deals with the customer Service of products

Negotiates between Manufacturing and Packaging

Clark, Pratt, Silva

McNeil

Consumer Healthcare

Interview Notes
&
Meeting Minutes

Subject:	Materials Manager
Entry Type:	Meeting
Contact:	Emilio Escobar
Company:	McNeil

Start:	Wed 4/14/99 10:00 AM
End:	Wed 4/14/99 10:30 AM
Duration:	30 minutes

Near Nelsons old office.

These will be more office type descriptions.

They already use the electronic EDI (electronic data interchange) system for all orders, eliminating paper waste.
The only paper based purchase orders are for spare parts and services and are double sided to reduce waste.

All fork lift drivers are licensed and trained to use the fork lift in an appropriate manner.
The warehouse department does receive some material considered to be hazardous.

We set up another meeting for Wed 21st at ten AM

All office recommendations apply with the following for the warehouse only.....

Turn off non halogen lights and equip.................

Interview Notes & Meeting Minutes

McNeil *Consumer Healthcare*

Subject:	Maint. Super-Pack
Entry Type:	Meeting
Contact:	Juan Carlos Lugo
Company:	McNeil
Start:	Wed 4/14/99 11:30 AM
End:	Wed 4/14/99 12:00 PM
Duration:	30 minutes

6 techs below him (1 for each of the three shifts, 1 for projects, 1 tool & die maker, and 1 purchaser of alcohol and supplies)

MSDS tell them how to handle material should they come into contact with it

3 small chillers (w/ refrigerant)

Electronic Maintenance- trouble shooting

Mechanics and Operators- cleaning. tool & die maker

**He wants to see recommendations for operators and mechanics

Encourage correct disposal of oils... (is that really him though? or is it Edwin Rosado)

Aware of all safety training

McNeil
Consumer Healthcare

Interview Notes
&
Meeting Minutes

Subject:	Bdgs. & Grds Supervisor
Entry Type:	Meeting
Contact:	Nelson Berdecia
Company:	McNeil

Start:	Wed 4/14/99 2:00 PM
End:	Wed 4/14/99 2:30 PM
Duration:	30 minutes

Only two people in department. Nelson and a coordinator of handypersons.

There are some guidelines for contractors but no official job descriptions.

The department uses water based paint, thinner, epoxy, and solvents. They do not keep drums of the chemicals though.
The contractors go through a 40 hour training for the department and an 8 - 16 hour refresher every year. The training informs them of how to handle the chemicals and that all disposal is done through William Melenez.

90% of the paint used is water based. The rest is mixed with a small amount of paint thinner. The paint which is mixed with thinner is disposed of in a different way than the water based paint. The water based paint is suitable for disposal in the drain in small quantities, for example washing the brushes after use. The paint with thinner and the access water based paint are disposed of through Melendez.

Pest control is handled in two ways. Fog and Spray. This is a contracted job. The spray is used in small amounts along walls and in corners but not in MFG. The fog is used after a shutdown and no one is allowed in the building for four hours. The fog becomes inert after 15 minutes.

They also use organic fertilizer. about 800 pounds twice a year.

meeting set up for Mon. @ 2:00 PM

Clark, Pratt, Silva

Subject:	SR Human Res. Admin.
Entry Type:	Meeting
Contact:	Ignerys Negron
Company:	McNeil
Start:	Thu 4/15/99 8:30 AM
End:	Thu 4/15/99 9:00 AM
Duration:	30 minutes

She will conduct a 2nd meeting along with Ramon Labarca at the same time.

Not a lot from her, she mentioned the electricity things, turn off lights and whatnot

She uses Lotus Notes to minimize paper usage, uses Lotus for all evaluations and for applicant flow

She recommends that the job descriptions be put into the computer, we want to add that they be accessible to McNeil's Intranet, so all employees can refer to their job description at any time

She just wants it all on the computer

Interview Notes
&
Meeting Minutes

Subject:	Human Resources Manager
Entry Type:	Meeting
Contact:	Ramon Labarca
Company:	McNeil
Start:	Thu 4/15/99 9:00 AM
End:	Thu 4/15/99 9:30 AM
Duration:	30 minutes
	Near Carmen's Office

Paper work, didn't give us much, real busy.

McNeil
Consumer Healthcare

Subject:	Maint. Sup.- Compression
Entry Type:	Meeting
Contact:	Carlos Espinosa
Company:	McNeil

Start:	Thu 4/15/99 9:00 AM
End:	Thu 4/15/99 9:30 AM
Duration:	30 minutes

Carlos does mostly paper work and supervision. His department has all the aspects of office type descriptions plus more.

Receive stuff in fiberdrums, which go to William Melendez to be disposed of. Oils, grease, and lubricants are stored outside the plant in a designated cage. Disposal of oil and grease also goes through William Melendez and has a designated area outside to be stored in.

If there is product in a machine that is being worked on, then the product is disposed of through William Melendez.

The punches and dies get recycled. This is more of a cost avoidance due to the fact that there is a cost to dispose of them but no cost to recycle them.

Broken parts are usually returned to the manufacturer to be analyzed. Either that or they are thrown away.
******** Can something be devised that would eliminate this wasteful situation
******** Also new parts come packaged in a non recyclable material. Can something be done about this situation as well *********

When using alcohol and solvents they are required to wear masks and gloves. This is in the SOPs. They are also required to have all solvents and alcohol labeled appropriately. These are mostly used by the operators. The SOPs are maintained by the Compression manager.

Also use some anti corrosives. Carlos just received a new one to try that was approved by the FDA.

There is also a requirement to wear ear plugs when in the area due to the noise pollution from the machines.

In the Punches and Dies, or tooling, area they are required to wear mask, safety glasses, and gloves whenever they are polishing metal. This is due to the fact that there are particles of the metal flying around in the air.

They also use cleaners and rags. The proper handling of the cleaners is given in the SOPs. The rags are then stored in the appropriate containers. The cleaning solution is called Quick Solve.

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Subject:	Sr Document Super.
Entry Type:	2nd Meeting
Contact:	Annie Carion
Company:	McNeil

Start:	Thu 4/15/99 10:00 AM
End:	Thu 4/15/99 10:30 AM
Duration:	30 minutes
	We met with her for a second meeting, see Social page

Subject:	Project Manager
Entry Type:	Meeting
Contact:	Jorge Colom
Start:	Thu 4/15/99 1:00 PM
End:	Thu 4/15/99 1:30 PM
Duration:	30 minutes

He only wants a brief statement that references ISO 14001. We had some communication difficulties explaining exactly what was needed by ISO 14001 as far as job descriptions go.

His department is in charge of handling and developing new projects. They currently use checklists which include environmental signatures.

These Job descriptions will be mostly office type responsibilities. The also need to be aware of the aspects in different areas that they work in, however they seldom come in contact with those aspects.

Interview Notes & Meeting Minutes

Subject:	Maintenance Geldipping
Entry Type:	Meeting
Contact:	Mildred Guzman
Start:	Mon 4/19/99 10:00 AM
End:	Mon 4/19/99 10:30 AM
Duration:	30 minutes

Mildred has two Electronic technicians working for her. She also advises the mechanics. The majority of the aspects are office type, however there is also a potential to recycle parts from the machines as well. The electronic technicians also use FDA approved contact cleaners.

Interview Notes & Meeting Minutes

McNeil Consumer Healthcare

Subject:	Planning Manager
Entry Type:	2nd Meeting
Contact:	Hugh Davis
Company:	McNeil
Start:	Mon 4/19/99 10:30 AM
End:	Mon 4/19/99 11:00 AM
Duration:	30 minutes

He said it was all correct. Maybe add the on site recycling bins to everyone's.

Interview Notes
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Meeting Minutes

Subject: Commodity Manager
Entry Type: Meeting
Contact: Carmen Diaz

Start: Mon 4/19/99 11:30 AM
End: Mon 4/19/99 12:00 PM
Duration: 30 minutes
She is not around much, so we found her today and she had a few minutes to spare.

Mostly paper work, they use a PACT (purchase order software), EDI for anything under $5000 worth of merchandise.

Paper work recommendations.

Subject:	QE Supervisor
Entry Type:	2nd Meeting
Contact:	Armando Fajardo
Company:	McNeil
Start:	Mon 4/19/99 1:00 PM
End:	Mon 4/19/99 1:30 PM
Duration:	30 minutes
	Good.

Interview Notes & Meeting Minutes

Subject:	BLDG & GRDS Supervisor
Entry Type:	2nd Meeting
Contact:	Nelson Berdecia
Start:	Mon 4/19/99 2:00 PM
End:	Mon 4/19/99 2:30 PM
Duration:	30 minutes
	All good!

Interview Notes & Meeting Minutes

Subject:	Engineering Serv. Coord.
Entry Type:	2nd Meeting
Contact:	Hector Davila
Company:	McNeil

Start:	Tue 4/20/99 9:00 AM
End:	Tue 4/20/99 9:30 AM
Duration:	30 minutes

All are acceptable

Interview Notes
&
Meeting Minutes

Subject: Maint Sup. Compression
Entry Type: 2nd Meeting
Contact: Carlos Espinosa
Company: McNeil

Start: Tue 4/20/99 10:00 AM
End: Tue 4/20/99 10:30 AM
Duration: 30 minutes
              All are good.

Interview Notes & Meeting Minutes

Subject:	Packaging Manager
Entry Type:	Meeting
Contact:	Edwin Rosado
Company:	McNeil
Start:	Tue 4/20/99 11:00 AM
End:	Tue 4/20/99 11:30 AM
Duration:	30 minutes

Managers job is mostly paper work.
The packaging department is also accredited with having the lowest waste percentage of .002%
The dust collectors are handled by the facilities department.

Talk to Angel Rosado for ink or for receiving.
Jose Colom for information on the blister lines
Jaime Walker for information relevant to the rest of the department.

Operators just run the machines.
Mechanics work on the machines and use oils and greases. The same goes for the line leaders.
Supervisors ensure compliance to regulations.

Interview Notes
&
Meeting Minutes

Subject:	Coating and Printing Manager
Entry Type:	Meeting
Contact:	Modesto Negron
Company:	McNeil
Start:	Tue 4/20/99 1:00 PM
End:	Tue 4/20/99 1:30 PM
Duration:	30 minutes

Mechanics and operators use oils and lubricants. The rags go into the normal trash but the process has already started to get a container specific for these rags.

The operators also use solvents and inks. These are stored in the designated cabinets within the C+P area. The solvents are alcohols. Proper gloves and clothing must be worn when working with these chemicals. Masks are also worn, especially if the exposure will be more than 50 min.

Employees must wear earplugs and eyewear within the area.

The mechanics in the area change the filters in the dust collectors. The have to wear proper clothing when doing so.

The machines are disassembled and cleaned by the operators and, if help is needed, by the mechanics. The cleaning is done with Borax.

The proper procedures for handling all these chemicals is given in the SOP's which are maintained by Modesto Negron for this department.

Call him for the next meeting.

Subject:	Compliance Specialist
Entry Type:	2nd Meeting
Contact:	Vilma Bermudez

Start:	Tue 4/20/99 1:00 PM
End:	Tue 4/20/99 1:30 PM
Duration:	30 minutes

(For Carmen Andino)

Package Tech and Compliance Auditor- add to them that they need to follow proper disposal procedures.

McNeil
Consumer Healthcare

Interview Notes
&
Meeting Minutes

Subject:	ISO
Entry Type:	Meeting
Company:	McNeil

Start:	Wed 4/21/99 8:00 AM
End:	Wed 4/21/99 9:00 AM
Duration:	1 hour

The meeting was in Spanish. I was asked to give an update on the progress of the project. I informed them that QA was complete and that Engineering would soon be complete as well. I showed them an example of the recommendations for an office type job. I then slipped out of the meeting do to a prior arrangement for a job description interview.

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Interview Notes
&
Meeting Minutes

Subject:	Human Resources Manager
Entry Type:	2nd Meeting
Contact:	Ramon LaBarca
Company:	McNeil
Start:	Wed 4/21/99 9:00 AM
End:	Wed 4/21/99 9:30 AM
Duration:	30 minutes
	All good.

Interview Notes
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Meeting Minutes

Subject:	Purchasing Supervisor
Entry Type:	Meeting
Contact:	Zeneida Lopez
Company:	McNeil
Start:	Wed 4/21/99 10:00 AM
End:	Wed 4/21/99 10:30 AM
Duration:	30 minutes

Her department will have office type recommendations. The department currently uses electronic SOP's. Zeneida participates in the Materials Review Board. The only addition from the normal office recommendation should be one for the use of EDI systems.

We set up a meeting with her for 10:00 AM Thursday.

McNeil
Consumer Healthcare

Interview Notes
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Meeting Minutes

Subject:	Materials Manager
Entry Type:	2nd Meeting
Contact:	Emilio Escobar

Start:	Wed 4/21/99 10:00 AM
End:	Wed 4/21/99 10:30 AM
Duration:	30 minutes

He wanted us to add electronic purchasing program to the MRO Buyer and MRO Coordinator.

He wants to see a copy of the job recommendations when we are finished so he can look out for anything that may be lost in the translation.

McNeil
Consumer Healthcare

Interview Notes
&
Meeting Minutes

Subject:	Weekly
Entry Type:	Meeting
Company:	McNeil
Start:	Wed 4/21/99 11:00 AM
End:	Wed 4/21/99 11:30 AM
Duration:	30 minutes

We met at the conference room of Professional, Nelson was not there. Only the two advisors and our IQP team.

We went over our newly revised literature review, methodology and analysis chapters. They gave us the idea of making our paper more creative, with some short story characteristics.

We decided we would add a description of all the different areas of the plant and the environmental aspects and impacts they have. And what kind of general recommendations we made.

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Interview Notes & Meeting Minutes

McNeil Consumer Healthcare

Subject:	Sr. Warehouse Sup.
Entry Type:	Meeting
Contact:	Jaime Villalobos
Company:	McNeil
Start:	Wed 4/21/99 1:30 PM
End:	Wed 4/21/99 2:00 PM
Duration:	30 minutes

The warehouse job description recommendations should be very similar to the office type. They do not use a copy machine though so there is no potential for double sided copying. Also it is not feasible to turn off the halogen lights since they take fifteen minutes to turn back on. The line should read "Turn off equipment and non halogen lights................"

The fork lift maintenance is done by the utilities department, but the operators are allowed to change the batteries. They had in house training to be allowed to change the fork lift batteries.

The operators also deal with diesel. The diesel is used for the truck that moves the trailers around the parking lot. The also want to go to an electronic database for all the paperwork, and only print out the final paper work.

Subject:	Engineering Utilities Manager
Entry Type:	Meeting
Contact:	Ildefonso Ayala
Company:	McNeil

Start:	Wed 4/21/99 1:30 PM
End:	Wed 4/21/99 2:00 PM
Duration:	30 minutes

The maintenance mechanics do mostly all of the actual work in or with the following:

Air conditioning
Steam
Water
Electricity
Dust Collectors
Boilers
Refrigerant
Waste
Chemicals
Batteries
Diesel

Recommendations were written based on these.

Supervisor
Ensure the above is taken out properly

Technicians
Monitor mtc. mechanics
Documentation
training of sop's

Interview Notes
&
Meeting Minutes

Subject:	IM Mgr.
Entry Type:	Meeting
Contact:	Antonio Marrera
Company:	McNeil

Start:	Thu 4/22/99 9:30 AM
End:	Thu 4/22/99 10:00 AM
Duration:	30 minutes

He gave us a new organizational chart.

He is a part of the Sr. Staff for the Las Piedras McNeil site.

IM deals with paper consumption for the entire plant, administrative services, and record management. They are in charge of the proper disposal of the toners in all the printers. Responsible for the validation of programs related to FDA and GSP approval.

He referred us to Kathy Laboy for any additional questions and then to Luis Gonzalez for the social interview.

Interview Notes
&
Meeting Minutes

Subject:	Purchasing Sup.
Entry Type:	2nd Meeting
Contact:	Zeneida Lopez
Company:	McNeil
Start:	Thu 4/22/99 10:00 AM
End:	Thu 4/22/99 10:30 AM
Duration:	30 minutes
	Add MRB to the Sr. Buyer/Planner

Interview Notes
&
Meeting Minutes

Subject:	Plant Comptroller
Entry Type:	Meeting
Contact:	Luis Huertas
Company:	McNeil
Start:	Thu 4/22/99 1:30 PM
End:	Thu 4/22/99 2:00 PM
Duration:	30 minutes

Financial department is an office type department.
They use Lotus Notes and SAP programs to help minimize paper waste.
They also use online presentations so there is no waste from slides or
handouts.

Interview Notes
&
Meeting Minutes

Subject:	Commodity Manager
Entry Type:	2nd Meeting
Contact:	Carmen Diaz

Start:	Mon 4/26/99 3:00 PM
End:	Mon 4/26/99 3:30 PM
Duration:	30 minutes

All are acceptable

Interview Notes
&
Meeting Minutes

Subject:	Packaging Sup.
Entry Type:	Meeting
Contact:	Jaime Walker
Company:	McNeil
Start:	Tue 4/27/99 9:30 AM
End:	Tue 4/27/99 10:00 AM
Duration:	30 minutes

The meeting was actually with Evelyn Flecha who would like a copy of the recommendations when we have finalized them.

The machines are cleaned with compressed air. The operators must wear masks and gloves when cleaning the machines.

Ear protection is only required on lines 1-6

There are designated cabinets for solutions.

Hazardous training is the responsibility of both the supervisors and of the manager.

The rejections from the line are reworked.

All waste is handled by William Melendez.

Ink is handled by operators and by mechanics. It is stored in the shop and training on MSDS and safety equipment is required.

Interview Notes
&
Meeting Minutes

Subject:	Eng Utilities Manager
Entry Type:	2nd Meeting
Contact:	Ildefonso Ayala
Company:	McNeil

Start:	Tue 4/27/99 10:30 AM
End:	Tue 4/27/99 11:00 AM
Duration:	30 minutes

This meeting was our first that was a bit discouraging.

After our last meeting, we wrote up what we thought was a good and fair list of recommendations. Then we asked Nelson Cruz to go over them, as the list was so long (24 recommendations) we thought it would be a good idea to have him just double check a few things. He made a few corrections, but nonetheless, we ended with the same amount. As soon as we showed Ildlefonso the list, he shook his head and said "No." He claimed that the list was too long regardless of what it consisted of. SO, he said he would get back to us the following day! When we mentioned that we had a few personal questions to ask, and he asked to see the sheet of paper I was holding, and then asked us if it would be confidential. Of course! But we had never thought of that before, well for Ramon LaBarca, he asked me if I could put my pen down for a short story he wanted to share with me. So, we decided we will have to include this in our analysis.

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Interview Notes
&
Meeting Minutes

Subject:	IM Manager
Entry Type:	2nd Meeting
Contact:	Luis Gonzalez
Start:	Tue 4/27/99 11:30 AM
End:	Tue 4/27/99 12:00 PM
Duration:	30 minutes
	He agreed with everything

Interview Notes
&
Meeting Minutes

Subject:	Plant Engineer
Entry Type:	2nd Meeting
Contact:	Luis Diaz
Company:	McNeil
Start:	Tue 4/27/99 3:00 PM
End:	Tue 4/27/99 3:15 PM
Duration:	15 minutes

Wanted to add disposal of batteries into the maintenance supervisors job responsibility, also wanted to see how often the training is, annually or bi-annually, also add that he is responsible for the Emergency Response Team, and that all the maintenance supervisors are a part of the team as well. Also he wanted us to add "protective" before the word equipment in the recommendations.

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Interview Notes
&
Meeting Minutes

Subject:	Project Manager
Entry Type:	Meeting
Contact:	Jorge Colom
Company:	McNeil
Start:	Wed 4/28/99 2:00 PM
End:	Wed 4/28/99 2:30 PM
Duration:	30 minutes

Add to the recommendation a sentence mentioning that new equipment and processes are approved by the environmental engineer.

Interview Notes
&
Meeting Minutes

Subject:	Maintenance PKG
Entry Type:	2nd Meeting
Contact:	Juan Lugo
Company:	McNeil
Start:	Wed 4/28/99 2:00 PM
End:	Wed 4/28/99 2:30 PM
Duration:	30 minutes
	All is Good. Will have social page ready Friday.

Interview Notes
&
Meeting Minutes

Subject:	Maintenance Geldipping
Entry Type:	2nd Meeting
Contact:	Mildred Guzman
Company:	McNeil
Start:	Wed 4/28/99 2:30 PM
End:	Wed 4/28/99 3:00 PM
Duration:	30 minutes

Remove the earplug line of the recommendation because it isn't a requirement.

Add ISO 14001 training in with Haz-Mat.

Rest is good.

McNeil
Consumer Healthcare

Interview Notes
&
Meeting Minutes

Subject:	QA Mgr.
Entry Type:	Meeting
Contact:	Raul Cardona
Company:	McNeil

Start:	Thu 4/29/99 9:00 AM
End:	Thu 4/29/99 9:30 AM
Duration:	30 minutes
	We had an excellent meeting with him.

Interview Notes & Meeting Minutes

Subject:	Warehouse
Entry Type:	Meeting
Contact:	Jaime Villalobos
Company:	McNeil
Start:	Thu 4/29/99 10:30 AM
End:	Thu 4/29/99 11:00 AM
Duration:	30 minutes

We had an excellent meeting with him, as well.

New Info:

His employees will be starting an annual training program on the storage, handling, and cleaning of chemicals. (so its ok to put that into the recommendations)

Maintenance of the warehouse trucks is done outside the plant

When the warehouse receives the drums, Operators clean them off in the

plant, with rags. Product doesn't sit for too long on shelves, therefore not

usually any need to dust them

Operators perform the water leak test, inside the plant. Jaime said that the water is not contaminated afterwards. This is to ensure that the buckets for the final product do not have any leaks in them.

He suggested that a database be created for the warehouse dept.

Clark, Pratt, Silva

Interview Notes
&
Meeting Minutes

Subject:	GelDipping Operator
Entry Type:	Meeting
Contact:	Aldalberto Fernandez
Company:	McNeil
Start:	Thu 4/29/99 11:00 AM
End:	Thu 4/29/99 11:30 AM
Duration:	30 minutes

First Meeting with Aldalberto Fernandez:

He told us that Gel-Dipping is responsible for 53% of the production.

Gel-Dipping is the only department in manufacturing that has presented ISO 14000 and its relations to their dept.

Fort Washington only has two machines

Las Piedras has 15, 8 of them work on Gelcaps, and the other 7 are for Geltabs. They want 2 more!! :)

Therefore the Las Piedras Plant is responsible for 85% of the gel-dipped Tylenol products.

80% of the operators don't care much about the environment and have no discipline for over usage of energy

In one day: Gel-Dipping makes ~5 batches of Geltabs (3 Regular, 2 Tylenol PM)
        ~7-8 batches of Gelcpas (6 regular, 2 PM)

In one batch there are ~100,000 pills, therefore, the Gel-Dipping Area can synthesize about 900,000 in one day

As for the evaluation of these products, one bottle is always taken from the first of each batch and brought to the Quality Assurance Department- Micro Lab

He spends 30 minutes a day working on the ISO 14000 team, during one of his breaks for the past 14 months

Gel-Dipping Goal:
in one 8 hour shift to make 500,000 Geltabs and 800,000 Gelcaps

If ever an energy failure the Gel-Dipping area will be affected first, any production problems affect the gel-dipping area also

Aldalberto thinks that the mechanics in his dept need to be motivated more in order to get them involved in environmental issues

McNeil makes 10 billion pills a year

Clark, Pratt, Silva

Change the dip pans every 72 hours according to SOP's

Every time they change the dip pans they need to take a sample for QA also

He also told us that he has made some noise, being only a temp worker and he joins the ISO team... the permanent employees aren't even involved

Also had a second interview

Interview Notes
&
Meeting Minutes

Subject:	Compression Manager
Entry Type:	Meeting
Contact:	Ileana Zavala
Company:	McNeil
Start:	Thu 4/29/99 1:00 PM
End:	Thu 4/29/99 1:30 PM
Duration:	30 minutes
	She filled out the 2nd interview sheet

McNeil
Consumer Healthcare

Subject:	Plant Comptroller
Entry Type:	2nd Meeting
Contact:	Luis Huertes

Start:	Fri 4/30/99 9:00 AM
End:	Fri 4/30/99 9:30 AM
Duration:	30 minutes

All are acceptable.

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Appendix E

Interview with William Maxwell

ISO 9000 Implementation Team

Markem Corporation

1. Did you have a quality assurance system installed prior to ISO 9000? If so, what kind of system was it?

   No, Markem did not have a quality assurance system before they went to ISO 9000. They relied on the individual expertise to ensure the standards of the product. They didn't need a quality system because they didn't know the systems existed.

2. What is the reason your company first decided to look at ISO 9000?

   ISO started showing up in publications and in the news. Markem began to look into quality systems. An important influence came from a member of the corporate board, the president of another small company, who already had the system implemented. The company saw a positive influence with an increased operating efficiency.

3. How many employees did your ISO 9000 team consist of?

At first, Markem sent five people to an auditor-training course, for one week. The course was an approved ISO course. During implementation they moved on to include the managers to oversee the project.

4. On average, how knowledgeable were the employees on the subject of quality assurance systems?

Absolutely no knowledge of quality assurance systems. They held meetings with groups of ten to fifteen people to explain ISO goals and the initial steps of implementation.

5. Did you use training programs on the topic of quality assurance systems? How successful were the programs?

Yes, Markem used extensive training programs. The whole population was informed as to the procedures again just prior to the registration. They were given detailed information about the implementation procedures, informed that they could be interviewed by the auditors, and informed that they should all know the company policy.

6. Did you have any outside help? In training or in any other part of the implementation?

> Yes, Markem contracted a consultant to do an analysis of what would have to be done. The consultant came up with a list of things to do for success. Other than that the consultant Markem had was not very useful. The consultant was well informed on the standards but didn't have much experience in implementing them.

7. What, if any, mistakes did your company make in implementing ISO? And how would you have been able to avoid these mistakes?

> Going with an inexperienced consultant. Find a consultant who has already been responsible for implementation at another company. This will make your implementation much smoother.

8. Were there any steps your company didn't take that would have made the implementation easier?

> Markem should have started some of the infrastructure sooner. The serialization and numbering of documents should have been addressed sooner. When it came time to assign the numbers, they were assigned too fast. Later, we had to revise many of them. Also, we wanted to be able to utilize the computers.

Many of the documents were up on databases. The database Markem went with turned out to not work as well as they wanted. Since there was a heavy dependency on databases, they later changed to a different one.

9. What suggestions would you make to someone who will be implementing ISO?

To find a consultant, look to customers and suppliers with experience. A note of caution: for a company with several plants in different locations with the same internal processes. If an ISO system is implemented in one facility, don't try to simply duplicate the process in another. Many companies have found that there are drastic differences in company cultures in different regions. Also if a system is simply imposed there will be a lack of pride in the system. It is better to start from scratch and allow the previously implemented division to "school" the division gearing up for implementation. This will build a sense of company pride in the system and serve to customize the system for the company.

10. What is involved in redefining job descriptions?

The job descriptions are not used in the Markem ISO 9000 system. Markem found that the job descriptions were too extensive and crossed too many areas within the company. The descriptions were not exclusive enough to one department of the company. Markem chose to keep a record of individuals qualifications and skills instead.

11. Overall, in comparison to the intended plan, how did the actual implementation go? Did you over/under estimate anything? Time, money, effort?

Managing projects are always a mind game. Many times if you analyze the proposed plan you will find that it is impossible. Most plans slip at least once. Once is okay, twice and you start losing support. Make your first plan an optimistic plan. Once that slips, make your second plan a realistic one. Push the bounds a bit but stay realistic. In order for any plan to work you must have a sincere backing by upper management.

Appendix F

Appendix F is a collection of the thoughts and feelings toward ISO

implementation, of the employees we interviewed.

Department:	Engineering

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He agrees with the idea of improving their plant/company and he agrees that the implementation is very good for the company.

2.) Do you think that environmental protection is important?

He told us that he thought environmental protection was very important.

3.) How much does your individual compliance to ISO 14000 affect the future?

He feels as though his compliance is working towards the preservation of the environment.

4.) How does your environmental awareness affect your life in and out of the workplace?

He told us that there should not be an *inside* the workplace and an *outside* the workplace, it should be an all day, anywhere type of deal.

5.) How do you feel about additional responsibilities in your job description?

Not really an addition, he does it anyway. He thinks it is a very good idea to have it in writing and integrated into the job descriptions, so it will ensure compliance. He mentioned that the environmental laws in Puerto Rico are stricter than the U.S. but the enforcement is not as strong.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

He thinks that it is a formal and nice way of naming and refining our already existing environmental management program.

2. Do you think that environmental protection is important?

Yes.

3. How much does your individual compliance to ISO 14000 affect the future?

He thinks that his participation can contribute to move ahead the project of implementation, certification, and improvement of the EMS.

4. How does your environmental awareness affect your life in and out of the workplace?

He cares a lot about environmental protection both in and out of the workplace.

5. How do you feel about additional responsibilities in your job description?

He feels good about it because his accountability is clearly stated.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

Yes, he believes that the ISO 14000 series is very important for McNeil to become certified in. He wishes McNeil could involve more floor persons.

2. Do you think that environmental protection is important?

Yes, he thinks it is very important.

3. How much does your individual compliance to ISO 14000 affect the future?

He thinks it has an impact.

4. How does your environmental awareness affect your life in and out of the workplace?

He separates his recyclables at home and then brings them to the McNeil on site recycling bins. Working at McNeil has made him more environmentally aware.

5. How do you feel about additional responsibilities in your job description?

He does not mind at all. "If you don't involve the employees, you will not get any response," according to him.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

He agreed that the implementation of ISO 14000 is very beneficial for McNeil as well as the environment. He is glad that this type of series is global and not governmental. He thinks that governmental regulations can always be maneuvered around but when it is a global regulation, any company that does not comply will be left out of the global marketplace. For this, companies will be less apt to disobeying the standards.

2. Do you think that environmental protection is important?

He thinks that environmental protection is very important, and he is aware that we are losing many natural resources. He believes that the environment still stands a chance to survive if the entire world starts now. He believes that El Nino is a result of the world's inconsiderate treatment of the environment.

3. How much does your individual compliance to ISO 14000 affect the future?

He feels as though if he is doing his part, that everyone else should be doing his or her part too. So, he would like to see the idea pushed and fully supported throughout the company. He would even like to extend it to outside suppliers.

4. How does your environmental awareness affect your life in and out of the workplace?

He does not recycle at home as there is no recycling center in the town where he resides. So, he brings it into work and uses the on-site recycling facilities.

5. How do you feel about additional responsibilities in your job description?

Not a problem at all.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

He told us that he is very happy with the work that we are doing. He is not sure however if the mechanics and operators are aware of the implementation. He believes that the environmental protection and awareness needs to spread all over the world. It is just starting in Puerto Rico, so he hopes others will follow.

2. Do you think that environmental protection is important?

Yes, he is supportive of the environmental protection movement.

3. How much does your individual compliance to ISO 14000 affect the future?

He believes that his compliance can greatly influence the future of the environment. He is optimistic about the preservation of the environment.

4. How does your environmental awareness affect your life in and out of the workplace?

He recycles at work as well as at home. He does not use the on-site facilities since his town offers a pick-up service. He would also like to see environmental consciousness passed on to the children, so they can learn and adapt to an environmentally friendly lifestyle. He does not think that children are aware however. He would really like to see environmental awareness emphasized in the schools.

5. How do you feel about additional responsibilities in your job description?

He does not mind at all, he knows how important this is, so he is very willing.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

He feels as though he has been kept out of the process. He is waiting until the ISO team approaches him asking for his involvement. Jean Fullerton, the ISO 14000 consultant from Johnson & Johnson, had recently gone to see him and he told her that he felt left out of the implementation too. She reassured him that soon enough the team would be making their rounds to speak with workers in the plant all about the ISO series.

2. Do you think that environmental protection is important?

It is utmost important.

3. How much does your individual compliance to ISO 14000 affect the future?

He told us that he knows that what he does is very important so whatever he does or does not do will have a huge impact. He agrees that every paper recycled is a branch of a tree saved.

4. How does your environmental awareness affect your life in and out of the workplace?

"Environmental consciousness is a pain in the neck," he says. But he knows how important it is. He told us that he thinks millions of people do not care about the environment so it will take another million to care to even it out. And more to preserve it.

5. How do you feel about additional responsibilities in your job description?

He used to be the environmental manager, so he knows all about environmental management system, so he knows that the addition of these environmental responsibilities is very important in order to get every employee aware and involved. How can he say no to the environment.

Department:	Human Resources

Questions:

1. What are your feelings about the implementation of ISO 14000?

Johnson & Johnson has always wanted to be the best, so this is just another step to take that will keep them at the top. He believes that J&J are innovators. They go beyond compliance with the law. He is very proud of his company and how much effort goes into all their projects, especially this one. He is proud to see McNeil trying their best to educate the entire plant on environmental protection.

2. Do you think that environmental protection is important?

Yes, he loves the environment. He loves nature, the ocean, and the planet. He does think that education plays a large role in environmental consciousness.

3. How much does your individual compliance to ISO 14000 affect the future?

Yes, he does agree that his compliance will have a positive impact on the environment.

4. How does your environmental awareness affect your life in and out of the workplace?

He enforces environmental consciousness in his household.

5. How do you feel about additional responsibilities in your job description?

He thinks it will be easy to integrate.

Department:	Information Management

Questions:

1. What are your feelings about the implementation of ISO 14000?

He believes that McNeil is showing great initiative, and agrees that this will allow McNeil to become more competitive in the global market. He knows how serious the ISO standards are, and how common they are in Europe, so he thinks we should follow through with the certification.

2. Do you think that environmental protection is important?

Yes, he wonders what air his children will breathe if he does not.

3. How much does your individual compliance to ISO 14000 affect the future?

Time will tell, if there are no trees in 20 years, he guesses that his compliance did not help. He is willing to give it a shot though. He believes it is definitely a gain to help out in anyway possible. He will encourage the avoidance of paper documents in his department.

4. How does your environmental awareness affect your life in and out of the workplace?

He does recycle at home, and a town program picks it up weekly. He has always been environmentally conscious, but learned the environmental terminology at McNeil. He really encourages protection of the environment due to his recent finding of a river back in his hometown that he used to swim that is now polluted. His children will never be able to swim there, so he is trying his best to preserve the rest of the environment in hopes to give his children as much as possible.

5. How do you feel about additional responsibilities in your job description?

It is OK, everyone should take a part in the environmental protection. He thinks that if you can not volunteer your time to the ISO team or to any of the environmental activities, the least an employee of McNeil can do is follow their environmental responsibilities.

Social Impact of ISO 14000 Implementation

Department:	Materials

Questions:

1. What are your feelings about the implementation of ISO 14000?

He told us that he think it is necessary for McNeil to implement such a system in order to remain competitive. He also believes with the ISO certification, McNeil will gain leadership.

2. Do you think that environmental protection is important?

Yes, he thinks environmental protection is extremely important. He mentioned that 14 years ago he was the environmental supervisor, so he is very interested in the environment and its future. He is a strong believer of enforcement, he believes that the people of Puerto Rico will not stop polluting the environment unless there is a penalty. He also told us that he worries about the future of the environment because he is not confident that the youths of Puerto Rico are environmentally conscious. He wishes that there were more programs throughout the island dedicated to educating students on environmental protection, which is one of the reasons he is involved in the McNeil group that goes to a few of the local schools to give the students brief seminars on the environment. Lastly, he mentioned that in Puerto Rico there are few waste disposal centers, which directly affects the environment, so he agrees with and promotes recycling to attempt to lessen the waste.

3. How much does your individual compliance to ISO 14000 affect the future?

He agrees that every little bit helps, so every piece of paper that goes in the recycle bin rather than the waste can, is on step closer.

4. How does your environmental awareness affect your life in and out of the workplace?

He enforces environmental awareness and preservation with his family. They recycle aluminum cans, glass, and newspaper to a local recycling center.

5. How do you feel about additional responsibilities in your job description?

He said that if it will help improve the environment then he will be more than happy to have them added. He has always been recycling and conserving energy, its would just be a matter of entering them into his job description. He also said he does not expect an increase in pay.

Department:	Materials

Questions:

1. What are your feelings about the implementation of ISO 14000?

He thinks that this is a great idea, his only concern is that you can be certified in a series similar to ISO but still have a junky process and create a lot of waste. So, he hopes that every department in the plant will take this seriously and that the auditors are very strict with their regulations. For McNeil, he feels as though the Las Piedras site is the closest to certification since this plant has a relatively low production level anyway.

2. Do you think that environmental protection is important?

He told us that he feels as though environmental protection is extraordinarily important. He does not think people realize how fast we are dwindling in terms of resources.
He also mentioned the common phrase "Every little bit helps."

3. How much does your individual compliance to ISO 14000 affect the future?

As a McNeil employee, he feels as though it should be public knowledge as to whether or not a plant produces products in an environmentally friendly manner. So, he agrees in all that ISO 14000 has to offer his company. And for that reason, he will try his best to comply with all the standards.

4. How does your environmental awareness affect your life in and out of the workplace?

Inside and outside the company he recycles, he says its routine for him now. He feels as though it is very important to bring environmental awareness home in order to show children. He thinks that if they can learn now, the future stands a better chance. He initiated conversion on the common environment argument of the cost of such a project. Many disagree with the whole implementation of the ISO series due to its costly expenses. Hugh told us that he thinks all these people should consider how costly it is for our future when we dump garbage into landfills. He also told us that there is not a lot of support for recycling in Puerto Rico. And that the regulations for the local landfills are not very strict. He gave us as rough idea as to how much solid waste the island has and how much the island can handle. He told us that the island of Puerto Rico can dispose of ¼ of the solid waste... which leads many people to wonder what happens to the rest.

5. How do you feel about additional responsibilities in your job description?

Not a nominal impact on his job responsibilities, he would be happy to have these added to his job descriptions, he thinks that is one sure way of helping the employees of McNeil to become environmentally conscious.

Department:	Materials

Questions:

1. What are your feelings about the implementation of ISO 14000?

When she first saw the presentation of the ISO 14000 series she thought that it was a great idea. She figured McNeil was one of the first to actually implement this type of complex system on the island. She is very proud of McNeil's ambition. She does think that the operators need to be informed of this system, because she knows that not all of them are aware of ISO 14000.

2. Do you think that environmental protection is important?

Of course, she thinks it is extremely important, especially for her children. She also thinks that as a leader in the pharmaceutical business, McNeil should take responsibility and help preserve the environment.

3. How much does your individual compliance to ISO 14000 affect the future?

She thinks that contributing to provide a better place for humanity is definitely worth it. She also believes that if everyone helps out, we can make a faster contribution to the environment.

4. How does your environmental awareness affect your life in and out of the workplace?

She feels that environment awareness at the workplace is promoting the coordination and use of environmental programs at home. Mostly recycling programs are being implemented in towns and cities across the island.

5. How do you feel about additional responsibilities in your job description?

Part of the job is to comply with whatever standards McNeil sets, if McNeil is going to enforce environmental awareness, then she will be more than happy to contribute her time and effort as well.

Department:	Materials

Questions:

1. What are your feelings about the implementation of ISO 14000?

She is very excited with the implementation of the ISO 14000 series. She thinks that in order for McNeil to maintain its competitiveness in the international market, McNeil should strive for all certifications. She thinks McNeil is working towards this to remain in the #1 worldwide manufacturing class.

2. Do you think that environmental protection is important?

Yes, she thinks it is very important. She thinks that people need to be educated a bit more in order to keep the attention on the environment. She also believes that we all need to work to make environmental consciousness a part of our everyday routine.

3. How much does your individual compliance to ISO 14000 affect the future?

She also agrees with the phrase that every little bit helps, and within the last 5 years she thinks that the future of the environment has become more of a concern for many people.

4. How does your environmental awareness affect your life in and out of the workplace?

She recycles at home. She recycles aluminum cans and newspapers.

5. How do you feel about additional responsibilities in your job description?

She thinks this is definitely worth it, so she will comply and promote compliance throughout her department.

Department:	Project / Validation

Questions:

1. What are your feelings about the implementation of ISO 14000?

She believes this is a milestone for McNeil. She is really excited about the implementation and knows how much McNeil will gain once certified. She thinks it is really important for a company to maintain awareness of any new standards and regulations around, this makes any company a competitive player in the global marketplace. She does wish that instead of pushing so hard for the certification of this international standard, that McNeil would first seek local certification.

2. Do you think that environmental protection is important?

Absolutely, however she loves to smoke cigarettes. She says, minus the cigarettes she is definitely environmentally conscious. And she says that her car smokes so what is the difference. If it was not for McNeil, she does not think that she would be as environmentally conscious as she is today. She wishes though that the government of Puerto Rico enforced recycling, as she thinks that people will not comply unless there is some enforcement from the law.

3. How much does your individual compliance to ISO 14000 affect the future?

She feels every little bit helps.

4. How does your environmental awareness affect your life in and out of the workplace?

She always recycles at home, especially oil, grease and newspapers. And at work, she adheres to the rules, and they say recycle, so she does.

5. How do you feel about additional responsibilities in your job description?

It is something she must do, if she wants her children to breathe fresh air. She believes everyone should take on a bit of responsibility, and she does not believe the employees of McNeil have a choice since the ISO team is so committed to the environment and to the new series to preserve it.

Department:	Quality Assurance

Questions:

1. What are your feelings about the implementation of ISO 14000?

She feels it is very important that an environmental conscious is created. She feels that the implementation of ISO 14000 will accomplish this goal. She also wants all employees to be trained in the awareness of environmental protection, whether they are directly or indirectly involved. She is certain that the implementation will cover that as well.

2. Do you think that environmental protection is important?

She is a strong believer of environmental protection. She is very aware both at work and outside of work.

3. How much does your individual compliance to ISO 14000 affect the future?

She believes that every little bit counts. And if we all put a little bit of effort into preserving the environment, then we will accomplish our goal.

4. How does your environmental awareness affect your life in and out of the workplace?

In the workplace, as a senior analyst, who works in a lab full of hazardous materials, she takes environmental protection quite seriously. And when she goes home, she tries to create an environmental consciousness for her daughters. She also tried to keep a very safe household not only for daughters, but also for her little grandson, who is really too young to understand yet. She really wishes that they start to take an interest in the environment. She does not recycle, however.

5. How do you feel about additional responsibilities in your job description?

She thinks what we are doing is very important. She is always open to fresh new ideas, she feels this one will really work, and prove itself to be a great achievement.

Department:	Quality Assurance

Questions:

1. What are your feelings about the implementation of ISO 14000?

She thinks it will be beneficial for McNeil to become certified. It will be good for the environment as well as for the company.

2. Do you think that environmental protection is important?

Yes, she thinks it is important. She pointed out that in Puerto Rico you can a lot less environmental consciousness, so you can learn a lot.

3. How much does your individual compliance to ISO 14000 affect the future?

She does not agree with every little bit helps. She told us that one can not do it alone, that you need everyone's support.

4. How does your environmental awareness affect your life in and out of the workplace?

Her daughter is studying the environment, so together the two try to enforce recycling. She does use the on-site recycling facilities for paper.

5. How do you feel about additional responsibilities in your job description?

Individual environmental responsibilities are needed in order to keep McNeil as successful as it is. And she mentioned that it would be rather a short list.

Department:	Quality Assurance

Questions:

1. What are your feelings about the implementation of ISO 14000?

She feels as though the world needs to be more aware of the depletion of resources. She also mentioned that we all need to control our use of resources. She thinks that we can all do more to support the environment, especially by controlling our energy consumption.

2. Do you think that environmental protection is important?

Yes.

3. How much does your individual compliance to ISO 14000 affect the future?

"Every little bit helps." She feels that the preservation of the environment is very important. She thinks it is very important that the employees of McNeil bring their environmental consciousness home with them. She also added that every time she throws something away in the garbage, she thinks about how much waste we all produce.

4. How does your environmental awareness affect your life in and out of the workplace?

She says that if we all continue to abuse our resources, there will not be any for us in the future. The future of the environment depends on how much action we take now.

5. How do you feel about additional responsibilities in your job description?

She is very happy with the work that we are doing in conjunction with McNeil's ISO team. She says that these additions will be easy for her to integrate these environmental responsibilities into her every day routine, mostly because she is so conscious of it already.

Department:	Quality Assurance

Questions:

1. What are your feelings about the implementation of ISO 14000?

She thinks it is a very good idea, and especially a good idea to get the environmental responsibilities into the job descriptions as soon as possible. She feels that this is a very good way to ensure complete awareness throughout the plant. She added that when included in a job description, the employees would comply.

2. Do you think that environmental protection is important?

Yes, as a volunteer for the ISO 14000 team, in addition to her daily schedule, she devotes her time and effort to the ISO team. She is very enthusiastic and motivated to help protect the environment.

3. How much does your individual compliance to ISO 14000 affect the future?

She feels that if she can add to McNeil's success as a company then she is more than happy to comply with these standards. Already involved in the ISO team herself, she will not have to make too severe of an adjustment. She believes that the future of the environment starts with the today's employees and their enthusiasm.

4. How does your environmental awareness affect your life in and out of the workplace?

At the office, she is very environmentally conscious, working in a microbiology lab, full of hazardous and biological wastes, she has got to be aware at all times. However, she carries her environmental consciousness home with her everyday. In her home, she recycles newspapers and paper.

5. How do you feel about additional responsibilities in your job description?

She is very happy that the environmental responsibilities are finally being added to the job descriptions. She believes that this is very good for our world.

Department:	Quality Assurance

Questions:

1. What are your feelings about the implementation of ISO 14000?

He told us that he is not involved in the actual process however he agrees that the implementation is very important for the environment as well as the facility in terms of interaction with international companies.

2. Do you think that environmental protection is important?

He agrees that environmental protection is very important but told us that for the most part the island is not as agreeable. He feels as though many people here are not aware of the severity of the depletion of resources.

3. How much does your individual compliance to ISO 14000 affect the future?

He tries to help as much as he can, he is very agreeable to doing his share of the compliance.

4. How does your environmental awareness affect your life in and out of the workplace?

He told us that he recycles and brings them to the on-site recycling center (he feels as though McNeil should really push the usage of the on-site recycling bins). He also plants as many trees as he can in order to at least provide the future with a few more trees.

5. How do you feel about additional responsibilities in your job description?

He is OK with the addition, since he told us he is already familiar with those kind of responsibilities.

Department:	Materials

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He thinks it is a good idea to emphasize to the entire plant the importance of the environment.

2.) Do you think that environmental protection is important?

Yes, definitely.

3.) How much does your individual compliance to ISO 14000 affect the future?

His area doesn't directly affect the environment but he will try his best to comply as he knows it will pay off in the future. But he did agree to "every little bit helps," especially in terms of costs and the environment.

4.) How does your environmental awareness affect your life in and out of the workplace?

He takes off all paper clips and staples, it has become his routine, he recycles as well. His town has a program but he brings it to McNeil instead. Just working at McNeil has increased his environmental awareness.

5.) How do you feel about additional responsibilities in your job description?

He said its not adding more, he agrees with what we are doing, and knows we all need to be more environmentally conscious, and this will help.

Department:	Manufacturing

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He says the system provides great guidance in how to do the environmental part the right way.

2.) Do you think that environmental protection is important?

Yes.

3.) How much does your individual compliance to ISO 14000 affect the future?

"Every part counts. It takes one environmental impact to affect everything"

4.) How does your environmental awareness affect your life in and out of the workplace?

"It's a discipline, awareness, and respect for the environment"

5.) How do you feel about additional responsibilities in your job description?

"I always believed that environmental and safety are a part of our responsibilities"

Department:	Engineering

Questions:

1.) What are your feelings about the implementation of ISO 14000?

"It is necessary for the future of our plant, but maybe the process needs to be more aggressive"

2.) Do you think that environmental protection is important?

Yes!!

3.) How much does your individual compliance to ISO 14000 affect the future?

"The future is affected by every individual, and the future is directly linked to the environment. Thus, compliance with ISO is directly affecting the future in a very proactive and healthy manner"

4.) How does your environmental awareness affect your life in and out of the workplace?

"It is practically a way of life"

5.) How do you feel about additional responsibilities in your job description?

"I think that I already cover them, thus I am comfortable with it"

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Department:	Manufacturing

Questions:

1.) What are your feelings about the implementation of ISO 14000?

"I understand that it is very important because as a corporation we can demonstrate our commitment with the environment"

2.) Do you think that environmental protection is important?

Yes.

3.) How much does your individual compliance to ISO 14000 affect the future?

"I f we are not aware and in compliance with the rules, the future will be a disaster related with the contamination problem, health; we need to ensure a healthy living environment to our sons"

4.) How does your environmental awareness affect your life in and out of the workplace?

"We need to be aware of the environmental issues because this impacts our health, children, and family, etc."

5.) How do you feel about additional responsibilities in your job description?

"I feel good and I understand that it is part of our compliance goals"

Department:	Quality Assurance

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He thinks it is great that McNeil is implementing this program. He knows it will provide the company with a competitive edge and allow them to play in the global market. He thinks it is on line with his beliefs, he likes the environment. He thinks that J&J should join other companies and work together to get things moving faster. He does think that once a company has reached its national standards, that they should then strive for compliance of international standards.

2.) Do you think that environmental protection is important?

Yes.

3.) How much does your individual compliance to ISO 14000 affect the future?

He gave us the ant analogy. One ant can't do much, but what a colony can do is amazing. So, he thinks that with the help of everyone, we can do it.

4.) How does your environmental awareness affect your life in and out of the workplace?

At McNeil, he is happy that the company is showing dedication to the environment. As for his home life, he doesn't use the on-site recycling, actually he didn't know about it, he just got to McNeil a couple weeks ago.

5.) How do you feel about additional responsibilities in your job description?

He thinks this is a great way to get the entire plant committed, he also mentioned that McNeil will definitely benefit when auditors come.

Department:	Manufacturing

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He agrees that there are a lot of benefits, and he sees lots of support from the managers. Their assistance is extremely important in terms of supporting the project.

2.) Do you think that environmental protection is important?

Yes, Puerto Rico is a small island so it needs to be preserved.

3.) How much does your individual compliance to ISO 14000 affect the future?

He gave us a percentage of 80 to convey how much he thinks we have an impact on the future. So, 80% of what happens to the environment lies in our hands.

4.) How does your environmental awareness affect your life in and out of the workplace?

His environmental awareness has been improving in the past 18 months since he has been employed at McNeil. He has learned how important each and every contribution to the environment is.

5.) How do you feel about additional responsibilities in your job description?

He does not mind the additions as long as they are not related to more documentation. Speaking for the operators, he knows that they will not be happy if documentation is added as they feel that they do enough. But other than that, he is happy to see them finally put into writing.

Department:	Engineering

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He considers it a good program and is glad it works to help the environment. He mentions that it will assure everyone a decent environment for their children.

2.) Do you think that environmental protection is important?

Definitely.

3.) How much does your individual compliance to ISO 14000 affect the future?

Most of his activities impact in a good way or a bad way, but e does think every little bit helps.

4.) How does your environmental awareness affect your life in and out of the workplace?

He believes he has an above average environmental awareness. He brings newspapers to the on-site recycling facilities.

5.) How do you feel about additional responsibilities in your job description?

He feels very bad about it. He thinks that everyone is more interested in the "end" than the "means." He also mentioned that the recommendations were too specific, idealistic and too optimistic. He thinks that this is simply giving more work and more pressure to the employees. He would rather see continuous improvement.

Department:	Manufacturing

Questions:

1.) What are your feelings about the implementation of ISO 14000?

He is pro-implementation for the ISO 14000. He thinks that McNeil has a lot to gain in the international sector and with this compliance McNeil will be able to. He has seen ISO 9000 be implemented into J&J, he thinks that the 14000 is moving a bit faster. He is impressed with the advancement of the program. Also, these standards are good for the company itself and for the environment.

2.) Do you think that environmental protection is important?

Yes, he likes the environment and knows that the services for protection are not as strong on the island, so he is glad McNeil is taking the initiative to implement the standards.

3.) How much does your individual compliance to ISO 14000 affect the future?

He thinks that the entire plant of McNeil has got to help out, and mentioned that he thinks only 30% of the plant is environmentally conscious right now, but hopes this system will improve the numbers to 100%. From J&J, he has become more aware environmentally.

4.) How does your environmental awareness affect your life in and out of the workplace?

He is remodeling his kitchen and plans to build in four recycling buckets, so his wife will recycle. If there isn't organization she will not recycle. Until their kitchen is finished all they recycle is newspapers and cans. They drive their recyclables to a facility a mile down the road.

5.) How do you feel about additional responsibilities in your job description?

He thinks it will be easier to enforce. He is OK with it, and has no issues.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

"ISO 14000 ill compliment all job descriptions and will align our current jobs with the J&J Credo"

2. Do you think that environmental protection is important?

"Yes."

3. How much does your individual compliance to ISO 14000 affect the future?

"Individual compliance will contribute to a less polluted environment in the future and will be an example to others in and out of the workplace"

4. How does your environmental awareness affect your life in and out of the workplace?

"It makes me more diligent and cautious when dealing with the materials in and out of the workplace"

5. How do you feel about additional responsibilities in your job description?

"I agree with the new responsibilities as long as they align with the benefits of McNeil and its employees"

Department:	Finance

Questions:

1. What are your feelings about the implementation of ISO 14000?

"I think the introduction of the series of international standards designed to assure the quality of life provides a uniform set of rules and that environmental awareness is of significant importance for those entities making a conscious effort to stay competent, in a most challenging market environment"

2. Do you think that environmental protection is important?

"The environment has been a matter of discussion for centuries, but lacking to take serious action has ended in further and accelerated deterioration. Now we have a bigger burden to deal with and we can't procrastinate further"

3. How much does your individual compliance to ISO 14000 affect the future?

"This is not a government or entity endeavor, but every single citizen must commit to protect the environment. It is good to have a company with driven initiatives that provide awareness to employees and consequently to the families and communities of the employees"

4. How does your environmental awareness affect your life in and out of the workplace?

"I elaborated on this topic in my theme paper at the university. Since then all my family is involved in recycling and in other activities in favor of the environment. I think this is a must carry issue for everyone, everywhere they go."

5. How do you feel about additional responsibilities in your job description?

"Even though I believe awareness and communication are very critical and individuals should be more forward and commit based upon conviction. If enforcement is necessary, I'd tend to agree, it is a matter of conscious habit"

Department:	Mfg.

Questions:

1. What are your feelings about the implementation of ISO 14000?

"We haven't received a training of what ISO 14000 is, but if its environmental protection, it is certainly welcome"

2. Do you think that environmental protection is important?

"Not only important… it's a must"

3. How much does your individual compliance to ISO 14000 affect the future?

"If we don't, there will be no future"

4. How does your environmental awareness affect your life in and out of the workplace?

"We have an obligation of preserving the world for our children and generations to come. If we pollute our resources, there will be no life nor workplace"

5. How do you feel about additional responsibilities in your job description?

"No problem, they are already my responsibilities"

Department:	Mfg

Questions:

1. What are your feelings about the implementation of ISO 14000?

"Its another step to quality from a safety stand point"

2. Do you think that environmental protection is important?

"Yes, its in our credo"

3. How much does your individual compliance to ISO 14000 affect the future?

"Compliance with the ISO 14000 will open the door for future expansions and additional plant life"

4. How does your environmental awareness affect your life in and out of the workplace?

"It will help in a small scale, my contributions to keep a safe environment"

5. How do you feel about additional responsibilities in your job description?

"As long as they result in accordance to our credo and to keep us competitive, I am OK"

Department:	Projects / Validation

Questions:

1. What are your feelings about the implementation of ISO 14000?

He thinks that this is the way to go, that having this compatibility with world class standards is a great idea.

2. Do you think that environmental protection is important?

Yes, that it the reason they do the things they do in their department. That is why it is so important for new equipment to be inspected by the environmental engineer.

3. How much does your individual compliance to ISO 14000 affect the future?

"Every little bit counts," he says.

4. How does your environmental awareness affect your life in and out of the workplace?

He has become more aware due to his employment at McNeil.

5. How do you feel about additional responsibilities in your job description?

It is necessary to have these responsibilities. Everyone needs to take part.

Department:	Engineering

Questions:

1. What are your feelings about the implementation of ISO 14000?

"The implementation of ISO 14000 will increase the awareness of employees at all levels with the environmental programs, laws and regulations related to the plant operations. In addition, offer the opportunities to all employees to become more conscious of the environmental protection in and out of the workplace."

2. Do you think that environmental protection is important?

"The environmental protection is very important. The standards of living of future operations and ours depends on how we protect our environment."

3. How much does your individual compliance to ISO 14000 affect the future?

"Compliance with ISO 14000 will increase employee involvement in the operations as well as our recommitment to compliance with environmental regulations. Working in an organization committed with good environmental practices helps each individual to protect the environment for future generations"

4. How does your environmental awareness affect your life in and out of the workplace?

"Environmental awareness positively affects my life. It helps to tell my family, friends and neighbors about how important recycling is, propose disposal of waste and oil and how to protect the environment."

5. How do you feel about additional responsibilities in your job description?

"Additional responsibilities in my job description helps to enhance my career"

Department:	Packaging

Questions:

1.) What are your feelings about the implementation of ISO 14000?

"Implementation of ISO 14000 is the ultimate level that our organization has to reach in order to be considered a world class manufacturer."

2.) Do you think that environmental protection is important?

"It is important for us and most important for the next generation to come. They should inherit a better world in all aspects than the one we are actually living in"

3.) How much does your individual compliance to ISO 14000 affect the future?

"My behavior can influence others and collectively this ISO 14000 commitment is crucial for the survival of our planet earth"

4.) How does your environmental awareness affect your life in and out of the workplace?

"It makes me a more conscious person in all senses and devoting more time on this critical issue in my children's schools, with my neighbors and in the community in general. It is like initiating your own personal crusade."

5.) How do you feel about additional responsibilities in your job description?

"As long as they serve as guides to protect our environment, they are welcome."

Appendix G

Appendix G is a list of the 1995 job descriptions matched up as best as possible to the current organizational chart job titles. The column labeled complete refers to the recommendations that we completed.

| Job Descriptions	Job Titles	Complete
Engineering		
Engineering Manager	Engineering Manager	X
	Administrative Asst.	X
	PCAP Facilities Eng. Mgr.	
	Nat'l Eng. Project Mgr.	
	PCAP Facilities Project Sup.	
Utilities Eng.	Eng. Utilities Mgr.	X
Bldg. Grds. Sup.	Bldg. Grds. Sup.	X
Plant Eng.	Plant Eng.	X
	Environmental Mgr.	X
Maintenance Technician	Maintenance Technician	X
Maintenance Mechanic (g.l)	Maintenance Mechanic (g.l)	X
Maintenance Mechanic		
Bldg. Conservation Operator	Bldg. Grds. Operator	X
	Eng. Svcs. Coord./Spare Parts/ Calibration	X
	Maint. Sup- Pkg	X
	Maint. Sup.-C&P/Gran	X
	Maint. Sup. Gdip.	X
	Maint. Sup. Chew/Comp/P&D	X
Electronic Technician	Electronic Technician	X
	Environmental Eng.	X
Calibration Clerk		
Project Supervisor		
Process Maintenance Eng.		
Quality Assurance		
	Quality Assurance Manager	X
Administrative Assistant		X
Sr. Comp. Sup.	Sr. Comp. Sup	X
Compliance Specialist	Compliance Specialist	X
Compliance Auditor	Compliance Auditor	X
GMP Coordinator	GMP Coordinator	X
	QA Tech. Packaging	X
Micro Lab Sup.	Micro Lab Sup.	X
Microbiologist	Microbiologist	X
Micro Lab Technician	Micro Lab Technician	X
	Analytical Lab Sup.	X
	Sr. Analyst	X
Analyst	Analyst	X
Q.A. Technician	QA Tech. Incoming	X
Analytical Lab Technician	Analytical Lab Technician	X
Q.A. Lab Sup.		
Q.A. Lab Sr. Sup.		

Documentation Sup.	Sr. Documentation Sup.	X
Mfg. Documents Coordinator	Mfg. Document Coord.	X
Label Room Technician	Label Room Technician	X
Disposition Coordinator	Disposition Coordinators	X
Doc. Review Technician	Doc. Review Technician	X
Q.E. Sup.	Q.E. Sup.	X
Quality Engineer	Quality Engineer	X
Computer Sys. Quality Eng.		
Q.A. Computer Sys. Spec.	QA Comp. System Spec.	X
Quality Engineering Tech.		X
	Compliance Tech.	X
Materials		
Materials Manager	Materials Manager	X
Admiistrative Support I		
	MRO Coordinator	X
MRO Buyer	MRO Buyer	X
	Sr. Buyer/Planner	X
Buyer/Planner	Buyer/Planner	X
	Purchasing Sup.	X
Messenger	Messenger	X
Planning Manager	Planning Manager	X
	Sr. Master Scheduler	X
Master Scheduler		
Planning Analyst		
Senior Warehouse Sup.	Sr. Warehouse Sup.	X
	Sr. Warehouse/Traffic Sup.	X
Warehouse Sup.		
Trafic and warehouse Clerk	Traffic / Warehouse Clerk	X
	Warehouse G.L. and Oper.	X
Senior Warehouse Operator		
Warehouse Operator		
Finance		
	Plant Comptroller	X
Finance Manager		
Sr Financial Accountant		
Financial Accountant	Financial Accountant	X
	Finance Coordinator	X
Cost Accountant	Cost Accountant	X
	Sr. Cost Accountant	X
Cost Accountant		
Administrative Supp I		
Information Management		
	I.M. Director	X
I/T manager	I.M. Manager	X

	Sr. System Eng.	X
System Engineer		
	I.M. Specialist	X
	Cim Support Analyst	X
Decision Support Analyst	Decision Support Analyst	X
	Administrative Clerk	X
A/V Tech		
Human Resources		
HR Manager	HR Manager	X
Sr HR Administrator	Sr. HR Administrator	X
	HR Coordinator	X
Receptionist (contract)		
Administration		
General Manager	General Manager	
Admin Support I & II		
Manufacturing Manager	Manufacturing Manager	X
Manufacturing		
	Administrative Assistant	X
	Mfg. Section Mgr. Gran	X
	Mfg. Section Mgr. Comp	X
	Mfg. Section Mgr. C&P	X
	Mfg. Section Mgr. Geldipping	X
Mfg. Section Mgr.		
Manufacturing Clerk		
	Mfg. Sup. Granulation	X
	Mfg. Sup. Compression	X
	Mfg. Sup. C&P	X
	Mfg. Sup. Geldippng	X
	Mfg. Mechanic Granulation	X
	Mfg. Mechanic Compression	X
	Mfg. Mechanic C&P	X
	Mfg. Operator Granulation	X
	Mfg. Operator Compression	X
	Mfg. Operator C&P	X
	Mfg. Operator Geldippng	X
	Mfg. Group Leader C&P	X
	Mfg. Group Leader Geldippng	X
Senior Process Supervisor		
Processing Supervisor		
Compression Process Operator / Group Leader	Mfg. Group Leader Compression	X
Granulation Process Operator / Group Leader	Mfg. Group Leader Granulation	X
Geldipping Mechanic	Mfg. Mechanic Geldippng	X
Processing Operator		
Processing Mechanic		
Mechanic helper		

Packaging		
	Mfg. Section Mgr. Packaging	X
Senior Packaging Supervisor		
Packaging Supervisor	Mfg. Sup. Packaging	X
Electronic Technician		
	Mfg. Operator Packaging	X
Mechanic, Operator, or line attendant		
Mechanic / Line Leader	Mfg. Mechanic/Group Leader Packaging	X
Projects		
	Bus. Improvement Proj/Valid Manager	X
Mfg. Project Manager	Project Manager	X
Project Supervisor	Sr. Project Supervisor	X
Mfg. Project Coordinator	Project Coordinator	X
Coop Student	Coop Student	
	Validation Manager	X
	Sr. Validation specialist	X
	Validation Coordinator	X
	QE Tech. Validation	X
	Validation Specialist	X

Pert Chart
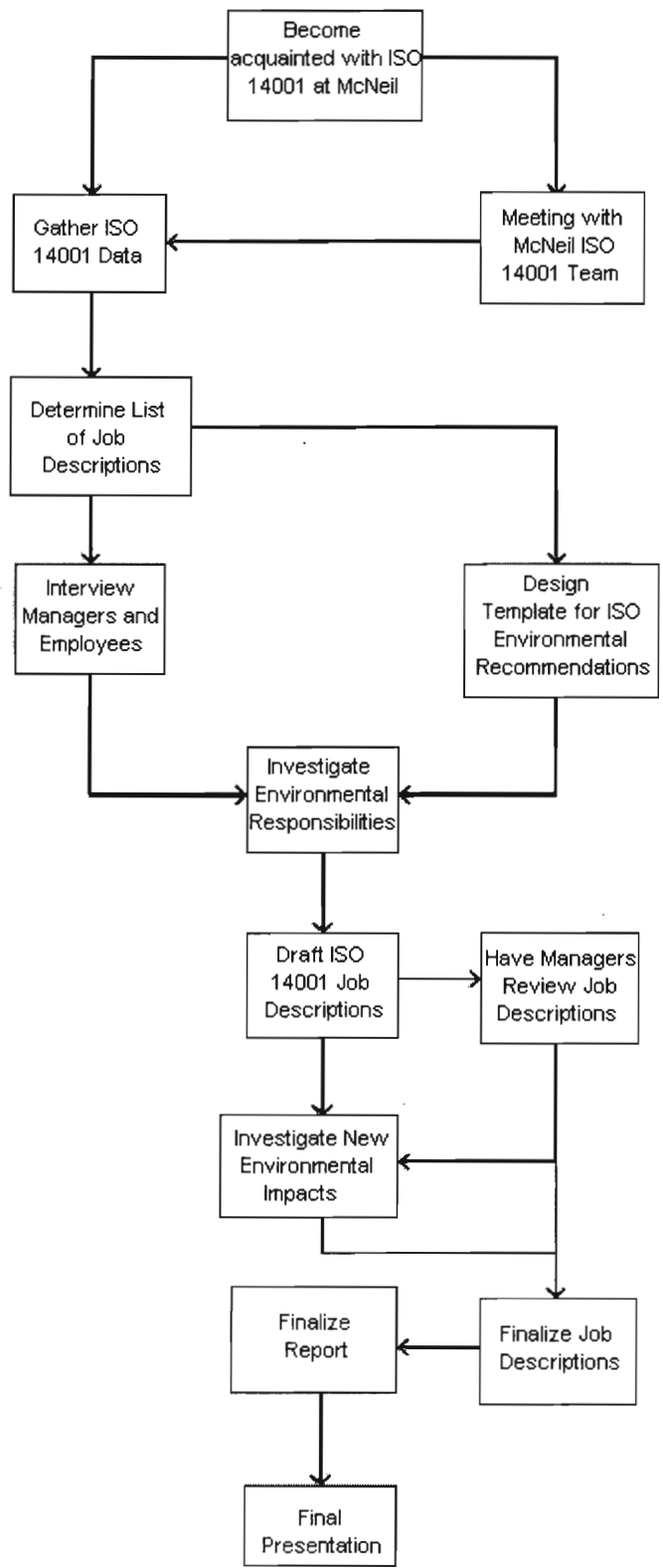
List of interview Dates

Name	Title/Dept.	1st Date	2nd Date
Jorge Ros	Mfg. Mgr/Mfg.	4/29/99	
Jose Sanchez	Mfg. Mgr-Gran/ Mfg.	4/27/99	4/29/99
Ileana Zavala	Mfg. Mgr-Comp/Mfg.		4/29/99
Modesto Negron	Mfg. Mgr-C&P/Mfg.	4/20/99	4/30/99
Walter Santiago	Mfg. Mgr-GD/Mfg.		5/3/99
Edwin Rosado	Mfg. Mgr-Pkg/Mfg.	4/20/99	
Iris Ramon	P&V Mgr/P&V		4/27/99
Jorge Colom	Project Mgr/P&V	4/15/99	4/29/99
Emilio Escobar	Mat. Mgr/Mat.	4/14/99	4/21/99
Carmen Diaz	Purchasing Mgr/Mat.	4/19/99	4/22/99
Zeneida Lopez	Purchasing Sup/Mat.	4/21/99	4/22/99
Jaime Villalobos	Sr. Whs. Sup/Mat	4/21/99	4/29/99
Hugh Davis	Planning Mgr/Mat.	4/14/99	4/19/99
Brian Boyd	Eng Mgr/Eng.		
Ildefonso Ayala	Eng. Util. Mgr/Eng.	4/21/99	4/28/99
Nelson Berdecia	Bldg. Grds. Sup/Eng.	4/14/99	4/19/99
Luis Diaz	Plant Eng/Eng	4/12/99	4/27/99
Nelson Cruz	Env. Mgr/Eng.	4/13/99	5/3/99
Hector Davila	Eng. Srvcs. Coord/Eng	4/14/99	4/20/99
Carlos Espinosa	Maint. Sup-Comp	4/15/99	4/20/99
Jose Suarez	Maint. Sup-C&P		
Juan Lugo	Maint. Sup-Pkg	4/14/99	4/30/99
Mildred Guzman	Maint. Sup-GD	4/19/99	4/29/99
Raul Cardona	QA Mgr/QA	4/29/99	
Carmen Andino	Sr. Comp. Sup/QA	4/5/99	4/20/99
Wanda Cancel	Micro Lab Sup/QA	3/29/99	4/8/99
A. Raul Miranda	Analytical Lab Sup/QA	3/29/99	4/8/99
Annie Carrion	Sr. Doc.Sup/QA	3/30/99	4/15/99
Armando Fajardo	QE Sup./QA	3/30/99	4/19/99
Antonio Marrero	IM Mgr. Dir/IM	4/22/99	
Luis Gonzalez	IM Mgr/IM		4/27/99
Luis Huertas	Plant Controller/Fin.	4/22/99	4/30/99
Ramon Labarca	HR Mgr/HR	4/15/99	4/21/99
Igneris Negron	Sr. HR Adm/HR	4/15/99	

Glossary

A

Accreditation- procedure by which an authoritative body formally recognizes that a body or person is competent to carry out specific tasks

Allocation- technique for partitioning the inputs and outputs of a system among products

Applicant- legal entity applying for an environmental label for a product or range of products and that undertakes the compliance with ecological and product function criteria and the certification and costs involved in the application and awarding of the label

Assessment- an estimate or determination of the significance, importance, or value of something

Assessment Body- third party that assesses products and registers the quality of suppliers

Assessment System- procedural and managerial rules for conducting an assessment leading to the issue of a certification document and its maintenance

Audit- a planned, independent, and documented assessment to determine whether agreed-upon requirements are being met

Audit Conclusion- professional judgement or opinion expressed by an auditor about the subject matter of the audit, based on and limited to reasoning the auditor has applied to the audit findings

Audit Criteria- policies, practices, procedures, or requirements against which the auditor compares collected audit evidence about the subject matter

Audit Evidence- Verifiable information, records, or statements of fact

Audit Findings- results of the evaluation of the collected audit evidence compared against the agreed audit criteria

Audit Program- the organizational structure, commitment, and documented methods used to plan and perform audits

Audit Team- group of auditors, or a single auditor, designated to perform a given audit; the audit team may also include technical experts and auditors in training

Auditee- organization to be audited

Auditor (environmental)- person qualified to perform environmental audits

B

Body- legal or administrative entity that has specific tasks and composition

C

Certificate (of conformity)- document issued under the rules of a certification system, indicating that adequate confidence is provided that a duly identified product, process, or service is in conformity with a specific standard or other normative document

Certification- procedure by which a third party gives written assurance that a product, process, or service conforms to specified requirements

Certification Body- body that conducts certification of conformity

Certification System- system that has its own rules of procedure and management for carrying out certification of conformity

Certifier- *see certification body*

Certified- the EMS of a company, location, or plant is certified for conformance with ISO 14001 after it has demonstrated such conformance through the audit process; when used to indicate EMS certification, it means the same thing as registration

Compliance- an affirmative indication or judgment that the supplier of a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements (*see also conformance*)

Conformance- an affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements (*see also compliance*)

Conformity Assessment- conformity assessment includes all activities that are intended to assure the conformity of products or systems to a set of standards; this can include testing, inspecting, certification, quality system assessment, and other activities

Continual Improvement- process of enhancing the environmental management system to achieve improvements in overall environmental performance, in line with the organization's environmental policy; this process need not take place in all areas of activity simultaneously

Corrective Action- an action taken to eliminate the causes of an existing nonconformity, defect, or undesirable situation in order to prevent recurrence

Customer- ultimate consumer, user, client, beneficiary, or second party

D

Design Review- a formal, documented, comprehensive, and systematic examination of a design to evaluate the design requirements and that capability of the design to meet these requirements and to identify problems and propose solutions

E

Economic Benefit Component- the economic advantage a violator gains through noncompliance

Environmental Audit- a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements

Environment- surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation; surroundings in this context extend from within an organization to the global system

Environmental Aspect- element of an organization's activities, products, and services that can interact with the environment

Environmental Audit- systematic, documented verification process of objectively obtaining and evaluating audit evidence to determine whether specified environmental activities, events, conditions, management systems, or information about these matters conform with audit criteria, and communicating the results of this process to the client

Environmental Claim- any environmental declaration that describes or implies by whatever means the effects that raw material extraction, production, use, or disposal of a product or service has on the environment; this applies to effects that are local, regional, or global, and the environment that an individual lives in, affects, or is affected by

Environmental Impact- any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services

Environmental Label/Declaration- Claim indicating the environmental attributes of a product or service that may take the form of statements, symbols, or graphics on product or package labels, product literature, technical bulletins, advertising, publicity, etc.

Environmental Management System (EMS)- organizational structure, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy

Emergency Response Procedures- procedures that identify the potential for accidents and emergency situations including methods for prevention

EMS Audit- a systematic and documented verification process to objectively obtain and evaluate evidence to determine whether an organization's environmental, management system conforms to the EMS audit criteria set by the organization, and to communicate the results of this process to management

EMS Audit Criteria- policies, practices, procedures, or requirements, such as covered by ISO 14001, and, if applicable, any additional EMS requirements against which the auditor compares collected evidence about the organization's EMS

Environmental Objective- overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and that is quantified where practicable

Environmental Performance- the measurable results of the environmental management system related to an organization's control of its environmental aspects, based on its environmental policy, objectives, and targets

Environmental Performance Evaluation- process to measure, analyze, assess, report, and communicate an organization's environmental performance against criteria set by management

Environmental Policy- statement by the organization of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets

Environmental Target- detailed performance requirement, quantified wherever practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives

Excipients- ingredients used in the production of Tylenol® other than the active ingredients

F

Finding- a conclusion of importance based on observation(s)

Follow-up Audit- an audit whose purpose and scope are limited to verifying that corrective action has been accomplished as scheduled and to determining that the action effectively prevented recurrence

Function- performance characteristic

I

Inputs and Outputs- material or energy that crosses a unit process boundary; for example, materials may include raw materials, products, emissions, and waste

Inspection- activities such as measuring, examining, testing, and gauging one or more characteristics of a product or service and comparing these with specified requirements to determine conformity

Interested Party- individual or group concerned with or affected by the environmental performance of an organization

J

Joint Assessment- cooperative assessments resulting in formal mutual recognition of certifications

L

Lead Auditor (environmental)- person qualified to manage and perform environmental audits

Licensee- a party authorized by a practitioner to use an environmental label

Life-Cycle- consecutive and inter-linked stages of a product system, from raw material acquisition or generation of natural resources to the final disposal

M

Mark of Conformity- protected mark, applied or issued under the rules of a certification system, indicating that confidence is provided that the relevant product, process, or service is in conformity with a specific standard or other normative document

N

Nonconformity- the nonfulfillment of a specified of a specified requirement

O

Organization- company, corporation, firm, enterprise, or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own function and administration

Organizational Structure- the responsibilities, authorities, and relationships, arranged in a pattern through which an organization performs its functions

P

Practitioner- third party body that operates an environmental labeling program; individual or group of people that conduct a life-cycle assessment study

Procedure- a specified way to perform an activity

Process- a set of interrelated resources and activities that transform inputs into outputs

Product- any good or service

Product Category- group(s) of products that have equivalent functions

Product Environmental Criteria- set of qualitative and quantitative technical requirements that the applicant, product, or product category shall meet to be awarded an environmental label; product criteria include ecological and product function elements

Product System- collection of materially and energetically connected unit processes that performs one or more defined functions

Q

Qualification Process- the process of demonstrating whether an entity is capable of fulfilling specified requirements

Quality System- organization structure, procedures, processes, and resources needed to implement quality management

R

Raw Material- primary or secondary recovered or recycled material that is used in a system to produce a product

Raw Material Acquisition- activities associated with the production and delivery of raw materials

Recognition Agreement- an agreement that is based on the acceptance by one party of results, presented by another party, from the implementation of one or more designated functional elements of a conformity assessment system

Registration- procedure by which a body indicates relevant characteristics of a product, process, or service, or particulars of a body in an appropriate, publicly available list

Registration Body- *see certification body*

Registration System- system having its own rules of procedure and management for carrying out the assessment leading to the issuance of a registration document and its subsequent maintenance

Requirements of Society- requirements including laws, statutes, rules and regulations, codes, environmental considerations, health and safety factors, and conservation of energy and materials

Resource Productivity Framework- a systematic approach to environmental issues and opportunities in the entire value chain of the enterprise

S

Service- the result generated by activities at the interface between the supplier and the customer and by the supplier internal activities to meet the customer needs

Site- all land on which activities under the control of a company at a given location are carried out, including any connected or associated storage of raw materials, byproducts, intermediate products, end products, and waste material, and any equipment or infrastructure involved in the activities, whether or not fixed; where applicable, the definition of site shall correspond definition specified in legal requirements

Specification- the document that prescribes the requirements with which the product or service must conform

Stakeholders- those groups and organizations having an interest or stake in a company's EMS program (i.e., regulators, shareholders, customers, suppliers, special interest groups, residents, competitors, investors, bankers, media, lawyers, insurance companies, trade groups, union, ecosystems, cultural heritage, and geology)

Supplier- an organization that provides a product to the customer

System- collection of unit processes that, when acting together, perform some defined function

System Boundary- interface between the product system being studied and its environmental or other systems

T

Testing- a means of determining an item's capability to meet specified requirements by subjecting it to a set of physical, chemical, environmental, or operating actions and conditions

Third Party- person or body recognized as being independent of the issue involved, as concerns the issue in question

U

Unit Processes- the smallest technical sub-system for which data are collected

V

Verification- process of authenticating evidence; the act of reviewing, inspecting, testing, checking, auditing, or otherwise establishing and documenting whether items, processes, services, or documents conform to specified requirements