

**SATURN +5 ISO 14000 PILOT PROJECT
MEMBER ORGANIZATION QUESTIONNAIRE**

**Summary for
ACD Tridon
Lawrenceburg, Tennessee**

FOCUS: *Uncover and compare means of managing environmental affairs of the respective member organizations*

Preliminary Issues

1. Briefly describe the company's industry and products (i.e., automobile manufacturer, etc.).

The Lawrenceburg plant manufactures windshield wipers. Currently, the plant has two separate and independent divisions: (1) After-Market Division which produces wipers for the post-vehicle-purchase market (approximately 40,000,000 per year) and (2) Original Equipment Division which manufactures original equipment for customers such as Saturn and Volkswagen.

2. Briefly describe the company's size and number of plant and corporate locations.

ACD Tridon has 3 plants located in Tennessee. The company is headquartered in Smyrna, Tennessee. The Smyrna plant manufactures steel hose clamps. The Springfield, Tennessee plant manufactures turn signals and flashers. The Lawrenceburg plant manufactures windshield wipers and employs approximately 350 persons.

3. Briefly describe the major environmental aspects of the company's operations.

- Largest impact is from chlorine used to treat rubber used to make wiper components (affects wastewater pretreatment system and air permit discharge limits)
- Salt waste stream from heat treating bath in wiper manufacturing process
- Waste rubber (excess given to the City of Lawrenceburg; if the City cannot sell the rubber, the City will landfill it)
- Waste oils from machining processes (recycled through vender that supplies new oil)
- Large cardboard recycling program
- Air emissions (TDEC permit)
- Wastewater pretreatment and storm water permits
- General municipal solid waste

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4. *Briefly describe the company's strategic business plan. Are environmental issues a part of that plan and, if so, what part?*

At the moment, ACD Tridon is up for sale. Pending the outcome of the sale effort, the present plan is to relocate the Original Equipment Division of the Lawrenceburg plant to another location outside of Lawrenceburg. The After-Market Division will remain within the Lawrenceburg plant.

EMS Issues

1. *Does the company have what it considers a formal Environmental Management System (EMS) in place?*

No. The Lawrenceburg plant does have certain written procedures for handling environmental issues such as waste oils and waste salt. There is no single notebook or other compilation of these procedures available. Primarily, these procedures are maintained in a filing system of which Mark Dorth, Safety & Environmental Facilitator is the custodian.

2. *If not, what is the status of company efforts to develop an EMS?*

It is assumed that the new owners will want to develop a formal EMS. However, any formal efforts to do so are on hold pending the outcome of the current sale effort. In addition, because of the potential relocation of the Original Equipment Division, a new manager with environmental responsibilities for the OE division will eventually be designated.

3. *Does the company have a written EMS or a written policy statement on environmental management within the company?*

ACD Tridon has a blanket environmental policy. The Lawrenceburg facility does not yet have permission to release it for review.

4. *Would you prefer your EMS system to be integrated with your QM system or would you prefer them to run separately? Why or why not?*

Yes. The primary reason for preferring integration of EMS with the QM system is space concerns. Integration would promote efficient use of space especially in record keeping.

5. *What perceived level of value does the top/upper level management of the company place on EMS and environmental issues faced by the company?*

The level of value perceived is high. Upper management is interested in staying out of environmental "trouble" and doing what is right.

6. *What is the company's view of the utility of ISO 14000 certification?*

ACD Tridon-Lawrenceburg believes they will get more business by being ISO 14000 certified. This results from its experience with QS 9000 certification. The Lawrenceburg plant was the first company in Lawrenceburg to become QS 9000 certified. ACD Tridon-Lawrenceburg also perceives that ISO 14000 certification will eventually become a requirement for doing business with the major automobile manufacturers in the United States.

Questionnaire Results: ACD Tridon

7. *Does the company have any concerns about becoming ISO 14000 certified? If so, what are they? What potential downsides do the company feel ISO 14000 may bring?*

Based upon the company's experience with QS 9000 certification, the answer is no to the first question and none to the last.

8. *What is the status of ISO 14000 certification with the company today?*

On hold pending the outcome of the potential sale of the company. Participation in the Saturn +5 ISO Pilot Project is an initial step in the direction of eventually pursuing ISO 14000 certification.

Organizational Issues

1. *Is there a manager dedicated solely (or primarily) to overseeing environmental management issues in the company?*

No.

2. *If not, what persons or departments in the company are considered "in charge" of overseeing and addressing environmental management issues faced by the company?*

Mark Dorth, Safety & Environmental Facilitator for ACD Tridon-Lawrenceburg. Mr. Dorth spends about 20 percent of his time on environmental management issues.

3. *Is environmental management a distinct operating division within the firm, or are environmental tasks delegated to various members of different departments of the firm?*

There is no separate environmental department or distinct environmental operating division at ACD Tridon-Lawrenceburg. There are significant environmental tasks delegated to the maintenance department, such as monitoring machines, record keeping, etc.

4. *Are there cross-functional teams focusing specifically on environmental issues within the company?*

Yes, primarily Mark Dorth and members of the maintenance department.

5. *If some distinct environmental departments exist, how are the departments structured? What tasks are performed within that structure?*

Not applicable.

6. *Do environmental managers consider staffing to be adequate for the tasks that must be performed by the environmental structure of the firm? Does upper management consider staffing to be adequate for the same purpose?*

At the moment, Mark Dorth handles environmental management tasks for both divisions at Lawrenceburg. Eventually, another person will be designated to undertake Mark Dorth's role on behalf of the potentially-to-be relocated Original Equipment Division and Mark will continue on behalf of the After-Market Division. Mark Dorth does not consider staffing to be adequate at all times for environmental tasks which must be handled for the company.

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7. *What type of software systems does the company use to manage environmental information?*

The chlorine air scrubber has a dedicated computer with dedicated software which measures the amounts of materials going in and out of the system. Otherwise, ACD Tridon has developed some customized data bases in Microsoft Excel to handle environmental information.

8. *How does the company operationally track information such as material flow, purchasing, etc. that relates to environmental issues?*

Material requirements for products manufactured by ACD Tridon-Lawrenceburg do not change all that often. Thus, this is not a difficult task. The main chemical used is chlorine which is tracked at the time of purchase. Salt can be tracked at the time of purchase.

9. *How does the company compile and disseminate critical information that affects the company's business and projects?*

Mark Dorth is responsible for reporting to the appropriate managers at ACD Tridon-Lawrenceburg regarding environmental information.

10. *Describe the chain of command within the environmental management structure of the company (including facility vs. corporate headquarters structure).*

Mark Dorth reports to the Manufacturing Engineering Manager who reports to the Operations Manager for the After-Market Division who reports to the Vice President of the After-Market Division.

11. *Describe any issues of concern regarding communication between facility and corporate offices on environmental management issues.*

None.

12. *Describe the chain of command from environmental management to top/upper level management of the company.*

See the response to question 10 (Organizational Issues) above.

13. *Generally, where does primary decision making authority over environmental issues reside within the firm? What type of decisions require approval outside of the environmental management structure (i.e., from top/upper level management)?*

“Consensus decisions” are reached between Mark Dorth and any combination of the managers referenced in the response to question 10 (Organizational Issues) above. Often, the issue will first be run by the corporate environmental consultant who maintains an office in the Smyrna headquarters of ACD Tridon.

14. *Are environmental management decisions often made at the facility level rather than corporate level? What type of facility level decisions require approval from corporate environmental managers?*

Decisions involving significant expenditures of funds, or across the board decisions affecting all three plants, are made at the Smyrna headquarters.

Questionnaire Results: ACD Tridon

15. Describe the level of integration of environmental departments or personnel with the rest of the company.

Because of the size of the Lawrenceburg operations, the level of integration is moderately high. Mark Dorth is routinely consulted by upper management on environmental issues as they arise.

16. In a related vein, what are the relationships between environmental departments/personnel and other departments within the company? (In other words, what links are in place to allow environmental personnel to effectively perform their jobs within the company?)

The relationship between environmental management and the maintenance department is good because of the high number of environmental issues handled by the maintenance department.

17. Describe any concerns with communication between environmental departments or cross-functional environmental employees and other departments with the firm.

None.

18. Does the firm rely upon outside consultants to handle environmental tasks? How often?

Yes. The corporate environmental consultant based at the Smyrna plant is often consulted and utilized in handling environmental issues for the Lawrenceburg plant.

19. What factors are considered in determining whether to utilize consultants or handle an environmental matter in-house?

Generally expertise and time constraints. The corporate environmental consultant has far more expertise to handle a number of tasks (i.e., permit applications, in-house environmental assessments) than any employee in the three ACD Tridon plants.

20. How is the performance of the environmental management department evaluated within the firm?

Not applicable.

21. Upon what criteria would departmental performance be judged?

Not applicable.

22. Are individuals with environmental management responsibilities evaluated on their performance of those responsibilities?

Yes, with respect to Mark Dorth.

23. Who conducts such evaluations and what criteria are used to do such evaluations?

The Manufacturing Engineering Manager conducts Mark Dorth's evaluation.

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“Perfect World” Issues

1. *Could the environmental management system of your company be better? How? What would you change if you could? Why?*

Yes. In a perfect world, time constraints to handle environmental tasks would be eliminated. Problems would be handled at an earlier stage rather than dealt with at the last minute.

2. *What degree of influence over corporate structure or policy does environmental management have? What degree do you think it should have? Why?*

Environmental managers have input at ACD Tridon-Lawrenceburg. However, present environmental managers believe that setting policy should be the responsibility of upper management, including as to environmental issues and concerns.

3. *Are matters being handled by other departments in the firm that would be better served if they were handled by environmental?*

No. Personnel in the maintenance department are more experienced and better suited to handling many of the environmental tasks necessary to perform at ACD Tridon-Lawrenceburg. These tasks are part of their job and they are more knowledgeable and capable to handle them than anyone else at the plant.

4. *Are there issues being handled by environmental that should be handled by other departments?*

No.

5. *When and to what extent is environmental consulted on issues of public relations, marketing, product development, etc. now? When and to what extent do you think it should?*

Mark Dorth is consulted regularly on issues of marketing, design and product development within the Lawrenceburg operation.

6. *What meetings do environmental managers attend that are not run by environmental managers? Are there meetings that you think environmental should attend now but they are not?*

Because Mark Dorth has many significant responsibilities other than environmental at ACD Tridon-Lawrenceburg, he attends numerous meetings that may not be “environmental” meetings, but at which he can interject on environmental issues as the need arises. The response to the second question above is no.

Questionnaire Results: Bridgestone/Firestone, Inc.

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MEMBER ORGANIZATION QUESTIONNAIRE**

**Summary for
Bridgestone/Firestone, Inc.
Nashville, Tennessee**

FOCUS: *Uncover and compare means of managing environmental affairs of the respective member organizations*

Preliminary Issues

1. Briefly describe the company's industry and products (i.e., automobile manufacturer, etc.).

Bridgestone/Firestone, Inc. (BFS), a subsidiary of Bridgestone Corporation of Japan, manufactures, markets and sells tires for passenger, light truck, truck, bus, earthmoving and agricultural applications. BFS also manufactures and markets other products including building and industrial products, air springs, roofing materials, industrial fibers and textiles and synthetic rubber and latex.

2. Briefly describe the company's size and number of plant and corporate locations.

BFS is the principal subsidiary of Bridgestone Corporation of Japan, the world's largest tire and rubber company. BFS operates a total of 17 tire plants and 20 other manufacturing facilities in the United States, Canada, Mexico, Brazil, Argentina, Venezuela, Costa Rica and Chile. The company's corporate headquarters is in Nashville, Tennessee and its technical center is in Akron, Ohio. BFS has annual sales of over \$7.5 billion and employs nearly 45,000 persons.

3. Briefly describe the major environmental aspects of the company's operations.

The major environmental aspects of a typical BFS tire plant are:

- small quantity hazardous waste generator
- generate large volumes of non-hazardous solid waste
 - scrap rubber (green or not sufficiently cured)
 - plant trash
 - construction and demolition debris
- non-hazardous industrial wastes
 - special wastes (dried out process fines)
 - waste soaps (contain zinc)

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- large recycling and beneficial reuse projects (i.e., scrap tires, plastic, paper, cardboard, scrap metal, etc.)
- air emissions
 - two major permits (one for boilers/powerhouse and one for HAPs in the form of total (bubble or netting) emissions on a 12-month rolling average)
- water emissions
 - two NPDES permits
 - direct discharge (includes storm water)
 - indirect discharge to POTW
- energy use (i.e., purchased electricity, diesel, natural gas, LP, gasoline, batteries)
- water use (city water, well water)
- large volume consumption of raw materials (i.e., carbon black, rubber, chemicals, fabric, steel cord, oils, lubricants, solvents, etc.)

4. Briefly describe the company's strategic business plan. Are environmental issues a part of that plan and, if so, what part?

At present, Bridgestone Corporation of Japan, of which BFS is the largest subsidiary, owns approximately 18 _ percent of the world tire market. The current strategic business plan is to increase the company's world market share to at least 20 percent while at the same time weathering the economic conditions in the Asian and South American markets. Environmental issues are a significant part of the company's strategic business plan due to the sensitivity to environmental issues in the company's South American markets and, especially since the last half of 1998, the United States market. BFS's customers are becoming more and more likely to be concerned with the company's environmental position.

EMS Issues

1. Does the company have what it considers a formal Environmental Management Systems (EMS) in place?

Yes. BFS has at least a very adequate EMS that keeps its plants and facilities fully compliant. However, the company's EMS system is not as fully integrated into overall core company management as the company would like it to be and having its plants ISO 14000 certified will give us a healthy shove in that direction.

2. If not, what is the status of company efforts to develop an EMS?

In 1997, BFS's CEO committed the company, both domestically and internationally, to achieve ISO 14000 certification at all of its major manufacturing plants by the end of 1999. Over 30 BFS factories in the United States, Canada, Mexico and South America will have the certification. In addition, all Bridgestone Corporation tire plants (40 +) will have the certification within the year.

Questionnaire Results: Bridgestone/Firestone, Inc.

3. *Does the company have a written EMS or a written policy statement on environmental management within the company?*

Yes. The company's Environmental Policy Statement is as follows:

We will develop and produce competitive products and services to meet customer requirements while operating in an environmentally responsible manner. The CEO, President, officers, and associates are committed to an effective environmental management system designed to accomplish our strategic business objectives and fulfill our responsibility as a good corporate neighbor in the communities where we operate. To that end, we shall:

- **Conduct business so that environmental challenges are managed as an integral part of current and changing business strategies.**
- **Communicate about environmental issues across organizational and functional lines.**
- **Comply with applicable federal, state, and local environmental laws, and meet other environmental commitments we make.**
- **Promote pollution prevention.**
- **Continually improve the environmental management system.**

Implementing this policy is a primary management objective.

4. *Would you prefer your EMS system to be integrated with your QM system or would you prefer them to run separately? Why or why not?*

As a policy matter, the company's CEO has stated that EMS is part of the QM system. On a practical level, however, the systems need to be tailored so that only those areas where it makes sense to integrate are integrated. Functions that do not belong together should be run separately; other functions where it makes good sense for integration should be integrated. The actual certification processes are separately managed within BFS.

5. *What perceived level of value does the top/upper level management of the company place on EMS and environmental issues faced by the company?*

At the CEO level, the level of value on EMS and environmental issues grows almost monthly. In the past, environmental issues would have to be raised with the CEO; more recently, the CEO raises environmental issues on his own. The decision to require ISO 14000 certification of the company's major manufacturing plants was an issue first raised by the CEO. With respect to other members of upper management, however, the value placed on environmental issues can be a mixed bag. Some upper management personnel integrate environmental thinking into their decision making process; some do not.

6. *What is the company's view of the utility of ISO 14001 certification?*

One aspect of the utility of ISO 14000 certification is the perception that the company's market will eventually be demanding such certification as a condition of doing business in the market. However, BFS perceives net benefits to ISO 14000 certification other than market based benefits. Improving the company's EMS should result in a better managed company. If the company is better managed, the company should produce a better product. A better managed company is also a better company to work for and allows the company to attract and retain better

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people. ISO 14000 certification is an indication that the company cares about excellence in management.

7. *Does the company have any concerns about becoming ISO 14000 certified? If so, what are they? What potential downsides do the company feel ISO 14000 may bring?*

One concern is that ISO 14000 certification is susceptible to turning into nothing more than a bureaucratic exercise if a company is not careful. A company may achieve a market benefit by achieving certification but will not improve by obtaining the “certified” management system. The goal is to obtain the actual benefits of improved company management by obtaining ISO 14000 certification.

A second concern is that the ISO is already working on revising the standards for certification before most companies in the United States have had the opportunity to obtain certification. We cannot be sure what kind of effect the standard revisions may have.

8. *What is the status of ISO 14000 certification with the company today?*

At this point, two BFS manufacturing facilities have actually received ISO 14000 certification – LaVergne, Tennessee and Sao Paulo, Brazil — and two others have been approved for certification — Warren County, Tennessee and Buenos Aires, Argentina. The other 30 plus BFS facilities are scheduled to obtain certification by the end of this year.

Organizational Issues

1. *Is there a manager dedicated solely (or primarily) to overseeing environmental management issues in the company?*

Yes, Jim Vines is the Executive Director and General Counsel for Environmental Affairs of BFS.

2. *If not, what persons or departments in the company are considered “in charge” of overseeing and addressing environmental management issues faced by the company?*

Not applicable.

3. *Is environmental management a distinct operating division within the firm, or are environmental tasks delegated to various members of different departments of the firm?*

Yes to both questions. The Environmental Affairs section of the Law Department handles environmental issues (legal, managerial, and technical) for the company. Also, environmental tasks are often delegated to different members of various departments. In addition, each plant has one or more individuals who are the environmental managers for that plant, although there is not a great degree of consistency in terms of the level of seniority or placement within the management hierarchy for each such person within each plant.

It can sometimes be problematic and cause confusion for the Environmental department to be within the ambit of a corporate law department. However, and somewhat of a unique circumstance in the tire industry, BFS’s environmental law department has significant clout within the company.

Questionnaire Results: Bridgestone/Firestone, Inc.

4. *Are there cross-functional teams focusing specifically on environmental issues within the company?*

BFS has a wide variety of cross-function teams revolving around specific compliance issues or strategic planning. One of the company's themes in environmental management is cross-functional approaches and interdisciplinary teams.

5. *If some distinct environmental departments exist, how are the departments structured? What tasks are performed within that structure?*

See the response to question 3 (Organizational Issues) above.

6. *Do environmental managers consider staffing to be adequate for the tasks that must be performed by the environmental structure of the firm? Does upper management consider staffing to be adequate for the same purpose?*

Environmental Managers: With respect to basic compliance, the answer is yes. We are adequately staffed to maintain regulatory compliance. However, with respect to long-term strategic issues and planning, the answer is no. We would like to be more fully integrated into core management planning in this regard.

Upper management: Yes, because basic compliance is not a problem. However, this view does not take into account long term strategic focus for integrating environmental into core business management of company.

7. *What type of software systems does the company use to manage environmental information?*

Environmental Auditing: Dakota Software

Reporting, Waste Tracking, MSDS and/or other chemicals tracking: (Plant Specific) – E.G. Mockingbird (synthetics); Lotus Notes Database (Industrial Products); Access or Excel spreadsheets (Tire Division); SAP R3 pilot programs (Des Moines and Oklahoma City)

Further Costs, Disposal, Waste Tracking, Reporting: We are working with SAP implementation leaders to combine SAP data with a yet to be determined off the shelf product to consolidate real cost information.

8. *How does the company operationally track information such as material flow, purchasing, etc. that relates to environmental issues?*

Currently some of our plants use SAP R3 for tracking materials. Eventually, the company wants to use SAP R3 in all its facilities. Today, different facilities track material flow and purchasing using different instruments. Some facilities use a pen and paper system while others use sophisticated SAP R3 modules.

Most of our facilities record their trends in some sort of Excel or Access database. The facilities report their trends to their respective divisions in a common questionnaire format. The facilities also post their results graphically within their facilities.

9. *How does the company compile and disseminate critical information that affects the company's business and projects?*

The quality of dissemination of critical information is almost totally dependent upon each manager bringing together the right people to deal with certain issues. Who do these managers

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invite to what meetings and what roles do these individuals play? Notebooks, manuals and software convey basic information, but critical information usually is communicated person to person.

10. Describe the chain of command within the environmental management structure of the company (including facility vs. corporate headquarters structure).

BFS is officially a “decentralized” company. Therefore, “chain of command” can be more informal than in other companies. Jim Vines is the Executive Director of Environmental Affairs for the company and many facility environmental managers virtually always seek advice from Jim’s office before making decisions. However, no facility manager “officially” reports to Jim Vines and some do not always consult with or seek advice from the Environmental Affairs office as part of their respective decision making processes.

That having been said, the fact that the Department of Environmental Affairs is so heavily supported by the CEO and others in upper management results in the “unofficial chain of command” at BFS being rather strong.

11. Describe any issues of concern regarding communication between facility and corporate offices on environmental management issues.

Communication is the key to the integration issue. Integration of environmental management into core business strategy and planning cannot take place without a free flowing chain of communication.

One concern is that some parts of the company in the environmental chain are isolationists; they will not seek advice before acting. Other parts of the environmental chain are the opposite and that is where environmental management performs at its best at BFS.

12. Describe the chain of command from environmental management to top/upper level management of the company.

Jim Vines reports to BFS’s Executive Vice President, General Counsel and Corporate Secretary (same person) who reports to the CEO. Jim Vines also reports to the corporate Board of Directors through the Executive Vice President’s separate role as a member of the Board. However, the Executive Vice President’s role in reporting to the CEO is more important than the role of reporting to the Board of Directors.

13. Generally, where does primary decision making authority over environmental issues reside within the firm? What type of decisions require approval outside of the environmental management structure (i.e., from top/upper level management)?

There are not a lot of hard and fast rules in this area. Decision making authority can reside everywhere depending upon the time, place and issue. There is no particular structure that says this decision must be made by this person. Much depends upon the significance of the issue and under whose watch it first arises. Whether a company has a good environmental management system that makes good decisions depends upon the quality of the people within that system and how good they are at fulfilling their roles.

Questionnaire Results: Bridgestone/Firestone, Inc.

14. Are environmental management decisions often made at the facility level rather than corporate level? What type of facility level decisions require approval from corporate environmental managers?

Different kinds of decisions require a different answer. Many decisions are and should be made at the facility level. Others, while not necessarily requiring that the decision be made at the corporate level, should at least have input from the corporate level. Because BFS is officially a decentralized company, the corporate role is one of guidance and oversight. The Environmental Affairs office does not generally have authority over divisions or individual facilities to approve or veto decisions. Some decisions, however, such as money decisions must be run by and approved at the corporate level. Also, any use of attorneys must be made at the corporate level rather than the division or facility level.

15. Describe the level of integration of environmental departments or personnel with the rest of the company.

BFS has nearly 40 factories. The level of integration company wide is everywhere from excellent to very poor and everything in between. The priority is to attempt to push more of the facilities into the excellent level.

Each plant tends to have its own personality that transcends the plants as a whole. Some plants have good personnel and well integrated systems while others are isolationists. This reality tends to affect how well Environmental Affairs works with each plant across the board.

16. In a related vein, what are the relationships between environmental departments/personnel and other departments within the company? (In other words, what links are in place to allow environmental personnel to effectively perform their jobs within the company?)

See response to question 16 (Organizational Issues) above. Relationships are all over the map depending upon each plant and its particular personality. Again, the priority is to push each plant toward the integrated/excellent end of the environmental management continuum. ISO 14000 almost forces you to achieve this with respect to individual plants.

17. Describe any concerns with communication between environmental departments or cross-functional environmental employees and other departments with the firm.

This is a building block for achieving # 15 above. To get integration, you have to have good communication. In some places, communication is excellent. In others, communication needs work. We try to encourage whatever form of communication that works best at each location.

One tool being developed to foster better and more efficient communications is the Environmental Corporate Intranet Website at BFS. This is a tool to foster communication from the Environmental Affairs offices to the division and facility levels. It is also intended to provide additional information resources for divisions and facilities. For example, legal regulations and materials will be made available on this site. Also, e-mail capabilities with this system will increase communication between corporate and division and facility levels on environmental issues.

18. Does the firm rely upon outside consultants to handle environmental tasks? How often?

Yes, extensively and primarily legal and technical consultants for the benefit of individual facilities. We use lawyers extensively, such as working with plants to develop permit require-

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ments. For more technically involved issues, technical consultants. Consultants (a Washington, D.C. law firm) are assisting individual plants with obtaining ISO 14000 certification.

BFS does not have the internal manpower necessary to handle all legal and environmental work that has to be done by the entire company. This fosters a need to utilize outside consultants. Generally, 4 to 5 hours of consultant time is obtained for every 1 hour of internal time generated. In this regard, however, much depends upon the particular issue. For example, Superfund work is mostly handled by outside consultants. For permitting, approximately 1 consultant hour will be utilized for every 1 internal hour generated. The spectrum tends to be very broad and is issue based.

19. What factors are considered in determining whether to utilize consultants or handle an environmental matter in-house?

See response to question 19 (Organizational Issues) above.

20. How is the performance of the environmental management department evaluated within the firm?

There are fairly regular meetings between Environmental Affairs and the CEO and President to give overviews regarding environmental management department performance. There is ample opportunity available to the highest level of BFS management to critique the department's performance.

At the division level, environmental managers are evaluated by the division presidents.

At plant level, environmental managers and ISO 14000 personnel are evaluated by plant upper management.

On an informal basis, the Environmental Affairs department often gets feedback from division presidents on issues of environmental management performance.

21. Upon what criteria would departmental performance be judged?

On a broad level, department performance is judged by cost control and efficiency. However, customer perception of BFS's environmental performance is becoming more and more of an important criteria in how the department is judged. A primary impetus for this is the push by automobile manufacturers into advertising the environmental responsibility of their respective companies including by stating that they expect their suppliers to be environmentally responsible as well. The message has been sent and received that if BFS were suddenly perceived as an irresponsible company from an environmental standpoint that these companies would look elsewhere for tire suppliers.

22. Are individuals with environmental management responsibilities evaluated on their performance of those responsibilities?

Standard corporate evaluation structure.

23. Who conducts such evaluations and what criteria are used to do such evaluations?

Standard procedures. However, the Environmental Affairs department is pushing, with limited success so far, to have environmental performance tied to compensation decisions in evaluations for general managers.

Questionnaire Results: Bridgestone/Firestone, Inc.

“Perfect World” Issues

1. *Could the environmental management system of your company be better? How? What would you change if you could? Why?*

BFS is a Japanese-owned company and like many Japanese companies utilizes the concept of kaizan (or continuous improvement). Applying the concept of kaizan to environmental management means that, like all other company systems, we can always make our EMS incrementally better than it is today.

2. *The primary improvement we would like to make is to repeat the success of our environmental management system in the tire division in every other manufacturing division in the company. The tire division has excellent leadership in management of its environmental issues. We have had much success in integrating environmental management into the core business management of the tire division because of such leadership. That division is very well run regarding environmental management issues and we would like to see the same type of effort and success in other divisions.*

BFS as well as other companies have in the past experienced a “tag along” factor, where persons with limited management or leadership abilities could be “stuck” in an environmental manager position to await the time for their retirement from the company. It would be difficult, if not impossible, to have a successful, well-integrated, environmental management system in a component of the company where such a scenario existed. BFS experienced a real world example of the problems such a circumstance could cause in a facility where such an individual had been placed into an environmental manager position. This person failed to communicate with others in the environmental management chain of the company, was not on top of the environmental issues facing the facility, and managed to alienate the regulators overseeing the facility. A small problem that could have been quickly and efficiently dealt with by a motivated, competent manager was allowed to turn into a large and expensive problem by mismanagement. Although such situations might still occur occasionally in companies, BFS has in large measure successfully addressed this problem at its facilities. The hope is that ISO 14000 will provide a focus on environmental management of each facility that wholly prevents this type of situation from occurring in any facility in the company and, instead, promotes the type of system now present in the tire division.

3. *What degree of influence over corporate structure or policy does environmental management have? What degree do you think it should have? Why?*

Environmental management should be a participant in the creation of structure and policy. It should not govern but it is a mistake not to have environmental management participating in the creation of company policy and as a part of decision-making processes. BFS is not there yet, but that is where we are heading. For example, for construction of a new plant in Aiken, South Carolina, environmental management was part of the site selection team and then part of the construction management team. Necessary permits were obtained in record time. Other such issues were handled very smoothly. There was always plenty of advance notice for environmental managers to handle issues as they came up. The participation of environmental management in this process was the key element.

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4. *Are matters being handled by other departments in the firm that would be better served if they were handled by environmental?*

The response to questions 3 and 4 (below) comes back around to integration. Not everything related to environmental can be handled by the environmental department or environmental management personnel. On the other hand, these entities should be coordinating all matters relating to environmental rather than physically performing all tasks. That is where integration is key.

ISO 14000 is forcing non-environmental personnel to perform in and evaluate environmental roles, which they have never had to do in the past. A positive outcome from this experience is that, by placing plant presidents in the role of having to deal with these environmental issues through ISO 14000, we have eliminated as many as 3 plant environmental managers who were not getting the job done. Once the plant presidents started focusing on environmental issues and on those who were responsible for handling these issues at their plants (and had to live with the problems that previously only the Environmental Affairs department had to live with), these presidents quickly made moves to replace individuals who previously were not getting the job done.

5. *Are there issues being handled by environmental that should be handled by other departments?*

See response to question 3 (Perfect World Issues) above.

6. *When and to what extent is environmental consulted on issues of public relations, marketing, product development, etc. now? When and to what extent do you think it should?*

Consultation on such issues is growing, primarily as a product of the increased concern over how the company is perceived publicly on environmental issues and how our customers perceive us in that regard. With respect to public relations, Environmental Affairs is consulted to a significant extent. With marketing, Environmental Affairs is consulted on a less frequent basis. And, at least with the tire division, consultation on product development has been very good. In this regard, for reasons discussed in the response to question 1 (Perfect World Issues) above, consultation went from zero to world class in the tire division. We would like to reproduce this in the other divisions.

7. *What meetings do environmental managers attend that are not run by environmental managers? Are there meetings that you think environmental should attend now but they are not?*

Any meeting involving building a new plant, modifying a plant, adding new equipment or a new product line, or using new raw materials, should include an environmental person. For any “management of change” meeting there should be an environmental person in that meeting.

Questionnaire Results: Calsonic Yorozu Corporation

SATURN +5 ISO PILOT PROJECT MEMBER ORGANIZATION QUESTIONNAIRE

Summary For Calsonic Yorozu Corporation Morrison, Tennessee

FOCUS: *Uncover and compare means of managing environmental affairs of the respective member organizations*

Preliminary Issues

1. *Briefly describe the company's industry and products (i.e., automobile manufacturer, etc.).*
Manufacture automotive suspension subassemblies, underbody members, and engine brackets.
2. *Briefly describe the company's size and number of plant and corporate locations.*
Calsonic Yorozu Corporation (CYC) is jointly owned by the Yorozu Corporation of Japan (51% ownership) and Calsonic Corporation of California. CYC's Morrison plant is a 561,000 square foot facility that employs approximately 750 persons.
3. *Briefly describe the major environmental aspects of the company's operations.*
 - Various waste oils from machining operations and general machine maintenance (including waste oil absorbing materials)
 - RCRA D008 waste from lead based paint processes and paint system bag filters
 - Zinc phosphate metal surface treatment (including sludges produced by same containing Zn, PO₄, Ni, Mn and FI)
 - RCRA D007 waste from chrome sealer used as corrosion preventative
 - Paint sludges from paint processes (RCRA D008)
 - Mercury bearing waste from lab analyses (RCRA D012)
 - General municipal solid waste handled by BFI and landfilled
 - Air emissions (VOC permits/glycol ether categories)
 - Wastewater pretreatment permit (West Warren Utility District) – BOD, Solids and various metals are limited
 - Storm water permit (TDEQ) (SIC 3479)

Saturn +5 ISO 14000 Pilot Project

4. *Briefly describe the company's strategic business plan. Are environmental issues a part of that plan and, if so, what part?*

At the moment, CYC is primarily maintaining its current course. Some new product lines will be coming on in a few months and a couple of existing lines will be phased out. Environmental issues are a part of that plan to the extent that CYC is determined to expand and improve its current environmental management system and procedures.

EMS Issues

1. *Does the company have what it considers a formal Environmental Management System (EMS) in place?*

Yes. CYC has a series of written procedures that are a part of its QS 9000 quality management system. These consist of approximately 15 major procedures covering such areas as air pollution, storm water, waste water pretreatment, and manifesting and shipping of hazardous wastes. However, the adequacy of the system is an issue CYC intends to address.

2. *If not, what is the status of company efforts to develop an EMS?*

No efforts are currently in place to expand, supplement or replace the current EMS, with the exception of consideration of such issues within the context of participation in the Saturn +5 ISO pilot project.

3. *Does the company have a written EMS or a written policy statement on environmental management within the company?*

No.

4. *Would you prefer your EMS system to be integrated with your QM system or would you prefer them to run separately? Why or why not?*

CYC's EMS is integrated with its QS9000 quality management system as described in response to question 1 (EMS Issues) above. Integrating the systems made sense for three reasons: (1) from the standpoint of having more people understand what the EMS system is about, (2) for purposes of staffing the EMS system, and (3) there is not adequate support at this time for a stand-alone EMS.

5. *What perceived level of value does the top/upper level management of the company place on EMS and environmental issues faced by the company?*

Main point of emphasis with upper management at CYC is to have basic, "bare bones" environmental compliance. Upper management is satisfied that EMS is adequate as long as there are no environmental problems or "headaches."

6. *What is the company's view of the utility of ISO 14000 certification?*

At present, CYC upper management views ISO 14000 certification primarily as a customer satisfaction issue. CYC will most likely pursue ISO 14000 certification if a customer based push from its primary customers (Saturn, General Motors, Honda, etc.) requires it.

Questionnaire Results: Calsonic Yorozu Corporation

7. *Does the company have any concerns about becoming ISO 14000 certified? If so, what are they? What potential downsides do the company feel ISO 14000 may bring?*

One potential downside of ISO 14000 is the burden and expense of creating all the documentation necessary to obtain and maintain certification. There is a concern that maintaining such extensive documentation might impose significant liabilities or responsibilities that would not otherwise exist.

8. *What is the status of ISO 14000 certification with the company today?*

CYC will pursue ISO 14000 certification in the future if it perceives that its customers want such certification from its suppliers. There is no established plan or time table for obtaining certification at this time. From the viewpoint of CYC's environmental management personnel, additional support from certain key members of upper management should first be obtained prior to attempting ISO 14000 certification.

Organizational Issues

1. *Is there a manager dedicated solely (or primarily) to overseeing environmental management issues in the company?*

Stan Taylor, Environmental Engineer, Assembly Engineering Department. 75 percent of Mr. Taylor's time is devoted to paint shop management tasks and 25 percent to environmental management.

2. *If not, what persons or departments in the company are considered "in charge" of overseeing and addressing environmental management issues faced by the company?*

See response to question 1 (Organizational Issues) above.

3. *Is environmental management a distinct operating division within the firm, or are environmental tasks delegated to various members of different departments of the firm?*

There is no separate environmental department or distinct environmental operating division at CYC. CYC's procedures designate the handling of different tasks to different departments or individuals. The paint shop has the majority of such designated tasks because the paint shop generates the most environmental issues.

4. *Are there cross-functional teams focusing specifically on environmental issues within the company?*

No.

5. *If some distinct environmental departments exist, how are the departments structured? What tasks are performed within that structure?*

Not applicable.

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6. *Do environmental managers consider staffing to be adequate for the tasks that must be performed by the environmental structure of the firm? Does upper management consider staffing to be adequate for the same purpose?*

Yes to the first question. Upper management also believes staffing to be adequate.

7. *What type of software systems does the company use to manage environmental information?*

CYC has no specialized software systems. CYC has developed some customized data bases in Microsoft Excel and Microsoft Access to handle strictly environmental information.

8. *How does the company operationally track information such as material flow, purchasing, etc. that relates to environmental issues?*

Stan Taylor tracks such information as part of the wastewater pretreatment program. Current CYC information systems can pull up purchasing information for any time period that is necessary to track. However, such tracking is an “after the fact” function. Tracking environmentally related information is a problem at the current time and negatively affects the ability to show benefits of environmental activities.

9. *How does the company compile and disseminate critical information that affects the company's business and projects?*

Stan Taylor is 100 percent responsible for such tasks. He is responsible for determining the extent to which environmental regulations affect CYC. He is responsible for getting that information to the appropriate people at CYC through memoranda and other communication. If such information is not compiled and disseminated by Stan Taylor, no other individual or system is in place to do so.

10. *Describe the chain of command within the environmental management structure of the company (including facility vs. corporate headquarters structure).*

Supervisors, team leaders, and technicians are required to report changes in environmental conditions or suspected non-conformities to Stan Taylor. There is no formal, routine reporting by any of these groups. Stan Taylor reports to Gary Nunley, Assembly Engineering Section Manager. Gary Nunley reports to Fred Rascoe, Senior Manager, Engineering.

11. *Describe any issues of concern regarding communication between facility and corporate offices on environmental management issues.*

Not applicable.

12. *Describe the chain of command from environmental management to top/upper level management of the company.*

Fred Rascoe reports to CYC upper management regarding environmental issues. Fred Rascoe may report to anyone in upper management at any particular time – from the Engineering Advisor all the way up to the President – depending upon the issue involved.

13. *Generally, where does primary decision making authority over environmental issues reside within the firm? What type of decisions require approval outside of the environmental management structure (i.e., from top/upper level management)?*

Upper management must be consulted on all environmental management issue of any consequence. All significant expenditures (over \$100) require upper management approval.

Questionnaire Results: Calsonic Yorozu Corporation

14. Are environmental management decisions often made at the facility level rather than corporate level? What type of facility level decisions require approval from corporate environmental managers?

Not applicable.

15. Describe the level of integration of environmental departments or personnel with the rest of the company.

The level of integration is not very high. Those responsible for environmental management issues must push to get other areas involved and to have environmental management issues considered.

16. In a related vein, what are the relationships between environmental departments/personnel and other departments within the company? (In other words, what links are in place to allow environmental personnel to effectively perform their jobs within the company?)

The relationship between environmental management and the paint shop is tightly linked because of the high number of environmental issues involving the paint shop. With other departments at CYC, however, there is a significant drop off in such links.

17. Describe any concerns with communication between environmental departments or cross-functional environmental employees and other departments with the firm.

Primary problems are communications and training problems. Improvements in these areas would be of significant help.

18. Does the firm rely upon outside consultants to handle environmental tasks? How often?

Yes, but not often. CYC policy dictates that if it can possibly be done in house it is to be done in house. Time constraints or manpower concerns are not necessarily a reason justifying the use of consultants. However, CYC does "consult" with its vendors (i.e., wastewater treatment) to a significant extent. If an environmental problem comes up in a vendor serviced area, CYC expects that vendor to help manage the problem as an element of the service provided under the vendor contract.

19. What factors are considered in determining whether to utilize consultants or handle an environmental matter in-house?

See response to question 18 (Organizational Issues) above.

20. How is the performance of the environmental management department evaluated within the firm?

Not applicable.

21. Upon what criteria would departmental performance be judged?

Not applicable.

22. Are individuals with environmental management responsibilities evaluated on their performance of those responsibilities?

Yes, with respect to Stan Taylor. Otherwise, individuals listed on an environmental procedure as having responsibility in that area may be evaluated on a failure to comply with that procedure.

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23. Who conducts such evaluations and what criteria are used to do such evaluations?

Gary Nunley conducts Stan Taylor's evaluation. However, there are no hardcore environmental guideposts or criteria used in conducting the evaluation.

“Perfect World” Issues

1. Could the environmental management system of your company be better? How? What would you change if you could? Why?

Yes. Environmental management should be a fully integrated part of managing the company. The most fundamental change which could be made is to incorporate environmental issues and concerns into basic upper management decision making. At present, an entire manufacturing process can be developed with no consideration being given to what wastes may be generated by the process and how such wastes should impact design concerns or even what must be done with the waste. A more formalized environmental management system would allow such integration to take place and also allow for more training and communication which would help place environmental issues on everyone's radar screen.

2. What degree of influence over corporate structure or policy does environmental management have? What degree do you think it should have? Why?

At the present time, none. For the near future, it would be enough if environmental issues were simply considered in initial decision making processes.

3. Are matters being handled by other departments in the firm that would be better served if they were handled by environmental?

No.

4. Are there issues being handled by environmental that should be handled by other departments?

To the extent that Stan Taylor's time is primarily taken up by paint shop engineering responsibilities, then yes. At present, some environmental issues or concerns must be delayed because paint shop items or other non-environmental management concerns of Stan Taylor's job cannot wait. Having ISO 14000 would put a system in place to manage such environmental issues regardless of the constraints of Stan Taylor's non-environmental management responsibilities. Environmental management efficiency would be increased.

5. When and to what extent is environmental consulted on issues of public relations, marketing, product development, etc. now? When and to what extent do you think it should?

None. See the response to question 1 (“Perfect World” Issues) above.

6. What meetings do environmental managers attend that are not run by environmental managers? Are there meetings that you think environmental should attend now but they are not?

“Some” is the answer to the first question (though it is as a paint shop engineer and not environmental manager), and yes is the answer to the second. ISO 14000 is seen by environmental managers at CYC as a very important step in remedying these situations.

Questionnaire Results: Federal-Mogul Corporation

SATURN +5 ISO 14000 PILOT PROJECT MEMBER ORGANIZATION QUESTIONNAIRE

Summary for Federal-Mogul Corporation Sparta, Tennessee

FOCUS: *Uncover and compare means of managing environmental affairs of the respective member organizations*

Preliminary Issues

1. *Briefly describe the company's industry and products (i.e., automobile manufacturer, etc.).*

Automotive lighting products.

2. *Briefly describe the company's size and number of plant and corporate locations.*

Federal-Mogul's Sparta plant is a 140,000 square foot facility that employs approximately 500 persons. Federal-Mogul, the parent company, is a \$7 billion company with 250 locations in 24 countries, including six Tennessee locations (Smithville – 2, Gordonsville, Sevierville, Tullahoma, Sparta). Federal-Mogul is headquartered in Southfield, Michigan.

3. *Briefly describe the major environmental aspects of the company's operations.*

- hazardous waste generation (zirconium getter and inks and thinners are two significant waste streams)
- energy usage (both electricity and natural gas)
- usage of liquefied gases
- air emissions (from natural gas process fires)

4. *Briefly describe the company's strategic business plan. Are environmental issues a part of that plan and, if so, what part?*

Federal-Mogul has recently acquired Cooper Industries Automotive Businesses (including the Sparta plant). Federal-Mogul currently has under consideration a 5-year plan to have all lighting products plants ISO 14000 certified. This plan has not yet been formally approved.

Saturn +5 ISO 14000 Pilot Project

EMS Issues

1. *Does the company have what it considers a formal Environmental Management Systems (EMS) in place?*

Yes. The Sparta plant is ISO 14000 certified.

2. *If not, what is the status of company efforts to develop an EMS?*

Not applicable.

3. *Does the company have a written EMS or a written policy statement on environmental management within the company?*

Yes. Federal-Mogul's Sparta plant's written EMS policy statement (specific to the Sparta facility) is as follows:

Minimization of negative environmental impact is the responsibility of all employees and will be accomplished by:

- **Complying with all relevant environmental laws and corporate requirements.**
- **Preventing pollution and eliminating waste at the source whenever feasible.**
- **Recycling and reusing materials when practical.**
- **Continually seeking to review and improve our adherence to these objectives.**

Federal-Mogul, the parent company, also has a written corporate environmental policy statement (not necessarily compliant with ISO 14000) which is as follows:

Federal-Mogul is committed to a corporate policy that protects human health and the environment. Consistent with this policy, Federal-Mogul abides by all applicable environmental laws, regulations and standards. Federal-Mogul continues to maintain and improve upon programs whereby all operations achieve, or where appropriate exceed, these requirements. A key component of Federal-Mogul's environmental programs is the use of pollution prevention practices.

4. *Would you prefer your EMS system to be integrated with your QM system or would you prefer them to run separately? Why or why not?*

Sparta's ISO 14000 system is fully integrated with its QS9000 quality management system.

When Sparta first starting exploring the issues of becoming ISO 14000 certified, the company started down the path of keeping the systems separate. About halfway through the process, however, and after long meetings about the merits of integration versus separation, the decision was made to integrate the systems. A major concern of Sparta in considering integration was that, in theory, if a QS9000 auditor found a problem in a quality management procedure he might decide to pull certification of both the quality and environmental management systems or vice versa in the case of an ISO 14000 auditor. In other words, a problem found in an audit of one system might lead to losing certification in both systems if they are integrated. Sparta management finally decided that the likelihood of such an occurrence was remote at best. Sparta determined that one way to forestall any such problem is to take care in writing procedures for the separate systems so that a higher requirement in one system does not adversely affect another. (For example, QS9000 requires outside labs to certify calibration of certain equipment such as a natural gas meter. This meter also may be the same piece of equipment used to provide

Questionnaire Results: Federal-Mogul Corporation

data for air emissions calculations for ISO 14000 purposes, which does not contain a similar calibration requirement. In such a circumstance, it would be necessary to write an exception into your ISO 14000 procedures specifying that the higher QS9000 calibration standard is not required for ISO 14000 certification purposes.)

In addressing the question of whether the relatively small size of the Sparta plant is a factor in whether integration of QS9000 and ISO 14000 management systems is desirable, the perception of the Sparta plant is no. The Sparta plant's view is that, regardless of size, integration is the preferred approach because of the elimination of duplication and minimization of effort achievable by integrating the two systems (such as in the areas of document control, management review, internal auditing, etc.).

Although consideration was given to having one (or the same) management representative for both the QS9000 and ISO 14000 systems, Sparta eventually decided to have separate management representatives for each system (Jeff Moore for ISO 14000 and Tom Flight for QS9000). Each position is essentially a monitoring function; one is responsible for ensuring compliance with ISO 14000 and the other with QS9000. However, both have equal authority (such as, the unilateral authority to shut down a production line over a quality or environmental problem), but the two generally coordinate with the other to forestall problems that might arise through lack of communication. No problems have developed with this approach to this point.

5. *What perceived level of value does the top/upper level management of the company place on EMS and environmental issues faced by the company?*

Upper management at Sparta are very committed to EMS and environmental issues. Key upper managers at Sparta come from a background of formerly having plant-wide environmental management responsibilities. As such, Sparta's upper management is extremely attuned to environmental concerns and issues and very supportive of current environmental management.

With respect to the parent company, Federal-Mogul is extremely interested in having strong, proactive management oriented systems in the fields of environmental, health and safety. Although Federal-Mogul is not at this time requiring its plants to be ISO 14000 certified, some locations (such as Sparta) are certified and Federal-Mogul is currently considering whether to push for more certifications in the future.

Federal-Mogul does have a set of environmental protocols that it expects facilities to follow; however, recently acquired facilities from companies such as Cooper Automotive and T and N also had environmental protocols. Federal-Mogul is currently in the process of reviewing and combining all of these protocols to establish one new standard for Federal-Mogul. This may happen by the end of the first quarter of 1999.

Federal-Mogul is also in the process of developing a tool for internal audits of environmental, health and safety management systems. This is a push toward EMS without requiring ISO 14000 certification. Federal-Mogul intends to audit about 60 facilities a year with its internal auditing tool, including facilities, such as Sparta, which are already ISO 14000 certified. For ISO 14000 certified facilities, this internal auditing procedure will act as an additional layer of EMS.

6. *What is the company's view of the utility of ISO 14000 certification?*

From its former Cooper Automotive days, the Sparta facility has been strongly committed to formal EMS and already had formal written procedures in place to manage its hazardous waste

Saturn +5 ISO 14000 Pilot Project

streams. ISO 14000 certification is a natural progression of that commitment. Sparta also believes that implementation of ISO 14000 has led to costs savings due to increased focus upon waste minimization and recycling programs. Further, although community relations have always been good, the Sparta plant also believes that ISO 14000 certification gives the company one more positive thing to discuss with members of the local community. The Sparta facility also believes that the industry is trending toward customer requirements that suppliers be ISO 14000 certified. Sparta believes it is thus already ahead of the curve in this regard.

7. *Does the company have any concerns about becoming ISO 14000 certified? If so, what are they? What potential downsides do the company feel ISO 14000 may bring?*

An initial concern was cost; how much would the cost of the initial certification effort be and how much would it cost to maintain certification afterwards. Both turned out to be not as severe as initially feared. Further, Sparta has experienced certain costs savings due to increased focus on waste minimization and recycling programs brought on by ISO 14000 (e.g., increased recycling has reduced landfill costs and waste hauling charges; certain hazardous materials reuse has increased to 3 times before disposal which reduces hazardous waste disposal costs).

Another concern was uncertainty regarding disclosure requirements if a problem was found during an internal audit; would such a discovery have to be disclosed to the registrar? Sparta decided that anything discovered during internal audits would not necessarily have to be disclosed.

8. *What is the status of ISO 14000 certification with the company today?*

Sparta facility is ISO 14000 certified.

Organizational Issues

1. *Is there a manager dedicated solely (or primarily) to overseeing environmental management issues in the company?*

Yes. Jeff Moore is the Environmental Manager. Fifty-percent of his time is devoted to facilities management and fifty-percent to environmental management.

2. *If not, what persons or departments in the company are considered “in charge” of overseeing and addressing environmental management issues faced by the company?*

See response to question 1 (Organizational Issues) above.

3. *Is environmental management a distinct operating division within the firm, or are environmental tasks delegated to various members of different departments of the firm?*

There is no separate environmental department at Sparta. Environmental management comes under the plant’s Facilities Engineering Group. Jeff Moore is the environmental manager and Sandra Vance (hourly employee) is the hazardous materials coordinator. These two employees oversee environmental management issues, but specific tasks are delegated to various departments around the facility as a particular task may concern that department.

Questionnaire Results: Federal-Mogul Corporation

4. *Are there cross-functional teams focusing specifically on environmental issues within the company?*

Yes. A cross-functional team from all areas of the plant is currently constituted with the responsibility of identifying all environmental aspects for ISO 14000 certification purposes. The team meets about once a year to review and update the plant's significant environmental aspects to ensure that appropriate attention is being devoted to each.

5. *If some distinct environmental departments exist, how are the departments structured? What tasks are performed within that structure?*

Not applicable.

6. *Do environmental managers consider staffing to be adequate for the tasks that must be performed by the environmental structure of the firm? Does upper management consider staffing to be adequate for the same purpose?*

Yes to both questions. Unless an event such as a change of product line occurs, there does not appear to be a need for additional people. Approximately fifty-percent of a manager's time and sixty to seventy-percent of an hourly worker's time is sufficient at the present time.

7. *What type of software systems does the company use to manage environmental information?*

Sparta has developed some customized data bases in Microsoft Excel and Microsoft Access to handle strictly environmental information.

8. *How does the company operationally track information such as material flow, purchasing, etc. that relates to environmental issues?*

Material flow information is managed at the plant level by custom programs designed specifically for the Sparta plant. Procedure requires that a Material Safety Data Sheet must be obtained for Jeff Moore's approval for a chemical that has not been ordered before. This is a procedure that is hard to police because almost anyone can generate an order, but proper training of personnel is supposed to take care of these types of issues. Periodic plant audits of chemicals present at the plant can take care of any which may have been ordered without proper authorization.

9. *How does the company compile and disseminate critical information that affects the company's business and projects?*

Employees communicate regarding environmental issues and concerns through a company "open-door" policy; employees are aware that they can talk to any manager about any problem at any time. Communication with employees is also fostered through suggestion box procedures, department meetings, bulletin board postings, handouts included with payroll checks. Given the size of the company, significant informal communication occurs that overlaps into communication on environmental issues.

Concerning internal management communication, Jeff Moore and Sandra Vance compile information about EMS and how the Sparta facility is doing against objectives and targets and reports to management during periodic internal management meetings.

Saturn +5 ISO 14000 Pilot Project

10. Describe the chain of command within the environmental management structure of the company (including facility vs. corporate headquarters structure).

Jeff Moore reports to the Manager of Engineering Services (overseeing all engineering efforts in the plant) who reports to the Plant Manager who reports to the Director, Operations for Federal-Mogul.

11. Describe any issues of concern regarding communication between facility and corporate offices on environmental management issues.

No significant concerns. Basically any kind of expenditure less than \$5000 can be approved by the Plant Manager at Sparta without higher authorization. Virtually all environmental expenditures fall within that range. In certain instances, the Sparta facility will contact corporate environmental personnel at Federal-Mogul to get opinions on legal issues. Although at times it is considered desirable to contact corporate personnel to discuss environmental issues, it is not required by specific policy.

12. Describe the chain of command from environmental management to top/upper level management of the company.

See response to question 10 (Organizational Issues) above.

13. Generally, where does primary decision making authority over environmental issues reside within the firm? What type of decisions require approval outside of the environmental management structure (i.e., from top/upper level management)?

Jeff Moore has primary decision making authority unless it is an issue that is out of the ordinary. Some decisional authority is cost driven; matters over \$1000 would need to go through the Plant Manager for approval. For all practical purposes, most decisions are made at the environmental manager level.

14. Are environmental management decisions often made at the facility level rather than corporate level? What type of facility level decisions require approval from corporate environmental managers?

Yes. Facility level decisions would include a request to change environmental policy from that of corporate protocols or to change the current ISO 14000 registrar.

15. Describe the level of integration of environmental departments or personnel with the rest of the company.

There is a high level of integration given the size of the Sparta facility and the manner in which Sparta management understands the environmental issues facing the facility and supports the environmental manager.

16. In a related vein, what are the relationships between environmental departments/personnel and other departments within the company? (In other words, what links are in place to allow environmental personnel to effectively perform their jobs within the company?)

Very good relationships. Any necessary links would be included in ISO 14000 procedures and management system in place.

Questionnaire Results: Federal-Mogul Corporation

17. Describe any concerns with communication between environmental departments or cross-functional environmental employees and other departments with the firm.

None.

18. Does the firm rely upon outside consultants to handle environmental tasks? How often?

Yes, but not often. Occasionally, a consultant will be used when applying for certain air permits.

19. What factors are considered in determining whether to utilize consultants or handle an environmental matter in-house?

See response to question 18 (Organizational Issues) above.

20. How is the performance of the environmental management department evaluated within the firm?

It is evaluated by progress reports measuring performance against environmental goals and targets. These reports are discussed in internal management meetings. The overall management system is evaluated through audits required by ISO 14000 and, eventually, by audits performed by Federal-Mogul.

21. Upon what criteria would departmental performance be judged?

See response to question 20 (Organizational Issues) above.

22. Are individuals with environmental management responsibilities evaluated on their performance of those responsibilities?

Where appropriate managers are evaluated on environmental issues. This year some plant management had as a goal to obtain ISO 14000 certification and were therefore evaluated on whether that goal was obtained.

23. Who conducts such evaluations and what criteria are used to do such evaluations?

Direct supervisors perform evaluations. End of year evaluations are based upon success in meeting previously stated objectives for that year.

“Perfect World” Issues

1. Could the environmental management system of your company be better? How? What would you change if you could? Why?

A requirement under ISO 14000 is to seek continual improvement of the EMS system. At present, Sparta is investigating methods to quantify and measure environmental performance based upon a “scoring” system similar to scoring systems used by safety departments (e.g., scores based upon numbers of accidents, man-hours lost due to accidents, etc.).

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2. *What degree of influence over corporate structure or policy does environmental management have? What degree do you think it should have? Why?*

Within the Sparta plant, environmental management has a significant amount of influence. Given the size of the plant and the strong support from upper management, the environmental manager does not encounter strong resistance if he identifies an item where a change needs to be made.

Given the success the Sparta plant has had with its EMS, a good relationship has developed between the Sparta environmental manager and the Federal-Mogul corporate compliance department. Federal-Mogul intends to consider environmental policy and procedure developed at Sparta in considering changes to Federal-Mogul corporate policy.

3. *Are matters being handled by other departments in the firm that would be better served if they were handled by environmental?*

No.

4. *Are there issues being handled by environmental that should be handled by other departments?*

No.

5. *When and to what extent is environmental consulted on issues of public relations, marketing, product development, etc. now? When and to what extent do you think it should?*

Jeff Moore is consulted regularly on issues of design and new product development, including attending design meetings so that environmental issues are considered during the process.

6. *What meetings do environmental managers attend that are not run by environmental managers? Are there meetings that you think environmental should attend now but they are not?*

Because Jeff Moore has facilities management and environmental management responsibilities, wherever the facilities manager goes the environmental manager goes with him. This puts environmental in several meetings it might not otherwise be. Jeff Moore attends design meetings, layout meetings, internal management meetings, and weekly managers meetings and has the opportunity in each to bring environmental issues forward.

Questionnaire Results: Saturn Corporation

SATURN +5 ISO 14000 PILOT PROJECT MEMBER ORGANIZATION QUESTIONNAIRE

Summary for Saturn Corporation Spring Hill, Tennessee

FOCUS: *Uncover and compare means of managing environmental affairs of the respective member organizations*

Preliminary Issues

- 1. Briefly describe the company's industry and products (i.e., automobile manufacturer, etc.).**
Automobile manufacturer. Saturn began in 1982 as a project to innovatively design and manufacture small cars in the United States in order to successfully compete with foreign manufacturers.
- 2. Briefly describe the company's size and number of plant and corporate locations.**
Saturn Corporation was formed as a wholly owned subsidiary of General Motors in 1985. Saturn cars are built in a 6.2 million-square-foot manufacturing and assembly complex located in Spring Hill, Tennessee. Saturn sold more than 230,000 vehicles during 1998 U.S. Model Year Sales and has cumulative United States sales of nearly 2 million vehicles since October 1990. Saturn employs well over 8,000 persons through its Spring Hill operations, and over 9,500 when employees from Michigan and other GM/Saturn locations are included. Saturn has begun production of vehicles in its Wilmington, Delaware plant beginning this year.
- 3. Briefly describe the major environmental aspects of the company's operations.**
Saturn is an integrated automotive manufacturing facility that produces up to 360,000 automobiles per year at the Spring Hill, Tennessee manufacturing complex. The facility consists of four manufacturing areas (Powertrain, Body Systems, Vehicle Interior Systems, General Assembly) and three support operations (Central Utilities Complex, Service Parts Operation, Northfield.) Certain parts such as tires, glass for windshields and doors, electrical and electronic components, floor coverings, and some specialized plastic and metal parts are imported for assembly. However, major parts such as the space frame, exterior panels, engine and transmission, and major interior components are manufactured on-site, and the entire vehicle is assembled on-site.

Saturn +5 ISO 14000 Pilot Project

Major processes include plastic molding, metal stamping, welding, cleaning, painting, sealer/adhesive application, metal casting, machining, heat treating, component and vehicle assembly, vehicle fluid fill, and wastewater pretreatment. Over 170,000 tons of raw materials are used in site operations, including items such as steel, aluminum, plastic, paint, sealers, etc. Natural gas is used for heating, and electricity is provided by TVA. Water is supplied by the City of Columbia.

Saturn is a major source of air emissions under regulatory classifications. VOC air emissions are primarily related to painting and foundry operations.

Storm water is collected in a series of ponds and then directly discharged to a tributary of Carters Creek.

Industrial process, cooling tower blowdown waters, and sanitary wastewater receive on-site chemical and physical pretreatment and then is piped to the City of Columbia POTW for further treatment.

Product scrap and industrial process waste comprise more than 90% of all non-productive output, general trash, packaging waste, and hazardous waste comprise less than 10%. About 85% of scrap and waste is recycled (primarily metals), 13% landfilled (primarily paint sludge, wastewater treatment sludges), and general trash, 2% receiving other treatment such as incineration.

4. Briefly describe the company's strategic business plan. Are environmental issues a part of that plan and, if so, what part?

Saturn was initially created as a small car company. Saturn continues to concentrate its efforts on its small car line, but is also currently developing its upcoming mid-size car. In addition, Saturn is responsible for distributing and marketing General Motor's EV1 electric vehicle. Saturn also produces right-hand-drive models that are marketed in the United States as suited for rural postal and other types of delivery vehicles and which also are sold in Japan in direct competition with Japanese-based competitors.

Environmental issues are a part of Saturn's strategic business plan to the extent that environmental review is included as a part of plant or product expansion considerations. Given lead times necessary for acquiring new permits, early warning of business strategy changes is important. However, consideration of new permits or permit changes is not the only reason that environmental issues should be integrated into mid and long range business planning. In the view of Saturn's environmental managers, Saturn does an "average" job in this area.

EMS Issues

1. Does the company have what it considers a formal Environmental Management Systems (EMS) in place?

No. Saturn has what it considers an "informal" environmental management system in place.

2. If not, what is the status of company efforts to develop an EMS?

Saturn's environmental managers are proceeding under the assumption that the Spring Hill plant is going to become ISO 14000 certified which will put in place a formal EMS. Saturn is looking to complete the effort to become ISO 14000 certified within the next couple of years.

Questionnaire Results: Saturn Corporation

3. *Does the company have a written EMS or a written policy statement on environmental management within the company?*

Saturn follows General Motors' statement of environmental principles which are as follows:

As a responsible corporate citizen, General Motors is dedicated to protecting human health, natural resources and the global environment. This dedication reaches further than compliance with the law to encompass the integration of sound environmental practices into our business decisions.

The following environmental principles provide guidance to General Motors personnel worldwide in the conduct of their daily business practices.

- 1. We are committed to actions to restore and preserve the environment.**
 - 2. We are committed to reducing waste and pollutants, conserving resources and recycling materials at every state of the product life cycle.**
 - 3. We will continue to participate actively in educating the public regarding environmental conservation.**
 - 4. We will continue to pursue vigorously the development and implementation of technologies for minimizing pollutant emissions.**
 - 5. We will continue to work with all governmental entities for the development of technically sound and financially responsible environmental laws and regulations.**
 - 6. We will continually assess the impact of our plants and products on the environment and the communities in which we live and operate with a goal of continuous improvement.**
4. *Would you prefer your EMS system to be integrated with your QM system or would you prefer them to run separately? Why or why not?*

It is best to develop both systems at the same time which is what Saturn is currently doing, although more emphasis is being placed upon completing QS 9000 certification than ISO 14000 certification at the present time. The rationale for co-development is to leverage resources and effectively use infrastructure. The systems track somewhat different things (although there is some overlap between quality and environment); if systems run separately, there will need to be some coordination to ensure they are consistent and compatible. Because the systems keep track of completely different things, the preference of Saturn environmental managers is that the systems run separately.

5. *What perceived level of value does the top/upper level management of the company place on EMS and environmental issues faced by the company?*

Saturn's leadership does not perceive environmental issues as being fundamental to Saturn's business. The percentage of what is spent on environmental issues at Saturn is not so great that the leadership at Saturn would consider such issues fundamental to building a car. The perception of leadership is, if we are not hearing about environmental issues, then there must be no problems.

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6. *What is the company's view of the utility of ISO 14000 certification?*

The highest utility is in more completely integrating environmental management into the core business and to make sure upper management is aware of environmental issues in business planning and strategy. Saturn's environmental managers do not believe that ISO 14000 certification will assist in Saturn's being more in compliance with environmental laws and regulations than they are already.

Saturn does not perceive any particular advantage to being ISO 14000 certified in the immediate future. Because of the current concern that QS 9000 certification is going to be taking up so much time and effort, ISO 14000 certification is to be delayed until such time as QS 9000 is completed. The current timetable for completing QS 9000 certification at Saturn is December 1999.

General Motors wants each of its plants to have an environmental management system in place by the year 2000, but it is up to each plant whether to pursue ISO 14000 certification. Any environmental system implemented is required to be 100 percent compatible with ISO 14001 even if ISO 14000 certification is not obtained.

7. *Does the company have any concerns about becoming ISO 14000 certified? If so, what are they? What potential downsides do the company feel ISO 14000 may bring?*

Saturn's main concern was the timing for obtaining ISO 14000 certification. Given the present emphasis upon obtaining QS 9000 certification and the resources devoted to that (over 200 employees have been working on QS 9000), Saturn is concerned about the impact of also devoting substantial resources to ISO 14000 certification at the same time.

8. *What is the status of ISO 14000 certification with the company today?*

Saturn had a gap analysis performed recently which demonstrated that the company was 60 percent compliant. Since then, Saturn has been working on completing parts of ISO 14001 that can be completed without impacting upon the resources of the company. Until QS 9000 is completed, pursuit of ISO 14000 will be at a slower pace.

Organizational Issues

1. *Is there a manager dedicated solely (or primarily) to overseeing environmental management issues in the company?*

Yes, Bill Miller is the Environmental Manager for Saturn's Spring Hill plant and devotes 100 percent of his time to environmental management. Lisa Caron, an Environmental Engineer, also devotes 100 percent of her time to environmental management. In addition, Jo Varga devotes a significant portion of her time to ISO 14000 certification issues.

2. *If not, what persons or departments in the company are considered "in charge" of overseeing and addressing environmental management issues faced by the company?*

Not applicable.

Questionnaire Results: Saturn Corporation

3. *Is environmental management a distinct operating division within the firm, or are environmental tasks delegated to various members of different departments of the firm?*

Yes. Environmental Affairs is a distinct division of Saturn. In addition, environmental tasks are also delegated to various members of different departments.

4. *Are there cross-functional teams focusing specifically on environmental issues within the company?*

Yes. Examples include the Environmental Council that pulls people from across organizational lines to look at environmental issues that cross all lines. Another is the Hazardous Material Control Committee that reviews materials before purchase to determine and analyze chemical content. The Waste Management Team is comprised of representatives from each of Saturn's business units and its charge is to oversee how the Spring Hill plant handles waste.

5. *If some distinct environmental departments exist, how are the departments structured? What tasks are performed within that structure?*

The Environmental Affairs department (essentially Bill Miller and Lisa Caron) is a resource available to the various business units within Saturn as that resource is needed.

6. *Do environmental managers consider staffing to be adequate for the tasks that must be performed by the environmental structure of the firm? Does upper management consider staffing to be adequate for the same purpose?*

No to the first question; yes to the second. Environmental managers believe that balance of staffing can be improved to provide more focus in some areas. Environmental regulations have increased by a factor of 5 since Saturn started building cars in 1990, but staffing for environmental management has not increased (said another way, Bill Miller and Lisa Caron are essentially still it). However, upper management's view that staffing is adequate for the tasks that must be performed by Saturn's environmental management structure is a factor of the perception of environmental risk by upper management (i.e., that risk is low).

7. *What type of software systems does the company use to manage environmental information?*

Saturn utilizes a chemical management system called MANGUARD used for tracking waste, manifesting waste, generating SARA reports, etc. This is the basis for how Saturn maintains substantial environmental information. It is used to determine where chemicals are, where wastes have gone, where emissions come off the various processes, information included on Material Data Safety sheets, etc.

Saturn is considering utilization of Geographical Information Systems to track chemical use based upon location in the plant. Information would be coded spatially; a map of the plant would be utilized. Pointing and clicking upon a certain area of the plant would allow determination of what chemicals were being used in that particular area. This would allow specialized monitoring of information regarding waste streams.

8. *How does the company operationally track information such as material flow, purchasing, etc. that relates to environmental issues?*

See the response to question 7 (Organizational Issues) above. Information is manually input into MANGUARD, but an electronic "just-in-time" kanban ordering system for materials is how the information is tracked.

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9. *How does the company compile and disseminate critical information that affects the company's business and projects?*

The company disseminates environmental information in a number of ways. Information is disseminated in regular meetings. Information is disseminated by way of an internal Saturn newsletter called "Newslines." Corporate e-mail and a Saturn internal "Intranet" web-site are other ways of disseminating important information throughout the company. Saturn has also disseminated information through involvement in community groups, community tours and projects and participation with academic groups.

10. *Describe the chain of command within the environmental management structure of the company (including facility vs. corporate headquarters structure).*

Bill Miller and Lisa Caron are the environmental management structure and, therefore, the "chain of command" within that structure. Organizational design within Saturn contains a lot of "dotted-line" relationships. The Environmental Affairs department is more of a resource to individuals or business units within Saturn that have environmental issues or tasks as a part of their respective responsibilities.

11. *Describe any issues of concern regarding communication between facility and corporate offices on environmental management issues.*

Not applicable.

12. *Describe the chain of command from environmental management to top/upper level management of the company.*

Bill Miller and Lisa Caron report to the Manufacturing Technical Leader (head of the Manufacturing Group who oversees the 3 manufacturing buildings) who reports to the Vice President of Manufacturing.

13. *Generally, where does primary decision making authority over environmental issues reside within the firm? What type of decisions require approval outside of the environmental management structure (i.e., from top/upper level management)?*

Legally, the person ultimately responsible for environmental compliance at Saturn is the Vice President of Manufacturing. However, primary decision making authority for practical purposes often depends upon what the particular issue is and where the decision needs to go for approval. For example, many decisions regarding how the Spring Hill plant handles waste are made by the Waste Management Team. For many day-to-day decisions, either Bill Miller or Lisa Caron in Environmental Affairs or managers with environmental responsibility in the various business units make the decision. Depending upon the type of issue, it may go as high as the Vice President of Manufacturing, but normally he is brought into the day-to-day process only when a signature (such as for a permit) is needed.

14. *Are environmental management decisions often made at the facility level rather than corporate level? What type of facility level decisions require approval from corporate environmental managers?*

Yes. As a wholly owned subsidiary, Saturn is not a typical facility within the General Motors structure. It therefore operates more independently than would the typical General Motors plant.

Questionnaire Results: Saturn Corporation

15. Describe the level of integration of environmental departments or personnel with the rest of the company.

Historically, Saturn environmental managers have a level of concern about this issue. The feeling is that the level of integration is not nearly as high as it should be.

16. In a related vein, what are the relationships between environmental departments/personnel and other departments within the company? (In other words, what links are in place to allow environmental personnel to effectively perform their jobs within the company?)

Saturn has good links established so that it is known when environmental issues come up. For example, the environmental engineer in body systems has strong linkages with personnel in paint systems. Saturn's basic framework is based upon teamwork concepts and, therefore, few barriers are erected between departments.

17. Describe any concerns with communication between environmental departments or cross-functional environmental employees and other departments with the firm.

There could be more communication that takes place with more frequency. However, although communication at Saturn is very informal, there is a large amount of communication that takes place. Although there is no formal system for communication established, frequent communication still takes place among individuals and departments with established environmental responsibilities.

18. Does the firm rely upon outside consultants to handle environmental tasks? How often?

Yes. The original concept was to avoid increasing the necessary number of full time Saturn personnel by reliance upon a commensurate number of consultants. Generally, Saturn spends on consultants the equivalent of 4 full time people per year. When the plant was being built and beginning initial operations, there was a large amount of environmental work necessary to be done and so the number of consultants utilized was closer to the equivalent of 20 full time people.

19. What factors are considered in determining whether to utilize consultants or handle an environmental matter in-house?

With outsourcing issues, Saturn is generally relying upon the expertise of the consultants selected. For example, Saturn relies heavily upon its own supplier, Waste Management of Tennessee.

20. How is the performance of the environmental management department evaluated within the firm?

Saturn is audited by General Motors every 2 years based upon environmental issues. A team of between 3 and 7 individuals audits Saturn against state, federal and General Motors guidelines. More generally, Saturn upper management relies upon "superficial" factors such as the fact that neighbors are not complaining about environmental concerns or that no non-compliance issues have been brought to their attention and assume that everything is as good as it could or needs to be.

21. Upon what criteria would departmental performance be judged?

See the response to question 20 (Organizational Issues) above.

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22. *Are individuals with environmental management responsibilities evaluated on their performance of those responsibilities?*

The more environmentally related an individual employee's job is, the more likely that environmental responsibilities are a part of their individual performance evaluations.

23. *Who conducts such evaluations and what criteria are used to do such evaluations?*

Each employee's evaluation would be conducted by their immediate supervisor. There are no particular environmental benchmarks or guideposts for conducting such evaluations.

“Perfect World” Issues

1. *Could the environmental management system of your company be better? How? What would you change if you could? Why?*

Yes. The environmental management system suffers from the position from which it reports within the organization. Environmental Affairs is not that far from the top of the organization, but it is still a part of the Manufacturing Division at the mid-level point of the organization. This tends to limit involvement to manufacturing and inhibits involvement in other parts of the organization, including in long term planning and strategy. Having one or more individuals in upper management with responsibility for environmental oversight would allow the environmental management system to have more impact on the overall vision and direction of the company. We would also like to have more experts within the environmental management structure rather than relying so much upon outside consultants and suppliers. Increased resources in this regard would allow environmental management to undertake more progressive activities rather than focusing primarily upon simple compliance.

2. *What degree of influence over corporate structure or policy does environmental management have? What degree do you think it should have? Why?*

Saturn's environmental managers rate the influence of environmental management as good but in need of improvement. It is hoped that the relatively new Environmental Council will assist in this regard. However, approximately 80 percent of this group will need significant education on how environmental relates to their particular business unit. Following this educational effort, it is hoped that the Council will collectively determine the manner in which the company should go forward in environmental management and how such issues should be addressed in the future.

3. *Are matters being handled by other departments in the firm that would be better served if they were handled by environmental?*

Chemical safety is an issue currently handled by Health and Safety that would be better handled within the environmental management structure of the company.

4. *Are there issues being handled by environmental that should be handled by other departments?*

Yes. Freeing up environmental management from reporting requirements would free up more time for environmental managers to undertake more important and progressive tasks.

Questionnaire Results: Saturn Corporation

5. *When and to what extent is environmental consulted on issues of public relations, marketing, product development, etc. now? When and to what extent do you think it should?*

Public relations: Environmental is often (almost on a weekly basis) consulted on issues of public relations with corporate communications.

Marketing: Environmental is consulted perhaps once a year by marketing, generally when it is looking to incorporate environmental issues or themes in a particular marketing plan.

Product development: At this point, Environmental is attempting to increase the level of consideration of environmental issues in product development. Currently have a contract with the University of Tennessee to develop a life cycle analysis tool for Saturn which will allow the environmental plusses and minuses in utilizing various materials to be considered in product development.

6. *What meetings do environmental managers attend that are not run by environmental managers? Are there meetings that you think environmental should attend now but they are not?*

No environmental manager feels plugged in enough. Saturn's system is adept at identifying large questions and issues and avoiding major problems, but this is not the same as having been involved in original meetings when original ideas were discussed and developed. One factor working in Saturn's favor is that many people in mid to upper-level management positions in the business units are fairly environmentally aware. Is this to be preferred to individuals in such positions without any knowledge of environmental issues or concerns but who invite the environmental manager to all of the meetings?

Environmental managers would like to attend corporate leadership meetings. Or, at the very least, have the opportunity to provide quarterly updates to corporate leadership.

**SATURN +5 ISO 14000 PILOT PROJECT
MEMBER ORGANIZATION QUESTIONNAIRE**

**Summary for
Wheland Foundry
Chattanooga, Tennessee**

FOCUS: *Uncover and compare means of managing environmental affairs of the respective member organizations*

Preliminary Issues

1. Briefly describe the company's industry and products (i.e., automobile manufacturer, etc.).

Iron castings manufacturing. Wheland manufactures automotive parts such as brake drums, rotors, hubs, calipers, suspension components, transmission components, etc. In all, Wheland makes over 150 different castings.

2. Briefly describe the company's size and number of plant and corporate locations.

Wheland operates three separate plants (constituting five foundries). Two of the plants are located in Chattanooga (Broad Street Plant and Middle Street Plant) and one is located in Warrenton, Georgia. Wheland melts approximately 2000 tons of scrap metal per day at its Broad Street Plant, averaging from 100,000 to 120,000 castings per day. Approximately 600 tons of scrap metal per day is melted at each of Wheland's Middle Street and Warrenton Plants, with 60,000 to 100,000 castings per day made at the Middle Street Plant and 40,000 to 60,000 per day at Warrenton.

3. Briefly describe the major environmental aspects of the company's operations.

Wheland is a large quantity hazardous waste generator, generating approximately six to ten thousand tons of hazardous waste a year. Wheland treats its hazardous waste on site and operates a recycle and disposal facility. Wheland also generates approximately 200,000 tons of non-hazardous waste a year. Wheland operates two landfills, a major beneficial reuse project involving foundry sand, and a large hauling operation related to these endeavors. Wheland is also a major source of air emissions (over 100 tons per year) under Title V of the Clean Air Act.

4. Briefly describe the company's strategic business plan. Are environmental issues a part of that plan and, if so, what part?

Wheland is unique in its industry – a relatively small company but which has a substantial share of its market. Wheland casts approximately 43 million parts every year. Wheland makes over

Questionnaire Results: Wheland Foundry

70 percent of all brake drums in the U.S. Wheland also makes approximately 60 percent of all rotors, and 60 percent of all calipers. Of all cars produced in the U.S., approximately 60 percent have at least two parts manufactured by Wheland. Many of Wheland's competitors are large conglomerates attempting to cut into Wheland's share of the market. In the light of this increased competition from larger companies, Wheland is in an expansion mode. Wheland is planning to diversify into new areas of casting and materials. The Warrenton Plant was opened just three years ago. This highly modernized and advanced foundry has significantly increased Wheland's production capacity. Wheland is also planning for a \$40 to \$50 million modernization of its Broad Street Plant.

Environmental issues are a significant part of Wheland's strategic business plan. The firm considers its environmental programs a significant competitive advantage that it holds over its industry competitors. As a whole, the iron casting industry is not at the forefront of environmental issues; the industry lacks environmental expertise, and because of its age much of the existing equipment is lacking in the area of incorporating environmentally efficient technological advancements. Wheland, however, has invested over \$12 million in major capital environmental equipment and expends over \$5 million annually in environmental operating costs. Wheland considers itself to have a more organized, advanced, deeper and proactive environmental program than any of its competitors. Because of this, Wheland's environmental costs are significantly lower than the industry average. Further, although one of the biggest challenges facing the industry involves dealing with solid waste disposal, Wheland currently has a 20 year + capacity to handle its solid waste disposal needs at all of its facilities. In addition, although the rest of the industry will experience difficulty in meeting the MACT (maximum available control technology) regulatory standards for the industry which are to take effect in 2003, Wheland is already prepared to meet those standards.

EMS Issues

1. *Does the company have what it considers a formal Environmental Management Systems (EMS) in place?*

Yes, although it is (and will continue to be) a work in progress.

2. *If not, what is the status of company efforts to develop an EMS?*

Wheland started the process of developing its EMS system prior to publication of the ISO 14000 standard. The goal was to design and develop a system that worked for Wheland and was close to what they predicted the ISO 14000 would be. The eventual strategy is to have an EMS that is ISO 14000 compliant, but not to go through the certification process until there is a reason to do so that Wheland believes is compelling.

3. *Does the company have a written EMS or a written policy statement on environmental management within the company?*

Wheland has developed a written Environmental Policy and Procedures notebook which contains its formal EMS. A copy of Wheland's written Environmental Policy Statement is attached to this summary as Exhibit "1".

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4. *Would you prefer your EMS system to be integrated with your QM system or would you prefer them to run separately? Why or why not?*

The preference is for the systems to be integrated, although they are not integrated at this time. All of Wheland's facilities are QM 9000 certified. Therefore, Wheland already has many necessary systems in place (i.e., document control) which can effectively be integrated into the formal EMS system. Wheland expects that the systems will eventually be integrated as Wheland moves closer to full ISO 14000 compliance.

5. *What perceived level of value does the top/upper level management of the company place on EMS and environmental issues faced by the company?*

Wheland's top level management and ownership place a very high level of value on EMS and environmental issues. Wheland is a small, family oriented, and privately held company in Chattanooga. The owners have lived in Chattanooga all of their lives and care deeply about the community and how environmental operations might affect the community. Because of a lean top management structure (essentially the owner and vice-president of the foundry division), Wheland is able to very easily translate this concern for the local community into policy for how the company is to operate with regard to environmental issues.

6. *What is the company's view of the utility of ISO 14000 certification?*

Wheland can see the utility of being ISO 14000 compliant but does not yet see a high utility in going through the process of formal ISO 14000 certification. The critical question in Wheland's view is "what would we gain from being ISO 14000 certified" that is not already obtained simply by being in substantial compliance with ISO 14000 and being a good environmental neighbor.

7. *Does the company have any concerns about becoming ISO 14000 certified? If so, what are they? What potential downsides do the company feel ISO 14000 may bring?*

Wheland does not perceive any downsides to the actual fact of being ISO 14000 certified (i.e., legal liability, confidentiality, auditing, etc.). However, Wheland perceives that it is easier to become certified than to maintain certification, especially in the area of employee training. Wheland has numerous practical concerns regarding the requirements concerning training which constitute its largest hesitation to becoming certified. At present, Wheland maintains existing training programs meeting the bare regulatory requirements. However, ISO 14000 certification goes well beyond regulatory requirements in terms of training. Wheland has a large, unionized workforce that is not highly educated. Training would be difficult in terms of logistics (perhaps as many as 9000 employees training at any one time) and effectiveness (having to address varying degrees of education among employees). Training would also be highly expensive in terms of overall man-hours involved. At present, Wheland is unsure exactly how it would go about addressing this issue.

8. *What is the status of ISO 14000 certification with the company today?*

Wheland had a gap analysis performed recently which demonstrated that the company was 65 percent compliant. Since then, the company has been continuously updating its written Environmental Policy and Procedures notebook to address voids in the gap analysis. Again, Wheland intends to continue to progress with its EMS until it is fully ISO 14000 compliant, but to defer going through the actual certification process until they have a compelling reason to do so. (One

Questionnaire Results: Wheland Foundry

such reason would be if business considerations – such as customer requirements – compel ISO 14000 certification to remain competitive.)

Organizational Issues

1. *Is there a manager dedicated solely (or primarily) to overseeing environmental management issues in the company?*

Yes, Larry Bowers is the Environmental Manager for Wheland Foundry. (A second individual is the Environmental Manager for the Warrenton, Georgia facility; however, he reports to Larry Bowers.)

2. *If not, what persons or departments in the company are considered “in charge” of overseeing and addressing environmental management issues faced by the company?*

Not applicable.

3. *Is environmental management a distinct operating division within the firm, or are environmental tasks delegated to various members of different departments of the firm?*

Yes. Wheland has a separate Environmental Department with a staff of close to 50 employees (between Chattanooga and Warrenton). There is also an on-site construction crew that reports to the Environmental Department (with approximately 20 employees) and which operates the landfills, waste hauling operations, etc.

4. *Are there cross-functional teams focusing specifically on environmental issues within the company?*

Yes. Such teams are constituted on an as needed basis. One such team is currently in place considering plans for hazardous waste reduction (with the potential of eliminating as much as 10,000 tons annually of hazardous waste if successful).

5. *If some distinct environmental departments exist, how are the departments structured? What tasks are performed within that structure?*

A copy of a chart (October 1998) outlining the manner in which the Environmental Department for the Chattanooga facilities is structured is attached to this summary as Exhibit “2”. Responsibilities/tasks are categorized within the department along topics such as air, waste disposal, project management, training, maintenance, etc.

6. *Do environmental managers consider staffing to be adequate for the tasks that must be performed by the environmental structure of the firm? Does upper management consider staffing to be adequate for the same purpose?*

Yes to both questions. The Environmental Department is adequately staffed.

7. *What type of software systems does the company use to manage environmental information?*

Wheland has an extensive Information Systems (IS) department which has created customized software systems for Wheland to track materials, production, and purchasing. Wheland is in the process of designing a specific program to generate environmental reports from Wheland’s

Saturn +5 ISO 14000 Pilot Project

extensive information systems data base. Wheland's software systems are (with some exceptions such as Chemtox) generally created by Wheland, for Wheland. Canned software products do not generally work for the way Wheland operates (such systems are designed primarily for chemical companies who operate and purchase differently than Wheland).

8. *How does the company operationally track information such as material flow, purchasing, etc. that relates to environmental issues?*

See the response to question 7 (Organizational Issues) above. The system requires that any item/material not purchased previously (and thus not in the system) must have approval from the Environmental Department before purchase is possible.

9. *How does the company compile and disseminate critical information that affects the company's business and projects?*

The company disseminates environmental information in a number of ways. Wheland has an internal television system that carries daily announcements, including on safety and environmental issues, to employees on television sets located throughout the foundries. Wheland also periodically publishes a newsletter which performs much the same function. Though its Information Systems department, Wheland also maintains an extensive intranet computer system which employees may access on numerous computers throughout the foundries.

10. *Describe the chain of command within the environmental management structure of the company (including facility vs. corporate headquarters structure).*

See the responses to questions 1, 2 and 5 (Organizational Issues) above; ~~including the chart attached to this summary as Exhibit "2".~~

11. *Describe any issues of concern regarding communication between facility and corporate offices on environmental management issues.*

None. See the response to question 5 (EMS Issues) above.

12. *Describe the chain of command from environmental management to top/upper level management of the company.*

Environmental Manager to Vice President of Foundry Division to Owner.

13. *Generally, where does primary decision making authority over environmental issues reside within the firm? What type of decisions require approval outside of the environmental management structure (i.e., from top/upper level management)?*

The Environmental Manager has decision making authority with respect to any issue where an individual expenditure item will not exceed \$40,000. The Vice President of the Foundry Division has authority to approve any other realistic expenditure that environmental management may want to undertake. Owner approval is not needed.

14. *Are environmental management decisions often made at the facility level rather than corporate level? What type of facility level decisions require approval from corporate environmental managers?*

Not applicable.

Questionnaire Results: Wheland Foundry

15. Describe the level of integration of environmental departments or personnel with the rest of the company.

The Environmental Department is not particularly well integrated into the rest of the company. The department's role tends to be that of a "consultant" on environmental issues to the overall management of Wheland. Instead of being involved in initial planning or decision making, the Environmental Department tends to be informed that a decision has been made and instructed to handle whatever environmental issues are implicated by the decision. The Environmental Department considers the lack of integration and the lack of a role in initial decision-making processes to be a continuing concern.

However, in the last year, very real progress has been made as demonstrated by how the new plant expansion has been coordinated. As an additional example of progress, Larry Bowers is now supervising the 10-year growth plan at the foundry.

16. In a related vein, what are the relationships between environmental departments/personnel and other departments within the company? (In other words, what links are in place to allow environmental personnel to effectively perform their jobs within the company?)

Formal links in place are as follows:

- purchasing is required to obtain environmental approval before materials are purchased
- environmental managers attend regularly scheduled project management meetings
- environmental managers attend weekly senior management meetings
- environmental department is notified of all proposed capital jobs before any work is performed or equipment purchased

17. Describe any concerns with communication between environmental departments or cross-functional environmental employees and other departments with the firm.

Communication is sometimes a problem with other departments. Safety, maintenance, or production departments are examples. However, the largest communication problem can be with the engineering departments. Engineering often makes design related decisions without integrating those decisions with consideration of potential environmental issues and concerns.

18. Does the firm rely upon outside consultants to handle environmental tasks? How often?

Yes, on an as needed basis for specific issues such as certain air permits requiring either specialized expertise and large amounts of work in a short time period, or for groundwater sampling, etc.

19. What factors are considered in determining whether to utilize consultants or handle an environmental matter in-house?

Wheland's Environmental Department uses consultants in situations where either in-house expertise is lacking for a particular task or (more often) where in-house personnel job responsibilities do not allow sufficient time to perform a particular task. Consultants can prevent having to take Wheland personnel out of their normal job routines for long periods to do one specific task. Plus, some tasks raise efficiency concerns, such as groundwater monitoring. If an individual does not perform this type of task every day, he or she will not be as efficient at the task as a consultant who performs such tasks on a more consistent basis.

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20. How is the performance of the environmental management department evaluated within the firm?

Wheland has developed a unique method of self-evaluation of the Environmental Department. Wheland conducts surveys of its general managers for the purpose of evaluating department performance. Wheland has also prepared questionnaires for personnel of various regulatory departments that oversee Wheland to evaluate specific issues (for example, air quality) with respect to Wheland's environmental performance. In addition, Wheland hires outside consultants to perform service evaluations of the Environmental Department.

21. Upon what criteria would departmental performance be judged?

Performance is judged according to the following broad criteria:

- Cost (low)
- Public relations/Press (good)
- Enforcement/Compliance issues (none)
- Happy neighbors

22. Are individuals with environmental management responsibilities evaluated on their performance of those responsibilities?

All personnel in the Environmental Department are evaluated on performance of their respective responsibilities. General managers are not evaluated solely on environmental issues, although such issues play a role in their evaluations. General employees are not evaluated on environmental issues.

23. Who conducts such evaluations and what criteria are used to do such evaluations?

The Environmental Manager conducts evaluations for Environmental Department personnel. The Vice President of the Foundry Division conducts evaluations of the general managers and the Environmental Manager.

“Perfect World” Issues

1. Could the environmental management system of your company be better? How? What would you change if you could? Why?

Yes. Possible changes could include:

- better document control, which integration of the EMS with QS 9000 should provide
- better training (more time for training and a more cooperative union stance on the issue)
- better communication between all departments and the Environmental Department
- the Environmental Department would move from the “consultant” role to an integrated part of the overall management of the company. The current system provides a “shield” around the company – the Environmental Department fixes problems or prevents the company from getting into trouble, but does not participate in strategic business planning or decisions.

Questionnaire Results: Wheland Foundry

2. *What degree of influence over corporate structure or policy does environmental management have? What degree do you think it should have? Why?*

The Environmental Department has influence over corporate policy to some degree, inasmuch as the department is heavily financed and well respected. However, the department is still used more as a tool of the company rather than as an integrated part of a company-wide management team. For example, the recent corporate decision to locate the new foundry in Warrenton, Georgia was made without any input by or consultation with the Environmental Department. The upper management view was that the Environmental Department would be able to handle whatever issues came up no matter what location was selected. A more team oriented approach would have been to involve environmental in the location decision during the planning stage so that problems could be anticipated and alternatives explored and considered rather than simply expecting that whatever problems the location decision might bring could be later “fixed” by the Environmental Department.

3. *Are matters being handled by other departments in the firm that would be better served if they were handled by environmental?*

No.

4. *Are there issues being handled by environmental that should be handled by other departments?*

Yes. There are a number of items that are assigned to environmental for no other reason than evolution or the fact that the department is known to be able to get things done efficiently and correctly. For example, maintenance issues such as repairs, pumps, water fountains are routinely dealt with by the Environmental Department. Other such items include custodial services, grounds maintenance, facilities maintenance, paving, and ordering toilet paper. Environmental has been asked to build parks, put up fences, and similar projects. The Environmental Department’s reputation for cooperation and an ability to get things done leads to general managers assigning things to environmental for matters of convenience more than for an environmentally related reason.

5. *When and to what extent is environmental consulted on issues of public relations, marketing, product development, etc. now? When and to what extent do you think it should?*

The Environmental Department is consulted and involved extensively on issues of public relations. The primary reason Larry Bowers was hired at Wheland was to assist the company in overcoming public perception with both the community and regulators stemming from some highly publicized environmental problems previously experienced by the company. Over the past five years, the Environmental Department has been very aggressive in this area on behalf of the company. The department has become very involved in the local community and has supported many local projects and entities. The department recently oversaw the building of a community park. The department is preparing to oversee the first major Brownfields project in Chattanooga from which Wheland will receive a large amount of positive public exposure. These efforts have been very successful in reinforcing a positive perception of Wheland in the neighboring communities and in Chattanooga as a whole.

With respect to marketing, product development and other issues, see the response to questions 15 (Organizational Issues) and 2 (“Perfect World” Issues) above and 6 below.

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6. *What meetings do environmental managers attend that are not run by environmental managers? Are there meetings that you think environmental should attend now but they are not?*

Environmental managers attend production meetings and senior staff meetings. However, meetings involving marketing or product development are not attended by environmental personnel. Further, when the Owner and Vice President get together to discuss the future of the company, environmental managers are not invited. As emphasized above, the historical practice has been to inform the environmental managers after a decision has been made with the expectation that environmental managers are to handle whatever needs to be handled. The Environmental Department believes that the better practice would be to involve environmental in the planning and initial decision-making processes. The Environmental Department is capable of spending money to resolve a problem, or to negotiate with regulators, or to come up with solutions, but what the department cannot do is “bend time.” In other words, the department cannot give itself more time to fix a problem than they are given when the problem is first put into their lap. An integrated approach would assist in avoiding serious problems which could be caused by such time constraints (such as, for example, if a construction start-up time is dependent upon first obtaining a certain permit).