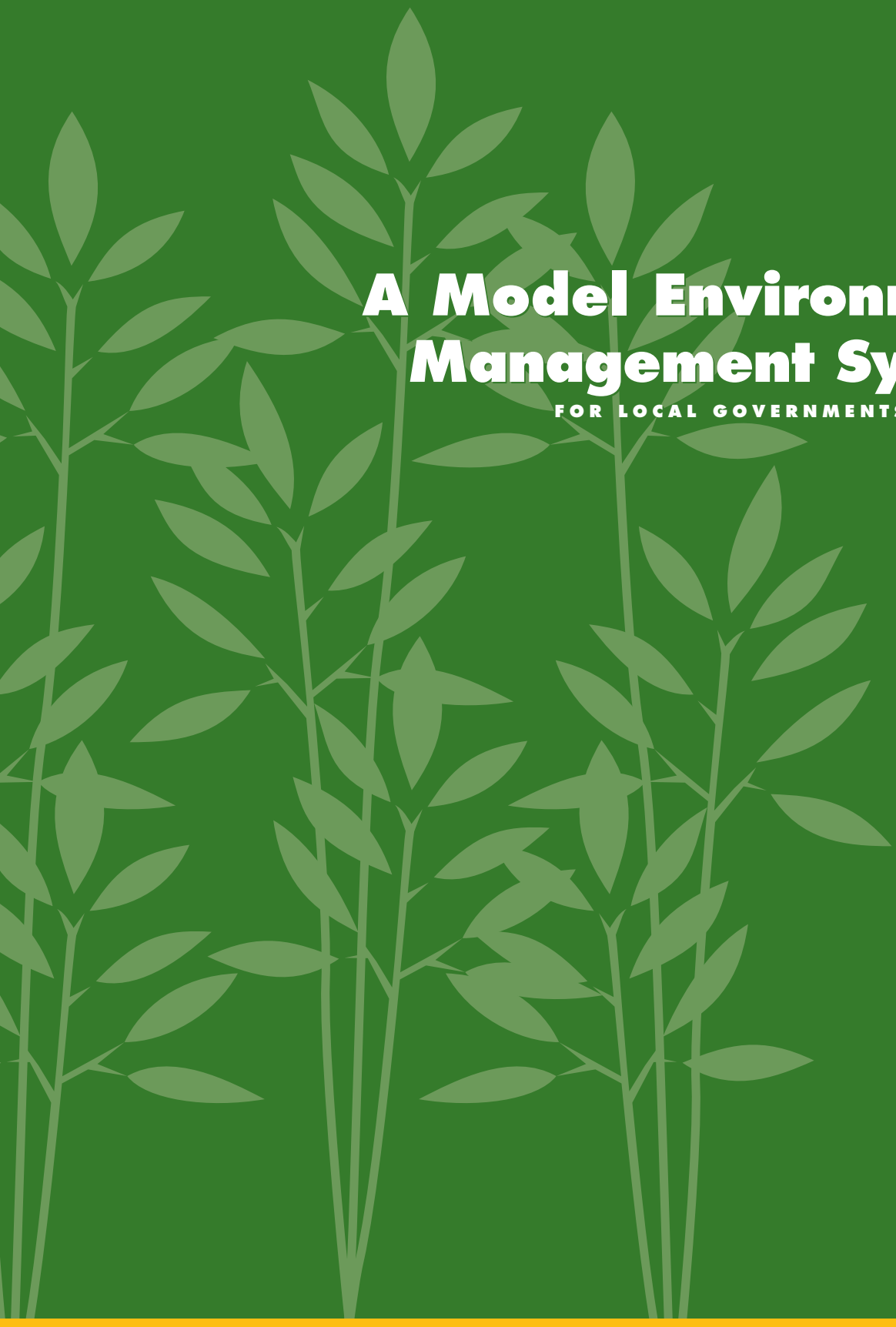
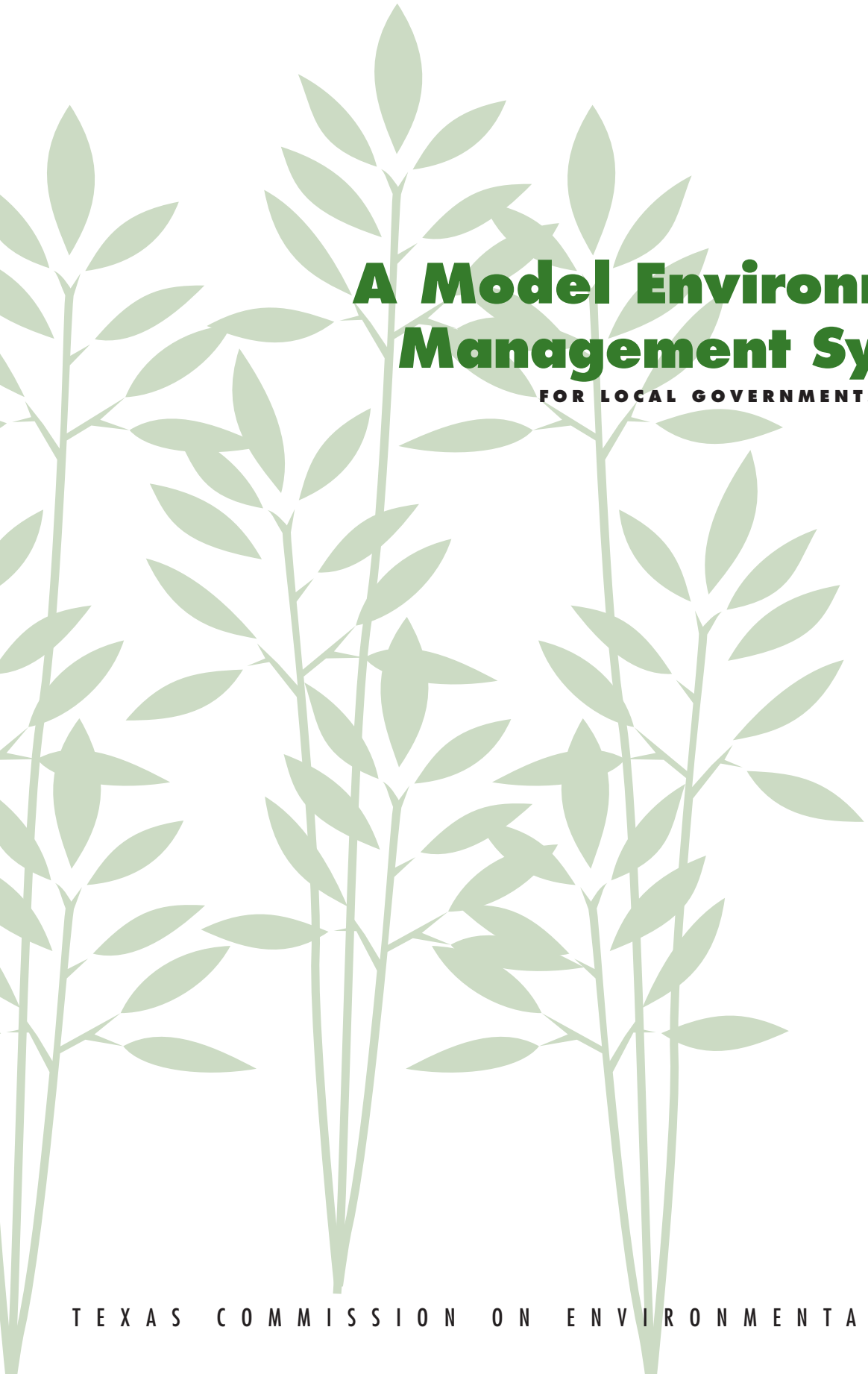


A Model Environmental Management System

FOR LOCAL GOVERNMENTS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Contents



A Model Environmental Management System

FOR LOCAL GOVERNMENTS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

printed on recycled paper using soy-based ink

Part I: Introduction

This publication serves as a guide for local governments considering the development of an environmental management system (EMS). The model is presented as actual working papers from a hypothetical city: Green City, Texas. While the environmental rules, aspects, and impacts will differ for other types of local governments, any organization should be able to use these EMS procedures.

What is an EMS?

An EMS is defined simply as a method used to plan, implement, review, and improve environmental performance. Management systems are common for most organizations, for example, in a city to model purchasing, or the hiring of new employees. An EMS works much the same way, but instead looks at how organizations may reduce impacts on the environment from their operations.

How to Use This EMS Model

This model will outline the main components of an EMS and guide you in creating and implementing an EMS for your local government. You will also learn about the benefits and regulatory incentives available from the Texas Commission on Environmental Quality to those who choose to have their EMS evaluated and certified.

This model is likely to include more detail than you may need, but it provides examples and forms that may be tailored to your specific requirements. More detailed EMS examples can be found on the PEER Center's web site at <www.peercenter.net>.

Where Can I Get More EMS Information?

You can obtain more information on EMS in the following ways:

By phone: 512/239-3100
By mail: Texas Commission on Environmental Quality
Clean Texas Coordinator, MC 112
P.O. Box 13087
Austin, TX 78711-3087
By e-mail: <ems@tceq.state.tx.us>
Web pages: <www.abouttexasems.org>
<www.tceq.state.tx.us>
<www.cleantexas.org>

Benefits of an EMS

Using an EMS may help you reduce risk and liability, may help you increase efficiency in using resources, and reduce risk and liability. You may also:

- reduce costs
- prioritize environmental issues
- identify potential problems
- improve environmental compliance
- use materials more efficiently
- streamline operations
- improve internal communication
- enhance employee morale.

Regulatory Incentives

Currently, most regulatory incentives occur from participation in the TCEQ Clean Texas Program. The program is administrated by the TCEQ Small Business and Environmental Assistance Division (SBEA). This division works in conjunction with others divisions within the TCEQ, the Environmental Protection Agency (EPA) and local programs to develop incentives for those entities in Clean Texas or the EMS Program. All members receive benefits, including recognition, networking, and technical assistance.

Members joining at the top tiers (Gold, Silver and Platinum) have access to regulatory benefits, such as:

- reduced fees for TCEQ training and seminars;
- networking opportunities and technical assistance, including on-site visits;
- a credit on your TCEQ compliance history score;
- a single point of contact at the TCEQ for innovative activities and information on air, water, and waste; and
- other incentives on a case-by-case basis.

Benefits at the Platinum level include:

- stringency evaluations under air programs so that sites held to two similar standards (federal and state) will only be held to the more stringent one;
- low inspection priority for EPA inspections (not including complaints or sector initiatives);
- simplified reporting requirements for facilities governed by the Maximum Available Control Technology provisions of the Clean Air Act (40 Code of Federal Regulations Part 63); and
- reduced state inspection frequency (requires high compliance history, case evaluation).

To participate in the TCEQ Clean Texas Program, complete an online application at <www.cleantexas.org> or call 512/239-3100 for more information. After your EMS has been evaluated by an independent assessor, and verified by the TCEQ, you become eligible for regulatory incentives.

The rules governing Clean Texas are in Title 30 of the Texas Administrative Code, Chapter 90. For more information on this program, including regulatory incentives, please see the section titled "Benefits" at <www.cleantexas.org>.

What are the Basics of an EMS?

An EMS creates processes and procedures that allow an organization to analyze, control, and reduce the environmental impact of its activities, products, and services. The EMS also allows an organization to continually improve its environmental performance and to adapt to changes which occur often inside and outside the organization.

The following tasks build the foundation of an EMS:

- **Develop an environmental policy.** The environmental policy describes your local government's environmental goals and its commitment to the environment.
- **Assign responsibilities.** Your EMS will only succeed if it is clear to all employees that its success is very important to the top manager or official, such as through a mission statement or work plans. Use an EMS as an opportunity to ensure that every employee understands what needs to be done in his or her job when it comes to reducing impacts on the environment.
- **Identify and prioritize environmental aspects and impacts.** The process of identifying environmental aspects and impacts is one of the most technically challenging tasks in creating an EMS. It requires an analysis of each of your organization's activities, products, or services. An environmental aspect is an element of your activities, products, or services that can or does interact with the environment. Impacts are a positive or negative change in the environment caused by aspects. You determine whether or not an aspect is significant by ranking them according to criteria such as probability of occurrence, volume, effects the impacts may have, and other criteria you feel are important.

- **Set and pursue goals for continuous improvement in environmental performance and compliance.** Once you have identified your significant environmental aspects, you can determine which ones will be related to goals. When you establish goals, keep in mind compliance, continuous improvement, and reducing your environmental impacts.
- **Document and demonstrate results.** Results include reduced risk, enhanced compliance and reduced pollution.
- **Evaluate EMS performance.** Measure and monitor your activities to evaluate whether you are making progress toward achieving your environmental goals.

Using This Model to Create Your EMS

Keep the following things in mind as you plan your EMS:

- **Make your EMS results oriented.** This is an element the TCEQ will assess when evaluating an EMS. It means that your EMS should actually reduce risk and help your local government remain compliant, while continually improving environmental performance.
- **Plan for flexibility.** Design your EMS so that, over time, it will continually adapt during continuous use. It is very important that your EMS change and improve with your activities and functions.
- **Incorporate your existing systems.** For example, if you already have a system for documentation, develop your EMS manual to incorporate that existing system.

Part II: Manual on the Environmental Management System of Green City

Environmental Policy

The environmental policy states in broad terms the most important environmental commitments of the local government. The policy should be signed by a member of executive management; such as a mayor, executive director, or board member, and made available in different formats for all employees.

A local government's environmental policy should be made accessible and available upon request to the public, to customers, and to regulatory authorities.

The EMS coordinator is responsible for ensuring that only the most recent version of the environmental policy is posted and available.

Example A

Green City is committed to improving the environment. We will do so by complying with all environmental laws and regulations.

Green City will also strive to

- minimize the amount of waste generated,
- ensure the safe disposal of waste,
- reuse and recycle whenever possible,
- reduce discharge of pollutants into the water,
- reduce emissions to the air,
- use energy and water efficiently,
- monitor our environmental performance, and
- continuously seek opportunities to improve on our performance.

Every Green City employee is responsible for implementing the city's commitment to improving the environment.

Scope

Scope sets a **fence line** (imaginary or real) around your EMS coverage area. It helps keep you from making the EMS cover too much or too little. Some questions you can ask yourself might be: Where do we have the biggest problems? Does our facility have a logical boundary, like a fence line on a landfill or a warehouse for fleet maintenance?

Your organization's scope may include one or more of the following:

- a landfill
- a wastewater treatment plant
- a drinking water treatment plant
- fleet maintenance
- office operations

Since many cities manage a variety of operations such as those listed here, they often choose to set up an EMS for each separate operation or department, which can roll up into the citywide EMS. At the top level, the EMS is a simple document that provides guidance for the development of each department's own EMS.

It is also important to consider that your EMS may need to encompass those departments or programs that contribute to your overall environmental footprint. For example, the EMS for a wastewater treatment plant may need to cover the pretreatment program, collection system

maintenance, or a biosolids composting facility since they contribute to the plant's overall environmental impact.

Top management or officials should determine the scope of the EMS. A team of employees from across your organization could comment. Scope documentation should describe what the EMS does and does not cover, and why. The TCEQ requires that an EMS cover all regulated activities.

Example B

Green City's EMS covers only its wastewater treatment facility. More specifically, the EMS covers all operations at the site—from the headworks where untreated wastewater enters the facility to the point of wastewater discharge. The EMS scope encompasses the wastewater treatment processes and activities, as well as all other onsite operations, including maintenance, grounds keeping, and offices. Green City plans to extend the EMS to its landfill after it has been in place for several years at the wastewater treatment facility. The purposes of this two-phase rollout are to learn from successes and mistakes in implementing the wastewater EMS and to apply that knowledge to the landfill facility.

Responsibilities

As with any important business-related tasks, specific employees should assume EMS responsibilities. An EMS generally assigns personnel to the following roles:

- implementation
- assessment and maintenance
- training
- corrective action
- monitoring environmental performance, goals, and compliance

In assigning responsibilities, these are key principles:

- Managers must make it clear to employees that they consider EMS activities worthwhile and important, and incorporate relevant activities from the EMS into their current job assignment.
- Managerial leadership is vital to the success of an EMS.
- Each person assigned EMS duties should be periodically evaluated on those duties. Include EMS duties in employee performance plans and compensation policy.
- EMS assignments should be documented.
- Assignment of responsibility within the EMS should be accompanied by the granting of authority to accomplish the assigned tasks.

Example C

Green City designates the following core EMS functions. A description of each function appears in the Example C table. As the EMS develops, new tasks may be assigned.

- **EMS coordinator.** The EMS coordinator has the overall responsibility for the EMS implementation. This includes identifying and assigning tasks, maintaining the EMS manual, and leading the EMS team.
- **EMS team.** The EMS team has members who are responsible for training, corrective action, and monitoring environmental performance and compliance. All team members are responsible for ensuring that they accomplish the EMS activities in their respective areas, and report the results of these activities to the team and upper management. In addition, the team as a whole is responsible for carrying out certain EMS activities, such as selecting significant environmental aspects. The EMS team also assumes the overall responsibility for the EMS implementation. The team includes personnel from all areas within the scope of the EMS, from top management to line staff.

A management representative on the EMS team will ensure that all tasks are identified and completed on time and will report periodically to management on the progress and results of the EMS.

(Example C continued on next page)

(Example C continued)

Green City EMS Responsibilities

EMS Function	Name	Position
Management Representative	Jose Rodriguez	City Manager
Implementation Coordinator	Carol White	Director of Utilities
Training	David Chang	Environmental Programs Manager
Corrective Action	Julia Jordan	Plant Manager
Compliance Performance Monitor	Carol White	Director of Utilities
Environmental Performance Monitor	Willie Scott	Shift Supervisor

Ensuring Compliance

In an effective EMS, you set goals and develop an action plan for ensuring compliance with applicable environmental laws, regulations, and permit requirements.

Here is one method to ensure environmental compliance:

- **Review your existing system for ensuring compliance, if you have one.** How well has it worked for you in the past? Have you been able to discover and resolve compliance problems? Have you had any environmental enforcement actions? How could the system be better?
- **Make a list of all environmental regulations that apply to you within your EMS scope.** If you need help identifying them, call the TCEQ Small Business and Local Government Assistance Hotline at 1-800-447-2827. For each regulation, list your requirements (for example, permits, reporting, and record keeping). How are you complying with each of these now? Can you improve?
- **Decide which goals would help you comply with environmental laws, regulations, and permit requirements.** Once you have listed some tentative goals, consider how to measure improvement. Some local governments find it useful to measure improvement by doing a compliance self-assessment twice a year. In their self-assessment, they establish deadlines for determining the underlying cause of any problems and for ensuring they are resolved and documented.
- Develop an action plan to make sure your organization is progressing toward compliance.

Example D

As part of its EMS, Green City has developed an action plan to ensure compliance with all laws and regulations.

The director of utilities (Carol White) serves as the EMS compliance performance monitor and is responsible for the following duties:

- maintaining an updated list of all applicable environmental rules;
- assigning duties to the appropriate managers for ensuring compliance with each rule, and assigning new duties if rules change;
- making sure that managers develop work instructions to ensure compliance; and
- ensuring that an internal compliance assessment occurs to check progress toward compliance goals—an internal compliance assessment will be done once a year.

The city manager makes sure that compliance goals are documented and retains the results from internal compliance assessments (see table on the next page). The yearly compliance assessments ensure that we are complying with all applicable local, state, and federal environmental rules within our EMS scope, and that compliance is continually improving.

(Example D continued on next page)

(Example D continued)

Documentation of Internal Compliance Evaluation (Excerpt)

Regulation	WQ Permit WQ-0123789-001	30 TAC 305.125(11)(B)	40 CFR 355.30	30 TAC 317.6(b)(1)(D)
Person Responsible	Plant Manager	Plant Manager	Director of Utilities	Environmental Programs Manager
Compliance Check Date	01/31/05	04/01/05	03/20/05	02/07/05
Results	Compliant	Compliant	Non-compliant	Non-compliant
Underlying Cause of Non-compliance	N/A	N/A	Volumes of chlorine gas had changed since last notification	Inadequate training; staff was not aware of the safety requirement
Corrective Action Date	N/A	N/A	03/23/05	Chlorine safety equipment ordered—installed on 3/01/05
Date Compliance Verified	2/15/05	04/01/05	03/24/05	03/04/05

Determining Environmental Aspects

The elements of your organization's activities that impact the environment are called *environmental aspects*. The potential for environmental impact is enough to consider an element as an environmental aspect. To summarize: activities have aspects which have environmental impacts.

Use your best judgment to select the most appropriate people to determine your environmental aspects. The key is to assign people who know your operations and how they might affect the environment. One option is to make the EMS team responsible for identifying environmental aspects, with help from employees familiar with the applicable process.

Knowing the environmental aspects of your organization will allow you to prioritize and manage actual and potential impacts on the environment.

There are several ways to approach the identification of environmental aspects. One method involves the following steps:

1. List the operations, programs or departments that fall within the scope of the EMS.
2. Identify the environmental aspects of these operations, using an input/output diagram or a process map.
3. List the environmental aspects and their actual or potential impacts. Quantify the aspects, if possible, because that will help you measure your progress later.
   Note: The purpose of this step is to get all aspects on paper so you can prioritize them later in the process.

A local government is the sum of its many functions and services. Each function or service is in turn made up of many components. This document cannot list all the aspects for a local government. For the purpose of this model we will only examine a portion of the aspects associated with a municipal service: the local wastewater treatment plant (WWTP).

Example E

Green City identified its environmental aspects by using the following three steps:

Step 1. Listing activities within its EMS scope.

Green City identified the following activities associated with the operations and processes of the publicly owned treatment works:

- wastewater collection (filtration, bar screens, lift station)
- wastewater treatment (chlorine contact chamber, biodigesters, aeration ponds)
- wastewater discharge
- sludge (biosolids) treatment (drying beds, drying presses)
- sludge (biosolids) disposal (trucking)

Step 2. Identifying the elements (inputs and outputs) of each activity, which have or could affect the environment (see Analysis of Operations Using Inputs and Outputs below).

Step 3. Quantifying these aspects where possible and listing each of their actual or potential environmental impacts (see Identification of Environmental Impacts below).

Analysis of Operations Using Inputs and Outputs (Excerpt)

Operation	Inputs	Outputs
Line replacement (wastewater collection)	Water, chemicals (disinfection), raw materials, fuel (for machinery)	Wastewater, air emissions, sewage
Bar screen cleaning (wastewater collection)	Water, chemicals	Sewage, wastewater
Effluent discharge (wastewater discharge)	Raw wastewater, chemicals (chlorine), energy	Sludge (biosolids), wastewater, chemicals
Line cleaning (wastewater collection and treatment)	Water, chemicals, energy for cleaning machines	Contaminated wastewater, biosolids

Identification of Environmental Impacts (Excerpt)

Operation	Environmental Aspect (quantified if possible)	Actual and/or Potential Environmental Impacts
Bar screen cleaning	Waste: Sewage (lbs.)	Soil and/or groundwater contamination, public health
Effluent discharge	Water quality: total suspended solids (mg/L or lbs./day)	Water quality degradation, public health
Biosolids (sludge) disposal	Waste: biosolids (tons/day)	Reduced air quality, odor, soil and/or groundwater contamination, possible nuisance issues in transport
Pumping of wastewater through plant	Energy: electricity (kWh/day)	Reduced air quality and natural resource depletion (coal-fueled electric power plant)

Significant Environmental Aspects

This section aims to help you prioritize your environmental aspects by determining which aspects most impact the environment, currently or potentially.

There are many ways of determining significance. Whatever way you choose, make sure to consider regulatory requirements, and document your method of determining that an aspect is significant. The point is to look at all of your aspects and to figure out systematically, using common sense, which of their impacts is environmentally significant.

There are a number of common systems you can use, or you can design your own. The following is just an example of one system. You may use any of the examples of factors listed here to decide significance for your organization. Try to pick factors that you think are significant for your organization and your community.

1. List the organization's aspects. You may group similar aspects from activities that take place across the facility, such as chemical storage or mechanical repairs. If you choose to group aspects, make sure that you do not lose an aspect or impact that is unique to a particular area of your facility or scope.

2. Select which factors to consider when determining significance. Examples of factors you could use are:

- regulatory concerns
- community issues
- human health impacts
- chemical and material risks
- natural resources used: type, quantity
- impact on air quality, water quality, and land
- frequency
- toxicity
- adverse publicity
- nuisance
- probability of occurrence
- volume
- other

3. Instruct the EMS team to score each aspect's environmental impact. You can do this by assessing each impact according to the factors you have chosen. Give the impact a score between 1 and 5, where 1 is the lowest level of concern, and 5 the highest. Decide on a total score above which you will consider the impact significant. It is common to have at least two to three significant aspects and impacts when you finish this process. You may have more. (see Example F below.)

Example F

How Green City Determined Significant Environmental Aspects*

Operation	Aspect	Impacts (Actual and/or Potential)	Regulatory concerns**	Community Issues	Natural Resources Used	Chemical and Material Risks	Overall score	Significant?
Bar screen cleaning	Gallons of sewage	Soil and groundwater contamination, public health	5	5	3	4	17	Yes
Bar screen sewage compaction	Gallons of sewage spilled	Soil and groundwater contamination, worker health, odor	5	2	1	4	12	Yes
Raw sewage centrifugation	Gallons of wastewater	Surface water quality, soil and groundwater contamination, public health issues	5	4	3	2	14	Yes
Bar screen equipment cleaning	Gallons of disinfectant	Resource depletion, worker health issues, contaminated wastewater	1	2	3	5	11	No
Bar screen overflow	Gallons of raw wastewater spilled	Soil and groundwater contamination, public health issues, resource depletion (chemicals, fresh water)	5	4	3	5	17	Yes
Overall screening	kWh/day Electricity	Resource depletion, air quality (coal-fired generator)	1	2	5	1	9	No

An overall score greater than 12 is considered significant. Each operation is given a score between 1 and 5, where 1 is the lowest level of concern and 5 the highest.

* This analysis is for the manual treatment of wastewater, i.e., from the headworks and screening to the clarifiers.

** Regulatory concerns are either yes (5) or no (1), i.e. the specific aspect is either regulated or unregulated.

Environmental Performance Goals

An important part of an EMS is to set goals and develop an action plan that will enable your local government to achieve continuous improvement in environmental performance. Goals should have a timeline and be measurable so that you can track achievements. The TCEQ Clean Texas Program requires members to set goals for environmental performances using the Environmental Performance Table in Appendix A.

You do not have to set a goal for every significant aspect. You may determine that you cannot effect a change in a significant aspect due to technological or budgetary limitations. Be sure to document the reasons why a goal was not set regarding a significant aspect.

The following tips can help you set successful environmental performance goals:

1. Set goals that are realistic.
2. Make certain the goals reduce your impact on the environment, have a timeline, and are measurable. For each goal, decide how to measure performance. Keep in mind that you will need baseline data to be able to measure progress. You should also normalize your data to take into account increases or decreases in operations.
3. Clearly state which employees measure progress toward goals and which employees undertake corrective action when necessary.
4. Set an action plan for achieving the goals (see tables on next page).
5. Communicate the reasons for selecting each goal.
6. Measure and monitor progress toward goals on a routine basis.

Example G

In 2003, Green City's Department of Utilities set an environmental goal for the wastewater treatment plant to reduce its disposal of sludge (biosolids) at the landfill by 10 percent in 2006. In 2003 and 2004, its average flow was 1 million gallons per day (MGD). In 2005, the average flow increased to 2 million gallons per day. There was no change in waste per gallon coming into the plant all three years. When department staff members tally the landfill receipts in 2006, they find that the WWTP has generated 46 tons more biosolids than in 2003, which didn't meet the 10 percent reduction goal. One of the EMS team members realized they needed to normalize their data to reflect that they were treating more wastewater per year. After this correction, they found that they had actually decreased their waste disposal of biosolids at the landfill by almost 20 percent!

	Year 1	Year 3
Reporting year	2003	2005
Quantity of biosolids disposed per year	76 tons	122 tons
Average annual flow	1.0 MGD	2.0 MGD
Normalized total	76 tons/year	61 tons/year
Change from 2003	n/a	15 tons less/year (19% decrease)

2003

$$\frac{\text{417 lbs.of sludge/day}}{\text{1 million gallons of treated wastewater/day}} = \frac{\text{417 lbs. of sludge}}{\text{million gallons of treated wastewater}} \times \frac{\text{365 days}}{\text{year}} = \frac{\text{76 tons of sludge}}{\text{year}}$$

2005

$$\frac{\text{667 lbs.of sludge/day}}{\text{2 million gallons of treated wastewater/day}} = \frac{\text{334 lbs. of sludge}}{\text{million gallons of treated wastewater}} \times \frac{\text{365 days}}{\text{year}} = \frac{\text{~61 tons of sludge}}{\text{year}}$$

(Example G continued on next page)

(Example G continued)

Environmental Performance Goals

Goal	Related Significant Environmental Aspect	What Part of Our Environmental Policy Does This Relate To?	Performance Indicator
Reduce pounds per day of total suspended solids in the effluent by 10% (per MGD of treated wastewater)	Water quality	Reducing emissions to water and air	TSS value on the monthly lab reports
Increase beneficial reuse of biosolids by 20% (normalized by daily influent load of BOD)	Waste	Reusing and recycling whenever possible.	Biosolids manifests
Reduce energy use (kWh) by 5% per year (per MGD of treated wastewater)	Energy use	Use energy efficiently	Meter reading/ monthly bills

Action Plans (Excerpt)

Indicator	Total suspended solids value in monthly laboratory reports
Goal	To reduce pounds of TSS per million gallons (of treated wastewater) in the effluent discharge by 10%
Action Plan	Analyze what improvements can be made to the wastewater treatment system to increase efficient removal of TSS
Persons Responsible	WWTP Lead Operator and City Engineer (where necessary)
Budget	$2,000 initially, with more funds to be authorized by the Green City Council and/or the City Manager as required
Schedule	◆ Initial review of system by 01/15/2003 ◆ Meeting to discuss findings and timeline to implement recommendations by 02/28/2004 ◆ Changes to system will be complete no later than 12/31/2004
Review Cycle	Once the changes have been implemented, lab reports will be reviewed monthly by David Chang, Green City's Environmental Programs Manager, to assess progress

Training

To ensure that all employees know the extent of their job duties when it comes to the environment, you should provide them with environmental awareness training. You should also provide task-specific training to those employees whose jobs are associated with significant environmental aspects (see Example H on next page).

Example H

Task-Specific Training

Significant Environmental Aspect	Associated Job Functions	Work Instruction Needed	Responsible Person
Waste	Biosolids disposal	Yes, WWTP operators need to be trained in more efficient biosolids dewatering procedures and retention rational	WWTP Lead Operator
	Maintenance (pump and lift station inspections)	Yes, plant operators need to be better able to analyze any deficiencies in pump and lift station operations	WWTP Shift Supervisor
Air Emissions	Biosolids transportation	Yes, trucking contractor needs to be trained on the applicable rules for covering the trucks	Director of Utilities
	Odor control system inspections	No, odor control system is operating as required	n/a

Controlling Liability

As part of your EMS, you should strive to ensure that the environmental impacts associated with any accidents, spills, or emergency situations are avoided or controlled as soon as possible to reduce the risk to people and the environment. Your EMS must address impacts from the perspective of liability control and regulatory compliance.

Example I

1. Green City has an Emergency Response Committee charged with identifying potential upset or emergency scenarios and developing and implementing appropriate procedures for dealing with these scenarios.
2. With the assistance of the EMS coordinator, the Emergency Response Committee:
   - identifies the significant environmental impacts from potential emergency scenarios;
   - makes plans to minimize these impacts; and
   - ensures that adequate training, including simulations and drills, is provided to appropriate staff to implement these procedures.
3. The Emergency Response Committee meets quarterly.
4. The EMS outlines procedures for maintaining records of the potential emergency scenarios that Green City is prepared for, the potential environmental impacts associated with each scenario, and the procedures established to minimize these impacts.

Procedure for Changes and New Activities

When you purchase new supplies, modify your services, and/or provide new products, you should strive to ensure that environmental concerns are considered. Any new action by your organization may result in a change or modification of the environmental aspects contained within the EMS.

Example J

1. **Before an order for a new chemical, product, piece of equipment or other input to the facility, the Green City Wastewater Treatment Plant Manager will notify the EMS coordinator of the action.** The EMS committee will review the proposed change and implement changes to the EMS prior to the new item being put to use.
2. **Before any WWTP modification or expansion is undertaken, the EMS committee will review how the new plans affect the environmental performance of the facility.** If necessary the committee should be able to incorporate the changes into the EMS.

Evaluating and Demonstrating Performance

You should routinely write a review of how you are following your EMS and how your goals and procedures have enabled you to:

1. reduce pollution,
2. enhance or maintain compliance, or
3. reduce risk.

This review consists of an internal assessment, a management briefing on the results, and management action to ensure that the results are incorporated into action plans.

A team of two or three managers and employees can conduct an internal assessment. It is important that those conducting the assessment not assess their own work area, and that they are allowed to perform the assessment as independently as possible.

Organize the results and present your findings to the management or officials of your local government, and discuss these findings within your local government to get feedback on your efforts. Regularly evaluating the EMS will enable you to determine which parts of the EMS are working well and what needs improvement. Results should show progress toward EMS goals; for example, concrete reductions in emissions and waste.

Evaluations of EMS performance should occur at least annually. You should base your findings on an evaluation of objective evidence, including interviews with employees, observations, and documentation.

Once all the relevant information is obtained and conclusions are drawn, present a report to top government officials or their management representative, who should analyze deficiencies in the EMS. The EMS team can then work with the top management representative to make any needed modifications to the EMS.

Example K

Green City's assessment team checks to make sure that:

1. each employee is properly performing the tasks assigned to him or her as part of the EMS,
2. Green City's environmental policy is being followed, and
3. progress is being made in meeting the environmental goals. The assessment team writes up its finding. A minor nonconformity occurs when a procedure is being implemented inconsistently, yet without causing major failings in the EMS as a whole. A moderate nonconformance occurs when one or more elements of the EMS is only marginally addressed and do not include outcomes that result in significant non-compliance or unaddressed significant environmental impact.

A major nonconformity occurs when:

1. an EMS task is clearly not being performed,
2. one of the commitments in the policy is not being followed, or
3. no progress is being made in achieving an environmental goal.

Corrective action is taken for all nonconformities.

The EMS coordinator maintains the records of each assessment. At least once a year, a full internal assessment is conducted.

Documentation of EMS Implementation

To demonstrate the effectiveness of your EMS, you need to provide written documentation of your accomplishments and implementation procedures. Documentation is a required part of an EMS, but it should not be the main emphasis. Your EMS implementation should be evident through your performance.

Your EMS procedures will need to be defined, appropriately documented, and updated when necessary. It is not always necessary to develop new documents. If you are already required to have documents for certain regulations or permits, don't re-create them for the EMS. Documentation can be in various formats, including electronic or hard copy. Keep a method in place to ensure that the most up-to-date version of the documentation is available. Documentation should be available for all EMS components, including:

- environmental policy;
- responsibilities assigned and embedded in work instructions, job descriptions, performance plans and reviews;
- identification and prioritization of environmental aspects;
- setting goals and action plans for environmental performance and compliance; and
- regular assessments.

Corrective Action

The corrective-action process is used to ensure that your local government's actual or potential compliance issues and EMS nonconformities are addressed quickly and effectively (see form below).

Example L

1. Green City's city manager will assign responsibility to an appropriate employee for taking action to correct each compliance issue or nonconformity identified in the internal assessment.
2. The person responsible then undertakes the required corrective action, calling upon top government officials, management representatives, the EMS committee, and others for assistance as necessary.
3. When the corrective action is complete, the responsible person and the management representative should document the corrective measures.
4. The EMS coordinator maintains the records of corrective actions.

Corrective Action Form (One problem per form)

Statement of the Problem: A biosolids transport vehicle was observed in June without the required cover or signage.
Date of evaluation: 06/23/2005
Description of nonconformity or actual/potential compliance issue: The TCEQ requires signage on transporters (detailed in 30 TAC Section 312.144) of wastewater biosolids.
Description of potential solution: Conduct biweekly inspections of biosolids transporters to verify they meet the rule. Require documented training of all transporters from the independent contractor. All observations of noncompliance will result in direct notice to the contractor.
Person responsible for corrective actions: Julia Jordan
Deadline for corrective actions: 08/31/2005
Corrective Action Completion
Actions taken: The contractor held a seminar and training for biosolids haulers in July. The contractor provided documentation of course completion on 07/28/2005. No weekly inspections have documented any deviations from the biosolids transporter requirements since 07/14/2005.
Date verified: 08/22/2005

Carol White, Management Representative *Julia Jordan, Responsible Person*

Stakeholder Involvement

The Platinum level of the TCEQ Clean Texas Program requires that participants include two additional EMS elements: stakeholder involvement and community outreach.

If required to have these elements, you should ensure that interested external stakeholders receive information about your organization's environmental activities. Your environmental policy should be made available to the public. You should also, where appropriate, develop a policy for considering and responding to queries, comments, or complaints from stakeholders. Many local governments have a procedure or forms and documents for tracking contact with the public. These can be incorporated into an EMS to assist in streamlining stakeholder activities.

The EMS committee can identify the stakeholders and their potential interests (Stakeholders and Environmental Issues) in the environmental performance of your organization. If your committee decides that proactive communication with any group on environmental issues is necessary, the decision should be recorded and responsibility assigned to specific employees.

Stakeholders and Environmental Issues

Stakeholder	Potential Environmental Interest	Proactive Communication Plan (Optional)	Person Responsible
Neighboring industrial operations who discharge into same body of water as the WWTP	◆ worry about being blamed for water pollution caused by WWTP ◆ possible impact on property values ◆ nuisance odors ◆ truck traffic from septic waste haulers coming to dump station	◆ open house ◆ biannual meetings between executive management of WWTP and industrial neighbors	Director of Utilities
Nearby residents	◆ curiosity about WWTP operations ◆ concerns about water pollution ◆ health concerns about swimming in WWTP discharge water ◆ concerns about eating fish caught in WWTP discharge water	◆ open house ◆ information pamphlet distributed to all neighbors ◆ annual fishing derby sponsored by WWTP	Director of Utilities, City Media Department
Local environmental groups	◆ concerns about water pollution ◆ concerns about wildlife health impacts ◆ concerns about habitat alteration or loss	◆ open house ◆ biannual meeting between WWTP exective managment and group ◆ joint projects between WWTP and groups to monitor or improve wildlife habitat	Director of Utilities

When a community member or a stakeholder sends in communication about your environmental performance or management, the message should be forwarded to the EMS management representatives or local government officials.

The EMS representative decides on whether to respond to the communication and in what manner. The EMS representative also maintains records of communications and responses (see Example J).

Example J

Stakeholder Communication Record

Date of communication received: 2/28/05
Type of communication: E-mail
Received from: George Brown
Address / telephone number:
E-mail: george.brown@email.net
Content of communication (attach copy if possible):

(E-mail through contact page on our web site)

I live about 1 mile from your plant entrance. When the wind is blowing from your direction, the smell is very bad. What can you do about this?

George Brown
(123) 456-7890

Will WWTP respond? ❑ Yes ❑ No
Date of response: 03/02/05
Person responding: Carol White
Position: Director of Utilities
Nature of response (attach copy if possible):

(By e-mail)

Dear Mr. Brown,

We apologize for the bad smell. A wastewater treatment plant sometimes produces odors. We are in the process of adding some additional equipment to our plant to reduce these odors. The new equipment is scheduled to come online on May 1, 2005. Please bear with us until then. If you have any questions or would like to visit the plant to see what we are doing, please let me know. I would be glad to answer your questions or arrange a visit.

Sincerely,
Carol White
Director of Utilities
Green City, Texas

Are internal actions necessary? ❑ Yes ❑ No (If yes, fill out a corrective action form.)

Community Outreach

Community outreach involves working with your community to identify environmental projects that the community wants, and then participating in those projects. For example, if your local school district wants to expand its environmental curriculum and asks you to help send a teacher to the TCEQ course, "Teaching Environmental Science," if you agree to sponsor the teacher, that would qualify as community outreach.

Demonstrating Results

You should review and assess your results annually to see if you are making progress toward your goals, and to review compliance. Your EMS coordinator usually prepares a performance report, with input from the EMS team, and approval by top management or local government officials.

A performance report demonstrates progress toward your EMS goals. Your report should show management, your staff, and the TCEQ at what stage your local government is in the process and how close you have come to your goals.

Useful measures of your local government's progress might include the following:

- percent of goals achieved
- money saved
- reductions in number and amount of spills or accidental air releases
- reductions in air emissions, hazardous waste generated, nonhazardous waste generated, wastewater discharged, or pollutants in wastewater
- reductions in energy usage or water usage
- reductions in the number of notices of violation from the TCEQ
- improvement in compliance history

If your local government decides to submit your EMS to the TCEQ for formal approval as part of the Clean Texas Program, you will need to submit an annual report to the TCEQ, summarizing the progress you have made on your goals through an Annual Performance Report (see Example K).

The reports demonstrate the environmental accomplishments you have made over the year to the TCEQ and the public. The Annual Performance Report includes the following:

- a report on progress made in meeting the organization's environmental performance commitments,
- a summary of the organization's training and outreach activities, and
- a self-certification that the organization continues to meet the criteria for membership in the Clean Texas Program.

The TCEQ Annual Performance Report can be downloaded at:
<www.cleantexas.org>

Example K

Clean Texas Annual Performance Report	**Water Conserved***		
	Year 1	**Year 2**	**Year 3**
Reporting Years	2004	2005	2006
Annual Quantity Reduced	10	2	3
Unit of Measurement (see Environmental Performance Table)	Gallons	Gallons	Gallons
Estimated Cost Savings per Year (if any)	$20,000	$3,000	$2,000
Briefly describe how you achieved your environmental improvements.	Developed a biosolids reuse program (compost) and increased de-watering efficiency.		

**Environmental Improvement (see Environmental Performance Table)*

Appendix A: Environmental Performance

Category	Indicator	Units
	Supply Chain Goals	
Material Procurement	Increase recycled content of materials purchased	Pounds, Tons
	Reduce hazardous/toxic components of materials purchased	Pounds, Tons
	Process Improvement Goals	
Materials Use	Reduce materials used	Pounds, Tons
	Reduce ozone depleting substances used	CFC-11 equivalent pounds, CFC-11 equivalent tons
	Reduce total packaging materials used	Pounds, Tons
Water Use	Reduce total water used	Gallons
Energy Use	Reduce total non-transportation energy used by fuel type	kWh, MMBtu
Transportation	Reduce transportation fuel used (total or specific)	Gallons, Cubic feet
Land Use	Increase land/wildlife habitat conserved	Square feet, Acres
	Emissions and Waste Goals	
Air Quality	Reduce emissions of GHGs	Tons of CO_2 equivalent
	Reduce emissions of VOCs	Pounds, Tons
	Reduce emissions of NO_x	Pounds, Tons
	Reduce emissions of SO_x	Pounds, Tons
	Reduce emissions of PM10	Pounds, Tons
	Reduce emissions of CO	Pounds, Tons
	Reduce emissions of HAP	Pounds, Tons
Water Quality	Reduce discharges with COD	Pounds, Tons
	Reduce discharges with BOD	Pounds, Tons
	Reduce discharges of toxics (total or specific)	Pounds, Tons
	Reduce discharges of total suspended solids	Pounds, Tons
Waste Reduction	Reduce nonhazardous waste generated, broken down by management method (total or specific)	Pounds, Tons
	Reduce hazardous waste generated, broken down by management method (total or specific)	Pounds, Tons
	Product Improvement Goals	
Product Improvements	Decrease expected lifetime energy use of end product (total or specific)	kWh, MMBtu
	Decrease expected lifetime water use of end product (total or specific)	Gallons
	Decrease expected lifetime waste (to air, water, land) from product use (total or specific)	Pounds, Tons
	Decrease waste to air, water, land from disposal or recycling/recovery (total or specific)	Pounds, Tons

Abbreviations Used in the Environmental Performance Table

BOD biochemical oxygen demand
CFCs chlorofluorocarbons
CO carbon monoxide
CO_2 carbon dioxide
COD chemical oxygen demand
GHGs greenhouse gases
HAP hazardous air pollutants
kWh kilowatt-hour
MMBtu million metric British thermal units
NO_x nitrogen oxides
PM particulate matter
SO_x sulfur oxides
VOCs volatile organic compound

For an application or more information about the Clean Texas Program, visit:
<www.cleantexas.org/>

Other EMS web resources and examples can be found at:
<www.peercenter.net>
<www.epa.gov/ems/resources/guides.htm>

Who to Call for More Information

For confidential environmental compliance assistance for small businesses and local governments:
Small Business and Local Government Hotline, 1-800-447-2827

To report an environmental complaint or violation:
Environmental Violations Hot Line, 1-888-777-3186

For information about air permits:
TCEQ Air Permits Division, 512/239-1250

For information about waste registrations:
TCEQ Registration, Review and Reporting Division, 512/239-2106

For information about water quality issues:
TCEQ Water Quality Division, 512/239-4671

For information about drinking water or water supply issues:
TCEQ Water Supply Division, 512/239-4691

To report a spill 24 hours a day:
Spill Reporting, 1-800-832-8224

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