

IMPLEMENTING THE CERES PRINCIPLES AT A PUBLIC UTILITY

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INTRODUCTION

Like similar environmental catastrophes, the 1989 *Exxon Valdez* oil spill may leave its mark on the environment for decades. What may prove to set this incident apart from the others is its impetus for increased attention and action promoting responsible corporate environmental management.

The spill’s statistics included dead and sickened wildlife and the expenditure of millions of dollars. It also resulted in action by 1700 concerned investors at the following Exxon annual shareholder’s meeting.¹ The investors had made the connection that sloppy corporate environmental management was bad for not only the environment and the company’s public image, but also the bottom line.

Soon thereafter, various social investors, environmental groups, religious organizations, public pension trustees and public interest groups, met to discuss their concerns about investing in companies with lackadaisical attitudes toward the environment. They formed the Coalition for Environmental Responsible Economies (CERES) and the related CERES Principles.² (“CERES” is pronounced “series.”) (The principles were originally called the “Valdez Principles,” but were later renamed.) The principles cover important aspects of resource conservation, environmental protection, risk reduction, product safety and public access to information.

The Louisville and Jefferson County Metropolitan Sewer District (MSD) is a nonprofit regional wastewater and stormwater management utility serving a community of about 700,000 people. MSD invested \$58+ million in capital projects during FY1993-94 alone. Most important in initiating the CERES program at MSD was the commitment of MSD's Board who recognized the power of those expenditures to bring about change. Initial steps to exert that power began in the late-1980s. MSD began to help "close the loop" by buying recycled paper, and then set up internal recycling programs. The MSD Board took the next step by signing the CERES Principles as corporate policy in April 1990. In May 1993, the Board reaffirmed the Principles and added the attached more comprehensive "Environmental Policy Statement." The Statement and the Principles are intended to guide all MSD employees in their day-to-day activities, purchasing decisions, long-range planning, etc. This paper details their application.

THE CERES PRINCIPLES AND THEIR APPLICATION

Prevention is the main theme of the Principles. Taking steps before problems develop eliminates many otherwise wasted natural, energy, human and capital resources, pollution and bad public relations. In this day of litigation and liability, preventing problems can be especially beneficial to day-to-day operations and to a budget or bottom line.

While the largest number of the current 80+ signatories could be loosely termed manufacturers, a diversity of companies are signatories from large Fortune 500 corporations, e.g. GM and Sun Oil, to much smaller firms, e.g. Ben & Jerry's, Timberland and Seventh Generation. MSD is one of only three public-sector signatories of the CERES Principles, and has found ways to creatively apply the CERES Principles to its service-oriented operations.

Each principle is listed below, along with examples of its application at MSD:

1. Protection of the Biosphere

MSD has committed to reduce and seek to eliminate the release of substances that may damage the air, water or land or its inhabitants (human, animal or plant). MSD has established policies and procedures to evaluate habitats, open space and wilderness areas for protection, preservation or mitigation.

MSD employees and design consultants are regularly reminded to incorporate pollution prevention and environmental protection in all levels of project planning. Rerouting proposed sewer line alignments around stands of larger trees or other worthy natural features is encouraged. The requirement to consider alternative solutions sometimes serves as the impetus for the discovery of previously overlooked and cheaper routes, which were overlooked when "the shortest path between two points is a straight line" approach was used.

Division directors are being asked to consciously incorporate the Principles into their future annual goals and objectives planning.

Much of post-WWII development in Jefferson County was supported by septic tanks and temporary package wastewater treatment plants. In the last 10 years, MSD has eliminated 1000s of old septic systems and about 100 failing treatment plants. Voluntary water-quality monitoring of local streams, including baseline biological inventories, was begun in 1987 to document whether the agency's activities were meeting the intended goal of improving ambient stream conditions.

MSD is working to eliminate infiltration and inflow that cause by-passes to streams.

Conversion of wastewater disinfection systems at small- and medium-sized treatment plants from chlorine to ultraviolet light (UV), where possible, is beginning. Besides reducing chlorine in the environment, UV also eliminates the need for and expense of dechlorination and some SARA Title III requirements, and is significantly less likely to injure employees.

To protect local receiving streams, MSD greatly improved requirements for erosion-control best management practices (BMPs) on MSD's capital projects, and has been attempting to gain increased statutory enforcement powers over private development projects.

Under MSD's coordination, the Louisville and Jefferson County metropolitan area is one of six in the US selected to participate in Phase Two of the international Urban CO₂ Reduction Project, sponsored by the International Council of Local Environmental Initiatives (ICLEI). (MSD is the local liaison for ICLEI.) This phase also involves Canadian, South American and Scandinavian cities and focuses on transportation energy use reduction strategies including more efficient municipal fleet operation, increased transit and bicycle use and more coordinated development patterns, i.e. integration of residential, commercial, school and workplace land uses. The use of alternative vehicle fuels is also being considered.

Historically, MSD provided garage parking for all downtown employees, a policy essentially rewarded driving and discouraged the use of alternative transportation. Currently, employees are eligible to give up their garage privileges in exchange for free bus tickets. In the Summer of 95, an Employee Commute Options program will be fully instituted, offering the following options: 1) driving alone and paying \$10 per month for parking, 2) riding transit for free or 3) carpooling with at least one MSD coworker and receiving free, assigned parking.

A new policy will go into effect in 1995 that will prohibit unnecessary engine idling - and save fuel, decrease air pollution and reduce the possibility of unauthorized access to unattended running vehicles. Letting an engine warm up while drinking a second cup of coffee or failing to turn off an engine while out of the vehicle will be treated as an infraction of rules, subject to discipline.

2. Sustainable Use of Natural Resources

MSD has adopted policies, procedures and actions to facilitate sustainable use of renewable natural resources, such as water, soils and forests, and will conserve nonrenewable resources through efficient use and careful planning.

MSD began using recycled paper (minimum 10% post-consumer content) in the late-80s for all uses and switches to the best available options based on content, not price alone.

Hammermill's Unity DP© duplicating paper is currently being used for copying, laser printing and faxing. This unbleached 20-lb stock is made of 100% recycled fiber, at least half of which is post-consumer recycled paper. This slightly grayish-tan hue paper has three additional benefits: it is cheaper than traditional office paper, the reduced glare reduces eyestrain to office workers and the opacity eliminates show-through.

Landscaping projects emphasize native plantings because they can withstand the local droughts without expensive and wasteful irrigation and yet still tolerate Spring rainy seasons.

Styrofoam cups are not seen in the main MSD office building. Instead employees and guests drink from ceramic cups - and eat off reusable dishes with metal utensils. The break room and coffee stations have bus trays, that are collected twice each day, and the contents are run through dishwashing machines. This system is being expanded to other satellite facilities.

3. Reduction and Disposal of Wastes

All MSD duplicating machines must be capable of doing two-sided copying. Bright red reminders, affixed to the machines, encourage the use of that feature whenever possible.

MSD has been recycling an increasing list of commodities since the late-80s. For example, during 1993, the following recyclables were diverted from the local landfill:

Office recycling programs diverted 12 811 kg (28,185 lb) of office paper, 5 020 kg (11,045 lb) of computer print-out, 286 kg (630 lb) of newsprint, 3 745 kg (8,238 lb) of cardboard, 226 phone books, 142 kg (313 lb) of aluminum and an unknown number of laser printer toner cartridges.

Fleet maintenance personnel recycled 12 m³ (3,205 gal) of used motor oil, 319 used tires, automotive batteries and petroleum naphthalene, methylene chloride (carburetor cleaning fluid) and freon.

The Maintenance Department recycled 2 427 kg (5,340 lb) of foundry steel, 70 427 kg (154,940 lb) of cast iron and 55 945 kg (123,080 lb) of miscellaneous scrap metals. (Much of that metal comes from the decommissioning inherited temporary wastewater treatment plant tankage.)

Too often wayward citizens stuff their yardwaste into a catchbasin, which increases maintenance costs and sometimes causes sewers to clog and combined sewer overflows (CSOs) to divert raw wastewater into community streams. Prior to the Fall 94 local ban on landfilling yardwaste, MSD joined local government and citizen environmental groups to provide short classes on backyard composting, along with free, low-cost compost bins. To set an example, MSD also held a class for its employees and began using a compost bin at its downtown location. All grass clippings, leaves and trimmings are composted and utilized on-site.

Looking to combat the out-of-sight, out-of-mind mentality which has too often led to the flushing of hazardous materials down the sewer to the detriment of treatment plant microbes and the environment as well as a risk to employees, MSD has funded and co-sponsored, along with local government, community-wide household hazardous materials collection events for five years.

MSD is currently paying almost \$1 million per year to dispose of an average of 182K wet kg (200 wet T) of EPA-defined "clean sludge" into the voids between other contributions to the local landfill. These biosolids contain relatively insignificant amounts of heavy metals - not enough to preclude alternative beneficial reuse in the horticultural industry. MSD will soon begin a pilot aerated static pile composting project, using also-diverted local woodwaste as a bulking agent. The produced compost will initially be used for on-site utilization projects to develop markets, including sod farms, golf courses, nurseries and greenhouses. The tipping fees from accepting woodwaste can offset operational costs, as would the revenue from selling the resultant compost.

One such utilization project may be a tree farm for raising shade trees to reduce future utility bills in reclaimed inter-city neighborhoods via a youth job-skills training program. MSD sees such collaborations as a sort of symbiosis with other community initiatives.

4. Energy Conservation

MSD committed to participate in the EPA Green Lights program in 1990 and began an on-going effort of examining all MSD facilities for ways to save energy via more efficient lighting fixtures and bulbs with the goal of reducing CO₂ production. These so-called Green Lights can deliver a given number of candela (lumens) of lighting for roughly 25% of the electricity of a comparable traditional fixture and bulb(s). Even though the ballasts must also be upgraded, the payback period has been between 3 or 4 years. (Electricity in Kentucky is relatively cheap (5-5.5 cents per kWh); savings and payback in other areas of the country are even more attractive.)

The Louisville Resource Conservation Council (LRCC) was hired to audit MSD facilities for ways to reduce energy consumption with emphasis on lighting and computers. They began in 1992 and are still working. They have found many ways to save energy, many of which have already been implemented. Leaky buildings are being weatherized. Inefficient, ineffective and expensive resistance coil electric space heaters have been replaced by natural gas infrared

heaters which are much more comfortable and save five-digit figures in fuel costs annually. More efficient new and replacement motors are being installed. In their initial process of reviewing MSD's status quo, LRCC discovered billing rate discrepancies that have reduced MSD's energy bills by approximately \$150,000 per year! Those savings are paying for the implementation of additional LRCC suggestions.

MSD main offices will soon be moving to a larger building to alleviate growing pains. This 1970s-era building is all-electric and is rather inefficient. The EPA chose it for its 25-building Energy Star program for retro-fits. MSD will try to cut building energy demand at least in half before moving. This challenge will include Green Lights, weatherization, landscaping and HVAC improvements.

As MSD updates its computer system, new equipment will meet the more efficient "Energy Star" design specifications. This step is a good example of how any agency can reduce the environmental impact and reduce operating costs, simply by rewriting bidding and purchasing specifications.

Another on-going program for eliminating small, worn-out temporary treatment plants and pump stations by extending permanent infrastructure will reduce the ratio of MSD's energy requirements per million-gallons of treated wastewater, and offset the energy needed to treat the wastewater from the existing households (previously served by failing septic systems) connected to sewers each year. It will also reduce the fuel costs for hauling biosolids from remote package plants to the solids processing facility. MSD is working on energy budgets that will demonstrate the effect of regionalization on energy savings.

5. Risk Reduction

Accidents are expensive in terms of human suffering, personal and work group productivity and an agency budget. Accidents often impact the environment via spills, too. Risk reduction conveys a management message of concern to employees and reduces expenses and environmental impact.

All MSD employees receive AIDS and Hazmat Level I training, in which they are advised about Material Safety and Data Sheets (MSDSs) on any substance they might encounter on the job. Employees receive specialized training on the following topics, as job-appropriate: safety, first aid, wastewater treatment continuing education, confined spaces, respiratory protection, chlorinate and sulfanator use, preventive maintenance and repair, advanced Hazmat (Level II, III or IV) and fire extinguisher operation.

Accident records are analyzed and distributed to employees monthly; related prevention strategies are tailored to trouble areas. Tailgate safety classes are held so all operations and maintenance field personnel can receive reality-based training tailored to their needs and in context. A training van is set up for field training sessions, including plastic "pickle buckets" for seats, a TV/VCR and a generator. Special signage tells passersby that the crew they see sitting, eating doughnuts and listening to someone or watching "TV" is actually in training.

For example, drainage-ditch cleaners may receive training on how to avoid eye injuries and construction inspectors may learn about preventing trench cave-ins. An in-house Safety Newsletter highlighting a specific problem is produced regularly and disseminated to appropriate personnel.

MSD will soon install its first biofilter to scrub often odorous air escaping a large combined sewer next to a large employer in hopes of reducing or eliminating worker complaints without using expensive, troublesome and possibly risky chemicals. The biofilter will pull air from the sewer through a large “box” of compost where compost micro-organisms will oxidize and adsorb them.

6. Safe Services

In addition to the above efforts to improve our safety record, MSD has begun to post signs at all combined sewer overflows and treatment plant discharge outlets. MSD retrofitted all of its deep sewer-access holes with locking lids. All cleaning agents used at MSD facilities have been reviewed for possible health effects upon the housekeepers and any other exposed employees. Higher-risk cleaning agents were replaced with tamer “green” substitutes.

7. Environmental Restoration

For decades, MSD’s engineers, like others throughout the nation, spent much time, effort and money in widening and channeling natural streams as they flow to the Ohio River. Channels were lined with concrete and heavy stone to improve drainage, minimize flooding and to render wetlands suitable for development. Experience however says that this monotonous and unsightly approach aggravated flooding and drainage problems and has destroyed large tracts of natural areas. Pollution and erosion were actually increased.

MSD and the community are embarking on a program, called Greenways, to reclaim and enhance water-ways by restoring natural settings, meandering streams and buffer vegetation. Greenways will provide the community with the following benefits: flood control and stormwater management, water quality protection, wildlife habitat protection, alternative transportation routes (walking and bike paths), recreational opportunities and reduced flood insurance rates. ISTEPA funds will subsidize some of these projects. One of the first such projects has already begun implementation and calls for a recreational corridor along most of the Jefferson County Ohio River bank. MSD easements and right-of-ways will be incorporated into the Greenway system where appropriate.

MSD is working with community groups and local government to begin restoring riparian zones to their natural vegetative state to return the habitat and flood-mitigation qualities mowed grass cannot provide. Significant cost savings could result from the reduced mowing.

For the last six years, communities on both banks of the Ohio River have set aside a Saturday in June to clean up debris from Pittsburgh, PA to Cairo, IL. MSD coordinates the activities along the entire 55-km (35-mi) Jefferson County bankside. Disposal of the collected debris is

included as a term of the host agreement between local government and the private owners of the local landfill.

8. Informing the Public

MSD has a policy of requiring openness to employees, the general public and the media. Except for obviously inappropriate information, e.g. personnel matters, the facts regarding operations, environmental compliance, spills, etc. are available for the asking. Any employee may answer a reporter's questions if he or she is asked and feels competent to do so. This policy occasionally demands a fair amount of work, but has paid off in credibility and trust and can disarm the most suspicious reporter.

Employees are required to attend classes where they are advised about Material Safety and Data Sheets (MSDSs) on any substance they might encounter on the job.

MSD has citizen advisory committees for each of its four action plans for extending sewers into the suburbs to eliminate septic systems, temporary treatment plants and pump stations. There are also advisory groups for strategic planning and finance, the Greenways program and stormwater quality, all of which include members of the general public. Each collector project includes meetings with the affected citizens and, where applicable, their community council or neighborhood association leaders. The Community Relations staff guides these activities and makes arrangements to meet community group requests for speakers and/or site visits.

MSD has an aggressive written policy covering all employees that requires self-reporting of irregular events involving potential environmental harm.

Employees are encouraged to become involved in community and environmental activities. Several staff members voluntarily serve on local, regional, statewide and national commissions, professional organizations and citizen groups. Employees also volunteer to participate in the river and stream clean-ups, the Household Hazardous Waste Collection Days and Earth Day Celebrations. Any local citizens group that volunteers to clean up a local stream can get support from MSD including work gloves and garbage bags; MSD will also pick-up what they collect and pay to dispose of it. If they locate heavy abandoned car bodies or appliances, MSD will remove and dispose of them, too.

MSD staff work with the students and teachers of local environmental magnet (K-12) schools on special projects such as environmental fairs and the production of a water-quality theme play. Supervised and trained high school students from one of those schools are employed at MSD in an on-going summertime project to survey every pipe discharging into county streams - a requirement of the EPA Urban Storm-water permit program. Samples of the discharge are taken to confirm that they contain no sanitary waste.

A policy of sharing knowledge and experience with others has facilitated cooperative arrangements between MSD and peers both regionally and globally. International

collaborations have involved exchanges with peers in North America (Canada and Mexico), South America (Ecuador and Argentina), Europe (former East Germany, Hungary, Estonia, Sweden and the Czech Republic), Africa (Ghana) and Asia (Peoples' Republic of China, Japan, Thailand). Because the responsibility and honor of being selected to participate in such an exchange demands a clear understanding of one's job and an ability to express oneself, these programs build staff morale, pride, self-confidence and communication skills.

9. Management Commitment

All MSD employees are accountable for implementing the CERES Principles, the Environmental Policy Statement and the related policies and procedures. A confidential reporting system is available to anyone internally or externally who believes someone on staff is not following the letter or spirit of environmental laws and regulations. One full-time engineer in Executive Offices is assigned the responsibility of coordinating implementation with staff throughout the agency.

Annual performance reviews are to reflect an employee's adherence to these expectations, which (given the related performance pay) can get the attention of those who might otherwise be apathetic. New-employee orientation includes a presentation on the CERES commitments.

The Purchasing Department has begun to step up their scrutiny of what is bought from whom to include a more thorough review of supplies and suppliers and services. Manufacturers whose facilities fail to comply with pollution control laws, for example, can have their products removed from consideration. If a contractor does not cooperate with erosion-control BMPs requirements, he or she can be declared ineligible for future contracts.

10. Audits and Reports

CERES signatories are required to complete a lengthy report annually. The most recent edition was a rather daunting 30-plus pages long. Completing it continues to be worthwhile and enlightening however, because the process demands coordination and input from so many internal departments. The report requirements start employees talking to each other and learning about each other's duties, needs and problems. Employees who were previously unheard have a one-on-one opportunity to bring their concerns to the attention of management. Strategies for improvement often spontaneously shake out of the process.

Internal reporting to MSD management and its Board encourages coordination and accountability.

MSD facilities were audited for waste and pollution reduction opportunities in 1991 and will be audited again regularly beginning in 1995.

CONCLUSIONS

MSD has found that many of the CERES Principles implementation activities have improved the agency's credibility in the community. While few of the general public has yet heard of the Principles, they have heard about the *Valdez* oil spill and many other environmental problems and find those problems worrisome. More and more of the public is recognizing that MSD acts upon its beliefs and works to improve upon the *status quo*.

From the financial perspective, MSD sees its CERES commitment as manageable and acceptable. In some cases, changes have resulted in cost savings, such as with the energy program. Programs with new costs are supported more often than not if a CERES commitment is associated with the costs.

¹ Smith, J Andy, III, (1993) The CERES Principles: A Voluntary Code for Corporate Environmental Responsibility. Yale Journal of International Law, Volume 18:307, 307.

² Smith, J Andy, III, 307.