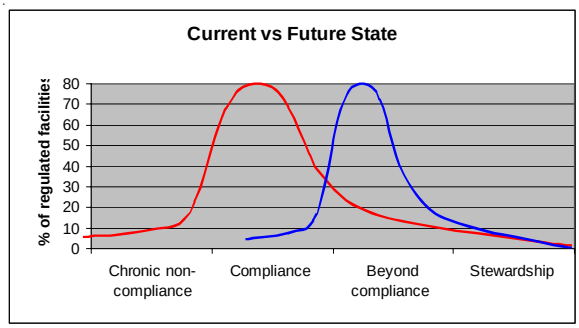
Environmental Stewardship Initiative Legislative Report

I. Executive Summary

"In an ideal world, regulation is replaced by stewardship, an inherent respect for the environment. In this concept of stewardship, everyone takes responsibility for their actions and the use of resources for the benefit of the community."

This quote from the DENR Principles of Enforcement is the foundation of DENR's Environmental Stewardship Initiative vision. As depicted in the figure below, the ESI vision is to move regulated organizations from a current state of non-compliance and borderline compliance (red line) with environmental regulations to a future state of stewardship (blue line).



The current 'command and control' regulatory approach to environmental management is necessary in the real world and has led to significant improvements; however, it is not practical or fiscally possible for North Carolina to regulate all pollution and consumption of natural resources. The current soaring cost of energy and extreme drought conditions in the state emphasize the need to look beyond regulation to innovative approaches that support and encourage organizations to become stewards of the environment. This is the goal of the ESI.

The ESI supplements traditional regulatory approaches with a voluntary program that incorporates these DENR enforcement principles:

1) Compliance is the first step toward the ultimate goal of stewardship;
2) DENR will support the development and use of alternative tools to traditional enforcement that achieve compliance and encourage going beyond compliance; and
3) DENR will foster partnerships internally and externally to realize shared responsibilities in environmental stewardship.

While an "ideal world" may be far in the future, the ESI is starting the state down this path by supporting and assisting the regulated community in efforts to go beyond compliance, conserve natural resources and establish long-term environmental and economic benefits.

The ESI, administered by DENR's Division of Pollution Prevention and Environmental Assistance, is a one-of-a-kind program in North Carolina state government. It is the only state program that:

- Provides a voluntary, systematic and holistic approach to environmental management. ESI members commit to developing environmental management systems (EMS) that lead to continual improvement and stewardship. In 2006, ESI members set 331 goals covering multi-media regulated and non-regulated impacts, including energy and water conservation. Other state environmental and energy programs provide assistance on a single environmental media or to a subset of the regulated community.

- Combines recognition with assistance, training, mentoring and networking opportunities. A three-tiered membership approach of Partners, Rising Stewards and Stewards allows participation from a wide range of regulated organizations. The Partner level helps organizations address compliance issues and have access to assistance while higher tiers require organizations to be models of stewardship, mentoring and educating others. Members become community leaders in addressing environmental challenges such as water shortages and rising energy costs. ESI membership includes 85 Partners, 14 Rising Stewards and eight Stewards.

> *"We were able to look at the way we were using water in our lab and other areas and reintroduce it back into the process rather than wasting to a waste water system…. we did the proactive approach before the drought actually started here so we were ahead of the curve on saving water, thus saving energy."* Ron Reid, city of Hendersonville Water Treatment Plant – ESI Partner

- Collects multi-media environmental data including reductions in solid waste, water and energy consumption. From 2004-2006 members reported reducing 737 tons of air emissions; 536 tons of hazardous waste; 142,591 tons of solid waste; and 1,306 tons of wastewater pollutants. They saved more than 169 million Mbtus of energy, one billion gallons of water, recycled 30,657 tons and realized cost savings of more than $23 million.

- Emphasizes partnerships among members with the regulatory agencies and stakeholders. In a recent survey of ESI members, 81 percent noted networking and 71 percent noted improved communication with DENR as major benefits of being an ESI member.

> *"Without a doubt those industries that are trying to continuously improve their environmental performance will be greatly handicapped without this program and its support."* Jeff Roberts, Freudenberg Nonwovens, Durham – ESI Partner

The ESI has been able to achieve impressive results with a relatively small program. In addition to environmental improvements and cost savings the program also results in long-term benefits that come from the establishment of partnerships and environmental leaders. These could not happen without the resources provided by state government.

The ESI has just begun to scratch the surface of promoting innovative approaches to environmental management. As the state faces environmental issues that cannot be realistically controlled through traditional regulatory methods, the ESI provides a model and foundation for addressing these challenges through a comprehensive, innovative approach.

II. Current Environment

a) Program Description – An Alternative Path

In the mid 1990s, states across the country begin to look at innovative approaches to sustaining long-term environmental improvements. They realized the existing 'command and control' approach could not address a number of emerging environmental impacts. There had to be an alternative path that both regulated and non-regulated entities could take to reduce their environmental impact, thereby

improving economic competitiveness. The Multi-State Working Group was created out of this effort in 1996 to help coordinate this national innovations movement. North Carolina was a charter member of this organization and helped to explore the potential of using EMS in voluntary, innovative programs to achieve environmental improvements.

As a member of the MSWG, North Carolina staff established contacts with other states developing stewardship programs. Staff researched these programs and developed the ESI by selecting and revising components that would best serve the state. The ESI became one of the most unique and successful stewardship programs in the country, providing a model for other states and the EPA.

The ESI is a voluntary, three-tiered program designed to encourage, motivate and support members that have made a commitment to improve environmental performance. Members can enter the program as a Partner, Rising Steward or Steward. An external Advisory Board reviews applications and makes recommendations to the DENR Secretary on membership approval. This board includes representation from manufacturers, industry trade groups, non-governmental organizations, small businesses, academia, local government and DENR. The Secretary makes final decisions on accepting new members.

Applicants to the program must commit to improving environmental compliance and developing an EMS that includes:

- Identifying and prioritizing environmental impacts,
- Setting goals to address the impacts,
- A commitment to continual improvement and,
- Employee training, management commitment and review.

This approach provides an alternative path that does not replace traditional regulatory approaches, but supplements them with a voluntary, systematic way for the North Carolina regulated community to go beyond compliance, conserve natural resources and establish long-term environmental improvement and economic benefits.

The ESI is a voluntary, three-tiered program designed to encourage, motivate and support members that have made a commitment to improve environmental performance.

b) Service Statements – Recipients & Service Provided

Any regulated organization in the state is eligible to participate in ESI, although acceptance at the higher tiers is a challenge with only 42 percent of Steward applicants accepted since 2002. Members come from across the state and include large and small manufacturers, school systems, and local and state government agencies. See Attachment 1 for a list and map of ESI members.

Membership criteria in the ESI vary by level, as follows.

Partners

To encourage regulated facilities with environmental problems to join the ESI the criteria bar is intentionally low for Partners. At this level the focus is on providing assistance to address any existing compliance issues and prevent future ones. Partners must commit to develop an EMS, set performance goals, work toward achieving compliance and agree to report annually on progress toward goals, reductions and compliance.

Rising Stewards
In addition to the Partner criteria, Rising Stewards must demonstrate a mature EMS, set measurable environmental performance goals and demonstrate a commitment to meet and go beyond compliance.

Steward
The Steward level is for North Carolina environmental leaders. These organizations display a commitment to exemplary environmental performance. In addition to the Partner and Rising Steward criteria, Stewards must set aggressive environmental performance goals, demonstrate a process for communicating with the local community, demonstrate how environmental issues are integrated into the core business functions and agree to be a mentor to Partners and Rising Stewards.

Services Provided
All ESI members are assigned a coach who is available to provide one-on-one technical and compliance assistance and serves as a single point of contact with DENR regulatory programs. ESI members have access to specialized training, networking opportunities and receive recognition of program participation. An annual meeting provides opportunities for ESI members to hear speakers from regulatory and other government agencies and to share ideas and successes with each other. ESI staff conduct an annual series of training modules on developing an EMS.

Stewards also receive formal public recognition including an award ceremony (usually on-site) and press release, use of a program logo, invitation to an annual Steward Forum with the DENR Secretary, priority membership on the ESI Advisory Board and DENR support to implement regulatory innovations.

c) Resource Allocation
The ESI program's total FY-07 expenditures are shown below. FY-08 expenditures will be comparable:

Source	Personnel	Operating	Total	FTEs
Appropriations	$303,882	$19,852	$323,734	4.5
Federal Grant	$40,606	$47,014	$87,620*	1.0
Total	-	-	**$411,354**	**5.5**

*Requires a one for one match

The program has three full-time positions, with two being on state appropriations and one on an EPA grant. The EPA grant requires a one for one match ($87,620), which is provided by the full time appropriated positions. The main duties of full-time staff include:

- Applications – Updating applications to reflect program changes and requirements, application review, coordinating with DENR regulatory staff for compliance reviews, working with the DENR Internal Workgroup and Advisory Board to develop recommendations, presenting of recommendations to Secretary for final approval, and all communications to applicants.

- On-site verification visits – Coordinating and conducting on-site verification visits for all Rising Steward and Steward applicants. Preparation for verification visits includes learning about facility operations, speaking with regulatory personnel and, preparing questions and an agenda to maximize time spent at the facility. A site visit typically takes a day for Rising Stewards 1-3 days for Stewards,

depending on the location, size and complexity of the operation. Site visits are completed by teams of two or three staff.

- Site visit reports - Writing detailed reports of observations and data collected on site visits to compare to program level criteria. This report is presented to the Advisory Board and staff are available at the Advisory Board meeting to answer questions. These visits and reports, especially for Steward applicants, are intensive and detailed to maintain the integrity of the program.

- Coaching – Providing technical assistance to members on EMS development and improvements, pollution prevention approaches, environmental management and treatment technologies, and achieving and maintaining compliance with environmental regulations. The level of effort and time required for coaching depends on numerous factors including size of facility and expertise of facility personnel. Partner facilities just starting to develop an EMS or those with compliance problems typically require the most effort. Full-time staff coach between twelve and fifteen of the more complex facilities each. Other DPPEA staff serve as coaches to between four and 28 facilities.

- Annual reports – Designing and updating of report format, distribution of annual reports to members, data collection (which includes working with ESI coaches and members to collect and report data), collation and review. Due to the multi-media nature of the ESI, the diversity of goals set by members, the need to track multi-year data to demonstrate improvement, and the lack of computer programming capabilities this is a very time consuming process requiring approximately 0.5 FTE.

- EMS training – Coordination and conducting of an annual EMS training series (5 full-day sessions) for ESI members. This training is conducted in the fall of each year and is designed to help members with EMS development. ESI coaches also attend to help the members with exercises and answer questions.

- Annual ESI members' conference – Designing agenda, selecting and contacting speakers, coordination with DENR Secretary to recognize new members, coordination of all logistics and presenting updates at conference.

- DENR training – Providing training to DENR regional offices and central office staff on the benefits of EMS and keeping regulatory staff informed on the ESI. Coaches also require refresher training to keep them up to date on the ESI program and technical assistance information.

- Steward Ceremonies and Forums – Coordination of on-site ceremonies for new Stewards and coordination and planning of an annual Steward Forum for Stewards and DENR senior staff.

- Web site maintenance – Keeping the ESI web site updated (hhtp://www.p2pays.org/esi), including access to applications, calendars, online training registration, and training materials.

- Marketing - Presenting information at various trade association meetings, and developing and distributing program materials.

The rest of the 2.5 FTEs are from a percentage of seven other DPPEA positions, which provide additional engineering, technical, computer, administrative, and managerial support for the project. The same

staff members also work on other DPPEA projects including the current focus on water conservation technical assistance and training. Their ESI duties include serving as ESI coaches, helping collect annual report data, assisting with on-site verification visits, and assisting with training events.

The number of staff working on the ESI has increased as the membership has expanded, going from about two FTEs at the beginning to the current level. The hands-on nature of the ESI requires the availability of technical resources to provide the needed support. Over the years a real effort has been made to maximize staff effectiveness by using classroom training on EMS implementation, online fact sheets and guidance documents, and e-mail lists and workshops to provide general technical support. The program also works with DENR's Customer Service Center to help provide any required regulatory assistance.

III. Performance Measures

a) Environmental Improvements & Cost Savings – Outcome measure

The best measure of program success is reduced environmental impacts and cost savings from implementing environmental improvements. Performance measures are reported annually by ESI members. See Attachment 2 for a sample of ESI case studies.

2004-2006 ESI Reported Reductions					
Area	2004	2005	2006	Totals	Unit
Air Emissions	297	208	232	737	Tons
Hazardous waste	12	119	405	536	Tons
Landfilled waste	997	82,453	59,441	142,891	Tons
Energy	11,737	48,451	169,349,052	169,409,239	Mbtu
Water Use	369,529,216	54,201,286	591,356,273	1,015,086,775	Gallons
Material Consumption	509	37,728	973	39,210	Tons
Wastewater Pollutants	379	527	400	1,306	Tons
Wastewater Volume Reduction	Not Reported	85,566,162	106,092,200	191,658,362	Gallons
Biosolids Volume	Not Reported	7,208,691	2,720,350	9,929,041	Gallons
Total Recycled Volume	10,015	8,047	12,594	30,657	Tons
Total Cost Savings	Not Reported	$12,721,772	$10,393,930	$23,115,702.32	$

- The impressive energy savings by ESI facilities were largely from lighting upgrades, replacement of old equipment with high efficiency models, energy management, and reduction of compressed air system leaks. To put it in perspective, the energy saved from 2004-2006 would offset the power to 1.5 million households, or 46% of the state's population, for three years

- Landfilled waste reduced plus increases in recycling of waste material offset over 173,500 tons of trash, or what 72,000 citizens would generate in three years. This is the equivalent of what a town population the size of Greenville or Asheville throws out in three years, or 80% of all full time state employees' trash for three years.

- The combined water savings during this period could supply nearly 8,000 households with a year's supply of water and irrigation. This amount of water would increase the Raleigh municipal water system supply, which supplies the City of Raleigh and 6 surrounding towns, by an additional 25 days at current use levels.

Most cost savings are from reduced water and energy usage, reduced chemical usage and material consumption, reduced landfill fees, and increased revenue from recycling.

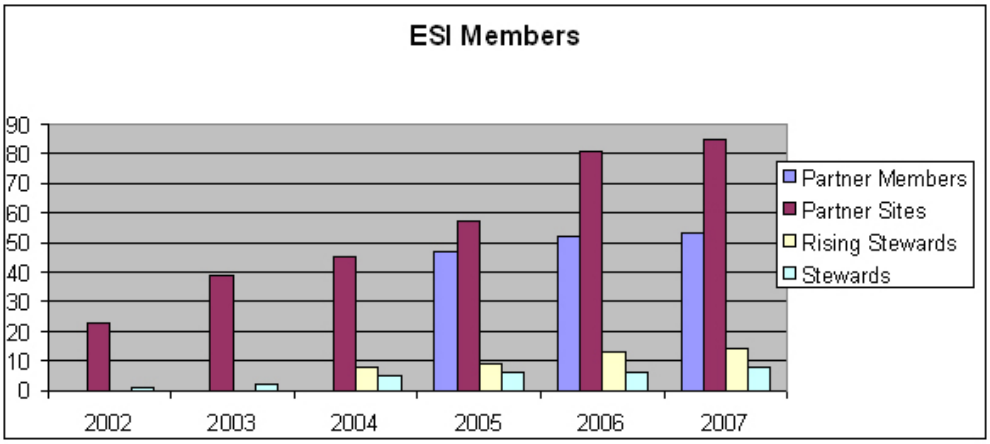
b) Membership Growth – Output Measure

ESI membership has more than quadrupled since it began in 2002, from 24 member sites in 2002 to 107 member sites in 2007. The chart below list applications per year by tier. The Rising Steward tier was added in 2004.

	2002	2003	2004	2005	2006	2007
Partners	23	14	7	16	6	5
Rising Stewards	NA	NA	5	5	8	4
Stewards	3	2	8	2	1	4

Ninety-nine percent of Partner applicants, 68 percent of Rising Steward applicants and only 40 percent of Stewards applicants have been accepted into the program.

Beginning in 2005, Partner applicants were allowed to submit one application for multiple facilities. The following graph shows the continuous growth in membership.



Three members left the program when their facilities closed. Six additional facilities chose to drop out of the program, five when there were changes in ownership at the facility. Seven members have been terminated from the program due to failure to fulfill membership requirements, such as completing the annual report.

Organizations learn about the ESI from other ESI members, trade associations, regulatory inspectors, and representatives from other state agencies such as the Department of Commerce. ESI staff also gives presentations about the program at business and industry sponsored workshops, conferences and other related events. ESI staff sends letters to ISO14001 certified facilities in North Carolina

encouraging them to consider applying as Rising Stewards or Stewards. The NCSU Industrial Extension even offers a discounted fee to ESI members for their ISO14001 Internal Auditors class and promotes the program to attendees.

c) ESI facilities moving to higher levels – Output Measure

A goal of the ESI is to move facilities to higher tiers in the program, an indication of continuous and sustained environmental improvement. Reaching the higher tiers requires effort, time and commitment from members. It usually takes at least 12 months to implement an EMS and several years for new adopters to establish mature systems. Some members enter at the higher levels, but for purposes of this goal only members who have entered the program at a lower tier and progressed to Rising Steward or Steward are measured.

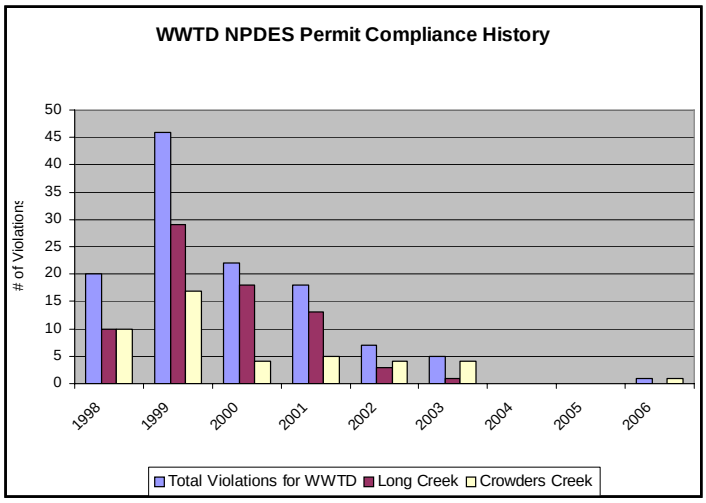
From 2004 to 2007, seven ESI members have advanced to the Rising Steward tier and four members have advanced to Stewards.

IV. Link Between Resources and Statewide Impact

State appropriations fund a total of 4.5 FTE's; two full-time ESI staff and 2.5 FTE's from a percentage of seven other division positions. These staff provide technical and compliance assistance, develop and deliver training, set up networking opportunities, collect and analyze annual report data, coordinate the application process, review applications, conduct on-site reviews of Rising Steward and Steward applicants, and coordinate all activities and program changes with the DENR Internal Workgroup, the Advisory Board and the DENR Secretary's office.

These activities contribute to the success of ESI companies as they reduce environmental impacts and move to higher ESI tiers. A $647,000 investment in the last two years has resulted in more than $23 million in savings by ESI members. Some organizations need extensive one-on-one assistance and these efforts are very resource intensive. Staff must also market the program to increase membership.

An additional statewide impact is reduced incidences of noncompliance. In addition to the reduced environmental impacts from improved compliance there is also a savings in DENR staff time. While we do not have historical data on reductions in violations by ESI members there are plans to track this information in the future. One example of reduced violations is shown in the chart to the right.



As the City of Gastonia Long Creek Water Resources Recovery Facility and the Crowders Water Resource Recovery Facility began to implement an EMS they were able to reduce violations at both facilities, eventually becoming Stewards and Rising Stewards in the ESI. Their example of using an EMS to improve compliance has been an inspiration and model for other ESI facilities experiencing compliance problems.

V. Program Justification

a) Rationale for Recommended Funding Level

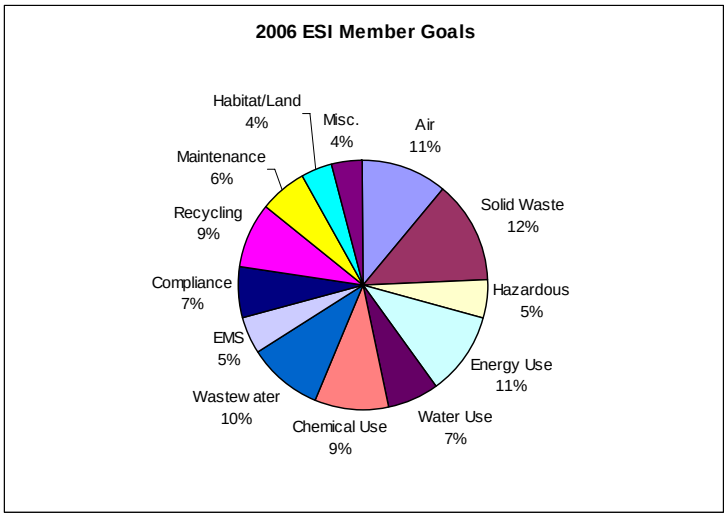
The ESI is a relatively young effort that is maturing into a robust, efficient program. The program's

success is demonstrated in reduced environmental impacts, water, energy and cost savings, and testimonies from ESI members. Funding is necessary to continue and build on this success. A breakdown of current funding levels and how these funds are spent is covered in Section II (c): resource allocation.

It is the only North Carolina state government program that combines a comprehensive, innovative and partnering approach to improving both the environmental and economic health of our state.

1) Comprehensive

- Provides a voluntary, systematic and holistic approach to environmental management. In 2006 ESI members reported on 331 goals that covered multi-media regulated and non-regulated impacts. Other programs, such as the DENR regulatory divisions and the State Energy Office, provide assistance on a single environmental media or to a subset of the regulated community.



"The ESI forum not only helps the regulated community develop systematic approaches to environmental management beyond compliance, it gives DENR a detailed look at environmental management systems implementation in a variety of real-life settings. The agency's work in the specific programs, being more focused on specific aspects, rarely affords the opportunity to view environmental management holistically." Edward Kruel, International Paper, Reigelwood – ESI Partner

2) Innovative

- Combines technical assistance, training, networking and public recognition to encourage and support organizations to set aggressive environmental performance goals beyond compliance.

  "ESI helped my company establish the need for aggressive environmental targets and as a result we now have high level environmental goals endorsed by the company president. With the current global environmental situation this activity is a must for every company in order to ensure preservation of the environment and natural resources." Ana Davis, Kao Specialties Americas, High Point – ESI Partner

- The three-tiered approach of Partners, Rising Stewards and Stewards allows participation from a wide range of regulated organizations. Organizations looking for a systematic way to approach environmental management or even those with compliance problems can join at the Partner level. At this level members receive assistance in identifying root causes of non-compliance, finding long-term solutions and developing a system of continuous improvement. Organizations at higher tiers continue to set aggressive goals, serving as models of stewardship and environmental leaders in their communities. Members are encouraged and assisted to move-up the ESI tiers. To ensure high program quality and credibility Rising Steward and Steward applicants receive intensive on-site reviews by staff.

"Pollution Prevention assisted us with our EMS from day one. They worked to help train, develop and implement this program with us. The EMS has helped us move from an organization with many violations and that spent a good bit of our time reacting to problems that had occurred. Once the EMS was fully implemented our organization has been able to basically eliminate violations and to look for ways to improve efficiencies and the effectiveness of our activities." Beth Eckert, city of Gastonia Wastewater Treatment Division; Long Creek - ESI Steward and Crowders Creek - Rising Steward

- Members commit to reporting information on goals, compliance and environmental data not collected by any other agency, including reductions in solid waste, water and energy consumption.

"Stating our waste reduction objectives and targets initially in our ESI application and again in follow up annual reports, both of which are public records, places a heightened sense of responsibility to meet them and, therefore, a commensurate effort by all to do so. The recognition received from the state of North Carolina and from corporate by becoming an ESI member has also raised management's appreciation of the environmental program and its relevancy to the company." Sam Calouche, Firestone Fibers and Textiles, Gastonia and Kings Mountain – ESI Rising Steward

3) Partnering

The ESI promotes partnerships among members, with regulatory agencies and with stakeholders. In a recent survey of ESI members 81 percent noted networking and 71 percent noted improved communication with DENR as benefits of being an ESI member.

- Stewards model stewardship and commit to mentor other ESI members by assisting with training, sharing successes and failures, providing examples of documents and templates, and allowing ESI members to tour their facilities. This type of unique partnership results in members educating each other.

"By being an Environmental Steward, we have been tasked with setting an example for other entities in the state. While this seems daunting, it has compelled us to do even more than we thought feasible. Through enhanced collaboration with DENR officials and other Stewards, we have exceeded our expectations in all areas: compliance, conservation and economy." Danny Miller, Fleet Readiness Center East, Cherry Point – ESI Steward

- Members have multiple opportunities for networking including an annual meeting and a series of training modules. ESI members, representatives from government agencies and invited speakers learn from each other's successes and mistakes, and develop a network of contacts.

"ESI has provided benchmarking opportunities with similar industries that would not have been available without this program." Alice Rimmer, EVONIK, Greensboro – ESI Rising Steward

- One of the benefits for ESI Stewards is the Steward Forum, an annual luncheon with the DENR Secretary. This forum has provided opportunities to identify regulatory and environmental issues and bring DENR and the regulated community together to discuss and identify solutions.

For example, at the 2007 Stewards Forum, one Steward raised the issue of upcoming sanitary sewer overflow enforcement policy changes that had been announced by the Division of Water Quality. The wording of the announcement letter had confused and concerned water collection systems, which

requested an opportunity to discuss the policy with DWQ. On Aug. 10, 2007, ESI staff moderated a meeting between DWQ staff and representatives from seven water collection facilities across the state. The meeting was very successful, with both groups given time to express their concerns, discuss the upcoming changes, and even begin to offer ways that they could each help the other protect water quality in the state and improve reporting on overflow events. At a second meeting on Nov. 9, 2007, participants discussed flow accounting, drought issues, and reporting efforts and communication that would best help the DWQ review process go smoothly. Attending water collection systems offered to become mentors to smaller systems to help them improve their reporting efforts. The N.C. League of Municipalities hosted and attended both meetings, offering to help with research and support for future issues that would apply to municipalities state-wide.

- Each ESI member receives a coach from DPPEA who provides technical assistance and works with the DENR Customer Service Center to assist members with regulatory questions, promoting communication and developing partnerships with the regulatory agencies.

  "ESI personnel are always eager and willing to help with any environmental issue or concern. It's very nice knowing they are there to help when you need them." Sam Phillips, BSH Home Appliances, New Bern – ESI Partner

- The ESI Advisory Board expands the interest, ownership and partnerships beyond ESI members to trade associations, academia and non-governmental organizations. The ESI Internal Workgroup, with representation from all DENR regulatory agencies, helps keep ESI members up-to-date on regulatory changes, and promotes communication within their divisions.

b) Consequences of Discontinuing or Reducing Program Funding

Reduced or discontinued funding of the ESI would have significant consequences on DPPEA's other efforts, the regulated community, DENR, and the environment.

DPPEA

The ESI program and 4 support staff are located within DPPEA's Industrial Assistance Section. The other group in the section is the Technical Assistance Team with 6 technical and engineering staff members. This team provides business and industries with technical assistance on reducing, reusing or eliminating waste and conserving natural resources. It provides a wide range of technical services including on-site visits, training, publications, environmental assistance, and maintaining a large web based collection of technical information.

The team provides support to not only ESI, but also responds to other needs from DPPEA's business and industrial clients. The time spent on ESI related efforts can be up to 25% of the staff's work load. As a small division that provides multi-media technical assistance, staff must work on a variety of projects. Some staff have greater experience on water efficiency, some on energy conservation, some on water quality, air quality, solid or hazardous waste. As needs are identified either for ESI facilities or others requesting assistance from DPPEA, staff are assigned based on their experience and knowledge in the area of need.

Currently the Technical Assistance Team is focused on providing help on water conservation to businesses and industries, especially those in the hard hit Tier 1 and 2 water supply systems. Training, on-site visits, developing guidance materials, workshops and Web site development are among the technical assistance being provided

A reduction of the technical assistance staff by 2.5 FTE's would greatly reduce the Division's ability to meet the current drought efforts and significantly reduce DPPEA's ability to respond to business and industrial clients for pollution prevention assistance. In addition it would impact the Division's technical knowledge base. Currently the staff on the Technical Assistance Team has on the average over 20 years of environmental and engineering experience.

Regulated community

The biggest impact would be on current and potential Partners, especially smaller businesses and government agencies that have little funding or expertise to support stewardship efforts. ESI members view the program as a way to get holistic, reliable information and assistance from DENR and from each other. This support would vanish. Many organizations that have started developing an EMS would not continue these efforts and those with EMSs would lose encouragement and support to improve the EMS and strive to set aggressive goals.

In a recent survey, more than 50 percent of ESI members reported improvements in their EMS, energy conservation, recycling, recognition, networking and communication with DENR. Elimination or reduction of ESI funds would negatively impact these improvements that lead to sustainable environmental practices.

We learn more with this group than we have with vendors who are trying to sell you something. We got the truth and good ideas from the ESI folks." Phil Lamb, Tubetec, Statesville – ESI Partner

DENR

In addition to improved communication with the regulated community, comments from DENR inspectors illustrate increased confidence in ESI members and decreased concerns about violations. Some inspectors have noted that inspections are faster and easier due to the improved record keeping, organization and environmental performance of ESI facilities. Growth of the ESI could help reduce future regulatory and enforcement cost to the state.

DENR also benefits by receiving information on additional environmental parameters from ESI members in their annual reports. Reduced or discontinued funding would eliminate these benefits and possible future reduction of regulatory costs.

"By establishing the visible commitments required for participation in the ESI, management and employee support was strengthened beyond ISO 14001 registration alone. Our importance as a good member of the community was highlighted. Our participation also was meaningful to the divisions of the N.C. DENR, making compliance more of a cooperative than enforcement relationship." Jeffery Welsh, NACCO Materials Handling, Greenville – ESI Rising Steward

Environment

Progress made toward reducing environmental impacts, especially non-regulated impacts, and conserving natural resources would suffer. Without support many of the facilities that have started down the path toward environmental stewardship would not sustain those efforts and support to encourage others to begin would disappear. There are also potential economic impacts as businesses with strong environmental programs and a stewardship ethic will be the most likely to survive in a changing global marketplace.

VI. Efficiency Recommendations

a) Recommendation for Improving Services

The ESI is built on providing a high level of technical support and coordination to its members. Otherwise the program would be just another "recognition" program that would not be able to grow more environmental stewards. The existing staffing levels barely meet the program's current demand. The goal over the next five years is to have 400 or more members with 60 or more at the Steward level. This is a very aggressive goal that can only be achieved with a more intensive marketing effort and additional resources.

Environmental issues are becoming a greater priority and an ever-increasing number of the regulated community are embracing environmental stewardship and its associated environmental and economic benefits. The goal of the ESI is to move regulated organizations from noncompliance and borderline compliance to stewardship, but it is a big task. With thousands of regulated organizations in North Carolina (there are over 10,000 entities covered by air quality regulations) there is much work to be done and more staff support will be needed.

Initial investments will see payoffs in the future as more Stewards lead their communities and sectors on environmental issues. The partnerships created by the ESI will continue to build trust between the regulated community and regulators. DENR will benefit in numerous ways such as being able to reallocate resources and focus more resources on facilities with chronic noncompliance problems. DENR will also have a source of innovative organizations to draw on for problem solving and visioning.

b) Recommendation for Reducing Costs

The ESI is currently developing a new component to the program that will be open to organizations interested in promoting environmental stewardship but who are not regulated entities, eligible for one of the ESI tiers. These entities will probably be required to assist with a variety of ESI activities including training, helping to provide assistance and promoting the program. This addition will help to leverage existing resources.

As additional ESI members reach the Rising Steward and Steward tiers, access to mentors will be increased. These members already provide valuable information and assistance through networking, assisting with training, providing templates and examples of EMS documentation and allowing other ESI members to tour their facilities. As North Carolina continues to look for solutions to water shortages and rising energy costs, these organizations will also serve as leaders and conduits of information in their communities.

The current system of managing information and data from applications and annual reports is extremely time consuming. Efficiency would be greatly improved with access to computer programming that could automatically manipulate this information and make it available not only to the ESI staff but to other DENR divisions as well.

If ESI staffing was reduced the program could not continue to offer the current level of services. Possible impacts might include freezing applications and not accepting any other organizations into the program, and/or dropping the Partner tier, greatly reducing the staff time needed to provide assistance. Shifting the program to another agency would reduce the efficiency of the program. No other agency has personnel trained to provide the needed EMS and multi-media pollution prevention technical services.

V. Summary

The ESI has proven its members can produce impressive environmental and economic results. The ever-growing number of members, especially at the partner level, demonstrates how many in the regulated community are seeking assistance and support as they venture down the path of environmental sustainability. There currently is no other program where this help is available and without it many organizations may falter and never reach their goals.

Without the ESI some facilities, especially private firms, would still develop an EMS. Some would even strive toward environmental sustainability, as demonstrated by the ESI Stewards. But even the Stewards find benefits in ESI membership. In addition to getting well-deserved recognition for their achievements Steward facilities find the transparency of ESI reporting and the challenge of continually developing aggressive goals improves their overall environmental performance. Many Stewards and Rising Stewards have environmental corporate goals but strive beyond those because of their ESI affiliation.

Many facilities, small businesses and government facilities such as municipal treatment facilities and school systems, do not have available and knowledgeable staff; access to information and training, or overall support to overcome the complexities of putting an environmental system in place. The ESI provides technical support, training, encouragement and access to a network of organizations that have similar goals. This increases the chances that the resources invested by an organization will produce a successful and effective long-term environmental management system. It also helps the members continually improve their programs over time.

Many of the environmental issues facing North Carolina cannot be addressed using the current regulatory structures, but the ESI provides a way. The ESI increases the number of facilities measuring, reporting on and reducing non-regulated impacts such as energy, water, greenhouse gases, unregulated chemicals, and solid waste. It also challenges facilities to set aggressive goals that go beyond levels required for compliance.

The ESI has shown itself to be an innovative approach that can harness the growing momentum in the regulated community to embrace environmental stewardship as an important operating principle. The small investment needed to support and accelerate this movement will pay big economic and environmental dividends in the future.

Attachment 1 – ESI Participants

Stewards

ASMO North Carolina Inc.	Statesville
City of Gastonia Long Creek Water Resource Recovery Facility	Gastonia
Corning Incorporated - Wilmington Optical Fiber Facility	Wilmington
GKN Driveline - Sanford Precision Forming Facility	Sanford
Michelin Aircraft Tire Company LLC	Norwood
Novozymes North America Inc.	Franklinton
Smithfield Packing Co., Wilson	Wilson
Fleet Readiness Center East (formerly Naval Air Depot)	Cherry Point

Rising Stewards

ASMO - Greenville North Carolina, Inc.	Greenville
City of Gastonia Crowders Water Resource Recovery Facility	Gastonia
City of Gastonia Wastewater Treatment Division Biosolids	Bessemer City
Eaton - Roxboro	Roxboro
Firestone Fibers & Textiles Company, Gastonia	Gastonia
Firestone Fibers & Textiles Company, Kings Mountain	Kings Mountain
GKN Driveline - Roxboro Facility	Timberlake
NACCO Materials Handling Group	Greenville
N.C. Zoological Park - Horticulture Section	Asheboro
RF MicroDevices	Greensboro
Roxboro Steam Plant	Semora
Smithfield Packing Company, Inc. Tar Heel Division	Tar Heel
Smithfield Transportation Company	Tar Heel
Evonik Degussa (formerly Degussa Stockhausen, Inc.)	Greensboro

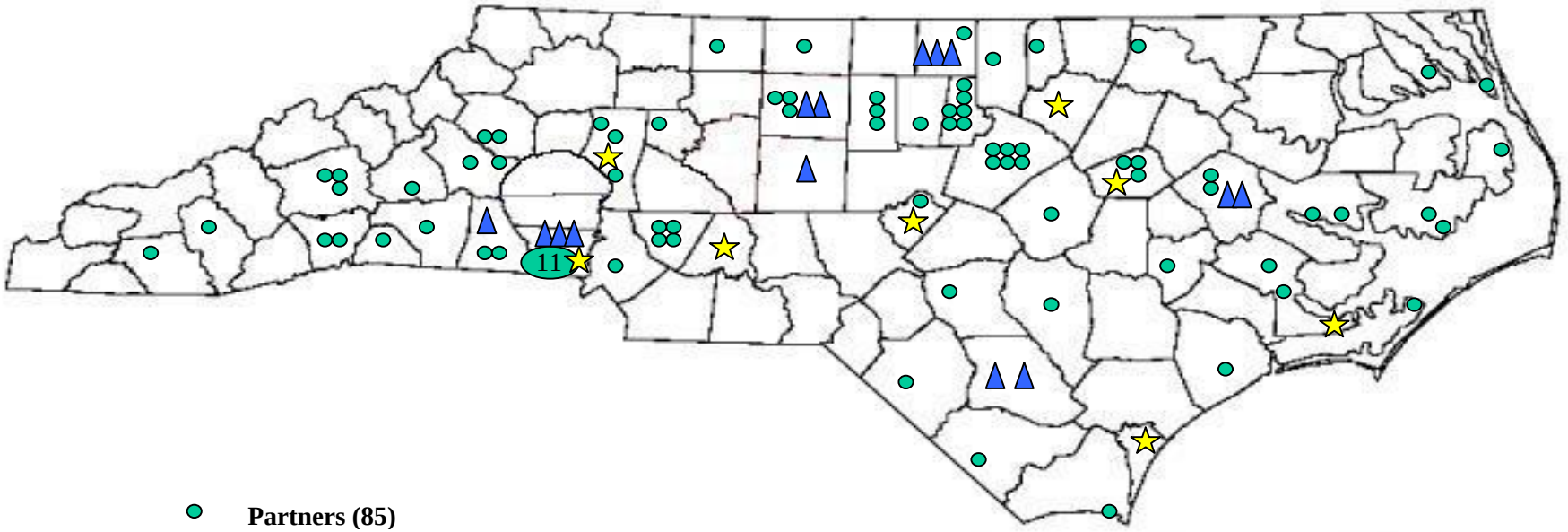
Partners

Alliance One International Inc. - Baldree Road Facility	Wilson
Alliance One International Inc. - CRES Tobacco Co.	King
Alliance One International Inc. - Cut Rag Facility	Wilson
Alliance One International Inc. - Farmville Facility	Farmville
Alliance One International Inc. - Stantonsburg Road Facility	Wilson
American & Efird Inc. - Gastonia Plant 01	Gastonia
American & Efird Inc. - Depot 21	Gastonia
American & Efird Inc. - Dyeing & Finishing Plant 15	Mount Holly
American & Efird Inc. - Filament Plant 05	Mount Holly
American & Efird Inc. - Gastonia 56	Gastonia
American & Efird Inc. - Gastonia Plant 20	Gastonia
American & Efird Inc. - Nelson 02	Lenoir
American & Efird Inc. - Nelson 12	Lenoir
American & Efird Inc. - Rush Plant 03	Mount Holly

American & Efird Inc. - Rush Plant 09	Mount Holly
Asahi	Greenville
Baker Furniture High Point Facility	High Point
Baker Furniture Hildebran Facility	Hildebran
Baker Furniture Mocksville NC Facility	Mocksville
Baxter Healthcare	Marion
Borden Chemical, Inc. (Hexion)	Morganton
Borg Warner Emissions/Thermal Systems	Fletcher
BSH Home Appliances Corp.	New Bern
Burt's Bees	Morrisville
Caterpillar	Franklin
City of Gastonia Fields Operations and Customer Service Center	Gastonia
City of Gastonia Water Treatment Plant	Gastonia
City of Hendersonville Water Treatment Plant	Horse Shoe
City of Shelby First Broad River Wastewater Treatment Plant	Shelby
City of Shelby Water Treatment Plant	Shelby
CMS Building Services	Charlotte
Duke University	Durham
Engineered Sintered Components	Troutman
Fort Bragg & 18th Airborne Corps	Fort Bragg
Freudenburg Nonwovens Interlining Division	Durham
Freudenburg Nonwovens Tufts Division	Durham
General Electric Co., Industrial Systems	Mebane
Gwaltney/Stadler's Country Hams	Elon
Hunter Farms Dairy	High Point
International Paper - Riegelwood Mill	Reigelwood
Kao Specialties Americas	High Point
Kapstone	Roanoke Rapids
Marine Corps Base, Camp Lejeune	Camp Lejeune
NC DOT Ferry Division - Cape Hatteras	Hatteras
NC DOT Ferry Division - Cedar Island	Cedar Island
NC DOT Ferry Division - Cherry Branch	Havelock
NC DOT Ferry Division - Currituck	Currituck
NC DOT Ferry Division - Manns Harbour	Manns Harbor
NC DOT Ferry Division - Ocracoke	Ocracoke
NC DOT Ferry Division - Pamlico River	Bath
NC DOT Ferry Division - Southport	Southport
NC DOT Ferry Division - Swan Quarter	Swan Quarter
NIEHS	RTP
Premium Standard Farms - Clinton Plant	Clinton
PSNC Energy Compressor Center	Mill Spring
PSNC Energy Compressor Center	Roxboro
PSNC Energy Compressor Center	Ruffin
PSNC Energy Compressor Center	Stem
PSNC Energy Corporate Office and Operations Center	Gastonia
PSNC Energy Operations Center	Asheville
PSNC Energy Operations Center	Forest City
PSNC Energy Operations Center	Sylva
PSNC Energy Operations Center	Horse Shoe
PSNC Energy Operations Center	Troutman
PSNC Energy Operations Center	Kannapolis

PSNC Energy Operations Center	Mebane
PSNC Energy Operations Center	Henderson
PSNC Energy Operations Center	Chapel Hill
PSNC Energy Operations Center	Durham
PSNC Energy Operations Center	Durham
PSNC Energy Operations Center	Cary
PSNC Energy Operations Center	Apex
PSNC Energy Operations Center	Sanford
PSNC Energy Operations Center	Raleigh
PSNC Energy Operations Center	Raleigh
Smithfield Foods Clayton	Clayton
Smithfield Packing Co., Kinston	Kinston
Talecris Biotherapeutics	Clayton
Tredegar	Red Springs
Tube.tec	Statesville
USCG-Support Center Elizabeth City	Elizabeth City
Warren Wilson College	Swannanoa
WSACC - Interceptor System	Concord
WSACC - Mt Pleasant Water Treatment Plant	Mt. Pleasant
WSACC - Rocky River Regional Wastewater Treatment Plant	Concord

2007 ESI Participants



Partners (85)

Rising Stewards (14)

Stewards (8)

Attachment 2 - Sample of ESI Case Studies

ESI Steward

Novozymes North America Inc.
Franklinton, N.C. (Franklin County)

"We have been very pleased with the results of our membership in the North Carolina ESI. It has helped to energize us around our goal-setting and aided in our external communications locally, regionally and statewide. Membership in the program continues to grow, which is a very good indicator of its success. DPPEA staff have developed skills that range from assisting companies and municipalities that are just beginning to implement environmental management systems, to challenging those with mature systems to strive for even greater improvements that go beyond compliance. As a member of this program, as well as EPA's Performance Track, we are pleased to be able to benchmark and collaborate with our colleagues for overall environmental benefit."
Jack Blackmer, Novozymes

Novozymes, the world-leading producer of enzymes, is a biotechnology-based company with headquarters in Denmark. The Franklinton site employs approximately 450 and serves as the company's North American headquarters. Novozymes sells its enzymes in more than 130 countries to 40 different industries. The plant produces liquid and granulated enzymes. Markets include the detergent, corn sweetener, fuel alcohol and food processing industries.

Novozymes commits to sustainable development as an integral part of its business management and has committed to maintaining a balance of economic, environmental and social priorities and goals through its worldwide "Triple Bottom Line" approach.

In February 2003, Novozymes was named North Carolina's first ESI Environmental Steward. Novozymes was selected based on its demonstrated commitment to outstanding environmental performance. At the time of its ESI application past activities included:

- Constructed and operation of an expanded wastewater treatment system in 1998 that reduced nitrogen by 65 percent at a cost of approximately $2.6 million
- Reduced annual total nitrogen discharged per pound produced 10 percent by 2006 from 2002 baseline by switching suppliers of a major chemical with a nitrogen constituency
- Increased permitted irrigation acreage from 220.3 acres to 945.6 acres since 1987 to minimize nitrogen loading
- Achieved a 24.2 percent reduction in the volume of process residuals (biomass) from a baseline year of 2000 through 2003 with process technology changes and operator training
- Reduced losses of HCFCs by coating coils to prevent leaks and by purchasing new precoated coils
- Purchased premium efficiency motors at a higher cost to reduce energy use
- Developed a training video for suppliers and contractors including requirements for proper disposal of solid and liquid waste
- Increased recycling of cardboard, paper, plastic, metal and "big bags"
- Modified control aeration and agitation of fermentors based on offgas analysis resulting in energy use reductions
- Switched to an alternative sanitizer that requires less water use

As a Steward, Novozymes continued to work on goals to reduce water usage, total energy use, solid non-hazardous waste and the volume of biomass land applied. Novozymes reported exceeding progress toward all goals while increasing production. Steps taken to achieve goals included:

- Recycling of permeate from ultrafiltration
- Use of recycled water for transfer of spent biomass from rotary drum filters
- Installation of a filter pad shredder to allow incorporation into biomass for beneficial reuse
- Installation of bulk handling equipment to reduce disposal of small packages
- Implemented composting operation thereby diverting 34,807 cubic meters from land application in 2005

Novozymes serves as an environmental leader in its community. Staff conduct regular meetings with area farmers in its land application program and participate actively in the local emergency planning committee. Each year, staff give presentations on Novozymes' environmental performance data to a number groups that have included the North Carolina legislature, academia and other ESI member facilities. Novozymes publishes an annual corporate report that includes environmental performance data.

In addition to being an ESI Steward, Novozymes has received the U.S. Presidential Green Chemistry Challenge Award twice, in 2001 and 2005. In 2006, Novozymes ranked in the top position in the biotech category of the Dow Jones Sustainability Group Index in both Europe and globally. Novozymes has been a member of the U.S. EPA National Environmental Performance Track Program since 2001. In spring 2007, President Bush visited the facility to conduct a biofuels roundtable and recognize the facility for its efforts to improve the feasibility and practicality of producing fuel ethanol from cellulosic sources, such as agricultural wastes.

ESI Rising Steward

N.C. Zoological Park
Asheboro, N.C. (Randolph County)

"The Zoo would not have progressed as quickly or as far with its EMS without ESI and the technical assistance and workshops specifically the EMS Course. The Zoo probably would not have become ISO 14001 without ESI and the individual coaching/technical assistance and would not have expanded beyond Horticulture to the Vet Services and Animal Management sections. The Zoo's EMS accomplishments such as the Biodiesel Production project and the constructed wetland would not have happened without ESI's technical expertise. Without the ESI workshops and networking opportunities, it would have been difficult to keep up the momentum needed to sustain and improve the Zoo's EMS because EMSs take a lot of time and effort. However, that time and effort pay off in better management tools based on actual tracking, review and revision. For example, without ESI the Zoo would not have had the data and interest to pursue its Irrigation Control System that saved 1,541,568 gallons of water in one growing season (six months) for a reduction of 56.4 percent. In sum, the Zoo probably would have given up on EMS without the support, both technical and moral, of ESI." Mary Joan Pugh, N.C. Zoo

The N.C. Zoo has been a leader in water reduction. Through its ISO 14001 EMS (the only certified State agency), the zoo sets objectives and targets for water and other significant environmental impacts that are tracked, reviewed and revised on an annual basis.

As part of its EMS, the zoo invested in an irrigation control system that irrigates eight major exhibits based on water needs and actual rainfall. Much of the irrigation utilizes nonpotable water from two lakes on site. In previous years, using water meters that measure the volume of water used in irrigation, 2,733,248 gallons were used in one growing season. With the new irrigation control system that has an evapotranspiration management system that measures rainfall, wind and other conditions and determines the amount of irrigation to meet established plant needs, only 1,191,680 gallons were used during the growing season. This is a saving of 1,541,568 gallons or 56.4 percent.

The system has a central control that manages all eight sites from one controller. Thus in addition to water, the zoo has saved gas from not having to travel to the eight irrigation sites which are spread over 500 acres and five miles of roads.

The zoo switched to an ozone water treatment system for the large pools. This change has resulted in a reduction in the number of times a year that the pool needs to be drained and refilled from six times per year to twice a year saving 250,000 gallons per drain and fill.

All three Rocky Coast exhibit pools are metered and indicated that the pools were leaking approximately 7,000 gallons a day. A consultant was hired and it was determined that in addition to the pool surface leaking, the biggest problem was the water leaking out around the skimmers. The skimmers were designed to be hidden from view by the rockwork but were placed too low. The pool in the Sea Lion area has been repaired saving 3,000 gallons per day. The Polar Bear pool is scheduled for repair.

The zoo also has standard operating procedures for all animal holding areas that minimizes the water (and chemicals) used to sanitize the holding areas.

ESI Partner

BSH Home Appliances Corp.
New Bern, N.C. (Craven County)

"Getting involved with ESI introduced us to the concept of setting environmental goals and put us on the track of ISO 14001 certification. ESI personnel are always eager and willing to help with any environmental issue or concern. It's very nice knowing they are there to help when you need them." Sam Phillips, BSH Home Appliances

BSH manufactures dishwashers, washers, dryers, cook tops, freestanding ranges, built-in ovens and hoods. It has increased production and lowered its water use. In water used per units produced in 2006 compared to 2005, a 9 percent reduction was reported and to date in 2007 compared to 2006 a 5 percent reduction per unit produced was reported.

As a first step, BSH checked the water usage of its parts washers and other water-using processes to ensure minimal usage settings and controls were in place. Some water savings were realized.

Several water conservation projects were put in place in the range plant that helped with reducing water consumption. A water recycling system was installed to catch the parts washer final rinse tank overflow, treat it in an reverse osmosis system, and plumbed it back to the washer for reuse. Several additional filters were added to the washer system to keep the water in the tanks cleaner longer reducing the frequency needed to dump and clean the tanks. A sludge holding tank was added in the wastewater treatment area along with some replumbing to make it easier to send the sludge to the filter press, thus reducing the time spent hosing down and rinsing the other treatment tanks.

Recently, an old parts washer in dishwashing was replaced with two smaller new parts washers, which combined, will use less water than the old one. For the future projects, it is looking into recycling the water used in new washing machine testing.