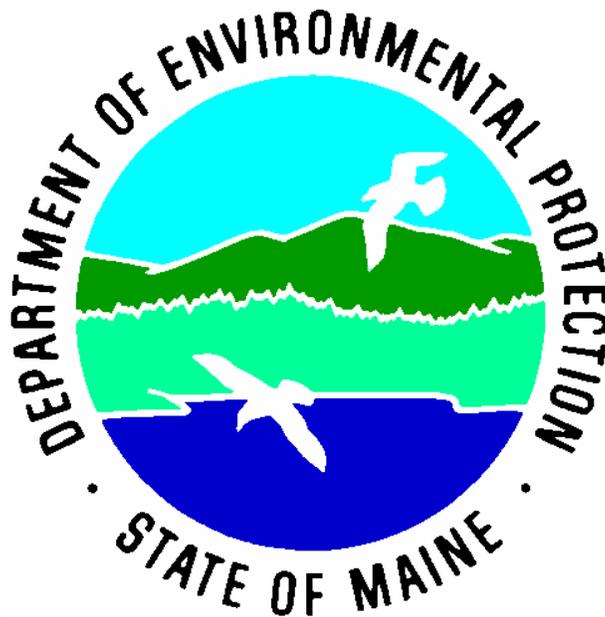


Auto Body Environmental Results Program

Maine Department of Environmental Protection

Office of Innovation



Final Report

**Maine Department of Environmental Protection
Final Report for the 2004 State Innovation Grant**

Project Title: Auto Body Environmental Results Program

Grant Period: October 2004 – March 2007

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Background

The Maine Department of Environmental Protection's Office of Innovation received the 2004 State Innovation Grant to conduct the Auto Body Environmental Results Program (ERP) pilot project. The award amount from the Environmental Protection Agency (EPA) was \$152,000, with the State of Maine providing a match of \$47,000.

The auto body industry in Maine is subject to federal and state environmental regulations pertaining to air, water, solid and hazardous waste. The Innovation Staff recognizes that this industry is a sector that does not demonstrate an awareness of the environmental regulations that apply to their industry. The focus the ERP was on the Southern Maine air quality non-attainment area because the auto body sector is known for air compliance issues. This non-attainment area included Cumberland, Sagadahoc, and York counties¹.

The ERP included a voluntary multi-media approach that addressed all of the federal and state environmental regulations pertaining to the auto body sector. The ERP also encouraged facilities to go beyond compliance with best management practices (BMPs) and pollution prevention (P2) measures.

The auto body sector in Southern Maine is comprised mostly of small² to medium³ sized facilities that operate with minimal resources. Most of these facilities do not employ an

¹ The entire state of Maine is now officially meeting the ground-level ozone federal national ambient air quality standards. Maine's Redesignations and Maintenance Plans request was published in the December 11, 2006 Federal Register.

² 1 to 5 employees

³ 6 to 10 employees

official environmental manager to track environmental regulations and compliance information. Small businesses which include this sector often cannot afford investing in capitol expenditures including new technologies. The ERP tools made available to the auto body sector during this project addressed the full range of compliance requirements that the facilities are responsible for as well as educating facilities on newer technologies. The ERP used a plain language workbook and self-certification checklist to help facilities understand the applicable requirements more easily.

Implementation

The ERP project followed the traditional ERP approach developed by Massachusetts Department of Environmental Protection, which comprises of three main segments:

- 1) **Compliance Assistance:** Innovation Staff developed a plain language, multi-media workbook for the auto body sector. The workbook covered all federal and state environmental regulations that apply to the auto body sector. The workbook also included BMPs and P2 measures to allow facilities to go beyond compliance. The Office of Innovation hosted a workshop to educate auto body facilities on environmental regulations.
- 2) **Self-Certification:** Innovation Staff developed a plain language, multi-media self-certification checklist for the auto body sector. The self-certification checklist was correlated with the workbook. The majority of checklist questions could be answered with a simple yes or no response. The checklist was designed to allow facilities to self-identify where they were out of compliance, and fix any violations they found. If a facility was out of compliance, they were instructed to fill out a return-to-compliance (RTC) plan if they could not fix the violation immediately. The RTC plan asked for an explanation of how the facility would return to compliance, and gave them 30 days to do so.
- 3) **Performance Measurement:** Innovation Staff developed a multi-media P2 survey checklist to use during on-site visits to auto body facilities. Baseline on-site surveys were conducted prior to compliance assistance and self-certification. Post-certification surveys were conducted after compliance assistance and self-certification. The data from the survey checklists and self-certification checklists was entered into a database and analyzed using statistical methodology.

Incentives for Participation

Maine's Auto Body ERP was a voluntary program. Auto body facilities were not required to participate in the program; however, they are required to comply with all of the environmental regulations.

As part of the program, Innovation Staff developed incentives to encourage auto body facilities to participate in the program. The incentives included:

- Facilities that self-certified were recognized as Environmental Leaders (EL).
 - EL's received the official EL logo decal to display at their facility.
 - EL's were listed as participants on the DEP's ERP web page.

- As EL's, facilities are encouraged to go beyond compliance and incorporate P2 practices into their workplace.
- LaserPaint devices were selectively given out to facilities that implemented the greatest number of P2 practices.
- Facilities that were out of compliance could use the DEP's Small Business Compliance Incentives Policy (SBCIP).
 - The SBCIP provides small businesses an opportunity to work with the DEP's small business technical assistance staff to solve environmental violations while avoiding the threat of enforcement action for discovered violations, under many circumstances.
 - Requirements to the SBCIP include:
 - A facility must voluntarily request assistance.
 - Violations must be corrected within 90 days.
 - The violation cannot be egregious.
- Free technical assistance from Innovation Staff.
- Self-certification allowed facilities to find violations and fix those violations which could lead to enforcement actions if an inspector visits the facility.

Program Information

The selected universe for this project included 104 auto body facilities within the 3 targeted counties during the baseline surveys. 4 auto body facilities went out of business prior to the post-certification surveys. The universe for the post-certification surveys included 100 facilities.

Baseline and post-certification surveys were conducted and the data was statistically analyzed to provide:

- A snapshot of auto body facilities performance at the time of the baseline survey, before compliance assistance or self-certification began;
- A snapshot of auto body facilities performance after compliance assistance and self-certification and;
- A comparison of auto body facilities before and after compliance assistance and self-certification, to assess whether their environmental performance improved.

Innovation Staff performed a simple random sample to select 59 out of the 104 auto body facilities for the baseline surveys. Staff did another simple random sample to select 59 out of the 100 auto body facilities for the post-certification surveys.

The ERP project manager was accompanied by Bureau of Air Quality Staff for each survey. All on-site visits to facilities were unannounced. The survey consisted of Staff asking the facility owner or manager the survey checklist questions, and then taking a walk-through of the facility with the owner or manager to see the operations.

Baseline surveys were conducted over a 2 month period prior to compliance assistance and self-certification.

Post-certification surveys were conducted over a 3 month period after compliance assistance and self-certification.

A total of 118 surveys were conducted in both rounds of on-site visits. This survey population was a statistically based sample of the universe which allowed Innovation Staff to draw conclusions about the overall universe of auto body facilities with a 95% confidence level. The margin of error was at most +/- 8.5% for the baseline surveys⁴. The margin of error was at most +/- 8.3% for the post-certification surveys⁵.

Goals

The goals for the ERP were to:

- Promote pollution prevention concepts
- Increase public and industry awareness of environmental health concerns
- Increase environmental compliance and measure the changes

Pollution Prevention (P2):

This project included 3 pages of pollution prevention measures in the ERP workbook. The P2 section of the workbook included ways to reduce operating costs, reduce waste disposal costs, protect the environment, improve worker health and safety, and project a positive image to customers. Innovation Staff also gave P2 technical assistance while conducting on-site baseline and post-certification surveys, and during the workshop.

P2 on-site visits were conducted after the post-certification surveys to help facilities implement P2 practices. All of the facilities that self-certified were recognized as Environmental Leaders (EL). As part of being recognized as an EL, facilities are encouraged to go beyond compliance and incorporate P2 practices into their workplace. As an incentive to implement P2 practices, the Office of Innovation gave away 10 LaserPaint devices to the facilities that implemented the greatest number of P2 practices. LaserPaint is an attachment for any make/model spray paint gun. LaserPaint uses two laser beams that come together into a single dot when the spray gun is at the optimum distance from the surface, which allows for maximum transfer efficiency. This device was developed and patented by the Iowa Waste Reduction Center, a division of the University of Northern Iowa. For further information regarding the LaserPaint technology, visit <http://www.laserpaint.us/>.

Increase public and industry awareness of environmental health concerns:

Environmental health concerns were addressed in the ERP workbook. Innovation Staff also reviewed environmental health concerns during the workshop and on-site visits. Pictures of what ozone damage looks like were shown during the workshop and health

⁴ This margin of error is based on 59 out of 104 facilities being surveyed, and the survey question being applicable to all 59 facilities.

⁵ This margin of error is based on 59 out of 100 facilities being surveyed, and the survey question being applicable to all 59 facilities.

effects of ozone were explained to participants. Staff explained that ozone is caused by volatile organic compounds and hazardous air pollutants, which are in paints, coatings, solvents, and hazardous waste. Sanding dust and its health effects were also reviewed including facts regarding the following heavy metals: lead, chromium, and cadmium. Staff explained that heavy metals can be harmful if inhaled and can lead to long term health effects.

Increased environmental compliance:

Innovation Staff collected data in the baseline and post-certification survey checklists. Data was also collected from the self-certification checklists. All of the data was entered into a database and statistically analyzed to see if environmental compliance and BMP implementation increased after compliance assistance and self-certification. The results found that there was an increase of environmental compliance and BMP implementation. Results can be found in the next section.

Project Results

Environmental Business Practice Indicators (EBPIs) were used to determine whether there was an increase in environmental compliance and BMP implementation. EBPIs are industry specific measures designed to give a snapshot of a facility’s environmental performance. The Bureau of Remediation and Waste Management, Bureau of Air Quality, and the Bureau of Land and Water Quality assisted the Innovation Staff in the development of the EBPIs. Statistical methodology was used to analyze the EBPIs; all questions were analyzed based on a “yes” response.

The boxes below include the EBPIs that were utilized during the project. Observed percentage is what was observed during baseline and post-certification surveys at the randomly selected facilities. Confidence interval is the range of values that is believed to contain the actual population proportion for the entire universe, not just the facilities surveyed. Estimated population percentage is an estimate of how the entire universe is performing.

Air Quality

Does the shop carry out painting and coating in a spray booth to contain paint emissions and over spray? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval (percentage)	Estimated Population % ⁶
Baseline	47	12	79.7	70.8-84.9	77.8
Post-Certification	51	8	86.4	78.1-90.3	84.2

⁶ The estimated population percentage is the midpoint of the Score confidence interval. Unlike the Wald confidence interval, the Score confidence interval is not symmetrical around the observed percentage, except at 50%. The Score interval is considered more accurate, especially as the observations approach 0% or 100%.

Air Quality continued

Does painting and coating take place in areas outside of a spray booth? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	15	44	25.4	19.4-34.4	26.9
Post-Certification	9	50	15.3	11.1-23.7	17.4

Do any airborne emissions from painting and coating leave the business premises? (i.e. open windows, open doors, unfiltered exhaust vents) (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	17	42	28.8	22.3-37.9	30.1
Post-Certification	9	50	15.3	11.1-23.7	17.4

Does the shop utilize an enclosed spray gun cleaner, solvent recycler, or other spray gun cleaning methods to reduce or eliminate VOC emissions? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	32	27	54.2	45.6-62.4	54.0
Post-Certification	36	23	61.0	52.3-68.4	60.3

Does the shop utilize a dust control system to control dust generated from the sanding process? (i.e. ventilated sander, wet sander, room ventilation and filtration system) (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	20	39	33.9	26.8-42.9	34.9
Post-Certification	28	31	47.5	39.4-55.4	47.6

Does the shop exhaust air from process areas to the outside? (i.e. vents) (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	43	16	72.9	63.8-79.1	71.5
Post-Certification	37	22	62.7	53.9-70.0	61.9

Does the shop utilize low VOC/HAP paints and coatings? (lower than the federal standard) (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	35	24	59.3	50.4-67.1	58.8
Post-Certification	55	4	93.2	85.7-95.5	90.6

Air Quality continued

Does the shop utilize low VOC/HAP solvents? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	29	30	49.2	40.8-57.7	49.2
Post-Certification	57	2	96.6	89.6-97.9	93.8

Does the shop train all employees in the proper use and handling of paints and coatings according to the manufacturers' recommendations to minimize air pollution? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	34	0	100	89.9-100	94.9
Post-Certification	35	1	97.2	86.5-98.9	92.7

Does the shop employ a training program in the proper use and handling of solvents and waste products to minimize air emissions? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	34	0	100	89.8-100	94.9
Post-Certification	35	1	97.2	86.5-98.9	92.7

Are solvents, thinners, or other VOC and HAP containing materials stored in closed containers when not in use? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	55	4	93.2	85.6-95.6	90.6
Post-Certification	53	6	89.8	81.8-92.9	87.4

Hazardous Waste

Does the shop properly label containers of hazardous waste? (labels must indicate the contents of the container, must say "hazardous waste," must list start and end accumulation dates) (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	40	19	67.8	58.7-74.7	66.7
Post-Certification	42	17	71.2	62.3-77.5	69.9

Hazardous Waste continued

Does the shop containerize rags and other absorbent materials contaminated with a listed hazardous waste or flammable waste and dispose of it as hazardous waste? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	16	43	27.1	20.9-36.2	28.5
Post-Certification	17	42	28.8	22.5-37.7	30.1

Has anyone ever filled out or signed a hazardous waste manifest? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	42	17	71.2	62.1-77.7	69.9
Post-Certification	46	13	78.0	69.2-83.3	76.3

Waste Oil

Does the shop burn oil in a waste oil furnace? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	7	18	28.0	16.1-45.8	30.9
Post-Certification	8	17	32.0	19.1-49.7	34.4

Does the shop ever add hazardous wastes such as waste gasoline, solvents, or paint thinner into the waste oil? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	0	25	0.0	0.0-13.3	6.7
Post-Certification	1	24	4.0	1.3-18.9	10.1

Universal Waste

Does the shop properly dispose of (recycle) fluorescent light bulbs? (Requirement)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	17	42	28.8	22.3-37.9	30.1
Post-Certification	50	9	84.7	76.3-88.9	82.6

Water Quality

Have inactive floor drains been properly sealed/closed? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	9	3	75.0	47.7-90.2	68.9
Post-Certification	13	2	86.7	63.0-95.4	79.2

Does the shop have any active floor drains? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	25	11	69.4	55.6-79.6	67.6
Post-Certification	26	13	66.7	53.7-76.6	65.2

Does the shop conduct vehicle maintenance and repair in areas (bays) with unsealed floor drains? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	6	20	23.1	12.7-40.4	26.5
Post-Certification	4	24	14.3	7.2-30.0	18.6

Does the shop store oil or hazardous materials in areas that have unsealed floor drains? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	1	25	3.8	1.3-18.3	9.8
Post-Certification	0	28	0.0	0.0-12.1	6.0

Are active and inactive floor drains registered with the DEP? (BMP)					
Survey	Yes	No	Observed %	Confidence Interval	Estimated Population % ⁶
Baseline	23	36	39.0	21.4-47.9	39.7
Post-Certification	24	35	40.7	33.1-49.4	41.2

Permitting Results and Opportunities:

There was an observed 10.4 percentage point increase in environmental performance between the baseline surveys and the post-certification surveys. The estimated population percentage point increase in environmental performance between the baseline surveys and the post-certification surveys was 9.8.

42 facilities self-certified in the ERP, which equates to 42% of the universe. 34 out of those 42 facilities self-identified as being out of compliance with one or more

requirement, which equates to 81% of the facilities that self-certified. Innovation Staff assisted facilities with compliance issues such as: improper storage and disposal of universal waste, unlabeled hazardous waste containers, improper hazardous waste disposal, and evaporating hazardous waste.

Eight of the facilities that self-certified stated that they did not have the required hazardous waste license to operate their solvent distillation unit. The facilities were unaware of the hazardous waste regulatory requirements regarding the on-site use of solvent distillation units. Innovation Staff sent the facilities the paperwork to apply for an abbreviated hazardous waste license, and assisted them as needed. This provided the Innovation Staff an opportunity to increase regulatory awareness as well as work as partners with Bureau of Remediation and Waste Management's Licensing Staff.

Project Findings

Survey Checklist:

The Innovation Staff recommends doing a test run of the survey checklist at a facility prior to starting the baseline surveys to make sure the checklist questions make sense, are applicable, and in a good order. Examples are:

- Staff found that some questions on the checklist were not worded in a manner that was understood by facility owners/managers. Numerous shops did not know what the question "does the shop utilize a dust control system to control dust generated from the sanding process?" referred to, so Staff asked "does the shop utilize a ventilated sander, wet sander, or room ventilation and filtration system." The other question that was not always understood was "does the process area vent through an upwardly tilting stack." Staff asked "does the sanding area exhaust fan vent out the side of the building or up through the roof" because some facility owners/managers did not know what an upwardly tilting stack meant.
- Most of the questions in the checklist read seamlessly. If a question did not apply, it said to skip that question and gave the number of the next question to go to. I.e. "does the shop exhaust air from process areas to the outside?" (if no, skip to B6). However, the first question in the Waste Management section asked what types of waste were generated, including waste oil. Then on the next page there was the Waste Oil section, which asked if the facility generated waste oil again. At times Staff forgot that the facility said they did not generate waste oil in the Waste Management section and they asked if the facility generated waste oil when they got to the Waste Oil section of the checklist, which had already been found to be non-applicable.
- Innovation Staff designed the survey checklist to be separated into air quality, waste management, and water quality sections. Staff feels that the checklist might have flowed smoother if it had been arranged in the order facilities carry out work; sanding, prep, painting, clean-up.

Review of Materials:

Staff recommends leaving at least a month for review of the workbook and checklists. This assures that Staff has time to closely examine the materials and ensure that all regulations are incorporated.

Self-Certification:

The Office of Innovation had only received 10 self-certification checklists two weeks prior to the submission deadline. Innovation Staff sent out a deadline reminder postcard two weeks prior to the deadline and received 32 checklists within a week. Staff recommends reminding the facilities of deadlines, and utilizing follow up mailings with simple suggestive statements.

Culture:

Innovation Staff found that people who have been working in the auto body business for many years are less willing to change their procedures. An example of this is the use of High Pressure Low Volume (HVLV) spray guns. Some people said that they liked how their conventional guns worked and that they did not like how HVLV guns worked, so they were continuing to use conventional guns. The Maine Department of Environmental Protection requires that all automotive spray painting be done with HVLV spray guns, and the Innovation Staff explained to these facilities that they must comply with the regulation. Staff recommends explaining the benefits of using new technology. For example, the use of HVLV spray guns cuts down on the amount of paint used, saving money and reducing air pollution.

Associations:

The Office of Innovation worked with the Maine Auto Dealers Association (MADA) and Maine Service Providers Association throughout the project. MADA gave Innovation Staff tips on what was most effective in transferring compliance information to their members when they went on-site to auto body facilities and held workshops. They suggested holding workshops right after work, and keeping them brief and concise. MADA also suggested showing a lot of pictures during the workshop instead of a typical PowerPoint presentation with text. Staff recommends working with sector associations as they are a valuable resource and can help encourage association members to participate in the program.

Regulated Community Feedback

Most auto body facilities were very receptive to the interactions with the Innovation Staff during all of the stages of the ERP. Many participants stated that they did not know what regulations applied to them, and were very appreciative of the assistance provided by the Office of Innovation.

The owner of three auto body facilities emailed Innovation Staff and said “thank-you for your hard work helping improve our industry!”

Many of the larger auto body facilities were satisfied that the project included visiting smaller auto body facilities as well as the larger ones. The larger facilities commented that this approach “leveled out the playing field,” assuring that all sized facilities had to follow all of the regulations. Larger facilities have felt targeted by Occupational Safety and Health Administration (OSHA). OSHA implemented a health and safety initiative focusing on larger auto body facilities (5 or more employees) two years prior to the Office of Innovation beginning the ERP.

Based on initial comments from the auto body sector, Innovation Staff purposely utilized the workshop to get final comments on the content of the workbook. Staff waited to finalize the workbook until the workshop was held. This allowed facilities to give their input on what should be in the workbook. Facilities liked that they were asked for their input on the workbook. Innovation Staff modified the workbook to include the ideas that facilities came up with during the workshop.

Financial and Resource Report

The funds were utilized to their fullest to gain an increased awareness of environmental regulations and P2 opportunities in the auto body sector. In addition, Innovation Staff was able to utilize the ERP Consortium and networks that the EPA has established. Although the financial report does not line item EPA’s technical support, Staff received many hours of technical assistance regarding this innovative compliance approach which will help the Office of Innovation continue with ERP projects. This project was a success largely due to the funding provided by the EPA State Innovation Grant. Please refer to the financial report below:

	Total Expenses	Monies budgeted per grant	Difference
personal services	\$66,611.21	\$63,000.00	\$3,611.21
fringe	\$39,176.99	\$28,030.00	\$11,146.99
total	\$105,788.20	\$91,030.00	\$14,758.20
professional fees	\$20,100.00	\$28,378.00	\$8,278.00
travel	\$387.55	\$12,000.00	\$11,612.45
other	\$2,924.24	\$0.00	\$2,924.24
supplies	\$2,139.03	\$0.00	\$2,139.03
state cap	\$20,660.98	\$20,592.00	\$68.98
total	\$46,211.80	\$60,970.00	\$14,758.20
capital	\$0.00	\$0.00	\$0.00
grand total	\$152,000.00	\$152,000.00	\$0.00

Conclusion

Maine Department of Environmental Protection’s Office of Innovation conducted a voluntary pilot Auto Body ERP in the Southern Maine air quality non-attainment area. This area included Maine’s 3 southernmost counties. The auto body sector is known for air compliance issues, and by at large does not demonstrate an awareness of the environmental regulations that apply to their industry.

The Office of Innovation provided auto body facilities with multi-media compliance assistance throughout the project and found that auto body facilities were very receptive to the project and the assistance provided by Innovation Staff. The Office of Innovation had 42% of the auto body universe self-certify; an impressive amount for a voluntary program. Remarkably, 81% of the self-certifiers openly admitted that they were not in compliance with environmental regulations; this illustrates that the facilities were not afraid to let a regulatory agency know that they were out of compliance and seeking help.

Revised 05/07/2007

Innovation Staff observed an increase in environmental performance throughout the sector with increased compliance with air, water, and hazardous waste regulations. An increase in beyond compliance performance was also observed with facilities adopting pollution prevention practices.

The Office of Innovation is realizing the need to institutionalize ERP within the Agency and considering undertaking a mandatory ERP, or a voluntary ERP with threat of regulation for those facilities that do not participate. The Innovation Staff will continue to work with the auto body sector. The Office of Innovation has submitted a proposal for the 2007 State Innovation Grants to continue ERP projects with a Stormwater ERP.