Wisconsin Department of Natural Resources

State Innovation Grant Technical Project Report

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Region 5 States Environmental Results Program for Autobody Refinishing Shops

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Project Title: Region 5 States Environmental Results Program for Autobody Refinishing Shops

Report: Region 5 Autobody Refinishing Environmental Results Program Evaluation

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US EPA ARCHIVE DOCUMENT

Introduction

This report summarizes the Region 5 Autobody ERP project and results. In 2008, new federal rules to reduce air toxic emissions affected thousands of very small sources that previously had experienced little or no regulation by state or federal environmental agencies. One of the sectors affected by the new rule was autobody shops with a compliance deadline of January 10, 2011. In the six Region 5 states (Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin) the new rule was expected to affect nearly 13,000 autobody shops. Emissions reductions would not be achieved without an effort to help these small sources understand and comply with the requirements in the rule. However, state regulatory agencies lacked sufficient resources to implement and enforce this new rule.

State small business environmental assistance programs (SBEAPs) are experts at providing effective compliance assistance on limited budgets. The SBEAPs in Region 5 were interested in combining efforts to find a way to approach compliance for the newly regulated autobody shops, given the large number of businesses in the sector.

How do we raise the level of compliance among small businesses?
Bigger businesses have had the resources and time to improve their performance, and state environmental agencies had the funding to visit the smaller number of large sources over many years to gain that improved performance. As funding continues to decrease but the number of regulated sources increases, how do states bring up the compliance rates for the small sources?   Figure 1 is visual representation of this question. The Big Sources have benefited from relatively well funded regulatory agencies that performed regular inspections to reinforce what they needed to do to comply with the rules over the decades. Starting around 1970, when the Clean Air Act was created, through 2000, the Big Sources had all of the attention. While regulations were starting to be applied to Small Sources (SS in Figure 1) staring in 1990, the bulk of the regulations for small sources were promulgated between 2000 and 2010. How will the Small Sources improve performance without regular inspections from the regulatory agencies?

Figure 1: Improving Small Business Compliance Rates Similar to Previous Large Business Improvements Achieved
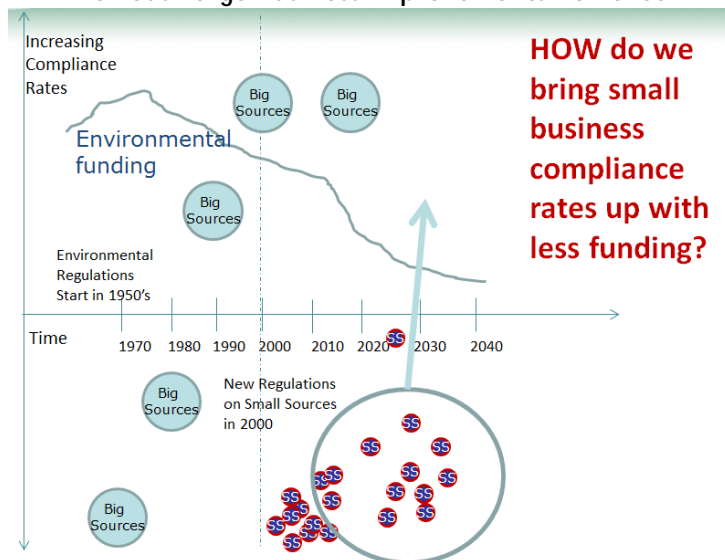
Individual inspections of each one of these small sources is not possible given today's government funding and staffing situation.   A new tool needs to be added to the compliance and enforcement toolbox. The Region 5 SBEAPs hoped to show USEPA how this ERP design might be another tool that works well for improving compliance in certain business sectors.

After many discussions about different options, the Wisconsin Department of Natural Resources' (WDNR) Bureau of Air Management and the Wisconsin Small Business Clean Air Assistance Program (Wisconsin's SBEAP) partnered with other state SBEAPs in Region 5 and proposed using ERP to implement the new area source rule, 40 CFR part 63 Subpart HHHHHH (6H) as it affects autobody refinishing shops. The Region 5 SBEAPs hoped to show USEPA how this ERP design might be another tool that works well for improving compliance in small business sectors.

What are the SBEAPs?
The state SBEAPs are a mandated element in the Clean Air Act Title V permit programs that each state must implement. States have implemented the SBEAP function in a variety of ways, but the majority of state programs have a free and confidential source of compliance assistance for any small business in their state that is affected by air pollution regulations. Nationally, around half of the programs have the added role of providing assistance on other environmental regulations, including waste and water. The programs have an average of three staff and an average annual budget around $250,000. These budgets have been declining even as the number of regulations affecting small business through the area source NESHAPs has increased. Assistance provided by SBEAPs can include:
- toll-free hotlines to respond to questions,
- fact sheets and other publications provided via mail and the web,
- workshops and webinars,
- on-site assessments,
- completing permit applications and forms, and
- any other task needed to help a small business comply with environmental rules.

What is ERP and Why Use it?
ERP is a cost effective approach to improving and measuring the environmental performance of selected business sectors or groups. ERP uses a unique combination of **compliance assistance**, **compliance certification** and **statistical performance measurement** that leverages traditional compliance assurance activities to improve performance for the selected group.

The measured changes in performance are based on verified observations recorded by trained individuals, knowledgeable in the regulatory issues being measured. Voluntary submittals, including the self-certifications offer insight into the facilities' perception of performance but are not statistically analyzed. States, including Rhode Island, Delaware and Maine, that have used ERP with autobody shops have shown strong evidence for improving performance:
http://www.USEPA.gov/erp/2009evaluation.htm.

The typical steps involved in an ERP project are outlined in the figure below:

Typical ERP Cycle

STEP 1: INVENTORY

Identify the universe of facilities in the chosen sector. Determine the number of facilities that need to be inspected for a statistically valid sample.

STEP 2: BASELINE INSPECTIONS

Develop a uniform inspection format specific to the target sector. Conduct inspections at a sample of randomly-selected facilities. Take enforcement action as applicable.

STEP 3: EVALUATE

Review results from Step 2 to determine if sector needs compliance improvement. If baseline inspections show high rates of compliance, continuing an ERP approach might not be efficient.

STEP 4: COMPLIANCE ASSISTANCE

Work with trade associations and others to develop and deliver plain-language user-friendly assistance that improves compliance and best management practice awareness.

STEP 5: SELF-AUDIT AND COMPLIANCE STATUS CERTIFICATION

Develop self-audit checklist closely linked to Step 4 materials and distribute to the full universe of facilities. Facilities conduct self-audits and certify results – a technique commonly used by traditional enforcement programs

STEP 6: EVALUATE

Review results from Step 5 to identify potential problem facilities to target for additional assistance and/or for compliance inspections. Take enforcement action as applicable.

STEP 7: COMPLIANCE INSPECTIONS

Use the same inspection format developed in Step 2 to conduct inspections at a sample of randomly-selected facilities.

STEP 8: EVALUATE

Review results from Step 7 to verify facility self-certification results from Step 5 and to determine performance changes from Step 2. Take enforcement action as applicable.

STEP 9: INFORMED DECISION-MAKING

Assess performance data and changes to determine whether to adjust strategies before beginning again at Step 4.

Repeat until compliance is widespread, sufficient, and maintained and/or resources are required elsewhere.

Results from many prior ERPs, including previous state innovation grant projects, suggest that the combined use of plain-language materials and simple assessment tools can be effective in achieving a positive change in small business compliance rates. The traditional compliance approach of writing permits for each facility and conducting on-site inspections to assess compliance is not a feasible approach for rules affecting thousands of small businesses. Small business owners often do not have the legal or technical training to understand the content of permits and what is needed to meet each of the requirements. An ERP can be an efficient and cost effective alternative approach to reach small businesses and improve their compliance and environmental performance. Also, there is substantial leverage offered by ERP's educational methods and its statistical approach to assessing sector-wide compliance.

Project Partners and Design Factors

The project involved all of the Region 5 states SBEAP programs; however, the Illinois Sustainable Technology Center (ISTC), which has historically conducted compliance assistance visits on behalf of the IL SBEAP, was brought on board through a contract to conduct the baseline visits for Illinois. The IL SBEAP staff participated in all of the material development, training, and outreach stages of the project. The SBEAPs engaged USEPA Region 5 air enforcement staff because the SBEAPs are non-regulatory programs and did not have authority to enforce any non-compliance in the follow up phase of ERP. USEPA commitment to this effort was outlined in a e-mail from Cheryl Newton, Acting Division Director, Air and Radiation, USEPA Region 5, to state air directors on September 24, 2008, stating "USEPA's Air Enforcement and Compliance Assurance Branch has agreed to support the ERP pilot by conducting all post compliance inspections of the sampled facilities in the Region." The Region 5 SBEAPs and USEPA Region 5 staff will be called the Project Team throughout the report.

The WI SBEAP was located at the Wisconsin Department of Commerce (Commerce) at the beginning of the project. During 2011, the whole program was moved to the WDNR. While this created some delays in certain phases of the project, it did not affect the final results. Staff, project files, and the project webpage were all transferred to WDNR.

The Project Team also partnered with Northeast Waste Management Officials' Association (NEWMOA) for their expertise in developing and conducting training on data collection, data management, analysis for a multistate project, and planning and managing logistics of multiple States ERP Consortium meetings. NEWMOA had managed the Common Measures Project (http://www.newmoa.org/erp/projects/commeas.cfm) that involved ten states.

As the Project Team designed the universe of the project, it was agreed that the focus would match the original focus of the Urban Air Toxics Strategy. The Clean Air Act (CAA) requires USEPA to identify a list of at least 30 air toxics that pose the greatest potential health threat in urban areas, and to identify and list the area source categories that represent 90 % of the emissions of the 30 urban air toxics associated with area sources and subject them to standards under the CAA. Under the Strategy, USEPA identified a list of 33 air toxics and a total of 70 area source categories. The autobody sector was included among the area source categories and 6H regulates six of the heavy metals included in the Strategy.

The universe in this project comprises all autobody refinishing shops within the urban areas of the six states. The Project Team decided that urban areas would include only the most densely populated counties in the six states. However, the project excludes the City of Chicago, Illinois because local ordinances were more stringent than 6H and the local agency responsible for regulating autobody shops did its own enforcement and outreach and therefore, shops in that area would not receive the same level of treatment as shops in the rest of the areas covered by the project. Including Chicago may bias the results of the project.

Generally, 6H requires autobody shops to:
- Conduct all spray painting in an enclosure that satisfies the rule, such as a paint booth
- Install an exhaust fan in each enclosure that works properly and is used at all times
- Install a filter on each exhaust fan that complies with the rule and is properly maintained
- Use only compliant spray guns, such as HVLP
- Train all employees who paint on the equipment and on the requirements of 6H

While the primary focus of this project was compliance with the 6H rule, the ERP also provided education and collected data on basic waste and water requirements, and best practices in energy efficiency and pollution prevention.

Report Organization

The report is organized according to the requirements of the grant with USEPA and, in addition to this Introduction, contains the following sections:

- Program Goals and Desired Outcomes including discussions of:
  - Project Goals/Objectives
  - Outcomes and Measures that outlines the expected outputs and outcomes of the project and the agreed measures
- ERP Development and Implementation including discussions of:
  - Methodology or Technical Approach where each phase of the project and its implementation are detailed
  - Key Milestones of the project
- Project Outputs where the outreach and other materials created by the project are outlined
- Project Outcomes where the results of the baseline and follow-up inspections are presented and discussed, including measured changes in performance
- Data Quality Assurance including discussions of:
  - Inspector Training and Resources
  - Inspection Data Entry
  - Analytical Accuracy
- Evaluation including discussions of:
  - Project Achievements
  - Project Adjustments
  - Continuation of Project Elements
  - Stakeholder Input
- Recommendations

Executive Summary

State environmental agencies have been looking for ways to better address compliance rates among a growing population of regulated sources. Recent compliance and enforcement efforts have focused on the small businesses affected by USEPA's National Emissions Standards for Hazardous Air Pollutants (NESHAPs). Many of the recent NESHAPs include in the preamble that compliance will largely rely on the outreach and compliance assistance efforts of the State Small Business Environmental Assistance Programs (SBEAPs).

Core Issue: How are state programs with limited staff and limited budgets going to reach thousands of small businesses affected by the new NESHAPs and assure compliance?

The Region 5 SBEAPs designed a project to show how use of a different compliance tool can achieve improved environmental performance for the autobody refinishing shops affected by 40 CFR Part 63, Subpart HHHHHH (6H). The project was called the Region 5 Autobody Environmental Results Program (ERP). ERP is a cost effective approach used by many states to improve and measure the environmental performance of selected business sectors or groups. ERP uses a unique combination of compliance assistance, compliance certification and statistical performance measurement that leverages traditional compliance assurance activities to improve performance for the selected group.

The Region 5 ERP used both state SBEAPs and USEPA Region 5 staff to measure the environmental performance of autobody shops in urban counties in the six Region 5 states: Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin. SBEAPs visited the shops before the compliance deadline in the rule, to measure the baseline performance and use the data to plan the level of outreach and training that the shops would need to comply with the rule. USEPA Region 5 staff conducted inspections after the compliance deadline passed to assess final compliance rates.

Outcome: Statistical analysis of a random sample from the urban population in Region 5 states measured increased performance in many areas related to the NESHAP. Out of 25 regulatory questions on 6H, 18 showed a statistically significant increase. When including other non-regulatory questions, 26 areas of performance showed a statistically significant improvement in gaining the desired response.

Compliance and performance areas showing statistically significant improvements included:
- Regulatory:
  - Shops showed no evidence of painting outside of a paint booth.
  - Shops increased use of paint booths and enclosed preparation stations.
  - Shops had booths and preparation stations that met the requirements of the rule:
    - All enclosures ventilated;
    - All exhausts filtered; and
    - All filters meet 98% collection efficiency.
  - Painters completed their training and shops had appropriate records on the training.
  - Shops had records on methylene chloride in paint strippers.
  - Shops submitted their initial notification on the rule.
- Non-regulatory:
  - Shops retained records on coating use.
  - Shops used 3 ounce cups for some paint jobs.
  - Shops received information on the rule.
  - Shops were aware of the option to petition out of the rule.
  - Booths had clean lighting.

Conclusion: A coordinated effort between state SBEAPs and USEPA compliance staff achieves results in compliance for Area Source NESHAPs. Using the ERP design offers economy of scale, by reducing the number of inspections that need to be conducted and showing areas where compliance has improved as well as where additional outreach, training, and/or targeted enforcement may be needed improve performance.

Key Recommendations:
- Look for partnerships to provide efficiencies in environmental compliance efforts.
- A cross-media focus is helpful for small business, but a narrow focus may be sufficient to achieve improvements in performance.
- Consider whether using a proportional sample is worth the effort in such a statistical study.
- Ensure enforcement is taken soon after follow-up inspections, to maintain achievements in compliance rates.
- Complete additional follow-up rounds of inspections to measure continuing compliance.

The ERP design as implemented under the State Innovation Grant programs presents an interesting statistical study of a regulatory program. However, states or EPA regional offices that might want to implement a similar program do not need to be as rigorous as this report describes. Does the traditional compliance and enforcement or permitting program involve a statistical analysis of compliance rates? Not that the author is aware of. The traditional programs only measure one-for-one compliance rates on a particular day or moment in time, once every two to five years, depending on the size of the source and the established inspection schedule. This ERP project summary report shows how a different style of compliance program CAN be successful. It shows the ERP is successful by measuring an improvement in compliance rates over a short period of time. In addition, the ERP shows results where traditional inspection or 'command & control' programs did not, in those circumstances where regulations similar to 6H had already been in place for a while. The ERP itself is simply another set of compliance tools for the regulatory toolbox. It should be accepted as such by states and EPA alike.

I. **Project Goals and Outcomes**

The goals of the Region 5 Autobody ERP are summarized, and a description of the outputs and outcomes are provided here.

I.A. Project Goals/Objectives

The goal of the Region 5 States ERP for Autobody Refinishing Shops project was to use the ERP structure to implement the portion of subpart 6H affecting autobody refinishing shops and in doing so, determine the impact of direct compliance assistance, self-assessment and certification, and random-sample site visits or inspections in lieu of traditional permitting and enforcement inspections. Those who help small businesses comply with environmental regulations have found small business owners do not have the legal or technical training to understand the content of state issued air pollution permits and what is needed to meet each of the requirements. Additional plain-English documents or training are often needed, and welcomed, to translate the regulatory language for the small business owner. The work of providing a translation of regulations through plain-English materials and training is often called compliance assistance.

Following the ERP design, random sample baseline visits as well as compliance inspections following the compliance assistance phase would measure whether the environmental performance of the shops affected by the area source rule changed and whether it improved or declined.

I.B. Outcomes and Measures

In our project proposal, we outlined a list of possible measures as a starting point for discussions of what is reasonable and achievable to measure in a shop visit. Beyond those measures directly related to the requirements in subpart 6H, additional measures were discussed among the partnering agencies. The measures originally proposed were largely similar to those used in the Common Measures project, but instead of Small Quantity Generators it was for autobody refinishing shops. We planned to retain as much similarity as possible, to be able to make correlations between our project and others using the Common Measures for autobody refinishing.

The measures proposed, called Environmental Business Practice Indicators or EBPIs, are compared to the outcomes listed in the Logic Model by their number. The Logic Model proposed for this project can be found in **Appendix A**. The proposed and final list of EBPIs is included in **Appendix E** to this report. Other outcomes in the Logic Model that are not identified as EBPIs are considered side benefits to the project that cannot be directly measured through the ERP format.

Some of the federal requirements in 6H had previously applied in states with non-attainment areas, as Reasonably Available Control Technology or RACT rules, for many years. Elements such as high efficiency spray guns and occasionally use of a booth was required in most of the Region 5 states for at least a few counties. Other elements in 6H were completely new for every state, like painter training, so we expected to see definite improvements on those elements.

The partnering agencies agreed to collect data on the elements of subpart 6H. Through discussions among the partners, the group planned to have a complete list of additional measures that would be included in the baseline and post-certification data collection phases early in the process. The outcome measures, through the finalized baseline checklist, were approved as part of the Quality Assurance Project Plan.

The final list of EBPIs and how they were included in the data collection checklists is shown in Table 1.

Table 1: List of Environmental Business Practice Indicators (EBPIs) and Other Indicators

EBPIs	Question(s) in Checklist
Practices Associated with subpart 6H	
• % using HVLP or equivalent high transfer efficiency technology	I6
• % with high transfer efficiency painter training in place	B2a
• % with different components of training	B2b
• % using hands-on or classroom-only training	B2b
• % with documentation of training	B2c
• % at which all spray-applied coatings were used in enclosed booth or prep station	C3, I1, I3
• % of booths/stations fitted with particle filters	C4b, I2, I4
• % of booths/stations fitted with filter/system achieving 98% capture	C4c&d
• % where spray gun cleaning is done with enclosed or non-atomizing washers	C5, I7
• % maintaining MSDS or formulation records for all solvents/coatings used	C9
• % maintaining records of the amount/content of coatings containing Cr, Pb, Cd, Ni, Mn	C10
• % **NOT** using paint strippers containing Methylene Chloride	C6, I8
• % keeping records to document annual MeCl usage	C7
• Average and range of MeCL used	C7b
• % of MeCL users with written MeCl minimization plan	C8
• % maintaining records of the amount of coatings containing VOC and HAP	A6
Other Practices	
AIR PRACTICES	
• Paint hours per year	A7
• Average quantity and range of coatings used	A6
• % using dustless vacuum or overhead capture equipment	F
• % meeting applicable state requirements	Varied
AIR RECORD KEEPING:	
• Average use of high VOC and low VOC coatings and solvents per year	A6
HAZARDOUS WASTE	
• Average and range of maximum amount of RCRA waste generated in a month	D3
• Numbers of facilities in generator classes (CESQG or VSQG, SQG, LQG or not)	D3
INDUSTRIAL WASTEWATER INDICATORS	
• % of facilities **not** discharging IWW to surface water	E2
• % of facilities **not** discharging IWW to a storm, sanitary or combined sewer system	E2
POLLUTION PREVENTION-ENERGY EFFICIENCY INDICATORS	
• % of facilities taking one or more actions to conserve energy over the past three years (distribution across menu of possible actions)	G1
• % of facilities taking one or more actions to reduce pollution (VOC, PM and toxics) during the past three years (distribution across menu of possible actions)	F1

II. **ERP Development and Implementation**

The following section provides a description of the general approach that was used to implement the project, including a description of methodologies, stakeholders involved, and project milestones.

II.A. Methodology

The WDNR and WI SBEAP partnered with Region 5 state SBEAPs, other technical assistance staff, and USEPA Region 5 Air Program staff to develop this ERP for the autobody refinishing sector affected by subpart 6H, which included compliance assistance, self-certification, and statistical analysis of baseline and post-certification measurement of performance. Four of the six Region 5 states already had strong experience leading and/or participating in the development and implementation of an ERP. We also partnered with NEWMOA for their expertise in developing and conducting training on data collection, data management and analysis in a multistate project (Common Measures), and planning and managing logistics of multiple States ERP Consortium meetings.

ERP design elements and statistical analysis tools created for previous state ERP's were used in development of the Region 5 ERP. Most of the tools can be found on one of two websites:
  ➢ States ERP Consortium: http://erpstates.org/
  ➢ EPA's ERP Roadmap: http://www.epa.gov/erp/roadmap/

Commerce developed a memorandum of understanding between each state SBEAP as well as NEWMOA to outline expectations for each entity's role in the project and how expenses will be reimbursed.

The Region 5 ERP for autobody shops was developed in the following phases, similar to the full ERP design, which are described in detail below:
  • Phase One – Universe of Shops for Sampling
  • Phase Two – Checklist Development and Baseline Visits
  • Phase Three – Baseline Evaluation
  • Phase Four – Compliance Assistance and Self-Certification
  • Phase Five – Compliance Inspections
  • Phase Six – Final Evaluation

  Phase One – Universe of Shops for Sampling:

In the first step, the Project Team compiled and refined the universe of sources in the project. The universe of shops is the list of all autobody shops potentially affected by 6H. Each state SBEAP compiled the best autobody refinishing universe for their state. Then, the Project Team pulled out only the shops located within the urban areas to develop the universe that was used to select a random sample for the baseline visits.

USEPA Region 5 stated early in the project that urban areas were their priority in implementation of the area source rules, since those rules are developed under the Urban Air Toxics Strategy. In addition, focusing on urban areas would make the best use of time and travel expenses, as well as achieve the biggest gains on public health impact from the environmental performance improvements and improve the chances of reduced air toxics and collateral emissions (e.g., VOCs) in environmental justice areas. Assessing impact on environmental justice areas was also a regional and USEPA priority.

Researching the Urban Air Toxics Strategy definition, the USEPA describes "urban" as "major metropolitan areas" according to the US Census. US Census "major metropolitan areas" include those with greater than 50,000 people in a city and surrounding communities. While the SBEAPs agreed with the urban focus, the official major metropolitan areas still seemed to cover too much area in their respective states. Most of the SBEAPs have just one or two people in a central location, making travel quite lengthy if too many areas are included. After much discussion, the Project Team agreed to focus on counties with the highest population density. The urban shops were selected from the counties

within Region 5 that were in the top 10% by population density, based on census data available in 2010, which was around 357 people per square mile at the time.

In addition to looking at the high density counties, we also reviewed draft (at the time) maps provided by USEPA's Region 5 environmental justice group which showed a relative ranking of areas with a particular environmental justice concern. In an attempt to gauge how the project reached the environmental justice areas, during each baseline visit the field staff evaluated each location to determine whether it met criteria for being in an environmental justice area, including a shop's proximity to residential neighborhoods, schools, nursing homes, etc.

Each state developed their universe of autobody shops from outside listings, whose accuracy was beyond our control. A number of states have a business registration specific to autobody refinishing shops that was expected to result in a more accurate list. Other states used business identification codes for autobody refinishing (SIC 7532, NAICS 811121) to build lists from larger business databases like InfoUSA or Dun and Bradstreet. The group discussed ways to improve the accuracy of their lists and, where states felt a single source may be too inaccurate, additional sources were used to improve the accuracy. The sources used by each state are identified in Table 2.

Table 2: State Data Sources

State	Universe data source
IL	Illinois Secretary of State – Licensed Collision Repair Shops (updated November 2009)
IN	Dun & Bradstreet (October 2008, SIC 7532)
MI	Michigan Secretary of State listing of licensed repair facilities that conduct auto body collision repair (updated November 2009)
MN	Registration air permit holders listed in delta (a MN database), Hazardous waste generators listed in delta, Dun and Bradstreet listings, Reference USA listings (combined data November 2009)
OH	Ohio Board Of Motor Vehicle Collision Repair Registration (current November 2009)
WI	Reference USA Business Database sorted by NAICS 811121 (downloaded September 2009)

SBEAPs made every effort to quality check the lists they used, including updating lists based on new information (e.g., returned mail, drop outs) at each stage of the project.

The baseline visits were conducted by SBEAPs in all states except Illinois. The ISTC, which has historically conducted compliance assistance visits on behalf of the IL SBEAP, was brought on board through a contract to conduct the baseline visits in Illinois.

The Region 5 urban universe, at the time of the ERP development, was 5069 shops – which excluded the City of Chicago. The project excludes the City of Chicago because local ordinances were more stringent than 6H and the local agency responsible for regulating autobody shops did its own enforcement and outreach and therefore, shops in that area would not receive the same level of treatment as shops in the rest of the areas covered by the project. Including Chicago may bias the results of the project.

The calculated sample size for the desired margin of error and confidence level was 140; however, it was necessary to round up to whole numbers for a sample size of 143 shops. In addition, individual states with a sample size less than 15, chose to do a minimum of 15 to reduce their individual margin of error in the event they wished to conduct state specific analysis. This brought the total regional sample to 146, and this design provided a maximum margin of error of 6.8% for a single-sample confidence interval for a proportion and 9.7% for a confidence interval for the difference between baseline and post-certification proportions, at a 90% confidence level.[1] The urban definition and high density counties in each of the six Region 5 states were used to develop the stratified sample shown in

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[1] For simplicity, region-wide precision estimates were developed based upon an assumption of simple random sampling. This is a conservative estimate; consequently, actual precision may be somewhat better because of stratification.

Figure 2. More detail on the sample development process is provided in the project Quality Assurance Project Plan (QAPP).

Figure 2: Proportional Stratification Sample Planner (as of 10/09/2009)

DATA SET:		URBAN SHOPS						
Confidence Level		90%						
Sample Size Goal (Each Round)		140						
Ensure Minimum Stratum Samples?		Y						
Minimum Stratum Sample Size		15						
		Wisconsin	Minnesota	Michigan	Indiana	Illinois	Ohio	Region-Wide
Population		456	675	877	489	1,225	1,347	5,069
Exact Proportional Sample Size		12.6	18.6	24.2	13.5	33.8	37.2	140
Rounded Sample Size		13	19	25	14	34	38	143
Recommended Sample Size		15	19	25	15	34	38	146
Margin of Error (+/-)	1 sample	19.3%	17.4%	15.4%	19.3%	13.4%	12.7%	6.8%
	2 samples	30.6%	27.0%	23.4%	30.6%	20.0%	18.8%	9.7%

Note: Margin of error figures produced using Sample Planner 2007 (for citations, see that tool). For region-wide figures, actual margin of error will likely be smaller, because of stratification. Margin of error figures for individual state results may be slightly larger.

USEPA's Sample Planner was used for the process of sample size determination. The Sample Planner is a spreadsheet-based tool that estimates the maximum confidence interval for a given sample size, population (universe), and percentage of facilities complying. Confidence intervals yielded by varying sample sizes were compared, in order to select a sample size that would meet the project's goals for statistical precision and sensitivity. The statistical tools created for EPA are found here: http://www.epa.gov/erp/toolsandresources.htm#stattools.

Phase Two – Checklist Development and Baseline Visits:

At the same time as the universe and sample size were in development, the inspection checklist was being drafted through discussions among state SBEAPs and USEPA regional staff. Each SBEAP contributed staff to subgroups with specific areas of expertise to create section of the checklist. Then a small group pulled the final checklist together. Materials developed for this phase were saved on a page available only to participants in the project, until the writing of this report: http://dnr.wi.gov/topic/CompAssist/sb/autobodyerptraining.html.

State SBEAPs and ISTC staff conducted the baseline site visits. Prior to beginning that effort, all project field staff (2 to 3 per participating state and Region 5) conducting the baseline site visits as well as follow-up compliance inspectors were trained together to ensure common understanding of the measures and statistical principles for data gathering would be followed. Since some of the USEPA staff changed between the initial training and the USEPA follow-up inspections, additional training would be necessary at a later time. NEWMOA developed and conducted the training on data quality and collection techniques for the project field staff. A few state staff assisted in developing training on the environmental regulations for project field staff, depending on their program's expertise.

Table 3 shows the distribution of shop visits between the six states. Each state planned to conduct 2-3 visits above the initial goal shown in Figure 2, to ensure sufficient data at the end of the project. If we needed to drop a particular record during the analysis, then we still had sufficient data to meet the goals of the analysis.

Table 3: Round 1 (Baseline) Target and Actual Sample Sizes

States	Illinois	Indiana	Michigan	Minnesota	Ohio	Wisconsin	Totals
Target Sample Size	34	15	25	19	38	15	146
Actual Visits Completed	35	19	27	20	38	17	156
Difference from target	1	4	2	1	0	2	10

Over the course of the baseline visits, the SBEAP field staff encountered a number of rejections from shops or shop contacts that could not be reached as well as drops due to inaccurate listings. Table 4 shows how each state fared in terms of the number of dropped shops (e.g., closed shops or those that did not fit the definition of autobody refinishing shop) and shops that could not be reached or that declined having a site visit. Among the drops were shops that we could not reach and that, after some more research, were found on lists like Department of Revenue's delinquent tax payers, or in other state records that made it clear the shop was closed.

The states with higher drop-out rates did not have state-mandated registrations or licenses for refinishing shops. Ohio had a state registration for refinishing shops, but a miscommunication about categories in the list resulted in a large number that were not affected by the rule being on the list. Indiana, Minnesota and Wisconsin used business databases that were developed by companies for marketing or yellow pages listings and often included many inaccurate uses of the industry codes (SIC and NAICS) used to sort out refinishing shops.

Those shop owners who declined visits gave a variety of reasons for the lack of interest. Some expressed concern about the amount of time taken out of their day when they were very busy. Others felt they already met all the requirements and didn't need the help. [We were offering the visit as a free assessment of their compliance with the new USEPA rule.] The shops that didn't return calls, assuming they were in operation, were likely the ones that didn't want anyone from government in their shop. Occasionally staff would drive by locations that were not returning calls, if another visit was nearby. Many were shut down, but a few were still operating and looked rather busy. We did not do a full check on all those that declined visits, so we don't know fully know which ones might have been drops. Another complication in some areas was the language barrier. If no one was available that could speak English, we often marked that shop as declined or unavailable.

Table 4: Baseline Visits - Drops and Declines

States	IL	IN	MI	MN	OH	WI
Baseline Universe	1225	489	877	675	1347	456
Baseline Sample Size	34	15	25	19	38	15
Drops	19	33	5	33	61	19
Declined/Unavailable	45	55	9	57	94	40
Drop-out Rate	23.2%	44.6%	14.3%	42.8%	46.2%	32.7%

Phase Three – Baseline Evaluation:

Following completion of the baseline site visits, the participating states entered their own site visit data directly to WI SBEAP through an online survey tool. NEWMOA assisted WI SBEAP in compiling and analyzing the data from baseline site visits to determine if there were particular regulatory issues where we should focus during the training and outreach phase.

Upgrades to the analysis tool, the ERP Performance Analyzer, began at this stage to assist with the statistical analysis. The original ERP Performance Analyzer was developed for the Massachusetts Department of Environmental Protection (MassDEP) to simplify their statistical analysis of multiple ERP rounds for multiple industries. Grant funding helped MassDEP create a basic application, but over time they developed a list of features that would improve the program for the user. Our plan was to use the Region 5 grant to make a number of the improvements to the tool and then use the software application to conduct the statistical analysis for the project.

Phase Four – Compliance Assistance and Self-Certification:

SBEAPs along with USEPA staff and other stakeholders developed common materials for the compliance assistance phase of the ERP. Workshops were conducted throughout the six Region 5 states to help the autobody refinishing shops understand the environmental requirements and how to implement other efficiency and best management practices.

A self-certification checklist that also meets the needs of the Notification of Compliance Status for subpart 6H was developed and mailed to all shops, urban and otherwise, in the states. The deadline for submitting the checklists was March 11, 2011 so that they would also meet the notification deadline in the rule. The Notification of Compliance Status only required basic facility information and an indication of the compliance status. We designed our self-certification checklist to ask about compliance with individual elements of the rule and provide selected compliance assistance within the document, and then we referenced resources and training tools developed by the SBEAPs and posted on the Autobody Compliance website: http://dnr.wi.gov/topic/CompAssist/sb/Autobody.html. Also on the website, we posted a schedule of upcoming presentations for additional compliance assistance. A summary of all the compliance assistance provided by each state is included in **Appendix C**.

While we initially intended to have Region 5 USEPA staff provide any follow up on non-submittals of the Notification of Compliance Status, we lacked sufficient resources to follow through on that step.

Phase Five – Compliance Inspections:

The compliance program in the Air Branch at USEPA Region 5 agreed to conduct the compliance inspections following the self-certification phase. USEPA commitment to this effort was outlined in a e-mail from Cheryl Newton, Acting Division Director, Air and Radiation, USEPA Region 5, to state air directors on September 24, 2008, stating "USEPA's Air Enforcement and Compliance Assurance Branch has agreed to support the ERP pilot by conducting all post compliance inspections of the sampled facilities in the Region." In order to maintain consistency for the final statistical analysis, USEPA's effort used the following guidelines for its inspections: (1) the project lead drew an independent, proportionally stratified random sample for USEPA's facility inspections from the same urban universe established for the baselines, with slight adjustments for drops discovered during the baseline and self-certification phases; and (2) the recommended sample size for each state was met, as shown in Table 5 below.

Table 5: Round 2 (Post) Target and Actual Sample Sizes

States	Illinois	Indiana	Michigan	Minnesota	Ohio	Wisconsin	Totals
Target Sample Size	34	15	25	19	38	15	146
Actual Inspections Completed	34	15	25	19	38	15	146
Difference from target	0	0	0	0	0	0	0

The primary difference in the universe of sources between the baseline and the follow-up rounds was due to the project co-lead removing known "drops" that states identified during the baseline and

outreach phases. Dropped shops were those not affected by the project in one way or another, including reasons such as: the shop had closed, it did not paint, or it did not conduct autobody refinishing work in any way. However, as Table 6 shows, Ohio had a combination of added shops and drops such that their follow-up universe was larger than the baseline. There had been some confusion in categorizing of shops in that state's registration listing, resulting in the difference.

Table 6: Region 5 Urban Universe of Autobody Refinishing Shops

States	IL	IN	MI	MN	OH	WI
Baseline	1225	489	877	675	1347	456
Follow-up	1223	380	858	520	1422	394
Difference	-2	-109	-19	-155	75	-62

For USEPA, the inspectors did not have the issue of shops having the option of declining a visit, as shown in Table 7. All drops were either confirmed closed shops, they did not paint or phones were disconnected and no one could be reached to confirm an operating shop.

Table 7: Follow-up Inspections - Drops and Declines

States	IL	IN	MI	MN	OH	WI
Baseline Universe	1225	489	877	675	1347	456
Baseline Sample Size	34	15	25	19	38	15
Drops	12	0	8	7	20	9
Declined/Unavailable	0	0	0	0	0	0
Drop-out Rate	26.1%	0%	24.2%	25.9%	32.3%	37.5%

Phase Six – Final Evaluation:

Following completion of the follow-up compliance inspections, WI SBEAP, in concert with NEWMOA staff, compiled all data, conducted the statistical analysis, and drafted the final report.

II.B. Key Milestones

Table 8 shows the key milestones with projected dates in the first column. Where milestones were delayed, the adjusted dates are shown following the specific milestone. Specific updates on each milestone were provided in quarterly reports submitted to USEPA Region 5, and are summarized in **Appendix B**.

Table 8: ERP Project Milestones

Quarter	Projected Milestones	Accomplished
1. Fall 2009 (Oct-Dec)	1. Develop and submit QAPP 2. Identify universe of facilities 3. Select contractor for IL baseline visits 4. Complete MOU between Commerce and other state SBEAPs and NEWMOA 5. Develop site visit checklist, protocol and training, data management process 6. Conduct site visit training 7. Begin baseline site visits	December 2009 Spring 2009 Spring 2010 October 2009 Summer 2009 – Winter 2010 Fall 2009 Spring 2010
2. Winter 2010 (Jan-Mar)	8. Quarterly Report 9. Finish baseline site visits 10. Data management and analysis for baseline 11. In partnership with associations, develop outreach materials to publicize the project	On time Fall 2010 Fall 2010 Fall 2009 - Spring 2010
3. Spring 2010 (Apr-Jun)	12. Quarterly Report 13. Mail self-certification and workbook to urban universe 14. Respond to requests for assistance on phone or site	On time December 2010 Spring 2011
4. Summer 2010 (Jul-Sep)	15. Quarterly Report 16. Conduct workshops and other education	On time Started Fall 2010 Continued through 2011
Federal fiscal year 2011		
5. Fall 2010 (Oct-Dec)	17. Quarterly Report 18. Help USEPA develop post-certification inspection and data management protocol	On time Spring 2011
6. Winter 2011 (Jan-Mar)	19. Quarterly Report 20. Finish development of post-certification inspection protocol and data routines; Begin processing cert data	On time Started Spring 2011, Complete Spring 2012
7. Spring 2011 (Apr-Jun)	21. Quarterly Report 22. Final cert data processing; Begin post-cert inspections; design transition to Region 5 (Sept 2011 – May 2012)	On time Spring 2012 Sept 2011-Jan 2012 No transition plan
8. Summer 2011 (Jul-Sept)	23. Quarterly Report 24. Finish post-cert inspections	On time Spring 2012 (Data entry complete)
Federal Fiscal Year 2012		
9. Fall 2011- Winter 2012 (Oct-Mar)	25. Quarterly Report 26. Finalize post-cert data and analysis 27. Create vehicle for annual (or other periodic) submittals and data management between state/fed	On time Winter-Summer 2012 Not complete
10. Spring – Summer 2012 (Apr – Sept)	28. Finalize project report.	Summer 2013

<u>II.C. Project Outputs</u>

The following is a description of the primary project outputs. Outputs are the materials created to complete the different phases of the project. The expected outputs from this project included the standard products expected for a State Innovation Grant, which includes progress reports, a statistical methodology and the quality assurance plan.

For the Region 5 Autobody ERP we created the following documents:
- For SBEAPs/EPA field staff:
  - training materials for the regulations to be measured,
  - checklist for measuring performance on key indicators,
  - resource documents to assist during site visits, and
  - a single webpage to post the materials (http://dnr.wi.gov/topic/CompAssist/sb/autobodyERPtraining.html).
- For the shops:
  - facility self-assessment checklist and accompanying materials,
  - documentation associated with workshops/training sessions to explain environmental requirements to the shops,
  - a single webpage to post all the materials (http://dnr.wi.gov/topic/CompAssist/sb/Autobody.html), and
  - an on-line tutorial to assist facilities with completion of the self-assessment.

As part of the original project proposal, we planned to compare the compliance assistance tools created for the project and demonstrate their benefits over the traditional permitting and enforcement system for a small business sector such as autobody shops, by reviewing how autobody shop compliance was approached in other states and/or regions and address the findings in the final report. However, because states and regions have approached implementation of the rule in a wide variety of ways, it has been difficult to compile the information in a useful way for the final report.

1. Staff Training, Checklist, Resources and Website Development

<u>Training:</u>
Following past practice for other ERPs, the project team developed a day and a half long training that included not only the key elements of regulatory topics from the checklist but also statistical principals to help ensure a broad understanding of the goals of the project.

The first training event was designed for those who would be conducting the baseline visits for the SBEAPs. Staff from each of the Region 5 state SBEAP office as well as ISTC staff who would conduct the IL site visits all attended. USEPA inspectors from multiple program areas were invited to the first training session to garner their input on possible issues or regulatory interpretations, in an attempt to ensure consistency between the two rounds of site visits. Statistical information was provided by NEWMOA staff because of their expertise in the Common Measures project as well as a number of other state ERPs. Project leads from WI and MN led the development and discussion of the regulatory topics, going through the checklist questions one-by-one. The slides from the training were provided on a webpage for field staff to as well as to share with other state SBEAPs who may need to work with autobody shops.

The second round of training took place once it was confirmed that USEPA inspectors would complete the follow-up round of inspections. The training design for the USEPA inspectors was very similar to the SBEAPs training, for consistency. However, USEPA had reduced the number of questions so there was less information to cover in the training. The statistical training was repeated as well; however, USEPA's National Center for Environmental Innovation provided funding for Mike Crow of Crow Environmental to be the presenter for this round of training. Mike Crow has worked on multiple states' ERPs as a resource on both the statistical calculations as well as general design of ERP.

Checklist:
The SBEAPs spent a lot of time working on the checklist, refining the questions to ensure common understanding among all states. The site visit checklist was completed in February, 2010. The effort was extended to ensure that the questions could be entered correctly in an online data entry survey that was designed.   The online data entry survey was provided to the SBEAPs so that each field staff could enter their own checklist responses and then WI SBEAP could download all the data into a single database for analysis. The survey was closed once all the state data was entered.

The original plan had been to have USEPA Region 5 field staff ask all of the same questions as SBEAPs asked in the baseline. However, USEPA Regional Counsel determined the inspectors would be unable to ask questions beyond 6H, so the post-certification inspections would not address multimedia topics. A data entry survey similar to that for the baseline data was created for the EPA inspection data; however, staff at the WI SBEAP entered the EPA data.

Resources and Webpage:
To assist the field staff in recalling information from the training, or to create additional copies of resource materials to provide to shops during the visits, we created a single webpage for the Project Team: http://dnr.wi.gov/topic/CompAssist/sb/Autobodyerptraining.html. This page was not linked to any other agency webpage so that no one outside the Project Team could gain access to the information.

2. Compliance Assistance Webpage

Region 5 SBEAP states worked together to create common or similar materials for autobody shops looking to complete the self-certification checklist. All of the materials were posted on a web page along with a link to the survey where the shops could enter their responses to the checklist questions. This page can now be found at http://dnr.wi.gov/topic/CompAssist/sb/Autobody.html. Based on previous state SBEAP efforts in ERP, it was decided that a large printed document would be too intimidating for autobody shops. With the materials on line, organized by state and topic, shops could print only those materials they needed. Not printing out all the materials to send to 12,000 shops also saved a large amount of grant funds. Along with materials they could print out, we created two webinars to train shops on the rule and to explain how to go through the self-certification checklist.

Of the two webinars created for training shops, we found use was high even beyond the compliance date of the rule.

Table 9: Web-based Training Video Participation

Training Video	Posting through 3/17/2011	3/18/2011 through 2/20/2013
6H Overview	244	137
6H Self-certification Checklist	247	81

While the bulk of the use of these tutorials happened up through the compliance deadline of March 11, 2011, there have been a good number of views since the deadline.

Figure 3 shows fluctuation in webpage activity in the early stages of the transition from Commerce to WDNR web page hosting, but it rebounded quickly once the pages were posted and then publicized. Document download activity was not always available as the agencies switched between web activity monitoring applications during the span of the project.

Figure 3: Region 5 ERP Webpage Activity Over Project Time Period
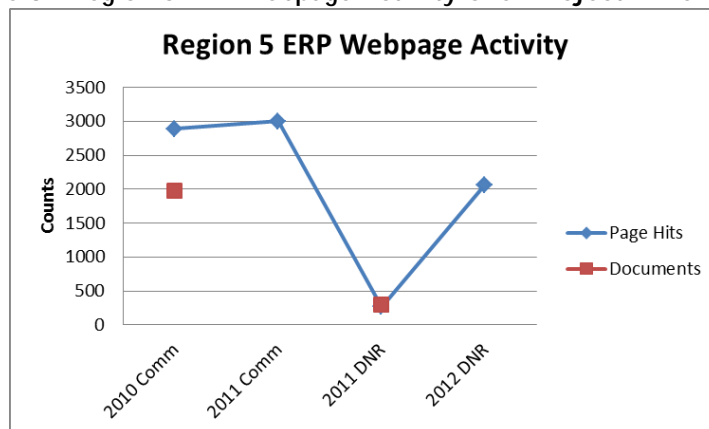

3. Self-certification Checklist/Materials:

The self-certification checklist was developed by the SBEAPs, using the baseline inspection checklist as the starting point and putting it into a format more easily utilized by shop owners or staff that might complete the form. Ensuring the questions were easily understandable was the most important element, but the project co-lead also needed to ensure the answers would have the same meaning as those collected from the baseline checklist. Simplifying a question can sometimes change the intent.

Another element of the self-certification checklist was finding the best way to provide sufficient supporting information so the shops could determine whether they were answering accurately. Previous ERPs have provided a large workbook which is cross-referenced in the checklist. This was decided by the Region 5 SBEAPs to be something the shop owners would not read. Instead of a lengthy workbook, brief explanations or links to resources for each question were provided right alongside the question within the checklist itself.

Response rates for the self-certifications were very good, for a voluntary survey.

Figure 4: State Self-Certification Response Rates – Numbers vs. Percentage
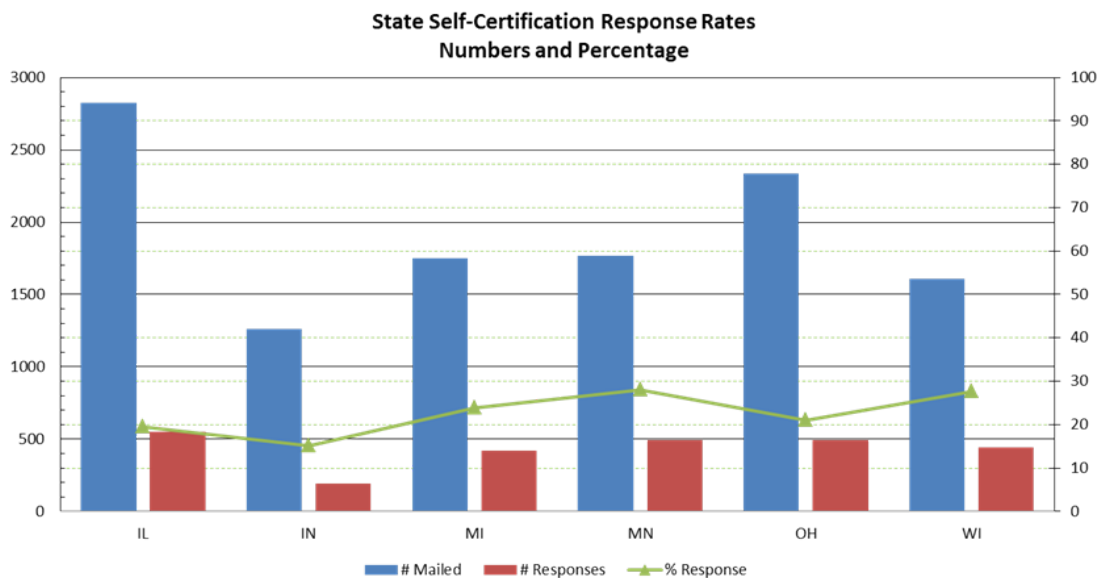
Regardless of how well or how carefully questions are phrased, others will always read them with different results than expected or intended. That is apparent from reading through the responses as data was entered into the database for analysis. Refer to **Appendix D** for a summary of some key impressions from WI staff entering the self-certification responses.

II.D. Project Outcomes

The primary outcomes expected from this project were changes in performance measured between the baseline visits and the follow-up compliance inspections.

As mentioned previously, the baseline visits measured multiple environmental program areas, including observations of hazardous waste and wastewater management, as well as recent energy efficiency and pollution prevention efforts in addition to the requirements of 6H. During the baseline evaluation, 156 randomly-selected facilities were visited. The follow-up compliance inspections were limited to evaluations of 6H requirements. USEPA inspected 146 randomly-selected facilities. Before and after comparisons in this section are limited to 6H requirements, since USEPA did not evaluate other regulatory questions. Observations of baseline conditions for the other elements follow the 6H results. More detail on the results and statistical analysis presented in this section is contained in **Appendix E**.

The state SBEAPs discussed the rate of compliance would constitute an acceptable rate, above which we could be satisfied that the industry does not need more assistance to improve performance. Compliance is considered widespread and adequate when at least 85% of facilities meet all of the requirements. However, for key elements in 6H, we would agree with enforcement staff who generally expressed that 95% compliance is preferred. Each of the areas discussed below is also evaluated for compliance concerns.

An outside team reviewed the statistical analysis and indicated the regional results should be analyzed as a proportional sample. While we designed the sample as a proportional distribution for each state, so that no one state was visiting more shops than their share, the intent was always to analyze this as a regional sample. The minimum sample for each state was increased to a minimum of 15, so that individual states could analyze their data with a reasonable margin of error and confidence level. By increasing a couple state's samples to greater than their proportional share, we changed it from a true proportional sample as well. Data analysis tools created for previous ERP projects are all designed for simple random samples. There was not sufficient time or funding for development of a tool to conduct a proportional analysis. We did conduct a proportional analysis for a few key EBPI questions. The results showed a smaller margin of error for each of the questions, for baseline and follow-up results.

Before evaluating the performance of the shops, it is helpful to understand the makeup of shops found in the two samples.

1. Facility Characterization/Informational Responses

A number of questions asked during the visits were solely to capture information about the shops. Some of the information was intended to ensure the shops were eligible to participate in the ERP, being affected by the 6H requirements in at least one aspect. Others captured whether or not specific regulatory questions should be asked. A few of these descriptive and informational questions have been analyzed to see how shops in the samples compared. The results of the facility characterizing questions and self-certification are shown in **Appendix D**.

Shop Services:
When we asked about the types of service provided at each shop, we found the full spectrum of services. Figure 5 shows similar results for baseline, follow-up inspections as well as in the self-certifications. There were a few shops in each sample that were not full autobody repair, but may have done some painting along with other services provided like simple touch-up repairs at a used car dealership.

Figure 5: Percentage of Shops in Each Sample Providing Specified Automotive Services
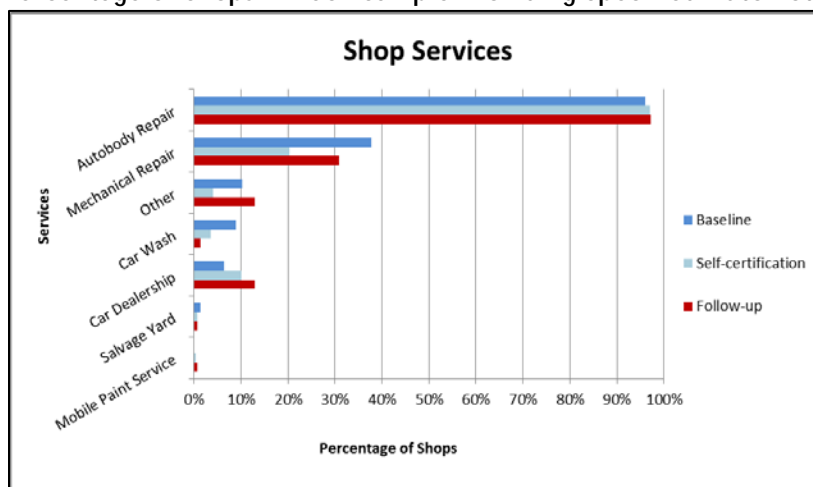
Shop Size (Employees):
We asked the shops about the number of employees compared to the number of painters in the shop. In the baseline visits, the shops averaged 6 employees and less than 2 painters per shop, while in the follow-up inspections the shops averaged 7.5 employees but still averaged less than 2 painters per shop.

Figures 6 and 7 show a comparison of the range of painters in shops, from 0-5, 6-10 and more than 10, measured at baseline and follow up. This shows that very few shops have more than 5 painters, almost half have at least 5 employees, while many have more than 10 employees. The main difference between baseline and follow-up is that more shops had over 10 employees in the follow-up sample.

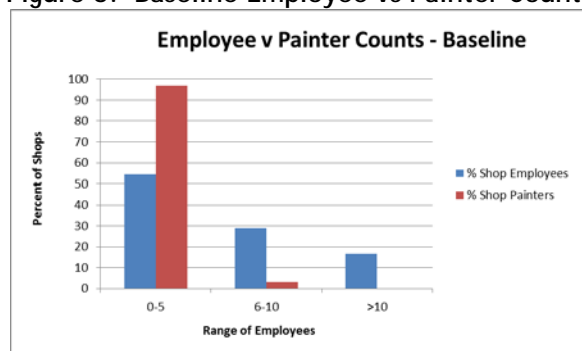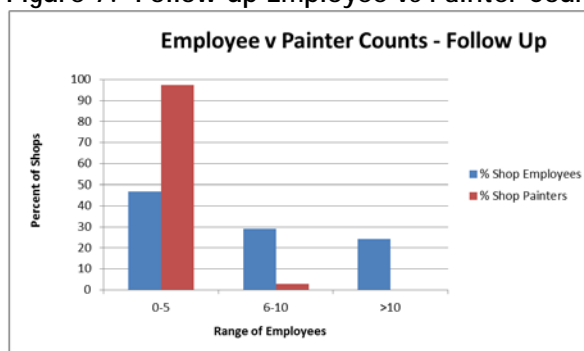Figure 6: Baseline Employee vs Painter Counts

Figure 7: Follow-up Employee vs Painter Counts

While the follow-up inspections did not capture waste or water information, the self-certifications provided a comparison for the baseline visits. No comparisons of statistical differences are made since the self-certification is voluntary information and not verified by a trained individual.

Waste Disposal:
For hazardous waste, we asked about the amounts of waste generated per month, and we used the amounts to estimate their generator size. Figure 8 shows that 95.5% of the baseline sample was considered very small or conditionally exempt small quantity generators. Wisconsin uses the term "very small" instead of "conditionally exempt" but the thresholds are the same in all the Region 5 states. That leaves 4.5% of the shops as small quantity generators.

Figure 8: Percentage of Shops by Hazardous Waste Generator Size at Baseline
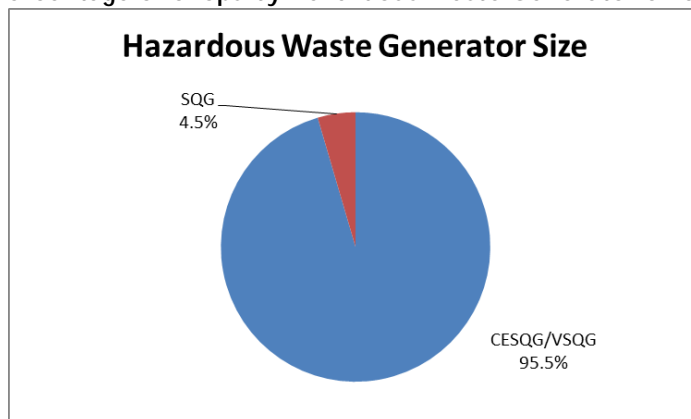
During the baseline visits, the SBEAPs determined whether the shops were using the proper methods to dispose of their wastes. Figure 9 shows that 45% of the 156 shops visited were using all proper methods of disposal; it also provides a scale of which methods were used by the shops.

Figure 9: Percentage of Shops Using Certain Waste Disposal Methods at Baseline
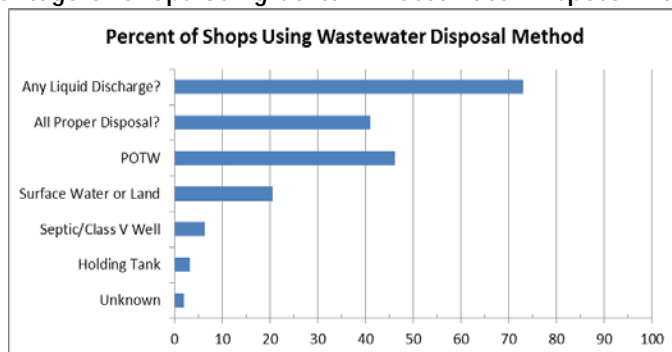

From the self-certification responses about the amount of waste generated over a period of time, we found 91.9% were very small/conditionally exempt small quantity generators and 8.1% were small quantity generators. We did not specifically ask what their generator size was since, from the experience of both SBEAP staff that provide waste assistance as well as state hazardous waste inspectors, we believed the shops would not understand the terminology anyway. On waste disposal methods, we did not count the actual responses for disposal methods used but provided them with information on proper methods for likely shop wastes and asked if they were using the proper methods.

Water Discharge:
The wastewater discharge responses in Figure 10 have a similarly wide range of results as waste disposal because the shops could identify more than one discharge outlet. Because they could identify more than one outlet the numbers will total more than 100% of shops responding.

During the baseline visits, the SBEAPs determined whether the shops were using the proper methods to dispose of their wastewater discharges. Figure 10 shows that 42% of the 156 shops visited were using all proper methods of disposal, and it provides a scale of which methods were used by the shops.

Figure 10: Percentage of Shops Using Certain Wastewater Disposal Methods at Baseline

By comparison, the self-certification responses indicated 61.8% discharged to their Publicly Owned Treatment Works (POTW), 35.8% had some level of surface water or land discharge, 15% were using septic or Class V injection wells, and 5% had an unknown discharge point in the shop.

2. Achievement Scores

We measured facility achievement scores for baseline visits and follow-up inspections and sorted the questions into different categories and scores calculated for those sets of questions. We determined scores for key categories of questions, including EBPIs and compliance related questions. It is also possible to calculate scores for facility information question, individual regulations like air, waste or water, and for individual state samples.

Facility achievement scores are calculated by counting the number of questions where the facility met the requirements, dividing by all the questions that applied to that facility, and then multiplying by a factor of ten to express the score as an integer. For example, if a facility met requirements for 5 questions and 14 applied to that facility, then $5 \div 14 \times 10$ or 3.6 is their facility score.
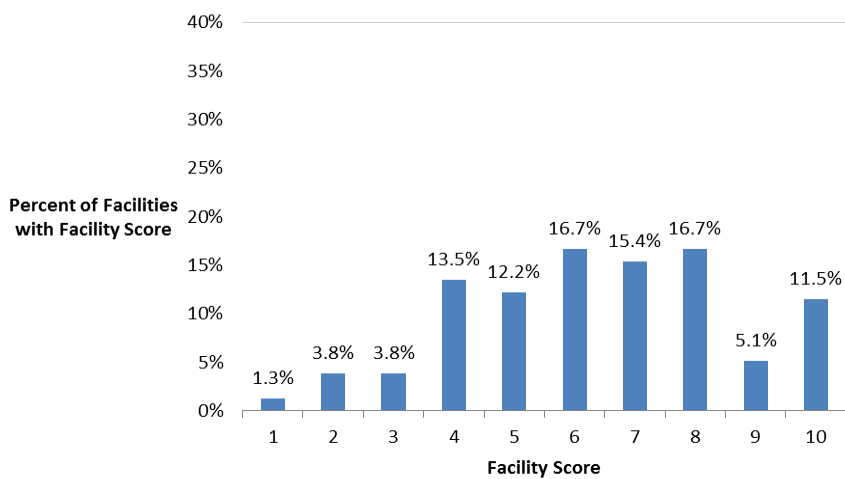
Facility score distributions do not include all of the questions. For accurate comparisons between baseline and follow-up, we only looked at questions asked by both SBEAPs and USEPA and only those with Yes/No responses. EBPIs and Compliance figures below include a specific subset of the questions as assigned by project team members.

The facility score distribution in Figure 11 for the EBPI's shows that just 33.3% of facilities have a score of 8 or higher at the baseline but 69.2% of facilities in the follow up round had scores of 8 or higher. The difference in average scores between baseline and follow-up was a statistically significant difference.
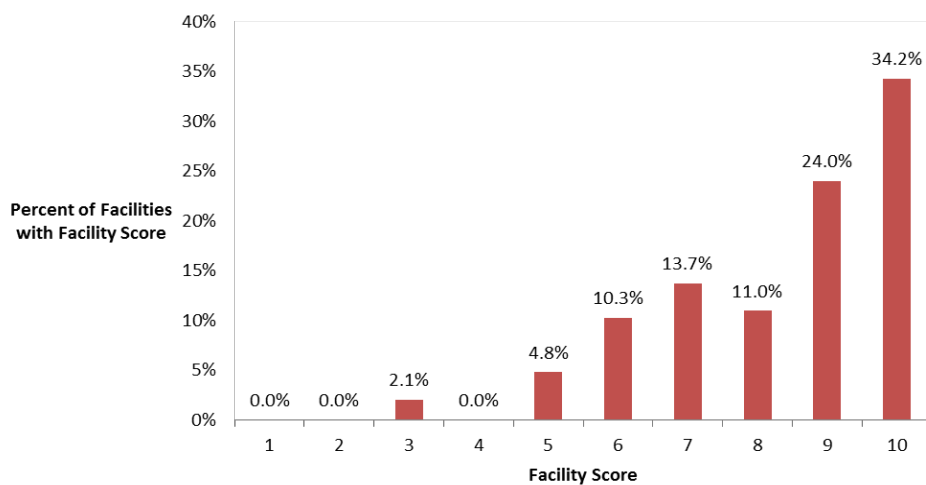
Figure 11: EBPIs – Baseline vs Follow-up

Average Facility Score Baseline: 56.6 % (±3.0)
Average Facility Score Follow-up: 77.7 % (±2.6)
Average Facility Score Difference: 21.1 % (±4.0)

**Facility Score Distribution
Verified EBPI Questions
SBEAP Baseline Inspections**

Percent of Facilities
with Facility Score

Facility Score	1	2	3	4	5	6	7	8	9	10
%	1.3%	3.8%	3.8%	13.5%	12.2%	16.7%	15.4%	16.7%	5.1%	11.5%

**Facility Score Distribution
Verified EBPI Questions
EPA Follow-up Inspections**

Percent of Facilities
with Facility Score

Facility Score	1	2	3	4	5	6	7	8	9	10
%	0.0%	0.0%	2.1%	0.0%	4.8%	10.3%	13.7%	11.0%	24.0%	34.2%

For the Compliance score distributions, Figure 12 shows they are very similar to the EBPI's with 25.7% of facilities in the baseline scoring 8 or higher while 69.2% in the follow up round scored in that range. The Compliance scores increase by a larger percentage than the EBPI's. This was a statistically significant difference.

Figure 12: Compliance Scores – Baseline vs Follow-up

Average Facility Score Baseline: 53.4 % (±3.2)
Average Facility Score Follow-up: 77.5 % (±2.6)
Average Facility Score Difference: 24.1 % (±4.1)

**Facility Score Distribution
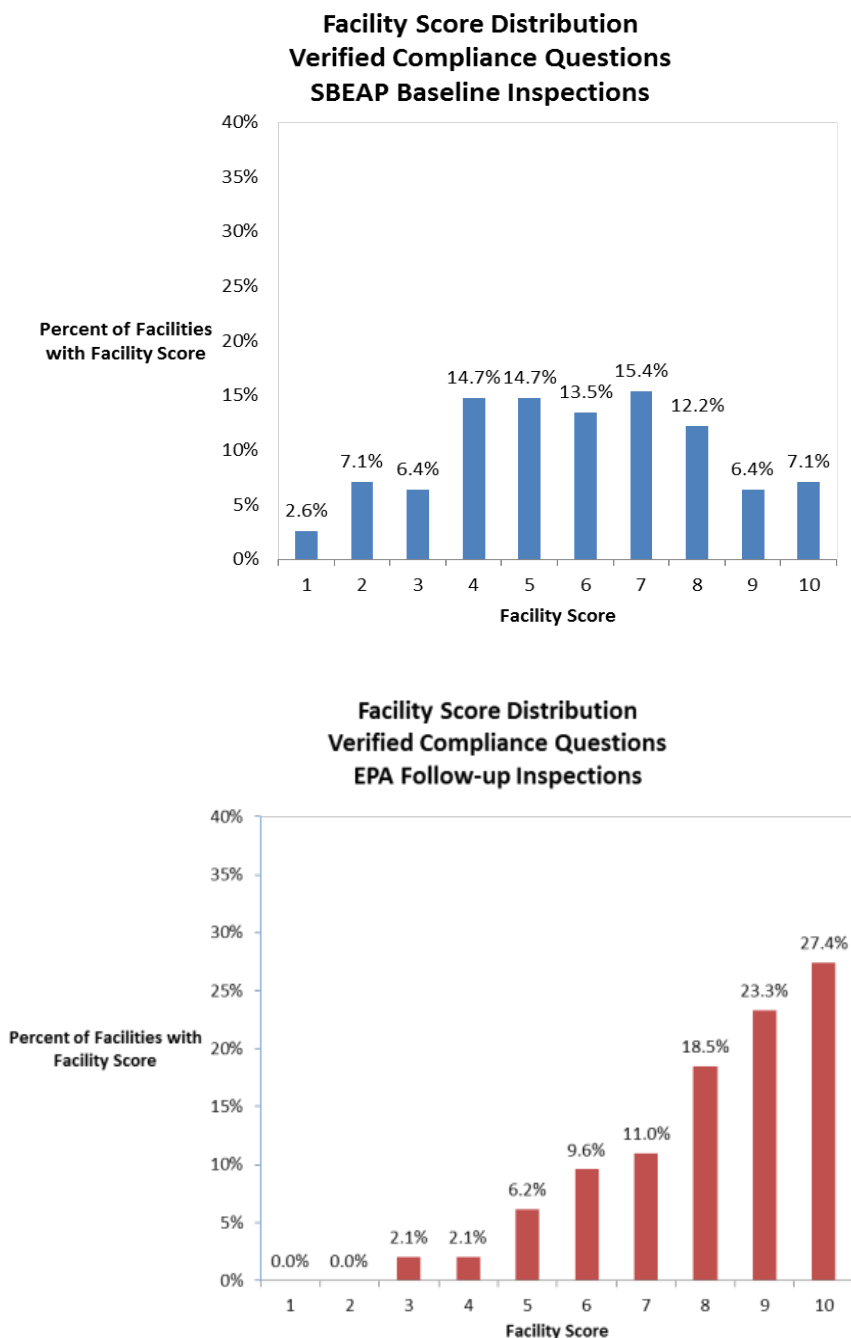Verified Compliance Questions
SBEAP Baseline Inspections**

**Facility Score Distribution
Verified Compliance Questions
EPA Follow-up Inspections**

3. 6H Regulatory Questions

There was a statistically significant improvement in compliance between the baseline and inspection rounds for the following 6H requirements. Out of 25 regulatory questions on 6H, 18 showed a statistically significant increase.

It is important to note that there were some states in the project where local or state-wide standards for reduction of Volatile Organic Compounds or VOCs have been in place for many years, standards called Reasonable Available Control Technologies or RACT. A number of these RACT rules have some overlapping requirements with 6H, so some of the results that follow may have been impacted by those existing regulations. In IL, MI, OH, and WI they have rules for autobody shops in many of the urban counties we sampled and in IN the autobody rules applied state-wide. For the IL universe, we removed the City of Chicago at the beginning because their VOC RACT and other county ordinances were more stringent than 6H. The state RACT rules included requirements similar to 6H on HVLP guns and enclosed gun cleaning, and some states also include use of paint booth. The ERP shows results where traditional inspection or 'command & control' programs did not, in those circumstances where regulations similar to 6H had already been in place for a while.

Excerpts from charts provided in **Appendix E** are provided here for illustration of performance on topics that showed statistically significant increases. The graphics capture the width of the confidence interval for each sample and the difference.
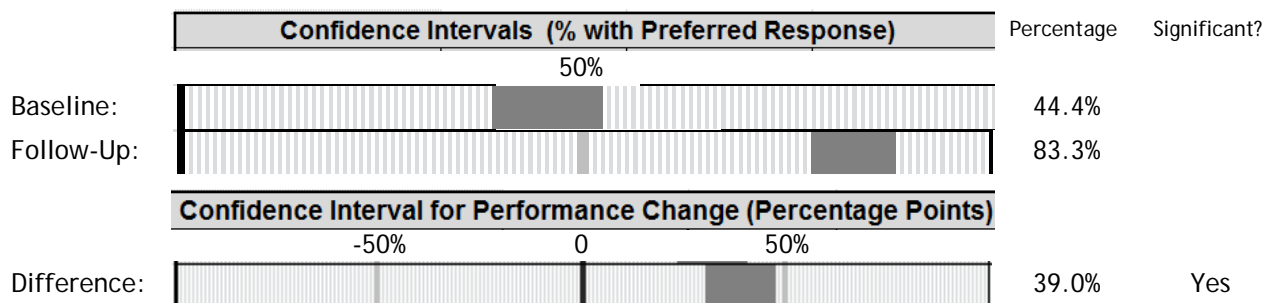
Training:
The percentage of facilities that had trained all their paint technicians properly within the required timeframes increased from 49.7 % to 80.8 %. The percentage of facilities maintaining the proper records documenting technician training increased from 44.4 % to 83.3 %.

(B2a) Have ALL your paint technicians been trained in proper selection, use and maintenance of spray equipment, within the proper time frames?
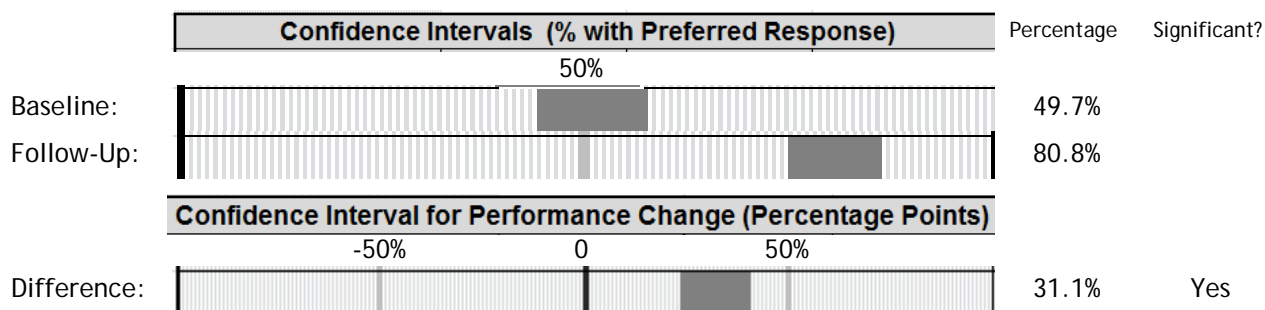

(B2c) Do you have records on technicians trained on the use of spray equipment?
Used for Facility Score: Compliance, EBPI

Following the question regarding whether all painters were trained, the results of which are described above, we asked how many of the painters had been trained. Out of the shops in the baseline which had some of their painters lacking training: 54 had no painters with current training, 28 had at least one painter trained, and 37 had two or more painters trained. In the follow-up inspections, fewer shops had painters without training, but of those: 18 had no painters with current training, 11 had at least one painter trained, and 8 had two or more painters with the training required. When looking at the percentage of those having all their painters trained, the line in Figure 13 shows that the perception of shops without verification is higher than those verified observations regarding completed training.

Figure 13: Comparison of Employees vs. Painters for Baseline, Self-Certification and Follow-up And the Percentage Indicating <u>All</u> Painters Were Trained
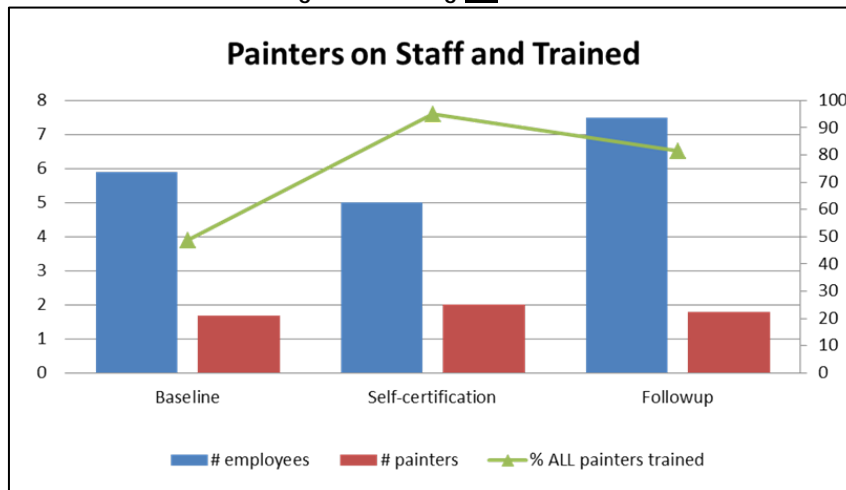
Project results indicate that, while improving, compliance with 6H for painter training requirements is an ongoing concern. This could be easily resolved as most shops had at least one painter trained and that painter could train the rest in the shop.
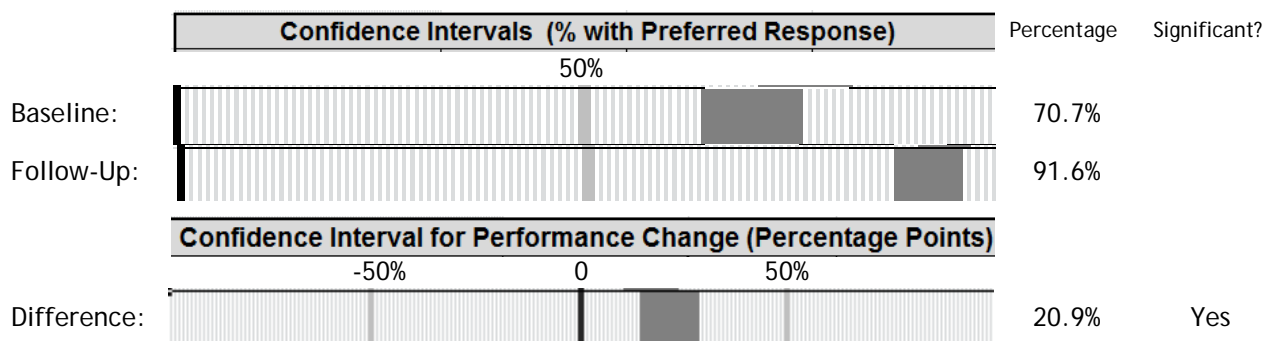
Paint Booths:
Most elements were evaluated twice – in question format with the shop representative reporting to the field staff their understanding of the situation, and then by direct observation on the shop floor. Comparisons of the information obtained from each method are made in addition to the baseline versus inspection rounds.

The number of facilities that had a fully compliant spray booth increased from 70.7 % during baseline visits to 91.6 % during follow-up inspections. While the number of facilities where <u>all</u> the spray booth exhaust and filter systems met the requirements was lower than reported, increased compliance was observed – from 54.1 % to 65.9 %. Each of these was a statistically significant increase. It would appear that while some elements of the collection systems still did not meet the rule, their overall compliance had improved from the baseline.

(I1c) Do the spray booths ALL meet the [enclosure] requirements at this time [has 4 walls, roof, and exhaust]?

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
Baseline:		70.7%	
Follow-Up:		91.6%	
	Confidence Interval for Performance Change (Percentage Points)		
Difference:		20.9%	Yes

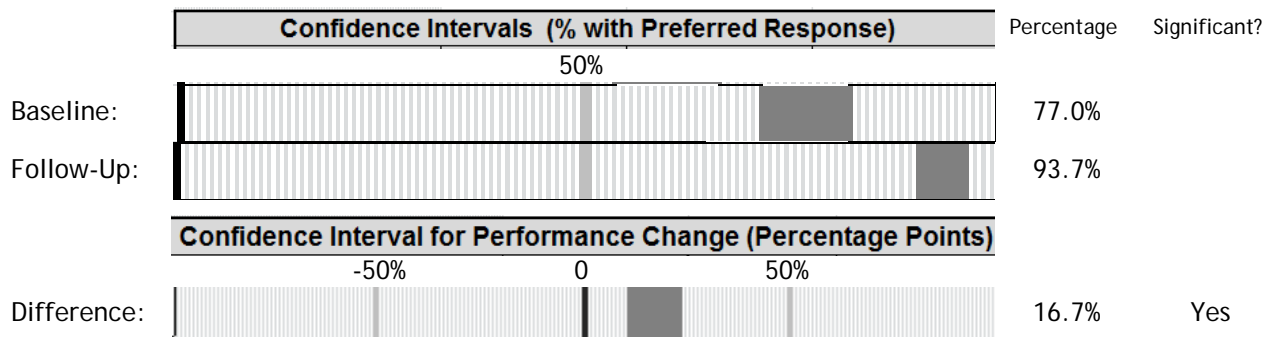*(I2d) Do the spray booth exhaust/filter systems ALL meet the requirements at this time? [filter in good condition, adequate exhaust pressure]*

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
Baseline:		54.1%	
Follow-Up:		65.9%	
	Confidence Interval for Performance Change (Percentage Points)		
Difference:		11.9%	Yes
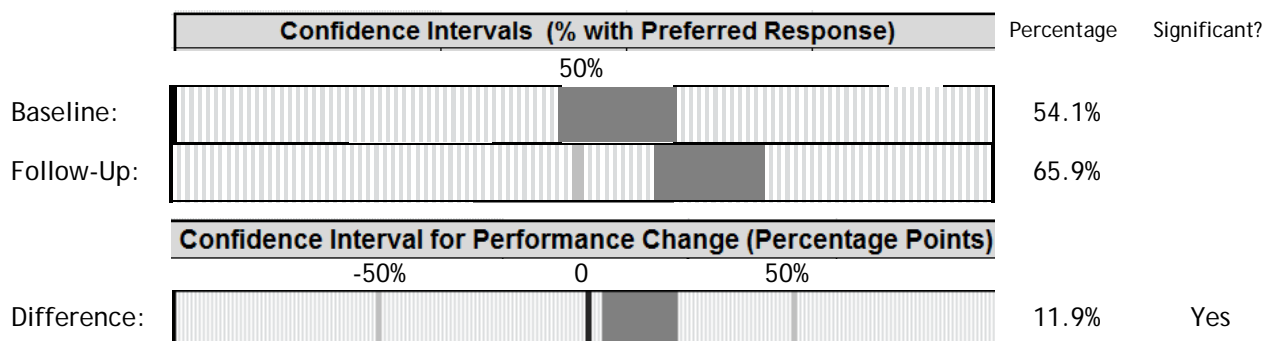
SBEAP evaluations and USEPA inspections also included two observations of best practices to help verify that coatings are applied in compliance with 6H. In the baseline evaluations, 77.0 % of facilities showed no evidence that spray coating occurred outside a spray booth. This increased to 93.7 % of facilities in the follow-up inspection round. The percentage of facilities where the lighting in the booth/paint areas was clean of paint residue (except from the most recent job) increased from 88.4 % to 95.8 %. Each of these was a statistically significant increase.

(I1b) Is there no evidence that spray coating occurs outside of a spray booth?[2]

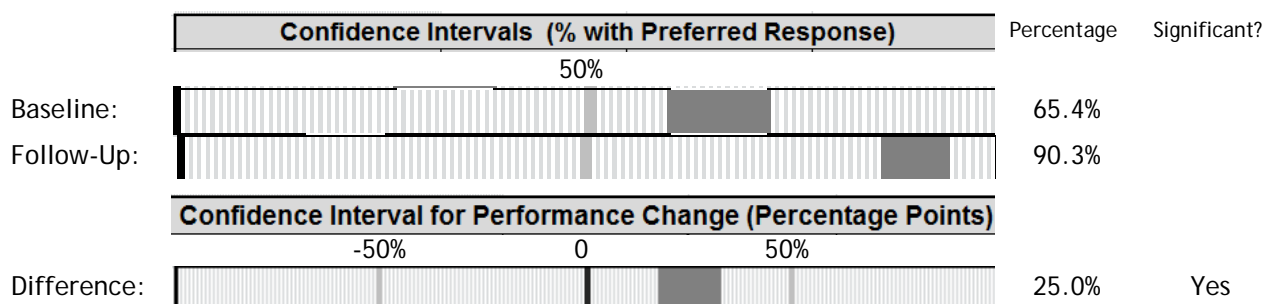|	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
Baseline:		77.0%	
Follow-Up:		93.7%	
	Confidence Interval for Performance Change (Percentage Points)		
Difference:		16.7%	Yes

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[2] Question reworded so yes is the preferred answer. Original wording: Is their evidence that some spray coating occurs outside of a spray booth?

Project results indicate that most facilities have adequate spray booth configurations and use them; however, compliance with 6H requirements for the spray booth exhaust and filter systems could be improved upon further.
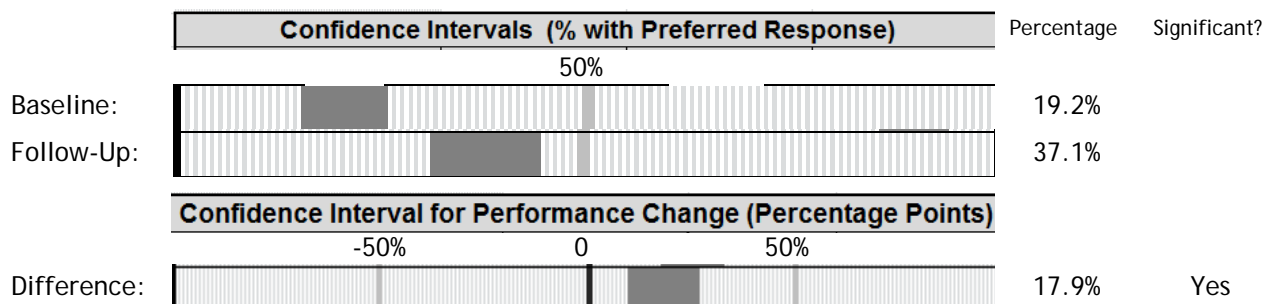
Awareness of 6H and Initial Notifications:
At the baseline visit, 65.4 % of the facilities visited reported that already knew they were affected by a new USEPA rule, 19.2 % were aware they could petition for an exemption by changing the coating they use, and 59.0 % had submitted the required Initial Notification form to USEPA. By the follow-up inspections, these increased to 90.3 % knowing they were affected, 36.6 % knowing about the exemption option, and 71.5 % submitting the notification. Each of these was a statistically significant increase.
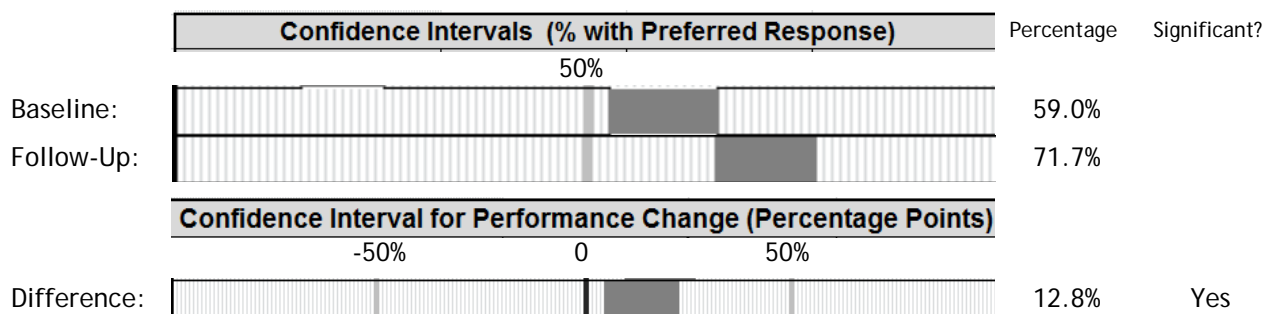
(C11) Before this visit, did you know you are affected by the new USEPA rule that affects autobody shops and other small paint shops? FACILITY CHARACTERISTIC

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
Baseline:		65.4%	
Follow-Up:		90.3%	
Difference:	Confidence Interval for Performance Change (Percentage Points)	25.0%	Yes

(C12a) Are you aware that autobody shops may be able to petition out of new requirements by changing the paints they use? FACILITY CHARACTERISTIC

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
Baseline:		19.2%	
Follow-Up:		37.1%	
Difference:	Confidence Interval for Performance Change (Percentage Points)	17.9%	Yes

(C13a) Have you submitted an initial notification report form to USEPA and the state, where required?

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
Baseline:		59.0%	
Follow-Up:		71.7%	
Difference:	Confidence Interval for Performance Change (Percentage Points)	12.8%	Yes

We also checked recent submittals received by USEPA Region 5, to confirm whether responses on the notifications were accurate. Table 10 shows the results of that review.

**Table 10: Comparison of Responses on Notification and Actual Submittals**

Phase	Visits			Confirmation		
	Total Response	Yes, Form Submitted	% Submitted	Differed on EPA List	Actual # Submitted	Other
Baseline	156	92	59%	30	100	
EPA Follow-up	138	99	71.5%	31	91	7 without initial, did submit compliance notification

For the following elements, while the percentage of facilities in compliance with a particular requirement was not the same between the baseline and inspection rounds, the changes were not statistically significant.

Paint Formulation and Documentation:
The percentage of facilities having Material Safety Data Sheets (MSDS) and coating formulation data for all the solvents and coating used increased from 77.4 % to 83.1 %. However, the percentage of facilities knowing if the coatings they use contain the HAPs of concern in 6H (chromium, lead, cadmium, nickel or manganese) decreased from 31.6 % to 30.3 %.

(C9) Does your shop have Material Safety Data Sheets (MSDS) and coating formulation data supplied by the manufacturer for ALL the solvents and coatings that you use?
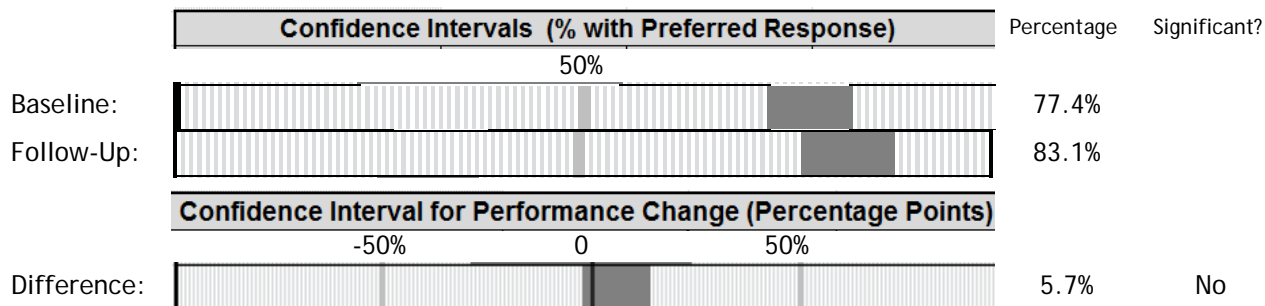
(C10a) Do none of the coatings used by your shop contain any of the following hazardous air pollutants: chromium, lead, cadmium, nickel, or manganese (includes compounds of these metals)?[3]
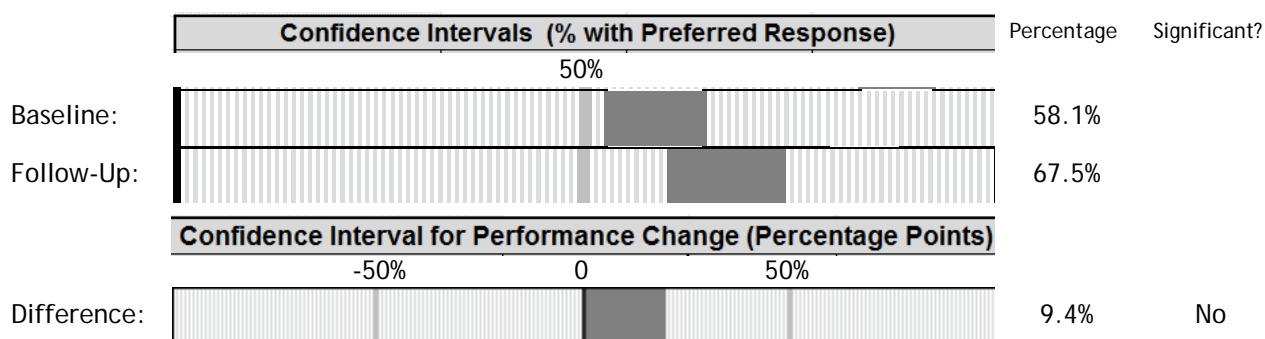

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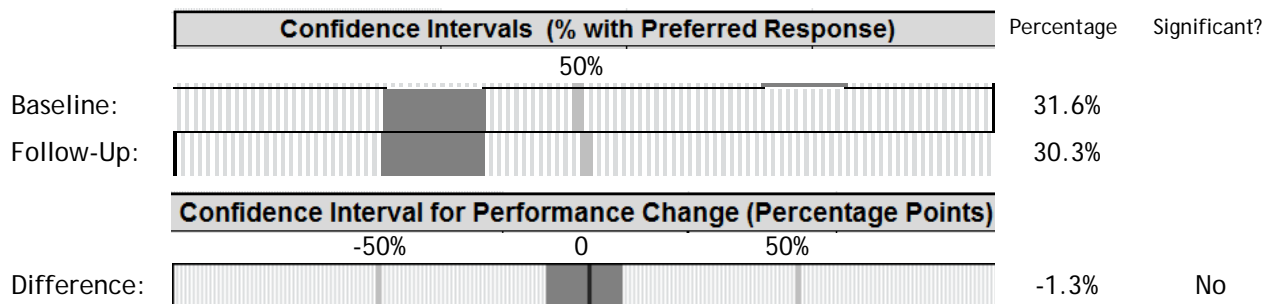
[3] Question reworded so yes is the preferred answer. Original language: Do the coatings used by your shop contain any of the following hazardous air pollutants: chromium, lead, cadmium, nickel, or manganese (includes compounds of these metals)?

The question was asked as a lead in to whether or not the shop knew about and intended to petition for the exemption from 6H requirements. Project results indicate that facilities need to improve documentation of the solvent and paint formulations they use. It is also possible that shops simply decided to comply with the rule requirement rather than worrying about the components in their coatings.

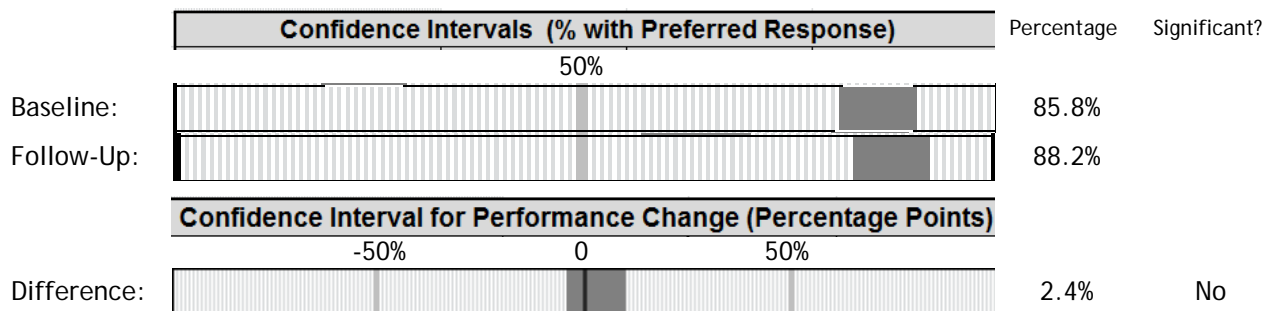**Spray Guns and Gun Cleaning:**
The percentage of facilities where <u>all</u> spray guns are compliant increased from 58.1 % to 67.5 %. This may seem low since most states would have had requirements in place to mandate use of compliance spray guns for many years. However, we viewed the presence of any non-compliant guns in the shop, even if they had not been used in years, as a "No" response to the question.

(I6b) Do they have only compliant spray guns, based on the requirements for 6H, available for use at this time?

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
	50%		
Baseline:		58.1%	
Follow-Up:		67.5%	
	Confidence Interval for Performance Change (Percentage Points)		
	-50% 0 50%		
Difference:		9.4%	No

The percentage of facilities where all spray gun cleaning is done in a compliant manner increased from 85.8 % to 88.2 %.

(C5a) Is all paint spray gun cleaning done with a fully enclosed spray gun washer or in a manner that avoids creating a mist of solvent?

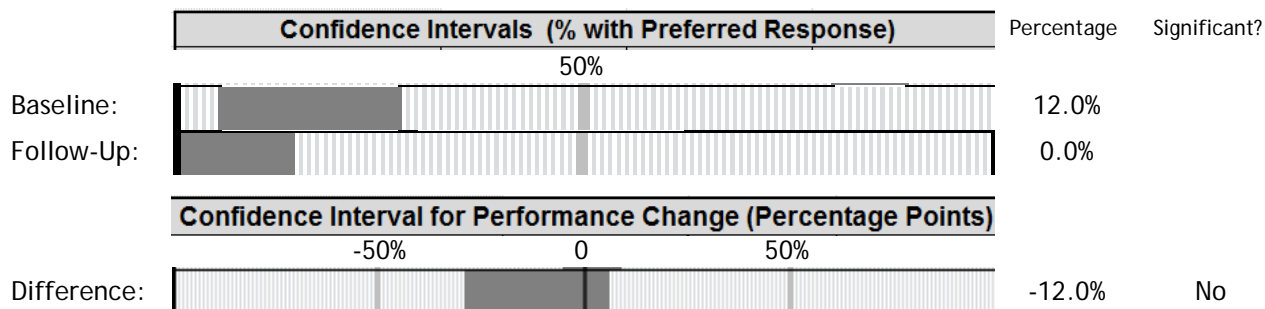|	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
	50%		
Baseline:		85.8%	
Follow-Up:		88.2%	
	Confidence Interval for Performance Change (Percentage Points)		
	-50% 0 50%		
Difference:		2.4%	No

Because this is one area where states had RACT Rules in place requiring the use of HVLP, we felt it was important to indicate "No" if any non-compliant guns were present. Project results indicate that spray gun cleaning methods are adequate, but there are many shops that still have non-compliant spray guns on the premises, creating an ongoing compliance concern. An inexperienced painter may accidentally pick up the non-compliant gun and create a situation of non-compliance for the whole shop.

Paint Stripping:
During baseline visits, we found 84.0 % of shops did not using chemical products for paint stripping. This increased to 87.5 % in the follow-up inspection round, but was not a significant increase. Of those

that were observed using chemical products, 88.0 % were found to use chemicals that did not contain methylene chloride in the baseline, improving to 100.0 % in the follow-up.

> *(C6b) Do none of the chemical products you use for paint stripping contain Methylene Chloride?[4]*

	Confidence Intervals (% with Preferred Response)	Percentage	Significant?
	50%		
Baseline:		12.0%	
Follow-Up:		0.0%	

|	Confidence Interval for Performance Change (Percentage Points)		
	-50%　　　0　　　50%		
Difference:		-12.0%	No

Paint stripping with methylene chloride containing chemicals does not appear widespread in the autobody refinishing sector. Anecdotal information from the outreach phase indicated that most shops who could eliminate the methylene chloride, and any solvent based paint strippers, had already done so. They didn't want the chemicals in the shops. Some large scale restoration operations did need the more effective solvents for the large surface area removal of paint layers. For the few facilities that do use methylene chloride, compliance with the requirements of 6H could still be a concern.
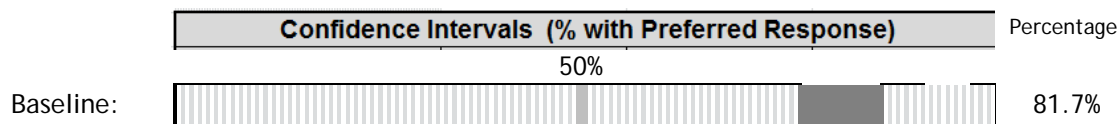
4. Baseline-Only Observations

Hazardous Waste:
Results of the baseline evaluations indicate possible compliance concerns. We found that 81.7 % of facilities have identified all their facility's hazardous wastes. Of greater concern is that while 95 % indicated they understood how to dispose of all the wastes on site, only 45.5 % of facilities were determined to be using proper disposal practices for all their wastes.

> *(D1) Do you understand what you are supposed to do with each of the wastes generated by your shop?*

	Confidence Intervals (% with Preferred Response)	Percentage
	50%	
Baseline:		94.9%
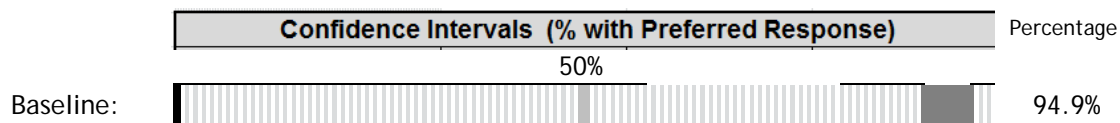
> *(D2) Have you identified all of your facility's hazardous wastes?*

	Confidence Intervals (% with Preferred Response)	Percentage
	50%	
Baseline:		81.7%

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[4] Question reworded so yes is the preferred answer. Original language: Do any of the chemical products you use for paint stripping contain Methylene Chloride?

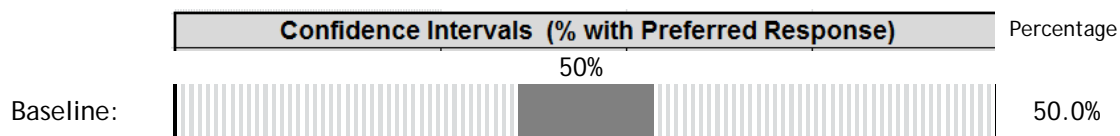*(D5) Are they using all proper disposal methods at this time?*

Confidence Intervals (% with Preferred Response)	Percentage
50%	
Baseline:	45.5%
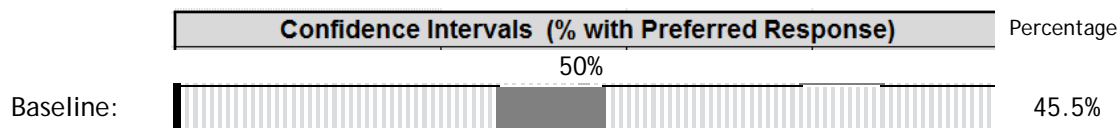
Wastewater:

Results of the baseline evaluations indicate that wastewater management is also a compliance concern. Only 62.7 % of facilities were reported using proper disposal methods for all liquids.
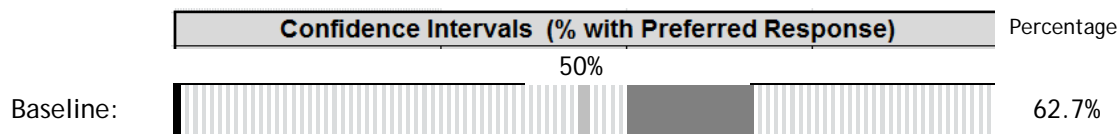
(E1) Are none of your motor vehicle service liquids (solvents, oils, antifreeze, car wash water, floor washing, etc) or shop wastewater discharged through a utility sink, toilet, unsealed floor drain, or out on the ground?[5]

Confidence Intervals (% with Preferred Response)	Percentage
50%	
Baseline:	26.0%
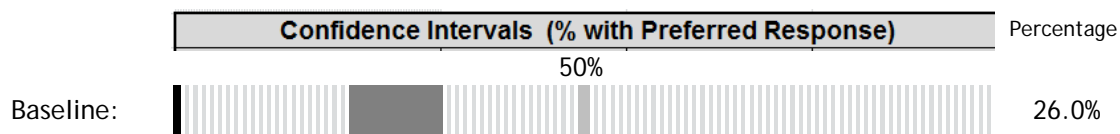
(E2f) If you have any liquids going to municipal sewer or a holding tank that is later transported to POTW, have the POTW or municipal authorities been notified of the motor vehicle service liquids or wastewater in your discharge?

Confidence Intervals (% with Preferred Response)	Percentage
50%	
Baseline:	50.0%

(E3) Are they using all proper liquid disposal methods at this time?

Confidence Intervals (% with Preferred Response)	Percentage
50%	
Baseline:	62.7%

Pollution Prevention and Energy Efficiency:

We found that 93.1 % of facilities reported implementing measures to reduce the use of toxics within the past three years. In addition, we found 90.4 % of facilities reported implementing energy efficiency measures within the past three years.

(F1a) In the past 3 years, have you taken any of the following actions to reduce toxics?

Confidence Intervals (% with Preferred Response)	Percentage
50%	
Baseline:	93.1%

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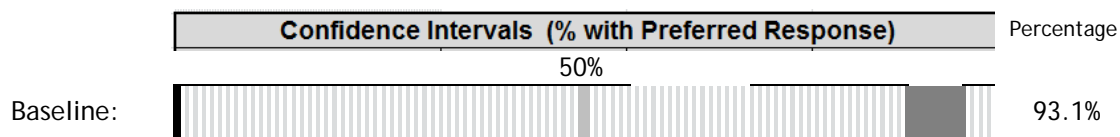
[5] Question reworded so yes is the preferred answer. Original wording: Are you discharging any of your motor vehicle service liquids (solvents, oils, antifreeze, car wash water, floor washing, etc) or shop wastewater through a utility sink, toilet, unsealed floor drain, or out on the ground?

(G1a) In the past 3 years, have you taken any of the following actions to minimize energy use in your shop?

Confidence Intervals (% with Preferred Response)	Percentage
50%	

Baseline: 90.4%
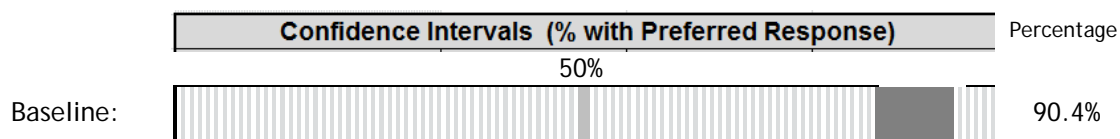
II.E. Compliance Assistance Materials/Effort

The effort on the compliance web page for the regional project was discussed previously. Figure 3 shows details on the usage of materials provided on the website. Examples of all the materials created by individual states for their compliance assistance efforts are included in **Appendix C**.

II.F. Information Transfer

The information on the project that was originally provided on the Commerce website was moved to the WDNR. The best way for information sharing to take place is to maintain the Autobody ERP webpage on the WI DNR website for as long as there appears to be interest in the documents provided. Government agencies, whether state or federal, take a long time to change their structure or processes. The ERP can become a key element in a new structure or process for implementing a compliance and enforcement program at the state or federal level. The results may need to be available for a number of years before agencies are ready to adopt new practices like ERP as part of the broader compliance and enforcement toolbox.

Since subpart 6H will continue to apply to shops in the future, retaining the compliance materials on the WI SBEAP's Compliance page (http://dnr.wi.gov/topic/CompAssist/sb/Autobody.html) would help ensure compliance.

The final report for the project will be posted on the WDNR ERP page, for states and other organizations who might wish to learn more: http://dnr.wi.gov/topic/CompAssist/sb/ERP.html. Any presentations providing a summary of the outcomes will be posted there as well.

III. **Data Quality Assurance**

Actions were taken to ensure that accurate and representative data were collected and that analysis of the collected data followed accepted statistical practice. These included an inspector training program, set procedures to guide inspection data entry, thorough QA/QC of the field data, statistical evaluation of collected data and an external review of data evaluation and reported results. The methodology for statistical analysis was completed with the assistance of USEPA's ERP consultant. The Quality Assurance Project Plan (QAPP) was approved by USEPA on January 22, 2010. The actions outlined below supplemented the steps identified in the approved QAPP. The QAPP can be found here http://dnr.wi.gov/topic/CompAssist/sb/ERP.html under "Final Documents for EPA Grant".

III.A. Inspector Training and Resources

To promote consistency within the data collection phases, SBEAP field staff and USEPA inspectors received training and were provided with resource materials regarding key regulatory issues. The following actions were taken to ensure consistency:
- Initial training for all SBEAP field staff on regulations covered in the inspection checklist, as well as statistical principles for data collection.
- Training on the contents of the inspection checklist, to familiarize SBEAP field staff with all the questions and requirements and to establish a common understanding of what constitutes compliance with regulatory requirements. Training included a practical orientation to equipment and terminology commonly used in autobody repair shops to build familiarity among SBEAP field staff.
- Similar training, including input from SBEAP field staff, provided to USEPA staff prior to the follow-up inspections.
- Inspection checklist annotated with tips containing information and examples of compliant practices and/or common violations. Inspectors were also provided with inspection tip sheets that contained more detailed information and examples.
- Trial run visits for some SBEAP and USEPA staff prior to conducting official visits/inspections. Program experts in areas like hazardous waste management conducted some of these visits with SBEAP staff observing, to help SBEAP staff recognize common violations. Information learned from program experts was incorporated into inspector tips.
- All inspectors were provided information packets that, in addition to tips and background information mentioned above, also included compliance assistance fact sheets, information, and copies of required notification forms. These materials could be distributed to the shops as needed during visits. Inspectors captured performance data prior to any assistance provided.
- SBEAP field staff participated in regular conference calls during baseline visits, to reinforce a common understanding of the checklist questions and to have opportunities to share experiences and question each other about what was encountered during the visits. By addressing issues early, we avoided having to go back and reinterpret previous visits, or it was only necessary to adjust a few if the issue was critical to the overall goals of the project.
- A web page was established for all the participating SBEAP and USEPA staff, where they could access project documents, inspection checklists, and compliance assistance materials.
- USEPA inspectors were provided with SBEAP contact information and the link to a compliance assistance web page to offer as resources to shops needing assistance after inspections.

We did expect to have introduced some bias by having two separate sets of individuals conducting the baseline versus follow up inspections. However, much of the training and communication mentioned previously was conducted in an effort to minimize that bias. Consistent interpretation of the responses should reduce the bias between multiple data collectors.

III.B. Inspection Data Entry

A quality check on each field staff's data entry was made as they manually entered their results into a final database. Where answers were unclear or conflicted with other responses, staff were asked to

clarify by entering corrections in the final database and writing notes regarding the changes on the hard copy inspection report. In addition, for at least 10% of the SBEAP baseline sample a separate quality check was performed by the project co-lead, QA officer, and NEWMOA. Where state entries did not match what was entered in the database, the field staff were asked to further correct or clarify as needed. For a couple states where many discrepancies were found, we conducted a check of all data to be sure the final results were accurately entered.

USEPA post-certification results were entered into a database by an intern, and a similar QA was conducted by the project co-lead and QA officer. Since the intern maintained an error rate less than 0.5% of the fields entered for 2100 self-certifications, across all six states when checked individually, only a limited QA was conducted for the USEPA post-certification data. Where conflicts or confusion arose from the hand-written data provided by USEPA inspectors, the intern provided a list of questions that was sent to the USEPA inspector for clarification before finalizing the data set.

III.C. Analytical Accuracy

Data from the baseline visits and follow up inspections were compared using Results Pro, created by Crow Environmental. Results Pro is a spreadsheet-based tool that (1) calculates a confidence interval around a compliance rate for a specified sample of facilities, (2) calculates a confidence interval around a difference between compliance rates in two samples (baseline vs follow-up), and (3) performs a Z test of significance on the magnitude of this difference. The Results Pro also provides the Facility Score Distribution for the baseline and follow-up samples. Importantly, the Results Pro was not designed to conduct a proper weighted analysis of a stratified random sample; instead, it was designed to analyze results from two independent simple random samples.

Data were imported into Results Pro from Excel spreadsheets containing the raw data from the baseline visits and follow-up inspections. Because of the design of the Results Pro, only Yes/No responses can be entered and analyzed. Also, for all the questions regarding paint booths and prep stations, where multiple options were allowed, we only analyzed the first response since second responses and beyond had a much smaller sample size. To check for accurate data transfer from the Excel files into Results Pro, a subset of data values were manually compared by the Project Lead.

Basic descriptive statistics were performed in Excel spreadsheets. These included calculations of proportions of facilities in various categories in the facility and self-certification characterizations. Descriptions of these results are found in **Appendix D** and Section III.E.5 above. A portion of these data were also manually checked.

An outside team reviewed the statistical analysis and indicated the regional results should be analyzed as a proportional sample. While we designed the sample as a proportional distribution for each state, so that no one state was visiting more shops than their share, the intent was always to analyze this as a regional sample. The minimum sample for each state was increased to a minimum of 15, so that individual states could analyze their data with a reasonable margin of error and confidence level. By increasing a couple state's samples to greater than their proportional share, we changed it from a true proportional sample as well. Data analysis tools created for previous ERP projects are all designed for simple random samples. There was not sufficient time or funding for development of a tool to conduct a proportional analysis.

We did conduct a proportional analysis for a few key EBPI questions. The results showed a smaller margin of error for each of the questions, for baseline and follow-up results.

IV. **Evaluation**

This section evaluates project achievements and adjustments, discusses stakeholder input and the potential to continue project elements, and offers recommendations for those considering a similar project.

IV.A. Project Achievements

The following topics have been selected by the Project Team as key achievements and are detailed below.

- Magnitude of the level of improvement found.
- Areas with less improvement give us targets for outreach and enforcement.
- Voluntary rate of response on self-certifications was high.
- Extensive outreach effort conducted by six states in a concerted effort.
- Partnership between state SBEAPs and USEPA regional staff.
- Conduct additional enforcement to encourage further improvements.

Results show clearly that the project measured improved compliance with many aspects in the USEPA's Autobody Refinishing Rule, subpart 6H, within Region 5 states. Out of 25 compliance indicators, 18 showed statistically significant improvement, and out of all the indicators measured there were 26 with a statistically significant increase. The magnitude of the improvement was quite large for many of these questions. We saw double-digit increases ranging from 10.0% to 65.5% for 24 questions.

A few areas where there was state or local regulatory overlap appear to show less improvement, such as having no guns available that do not meet HVLP or full use of enclosed gun cleaners. Yet, that gives us useful information as states can see they need to continue outreach and enforcement efforts on long standing rules that affect small business to maintain compliance in the long term. Many of the Region 5 SBEAPs plan to continue conducting outreach on the rule, and can use the outcomes measured in the project to target those efforts.

The rate of response for the voluntary self-certification checklist was quite impressive. Our checklist averaged 25 pages, which would take some time to go through. For any type of survey, a response rate of 10% is considered quite good. Achieving a rate of 22.5% for businesses with so few employees was great. In addition, nearly 500 went through the process of submitting it online. Given the size of the shops, with many being a one-man shop, we did not expect that a high percentage would use the online survey.

The level of compliance assistance provided across the Region 5 states was extensive. The state partners provided a wide range of information on all of the environmental regulations that might affect autobody shops, and posted it in one place for easy reference. Each state conducted dozens of presentations for local associations, technical and other colleges, jobbers (paint suppliers), and other training organizations. Through these presentations and outreach materials we reached thousands of shops, which was important when we knew the universe was around 12,000 shops in our six states. This type of outreach effort is generally the normal practice for SBEAPs; however, the concerted effort within all six states on one rule at the same time was unique.

The extent of the partnership between Region 5 SBEAPs and USEPA regional staff was a great achievement. Many states and regions work well together. However, most do not attempt such a concerted effort that extends across the whole region. Often it is one state at a time partnering with USEPA on projects like a compliance/enforcement effort.

There was some concern by the shops and their associations that the implementation effort has not gone far enough to 'level the playing field' yet. Follow-up and enforcement by the delegated enforcing agency was expected to drive those not motivated by the desire to simply do the right thing, to come to some minimum level of compliance. Most of the Region 5 states have not taken delegation

from USEPA for 6H, which is why the project included the USEPA regional office as a partner. At the time of this writing, USEPA Region 5 had only issued a few letters of correction to shops in a couple of the states. States and the shops would like to see additional enforcement to encourage continued compliance.

<u>IV.B. Project Adjustments</u>

The following are some adjustments made during the course of the project that are detailed below:
- Different checklists for baseline and follow-up.
- Changes when WI SBEAP moved from Commerce to WDNR.
- Problems with key data analysis tool midway through the project.

The original project plan was to have both rounds of data for the full checklist, including waste and water. The waste and water questions were simplified greatly from the very beginning to ease any concerns by either the SBEAPS, who are largely focused on air regulations, or the USEPA air inspectors that were assigned to the project. However, in the end the USEPA Regional Counsel indicated their inspectors could not ask those questions if not trained in those programs. This resulted in less information on changes in performance for all environmental programs affecting autobody refinishing shops.

A number of major adjustments were required when the WI SBEAP was transferred from the WI Department of Commerce to the Department of Natural Resources. Juggling staff, files, and then the website caused delays in data analysis and drafting of the report.

The project might have been completed 6-9 months sooner had more electronic self-certification checklists been submitted by the shops. The delay caused by having to hire part time staff to do data entry on the hard copies added some time, but that was further delayed by a change in the agency housing the WI SBEAP. The agency change was out of the control of the project lead. A shorter checklist might have made electronic submittal an easier option for small shops. It was a concern for the SBEAPs, from the beginning of the project, that the number of questions asked during the visit and the length of the self-certification would be too intimidating and would reduce participation by valid shops. It would also have taken project staff less time to enter all of the self-certifications submitted on paper had they been shorter checklists.

Data analysis was greatly affected by issues with the ERP Performance Analyzer. Upgrades in Microsoft versions made the application stall, and then programming assistance was delayed. Use of the program was only available at the very end of the project, at which time all data analysis was largely complete through the use of the Results Pro 2.0 application.

<u>IV.C. Continuation of Project Elements</u>

The ability for an agency to inspect a small fraction of the known universe of sources in a particular industry or category and infer the performance of the whole group is a recognized benefit to the ERP design. However, most states are still at a budgetary standpoint that any work on industries largely comprised of small businesses is put at the bottom of the priority list. Even if the total emissions from that industry would rival that of a few of the major sources in the state, it is just the perception that they don't have a major environmental impact so bringing them into compliance won't make much of a difference. It is also an issue that USEPA funding is earmarked for compliance and enforcement efforts on larger sources. ERP has been shown in many projects to be an effective means of targeting sectors where the population size is too numerous for inspecting every one, which often brings in the small business sector, and that a compliance assistance/self-certification approach combined with verification by trained individuals would be effective in promoting self-driven performance improvement.

Most of the SBEAPs in Region 5 will continue the outreach effort, given the level of success achieved in some areas and improvement needed in others. Future outreach will focus on those areas where gains were not statistically significant or even declined. Illinois plans to work with community colleges and vendors to continue 6H training. Minnesota also plans to do some follow up work, focusing on the main 6H compliance issues in addition to waste/emissions reductions and energy efficiency measures.

<u>IV.D. Stakeholder Input</u>

The primary message we have received from stakeholders based on the follow-up, or lack thereof so far, is that shops are dissatisfied with the ability of this rule to 'level the playing field' as they had hoped. Many of the shops in compliance are those that were largely doing many of these aspects as best management practices, because they want to be good neighbors and do the right thing for employees and customers and neighbors alike. SBEAPs in a few states were receiving calls from their local associations in 2012, wondering about the status of any USEPA follow-up. The concern is the number of painters operating out of their garage/home who don't believe they're affected or choose not to comply. They can complete a paint job for a much lower cost than those using all of the equipment required in 6H.

V. <u>Recommendations</u>

The following key recommendations are described below:
- Look for partnerships to provide efficiencies in environmental compliance efforts.
- A cross-media focus is helpful for small business, but a narrow focus may be sufficient to achieve improvements in performance.
- Consider whether using a proportional sample is worth the effort in such a statistical study.
- Ensure enforcement is taken soon after follow-up inspections, to maintain achievements in compliance rates.
- Complete additional follow-up rounds of inspections to measure continuing compliance.

As compliance and enforcement programs see steady declines in funding, states will need to investigate whether partnerships can help them maintain current levels of environmental protection. This project showed the benefits of partnership in implementing a very complex program. Working as a regional partnership we were able to share the work effort, share skills or expertise not available in each state, and share tips on success or failure of different outreach tools within the same audience. Information sharing created efficiencies, where each state took on a fraction of the work and then pooled the final products.

States or USEPA regions that contemplate repeating this project might want to consider whether using a proportional sample is worth the effort of conducting a statistical analysis that is not easily completed with the existing ERP tools. We decided that the results were sufficiently accurate for our data analysis and decision making at a policy level. A review of a few key indicators using proportional analysis showed a tighter confidence level, such that our results might only show more statistically significant results over the whole list of questions. The time it would take to complete a full proportional analysis was not available within the time frame of the project and given the tools readily available. In addition, this analysis was not part of the original, approved design in the QAPP.

Another aspect to consider is whether a cross-media effort is needed, or whether targeting a specific regulatory area would be more efficient for the time or expertise is available within the project team. By having six SBEAPs available, with four programs having strong cross-media expertise, we were able to address all environmental areas. Many who work with small businesses understand that owners don't make a distinction between the environmental topics that most regulatory agencies use as organizational areas: air pollution, waste disposal, wastewater discharge, among others. To help small businesses improve environmental performance, it can be more effective to provide the information all in one place. The self-certification checklist may have been divided up by topic areas, but we did include the main environmental topics affecting autobody refinishing shops all in one.

One element that would have improved this project, from a broader environmental performance perspective, would have been follow through from USEPA Region 5 to address all aspects of the autobody shop compliance at even a minimal level. If we had understood who would make a final decision on the issue, regional counsel should have been engaged from the beginning to set boundaries on what USEPA inspectors could capture, even if it was insufficient for them to follow up from the enforcement side. USEPA does gather a wide range of information used solely to inform program development, like in the development of emission factors, which is never used for enforcement purposes. There should have been some way to capture the multimedia data for both rounds so we could better measure whether the outreach phase achieved improvements overall or whether improvement was confined to certain areas of the NESHAP rule requirements.   The renewal of the ICR on State Innovation Grant data collection was even updated to clarify that collecting cross-media information was a goal and an option for USEPA staff, yet their regional counsel would not allow staff to look at areas outside air other than a few very general informational topics.

One other aspect that could have improved the outcome was reaching shops that are not the traditional businesses. Individuals painting cars out of their garages and advertising by word of mouth were not included in the universe since most of the SBEAPs relied on databases created from Yellow

Page ads and state employment listings. These were the most likely shops described by others as blatantly not complying with the rule. *"Who's going to find me?"* Without a thorough search of other advertising sources, like local newspaper ads or flyers, no one will find these sources. Some states have a registration program, which allows for some enforcement of those not listing their business so you might think those states would have a better listing. Although both Ohio and Illinois have registration programs, they still had fairly high drop-out rates in the samples.

Between the time that USEPA staff finished their inspections and 2012 when USEPA finally sent out letters on their findings to some shops, state SBEAP programs received numerous calls from shops and trade representatives who still see many shops that are not following the requirements and are blatant in their refusal to comply. SBEAPs have used the USEPA's enforcement hotline as well, asking shops to forward their concerns to USEPA, since they are the delegated enforcement authority for this rule. However, based on the agreements between state enforcement programs and USEPA, these calls are then passed on to the states. State enforcement programs usually cannot or will not follow up on these forwarded complaints because they are based on a rule for which the state does not have delegated authority or they do not have sufficient funding to deal with the area source rules, of which subpart 6H is just one of dozens of that affect thousands of sources in each state. A different arrangement might drive higher enforcement of these types of sources.

To truly know whether compliance is maintained for autobody shops, additional rounds of follow-up compliance inspections should be conducted at regular intervals. In addition, a review should be conducted in the meantime about outreach and training provided by SBEAPs or targeted compliance and enforcement efforts in individual states to compare with measured compliance results. The tools available for simple random sample analysis make data analysis fairly simple, once someone has had a little training on their use.

The ERP design as implemented under the State Innovation Grant programs presents an interesting statistical study of a regulatory program. However, states or EPA regional offices that might want to implement a similar program do not need to be as rigorous as this report describes. Does the traditional compliance and enforcement or permitting program involve a statistical analysis of compliance rates? Not that the author is aware of. The traditional programs only measure one-for-one compliance rates on a particular day or moment in time, once every two to five years, depending on the size of the source and the established inspection schedule. This ERP project summary report shows how a different style of compliance program CAN be successful. It shows the ERP is successful by measuring an improvement in compliance rates over a short period of time. In addition, the ERP shows results where traditional inspection or 'command & control' programs did not, in those circumstances where regulations similar to 6H had already been in place for a while. The ERP itself is simply another set of compliance tools for the regulatory toolbox. It should be accepted as such by states and EPA alike.

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