

US EPA ARCHIVE DOCUMENT

Appendix E

Evaluation of Performance in Each Program Area

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Although such an assessment was not a primary objective of this project, we can evaluate results of environmental performance in each program area. These results can give the individual programs information about gaps in understanding, outreach opportunities, or compliance assistance needs among the printing industry.

In addition to conducting the statistical analyses, we established a simplified method for evaluating performance by reviewing the data qualitatively to determine thresholds for high, average and low performance. Setting thresholds for high and low performance is a way to identify both the compliance practices that are well understood (high) and those for which printers need more information to achieve better compliance (low). Based on the data, we set a threshold for high performance among printers at a compliance rate of greater than 85%, and low performance at a compliance rate below 30%. (Any cases where the compliance rate did not fall within the selected threshold in both baseline and post-certification samples are identified.) The following evaluation focuses on those questions that applied to all facilities in the samples.

It is important to remember that, as stated previously in the report, out of 160 questions asked of printers during inspections, 32 were selected as EBPIs. The EBPIs selected included 7 BMPs, 22 compliance practices, and 3 questions to characterize the printers. Because there is overlap between the different types of questions analyzed, the comparison of performance among program related questions that follows may not add up perfectly.

a. Air Quality

The inspection checklist contained 50 total air questions, with 31 related to regulatory requirements or BMPs; other questions were either informational or designed to filter out regulatory requirements that did not apply to all facilities. Seven questions applied to all facilities, and all are EBPIs; three are compliance related, and three are BMPs. Out of those questions, performance rates:

- were high (above the threshold of 85%) on two questions, both during post-certification only—keeping containers closed unless in use; show compliance with state HAPs
- were low (below the threshold of 30%) on one question—reuse clean up solvent
- increased from baseline to post-certification for six questions, and one was a significant increase—showing compliance with state HAPs increased by significant amount
- decreased for one, not to a significant level—use of water based or alternative inks

Low performance on the BMP related to reusing clean-up solvents is expected, since equipment to distill used clean up solvents is rather expensive. Only the larger printing facilities could consider adopting this option.

One question that only applies to lithographic printers—whether blanket or roller wash meets the requirements—improved significantly. In the post-certification inspections, affected printers in the sample showed high performance on this requirement.

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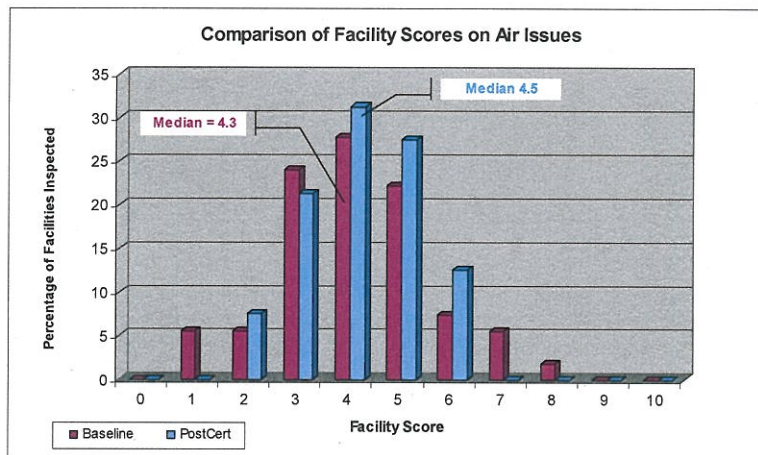


Figure E-1: Comparison of Facility Scores on Air Issues

This figure compares the distributions of facility scores on the air questions for baseline vs. post-certification inspections. Facility scores are grouped into classes, e.g., the bars at 3 show percentages of facilities with scores of 3.0-3.9. (Average score for baseline = 4.5; average score for post-certification = 4.6.)

Figure E-1 shows that the median of facility scores on the air quality questions increased from 4.3 to 4.5, which leads us to conclude that understanding of air requirements is close to 50% and did not show much improvement.

b. Hazardous Waste

The inspection checklist contained 37 total waste questions; 29 were related to regulations or BMPs, and the rest characterized the facilities. The ten questions that applied to most or all facilities include three EBPIs, six regulatory issues, two BMPs, and four of the additional measures of compliance and/or BMPs analyzed. For the ten questions that apply to all facilities, performance rates:

- were high (85% or higher) on one question, during post-certification only—use of a recycling program
- were low (30% or lower) on two questions, both BMPs—use of onsite solvent recycling; using recycled solvent in the operations
- increased from baseline to post-certification for nine questions, which includes the 3 EBPIs and 4 additional measures
- increased significantly for one EBPI—use of recycled solvent in the operations
- decreased for one—having a written inventory of wastes generated

The low performance on two waste BMPs represents a situation similar to the air BMP mentioned above. The questions asked about using onsite solvent recycling or recycled solvent (recycled offsite) in the facility. There is some confusion about whether recycling solvent onsite is treatment of hazardous waste, which might cause fewer printers to adopt such practices without clear guidance. In addition, commercially available cleaning solvents for printers typically do not include recycled solvents, meaning this is not an option for many printers. Printers who used recycled solvents were primarily those facilities with cold cleaning units.

The median of facility scores on the waste questions increased from 5.4 to 6.3 from baseline to post-certification (Figure E-2). Performance rates on the waste requirements, and improvement from baseline evaluations to post-certification inspections, were some of the highest we observed during the project.

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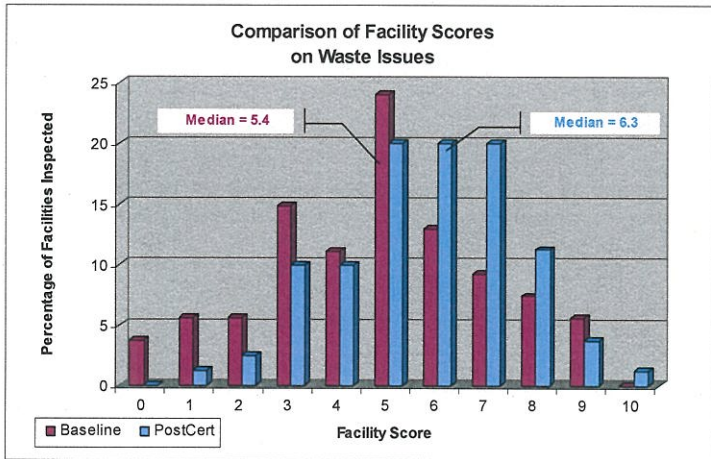


Figure E-2: Comparison of Facility Scores on Waste Issues
 This figure compares the distributions of facility scores on the waste questions for baseline vs. post-certification inspections. (Average score for baseline = 5.2; average score for post-certification = 6.1.)

c. Wastewater

The inspection checklist contained 33 total wastewater questions, and 22 related to regulations or BMPs. Just three of those questions applied to all printers in the samples—two are BMPs as well as EBPIs, and one is a regulatory requirement. For those questions, performance rates:

- were high (85% or higher) on one question—plugging all floor drains or directing to a holding tank
- were low (30% or lower) on one question—posting warning signs at sinks
- increased from baseline to post-certification for all three questions, and one was a significant increase—posting warning signs at sinks

The BMP related to posting warning signs at sinks is important for preventing dumping of hazardous and inappropriate materials. Inspectors found that many printers did not know about this but were willing to add signs. Lack of posted signs often did not cause major problems, since press cleaning operations were not conducted in or near sinks.

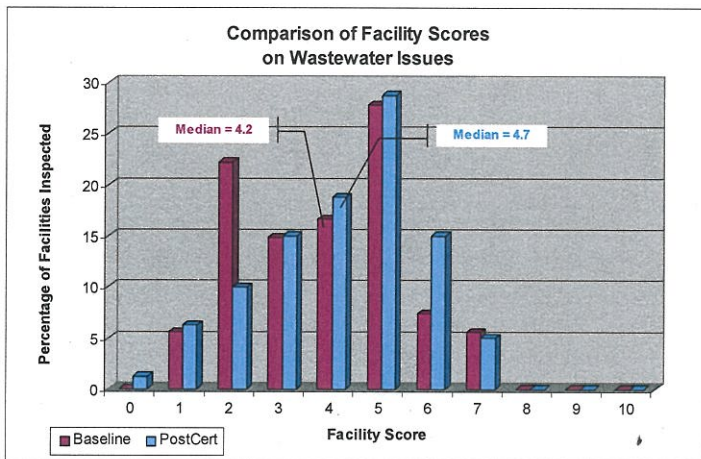


Figure E-3: Comparison of Facility Scores on Wastewater Issues
 This figure compares the distributions of facility scores on the wastewater questions for baseline vs. post-certification inspections. (Average score for baseline = 4.3; average score for post-certification = 4.6.)

The median of facility scores on the wastewater questions increased from 4.2 to 4.7 between baseline and post-certification visits. There was general confusion among printers on the most basic question of whether their facility even generated industrial wastewater, especially if the amount was small and was transferred to buckets without ever going to a drain. Many did not understand, for example, that their plate-making activities generate industrial wastewater.

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d. Storm Water

The inspection checklist contained four questions specific to the storm water requirements, and two captured whether the facility either qualified for a No Exposure Certification (exemption) or had a discharge permit. Three questions were EBPIs, two were regulatory requirements, and two were BMPs. Performance rates:

- were low (30% or lower) for three questions—facility has likely sources of contamination; facility can make changes to cover exposed material; facility has storm water discharge permit
- increased slightly for one—submitted No Exposure Certification
- decreased for three
- did not change significantly for any of the EBPIs

The median of facility scores on the storm water questions was the lowest we observed overall, less than 1.0 for both baseline and post-certification samples. Storm water program staff did expect low compliance with program requirements, since little or no outreach has been done on the need for storm water permits. With some directed outreach at industry sectors with a large number of smaller facilities, this program in particular could see substantial improvements in performance over a short period of time.

e. Spills Prevention and Response

The inspection checklist contained 13 questions on spills, and eleven were regulation specific. Just four questions affected all facilities. Three questions are EBPIs as well as regulatory requirements. The performance rate:

- was high (85% or higher) when it came to understanding how to address spills
- was also high (85% or higher) considering the printers that did not have spills in the previous 12 months
- was low (30% or lower) on having secondary containment for oil and chemical containers
- increased for all questions, and on secondary containment it was a significant increase.

The median of facility scores on the spills questions was low overall, but did increase from 2.9 to 3.8 from baseline to post-certification samples. This area presents a great opportunity to improve performance with targeted outreach and education on some simple administrative actions.

f. Emergency Response and Preparedness

The inspection checklist contained 12 questions on emergency response, preparedness, and community right to know issues. Four of those questions applied to all facilities. While none were selected as EBPIs, three are required for most printers. The performance rate:

- was high (85% or higher) for one question—not storing any hazardous chemicals over reportable thresholds
- was low (30% or lower) for one question—filing a notification form (and possibly paying a fee) with Wisconsin Emergency Management (WEM)
- increased for two questions—keeping records on quantities of hazardous chemicals stored on site; not storing hazardous chemicals over reportable thresholds
- decreased for two questions—filing WEM form and paying fee; having MSDSs for all chemicals on site

The median of facility scores on the emergency response/preparedness questions increased minimally, from 4.3 to 4.4 from baseline to post-certification. These requirements are unfamiliar to many small businesses, so there is an opportunity to make great improvements in performance with targeted outreach and education.

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Summary of Program Area Performance

Every program area has opportunities to improve performance with additional outreach and compliance assistance to smaller printers. Areas with the greatest room for improvement include storm water, spill prevention and response, emergency response and preparedness, and wastewater. Air and hazardous waste also show room for improvement, but small printers do appear to have a better understanding of requirements and BMPs in these two areas.

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