

4.4 EXPLORATION OF STATE ACTIVITIES INFLUENCE ON SQG PERFORMANCE RESULTS

4.4.1 Introduction

Overall the mean SQG facility scores for regulatory indicators were relatively high across states and ranged from 7.99 to 9.53 (taking into account confidence intervals). No state felt the overall results were cause for serious concern, but nevertheless warranted consideration of options for improvement in particular areas (this can be seen by looking at achievement rates for individual indicators):

- SQG achievement rates on 5 individual regulatory indicators [#5: containers in good condition, #6: accumulation quantity limits followed, #7: accumulation time limits followed, #8: manifest used and #9: hazardous waste identified] out of 8, for all states, were deemed acceptable and ranged from 70.3% to 100% (taking into account confidence intervals).
- SQG achievement rates on 3 individual regulatory indicators [#3: containers properly labeled, #4: containers closed and #10: emergency response procedures followed] out of 8, for all states, were notably lower and had much more variability. The SQG achievement rate ranged from 29% to 97% (taking into account confidence intervals).

Note: The lower performance on indicators 3, 4 and 10 was consistent with historical observations of the experienced hazardous waste experts who participated in the project.

Overall mean SQG facility scores for beyond compliance indicators were lower and had much more variation ranging from 1.42 to 7.88 (taking into account confidence intervals).

Project states explored whether there was anything about measured SQG performance levels that could be attributed to what a state was doing before the Common Measures Project. A meeting was held on December 2, 2008 to capture compliance and beyond compliance activities performed by states to help project states explore possible root causes for measured performance differences. The project states reported on the following categories of activities occurring between June 2004 and June 2007 (prior to the Common Measures Project data collection period):

- Regulatory compliance assistance provided to the SQG sector.
- Beyond compliance assistance provided to the SQG sector.
- Percentage of SQG universe typically inspected per year.
- Most common inspection triggers.
- Who conducted compliance inspections between June 2004 and June 2007.
- Typical SQG enforcement actions.
- SQG reporting requirements.
- Differences in individual state requirements related to quantity accumulation limits and time accumulation limits of hazardous waste.
- Other influences that may have affected observed SQG performance.

4.4.2 Observations from Comparing State Activities to Measured SQG Performance Results

After reviewing the performance data, the project states explored the following questions to see if there was a relationship between the data reported and the performance differences among states:

- 1) Did the Nature and Amount of Regulatory Compliance Assistance Provided Between June 2004 and June 2007 Influence Performance?

Regulatory Compliance Assistance Provided to SQG Sector (June 2004 – June 2007)	
CO	Minimal prior to Aug 2007-includes website, guidance documents and quarterly workshops available to all hazardous waste generators. Announced on website only. Generators Assistance Program offers amnesty. Since Aug 2007, required a self cert checklist to be submitted.
CT	On-site assistance during inspections and through handouts, SQG guidance manual and other applicable guidance.
MA	Generic fact sheets on SQG compliance and sector specific workbooks & fact sheets on MassDEP website. Mass Office of Technical Assistance (OTA) provides technical assistance upon request. All SQG enforcement actions are referred to OTA.
ME	Verbal assistance via inspections and telephone; Written compliance assistance via manuals; Written and verbal assistance via seminar or meeting formats; Assistance via Electronic media including web site development and availability of guidance manuals, DEP resources, inspection process, compliance issues, etc.
NH	SQG certification classes, Haz Waste topics training classes, Assistance site visits, assistance of web, RCRA Hot Line.
NY	Technical Assistance at Trade Association Meetings, SQG hotline, SQG compliance guide on web, workshops, P2 assistance guide.
RI	Respond to direct requests for assistance, proactive ERP auto body/auto salvage assistance (includes compliance assistance materials).
VT	Targeted assistance for RCRA-regulated community rather than to SQGs exclusively. Fact sheets and industry sector guides on web. On-line RCRA tutorial, compliance assistance workshops, on-site compliance assistance audits, over the phone assistance.

a) Observations Based on Mean SQG Facility Scores for Regulatory Indicators

- States that reported providing onsite regulatory compliance assistance: CT, MA, ME, NH, VT, RI.
- States that reported not providing onsite regulatory compliance assistance: CO, NY.
 - The mean SQG facility scores in all states that that reported providing onsite regulatory compliance assistance except Vermont were statistically significantly higher than New York.
 - The mean SQG facility scores in three of these states [RI, CT, ME] were statistically significantly higher than Colorado.

See Section 4.3.2, Exhibit 4.1: Statistically Significant Differences in State SQG Mean Facility Scores.

- **It appears that there is a relationship between providing on-site regulatory compliance assistance and higher measured SQG performance.**

b) Observations Based on Individual Regulatory Indicators

- NH reported that at every SQG certification and all training classes, pre-made labels were distributed as part of their certification program.
- NH had the 2nd highest SQG achievement rate [84%] with indicator 3: containers properly labeled, and was statistically significantly higher than 3 other states [MA, VT, NY].
- RI had the highest SQG achievement rate [90%] with indicator 3: containers labeled and was statistically significantly higher than 4 other states [NH, MA, VT, NY]. RI did not hand out labels (also note that RI did fewer inspections and had wider confidence intervals).

See Section 4.3.3, Exhibit 4.2: Statistically Significant Differences in State SQG Achievement Rates for Regulatory Indicators.

- **States felt that performance differences related to indicator 3 may warrant further evaluation.**

2) Did the Nature and Amount of Beyond Compliance Assistance Provided Between June 2004 and June 2007 Influence Performance?

Beyond Compliance Assistance Provided to SQG Sector (June 2004 – June 2007)	
CO	Very little prior to Common Measures Project – hope to improve through ERP and self-certification roll-out.
CT	None-other than on-site suggestions during the inspection.
MA	Information on Mass DEP’s website, referral to OTA as part of enforcement and OTA direct assistance. Topics Covered: P2, Water Conservation, EMS.
ME	Phone calls, emails and site visits to encourage facilities to reduce their environmental and carbon footprint. The Office of Innovation & Assistance works with the RCRA group on referrals as well as suggestions for sector assistance focus. Topics Covered: P2, Energy Conservation, Water Conservation, Air Emission Reductions (both Toxics and Green House Gases), Chemical Use Reductions, and Environmentally Preferable Purchasing.
NH	NH Pollution Prevention Program and Small Business Technical Assistance Program provide site visits, conferences, outreach & education to promote "beyond compliance" activities. Topics Covered: P2, Energy Conservation, Water Conservation, EMS & EPA programs such as “Lean & Energy.”
NY	None
RI	Through ERP and individual requests. Topics Covered: P2, Water Conservation.
VT	Assistance with toxics use/hazardous waste reduction planning. Topics Covered: P2

a) Observations Based on Mean SQG Performance Scores of Beyond Compliance Indicators

- States that reported having active beyond compliance programs: MA, ME, NH, NY, RI, VT.
- States that reported not having active beyond compliance programs: CO, CT, NY.
 - The mean SQG facility scores in **all** states with active beyond compliance programs were statistically significantly higher than in **all** states without active programs.

See Section 4.3.2, Exhibit 4.1: Statistically Significant Differences in State SQG Mean Facility Scores.

- **It appears that there is a relationship between active beyond compliance programs and higher measured SQG performance.**

b) Observations Based on Individual Beyond Compliance Indicators

Toxic Use Reduction:

- States that reported providing toxic use reduction assistance: MA, ME, NH, RI, VT.
- States that reported not providing toxic use reduction assistance: CO, CT, NY.
 - The state SQG achievement rates for indicator 11a: toxic use reduction implemented, were statistically significantly higher in **all** states that reported having toxic use reduction assistance than in **all** states that reported having no toxic use reduction assistance.

See Section 4.3.3, Exhibit 4.3: Statistically Significant Differences in State SQG Achievement Rates for Beyond Compliance Indicators.

- **It appears there is a relationship between states reporting that they provided toxic use reduction assistance and higher measured SQG performance.**

Water Conservation:

- States that reported providing water conservation assistance: MA, ME, NH, RI.
- States that reported not providing water conservation assistance: CO, CT, NY, VT.
 - The state SQG achievement rates for indicator 11c: water conservation procedures implemented, were statistically significantly higher in **all** states that reported having water conservation assistance than in **all** states that reported not having water conservation assistance.

See Section 4.3.3, Exhibit 4.3: Statistically Significant Differences in State SQG Achievement Rates for Beyond Compliance Indicators.

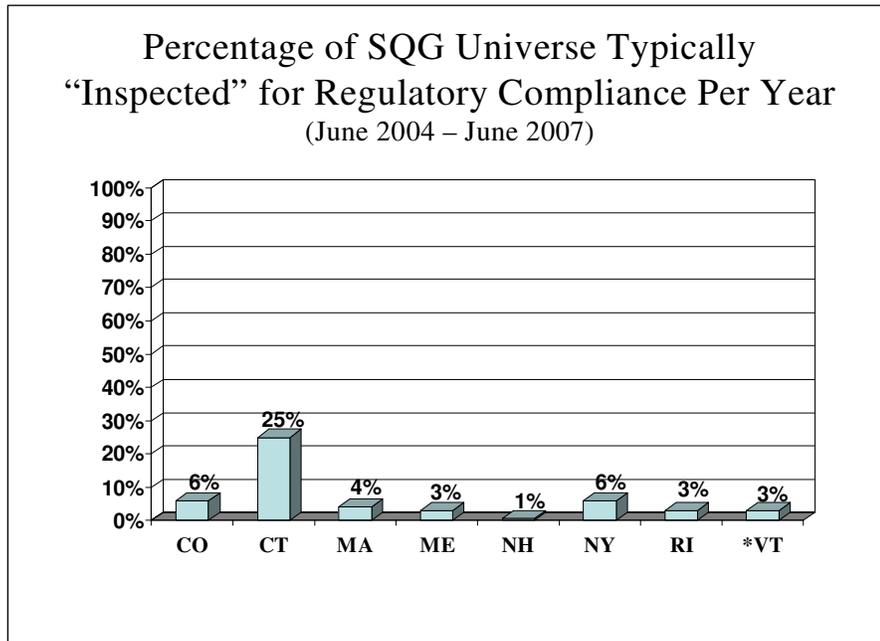
- **It appears that there is a relationship between states reporting that they provided water conservation assistance and higher measured SQG performance.**

Energy Conservation:

- States that reported providing energy conservation assistance: ME, NH.
- States that reported not providing energy conservation assistance: CO, CT, MA, NY, RI, VT.
 - ME, RI, NH, and VT had the highest SQG achievement rates for indicator 11d and there were no statistical differences among them.
 - ME's and NH's SQG achievement rates were statistically significantly higher than four other states' SQG achievement rates (MA, NY, CT, and CO).
 - RI's and VT's SQG achievement rates were statistically significantly higher than three other states' SQG achievement rates (NY, CT, CO).

- **Based on the mixed results, the relationship between energy conservation assistance and measured SQG performance may warrant further evaluation.**

3) Did the Frequency of Inspections between June 2004 and June 2007 Influence Performance?



Note: Historically VT's goal has been to inspect 5 – 10% of this universe annually. Their hazardous waste generator database only identifies the current status of a facility, which is not necessarily the status of the facility at the time of inspection, e.g. an SQG facility turns out to be a CESQG or has gone out of business. For this reason, the actual percentage of SQGs inspected annually during the 2004 to 2007 period was closer to 3.5%.

- CT reported conducting substantially higher numbers of inspections [25% of universe] than all other states [3-6% of universe].
- CT had the 2nd highest mean SQG facility score on regulatory indicators. However, this score was not statistically significantly different than that of the other two states with high mean facility scores [RI which ranked first and ME which ranked third].
- **The data do not appear to support a relationship between the frequency of inspections and the measured SQG performance.**

4) Did the Most Common Inspection Triggers between June 2004 and 2007 Influence Performance?

Most Common SQG Inspection Triggers

(June 2004 – June 2007)

- “Routine” – with regular frequency, e.g., once every 2 years [None of the States]
- Complaint [CO, MA, NH, VT]
- Inspector Discretion [CO, MA]
- Other:
 - CT Special Initiative to Inspect all SQGs
 - NH SQGs Who Failed to Become Certified
 - MA targets all SQGs that are a major air source and/or major water source
 - Vermont has a policy to inspect once every 10 years

- **The data do not appear to support a relationship between most common inspection triggers and the measured SQG performance.**

5) Did Who Conducted SQG Compliance Inspection between June 2004 and June 2007 Influence Performance?

SQG “Compliance Inspections”

(June 2004 – June 2007)

Who Conducted SQG Inspections?

- All states used compliance inspectors with the exception of CT.
- CT inspections were mostly conducted by interns. Compliance inspectors accompanied interns during the first several weeks for training, periodically throughout the initiative, and would also return to facilities to conduct full inspections when significant violations were found.

What Unit?

- Most states used their hazardous waste group to complete compliance inspections.
- Other:
 - MA does not have a dedicated hazardous waste unit. Conducts primarily multi-media inspections and single media inspection for certain categories of sources
 - RI used Compliance & Inspections Unit which completes mostly RCRA inspections

Note: Staff who conducted the Common Measures field observations may or may not be the same staff noted above.

- **The data does not appear to support a relationship between who conducted the inspections and the measured SQG performance.**

6) Did the Type of SQG Enforcement Actions between June 2004 and June 2007 Influence Performance?

CO	Compliance Advisories (informal enforcement) and Penalties
CT	Warning Letters, Notices of Violation, Consent Orders
MA	Notices of Non-compliance, Orders and Penalties
ME	Informal enforcement including Letter of Warning (LOWs), and Notice of Violation (NOVs), and Formal enforcement including Consent Agreements (CAs) and formal legal actions civil and criminal actions.
NH	Warning Letters, Notice of Non-Compliance, Consent Orders
NY	Notices of Violation (informal), Consent Orders
RI	Letters of Non-Compliance, Formal Enforcement
VT	Notice of Alleged Violation Letters, Formal Enforcement

- **The data does not appear to support a relationship between the type of enforcement actions and the measured SQG performance.**

7) Did the Nature and Amount of SQG Reporting Requirements between June 2004 and June 2007 Influence Performance?

SQG Reporting Requirements (June 2004 – June 2007)	
*CO	No reporting requirements before August 2007. From August 2007 to present, self certification required
CT	No reporting requirements
MA	One time Notification only
*ME	Annual reporting
*NH	All SQGs must provide quarterly activity reports detailing their wastes generated, permit status, etc.
NY	No reporting requirements
*RI	Biennial reports
VT	Vermont requires SQGs (and LQGs) to pay an annual "generator fee." To facilitate payment of this fee, the Agency sends each generator a letter identifying a presumed generator status based on either manifest records from the previous year or the generator's notified status. Each generator is required to respond to the Agency letter and verify their actual generator status.

*** Routine Summary Reports**

- **The data do not appear to support a relationship between the nature and amount of reporting requirements and the measured SQG performance.**

8) Other Influences that May Have Affected Observed SQG Performance

- The chart below describes additional factors that states reported that may have affected performance.

Other Factors That May Have Affected SQG Performance (June 2004 – June 2007)

CO	Colorado is required to announce inspections at least 24 hours in advance. In addition to the advanced warning, they also performed a self certification and had the checklist to go by before we came out. This allowed the facility to prepare for and know what we were looking for on our inspections
CT	Since the inspections were conducted over a 4 year time period, the word got around that we were conducting SQG inspections- this may have had an impact on the level of compliance for the later inspections, but it is difficult to measure if there was any real change in behavior
MA	ERP Dry Cleaners, Photo Processors, Printers and other targeted groups. Enforcement against "SQGs" that are identified through report reviews to be LQGs.
ME	No information provided
NH	As we have found during ERP projects, few SQGs expect compliance inspections and are sometimes unconcerned about what they consider to be "frivolous" regulations, such as maintaining proper aisle space for drums. NH uses manifest list to generate SQG universe.
NY	Identified a number of SQGs over the past few years when reviewing manifests which had been sent out as CESQGs incorrectly. Follow-up inspections led to the discovery of violations as the facility was not familiar with the regulations. Once the inspection/enforcement cycle ends we hope the performance of these SQGs is improved.
RI	ERP Auto Body, ERP Auto Salvage, Clean Marina Program
VT	SQGs of routinely generated hazardous waste and users of more than 1000 lbs of toxic substances are required to prepare toxics use and hazardous waste reduction plans every three years and annual progress reports

4.5 EXPLORATION OF POSSIBLE AREAS OF BIAS IN SQG PERFORMANCE RESULTS

1) Did SQGs in States with Lower Accumulation Quantity Limits or Shorter Accumulation Time Limits Have Poorer Performance?

State	Accumulation Quantity Limit	Accumulation Time Limit	Project SQG Generation Rate
CO	6000 kg	180 or 270 (if >200 mi from TSDF)	100 - 1000 kg / month
CT	1000 kg	180 days	100 - 1000 kg / month
MA	6000 kg	180 days	100 - 1000 kg / month
ME	3000 kg	90 days	100 - 1000 kg / month
NH	NA	90 days	100 - 1000 kg / month
NY	6000 kg	180 days	100 - 1000 kg / month
RI	NA	90 days	100 - 1000 kg / month
VT	6000 kg	180 days	100 - 1000 kg / month

Accumulation Time Limit:

- Three states [ME, NH, RI] had stricter accumulation time limits
 - ME and NH had the two lowest SQG achievement rates for indicator 7: accumulation time limits followed.
 - CT's SQG achievement rate was statistically significantly higher than NH's and ME's SQG achievement rates.
 - CO's SQG achievement rate was statistically significantly higher than ME's SQG achievement rate.
 - RI has an observed SQG achievement rate of 100% on indicator 7: accumulation time limits followed.
- **Based on the mixed results, this area may warrant further evaluation.**

Accumulation Quantity Limit:

- Two states [NH, RI] had no accumulation quantity limits.
- Two states [CT, ME] had lower quantity limits than four other states [CO, MA, NY, VT].
 - ME, CT and CO all had an observed achievement rate of 100%.
 - Both CO and ME were statistically significantly higher than VT.
- **There does not appear to be a relationship between the accumulation quantity limits and measured SQG performance**

2) Did Who Conducted the Field Observations for the Common Measures Project Create Any Bias in the Results?

- States that reported using hazardous waste staff to conduct Common Measures Project inspections: CO, MA, NH, NY, VT.
- States that reported not using hazardous waste staff to conduct Common Measures Project inspections: CT, ME, RI.
 - RI scored the highest mean SQG facility score on both regulatory and beyond compliance indicators.
 - CT scored the 2nd highest mean SQG facility score on regulatory indicators and the 2nd lowest mean SQG facility score on beyond compliance indicators.
 - ME scored the third highest mean SQG facility score on regulatory indicators and the second highest mean SQG facility score on beyond compliance indicators.
- **The observed SQG performance differences on regulatory indicators between the three states that did not use hazardous waste staff, and the five states that did use hazardous waste staff, may be due in part to differences in background of the field observer.**

4.6 NEXT STEPS

The project states had great interest in furthering this analysis by:

- Developing a model for root cause analysis methods/techniques and training state participants on the use of those techniques.
- Sharing compliance assurance strategies that appear to be most effective in improving performance results in the SQG sector.
- Developing beyond compliance indicators in energy conservation, water conservation, pollution prevention and/or recycling suitable for application in a variety of environmental programs.