

# Colorado's Hazardous Waste Small Quantity Generator (SQG) Self-Certification Program

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Hazardous Waste Program

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## Abstract

Since 2007, Colorado's Hazardous Waste Program has implemented a self-certification program for Small Quantity Generators (SQGs) of hazardous waste. Each year, Hazardous Waste Program staff sends self-certification packets to all SQG facilities. Included in each packet is a comprehensive compliance checklist that covers all standard hazardous waste regulatory requirements for SQGs. In addition, an instruction booklet is included that gives item-by-item guidance on how each checklist question should be evaluated and completed by facility staff. Once complete, the checklist must be returned to the Hazardous Waste Program.

Upon receiving the completed checklists from the regulated facilities, Hazardous Waste Program staff performs randomly chosen follow-up inspections using the very same checklist completed by the facilities. The goal is to perform enough follow-up inspections to ensure SQG universe compliance rates can be assessed with 90 percent statistical confidence and no more than a 10 percent margin of error. The results of the Hazardous Waste Program's inspections are used to calculate compliance rates for each checklist question and for the entire SQG sector.

As a result of self-certification, compliance rates across the SQG sector have dramatically improved. This has been supported by a rigorous statistical evaluation. In 2008, only 32 percent of the SQGs were in compliance with 100 percent of the regulatory requirements. In 2009 and 2010, this compliance rate had increased to 53 percent and 62 percent, respectively. By 2011, the compliance rate had increased to 84 percent. Compliance rates have also shown strong improvement across each regulatory requirement. For instance, in 2008, 10 of 29 requirements on the checklist had non-compliance rates greater than 10 percent. By 2011, no requirements had a non-compliance rate exceeding 10 percent. The Hazardous Waste Program believes this improvement is due to 1) annual re-familiarization of, and re-certification by, facility staff with and to the regulatory requirements; 2) clear and easy-to-understand explanations of what compliance "looks like" in the accompanying instruction booklet, and 3) a regulatory requirement that each facility must complete and submit the self-certification checklist.

This program has been successful for several reasons. The most important reason for success is our regulatory requirement for returning the self-certification checklist. This requirement ensures essentially universal participation and universal exposure to the training on, and familiarization with, regulatory compliance. Second, the SQG sector was relatively large and had a low inspection penetration. This meant that the sector had not been influenced much by our previous regulatory efforts and was ripe for compliance improvements. Next, all members of the SQG sector are subject to a consistent set of compliance requirements (i.e., requirements that do not vary from facility to facility). This means that all facilities are certifying to the same requirements. In contrast, a permitting program, where permit requirements may vary from facility to facility might not be as amenable to a self-certification program. Another reason for our success was the care, planning, and ground work that was invested before the program was initiated. Much of this work was outreach to individual facilities. Also, the program logistics and goals were carefully planned. Lastly, the Hazardous Waste Program constantly monitored the program for 100 percent participation rates, inspection consistency, and data quality.

## **Introduction**

Beginning in 2007, the Hazardous Waste Program within the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and Environment, began the Small Quantity Generator self-certification program. Small Quantity Generators, or SQGs, generate between 100 and 1000 kg of hazardous waste each month. Generators of more than 1000 kg/month are called Large Quantity Generators, or LQGs. Conversely, generators of less than 100 kg/month are called Conditionally Exempt Small Quantity Generators, or CESQGs. In Colorado, there are about 115 LQGs, 600 SQGs, and thousands of CESQGs.

The Hazardous Waste Program has only 5.6 full-time equivalent hazardous waste inspectors who must not only inspect the generators listed above, but also inspect permitted and closed hazardous waste treatment, storage, and disposal facilities (TSDs), complaints, priority industry sectors, and facilities potentially regulated but not in our database. This group of inspectors performs about 350 inspections each year in the following categories:

**Table 1**

<b>Facility Type</b>	<b>Sector Size</b>	<b>Approx number of inspections performed/year</b>	<b>percent Coverage/year</b>
TSDs <sup>(1)</sup>	25	25	100 percent
LQGs <sup>(1)</sup>	115	40	35 percent
SQGs	600	80	12 percent
Complaints	75	75	100 percent
Facilities not notified	50	50	100 percent
Priority Industry Sectors <sup>(2)</sup>	400	75	19 percent

(1) These numbers of inspections in these categories is mandated by EPA

(2) Includes 350 dry cleaners also covered by an identical self-certification program

As this table indicates, the Hazardous Waste Program is getting good inspection coverage at TSDs and LQGs. And the compliance rates in both of these sectors are very high because of 1) the deterrence of frequent inspections, and 2) the fact that these facilities tend to be large and sophisticated facilities which have adequate compliance budgets, extensive staff training, and corporate intolerance of non-compliance.

The weak link in our inspection program was SQGs. At a 12 percent per year inspection coverage, even with no repeat inspections, Hazardous Waste Program staff would only inspect these facilities every eight years. That is simply not enough to improve compliance rates. This is a large universe of facilities that tend to be small and unsophisticated, with small numbers of employees. We have found that the typical SQG does not spend much on training, has a high rate of staff turnover, and most employees must multi-task - the “environmental” guy also covers health and safety, or something else equally or more unrelated, in addition to environmental compliance. The 12 percent inspection coverage we were attaining each year did not create enough accountability and deterrence to improve compliance rates.

Interestingly, if the five largest LQGs, in terms of waste generated per year, are not counted, the remaining 110 LQGs in Colorado generate about 10,000 tons of hazardous waste each year. The 600 SQGs generate about 8,000 tons/year in total – from about six

times the number of locations and with much less control/compliance. This means that the cumulative risk of the SQG sector to human health and the environment is arguably more than the LQG universe – somewhat less waste is produced, but that waste is generated at five times more locations manned by less sophisticated personnel.

Because of all this, we needed a different way of doing business in the SQG sector. After implementing two self-certification pilot programs patterned from the Massachusetts “Environmental Results Program,” Hazardous Waste Program management was convinced self-certification across the entire SQG universe was worth implementing for an extended period of time. Building on the experience from these pilot programs, and in preparation of full-scale project roll-out, in 2007, the Hazardous Waste Program added a regulation that requires self-certification checklists to be completed and returned by any facility so requested by the Hazardous Waste Program. Failure to timely submit a requested self-certification can now result in an enforcement action including, if appropriate, fines and penalties. Completed and signed checklists can be submitted by hardcopy mail, email, or submitted electronically on-line. The Program has a checklist return rate of more than 95 percent.

The following portions of this paper present the methods and success of the SQG Self-Certification Program.

### **Project Implementation**

To implement the SQG self-certification program, the following tasks are undertaken each year:

1. Sending self-certification packets to each SQG facility;
2. Random selection of follow-up inspections to estimate SQG universe compliance rates;
3. Implementation of the follow-up inspections; and
4. Evaluation of the facility-submitted and inspector-collected data.

The following sections explain how each of these tasks was implemented.

### **Task 1: Sending Self-certification Packets to Each SQG**

Obviously, for the SQG self-certification program to be successful, it must begin with an accurate list of SQG facilities. To do that, Hazardous Waste Program staff begins with the previous year’s list, then adds and subtracts facilities based on new notifications, modified notifications, and facilities that notified the Hazardous Waste Program that they had ceased generating hazardous waste or were now generating at a CESQG level.<sup>1</sup>

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<sup>1</sup> In 2001, to partially fund the Hazardous Waste Program, Colorado instituted a fee for all SQGs. Over the years, this fee has caused a marked decrease in the number of notified SQGs. Some facilities had conservatively notified as SQGs, but were operating as CESQGs, and some facilities were no longer hazardous waste generators, but had not updated their notification. For these facilities, paying the SQG fee did not make sense and many re-notified to avoid the fee. However, in 2007, when we began the self-certification program, we found that there were still quite a number of facilities notified as SQGs who were not generating 100 kg/month of hazardous waste. This has been resolved in two ways. First, if the facility no longer wants to participate in the self-certification program, we allow them to re-notify. Second, if the facility does not generate 100 kg/month of hazardous waste, but wants to remain in the self-certification

Once an accurate list of SQG facilities has been prepared, self-certification packets are sent to each facility. Included in this packet is a comprehensive compliance checklist that covers all standard hazardous waste regulatory requirements for SQGs. In addition, an instruction booklet is included that gives item-by-item guidance on how each checklist question should be evaluated and completed by facility staff. (*See Appendix A for the 2011 SQG Self-Certification Checklist*)

Before the Year-1 checklists were sent out, it was important to write each checklist question very carefully. Each question needed to cover only one regulatory requirement in a way in which a “Yes” answer means compliance, a “No” answer means non-compliance, and a “NA” answer means that requirement does not apply to that facility. In addition, each question needed to be easily understood and interpreted by the facility such that accurate responses could be ensured.<sup>2</sup> Each year, before successive self-certification checklists were sent out, it has also been important to evaluate the facility data and the inspector data to ensure that the results for individual questions did not indicate poor question wording or a poor explanation of compliance in the companion guidance has affected results.

For subsequent years, it was very important to preserve data comparability to previous years. To do this, changes to the checklist were minimized to only clearly necessary changes to the wording of individual questions. Obviously, if the data indicated that changes were needed, then they were made; but the checklist was kept as static as possible.

The facilities are given 30 days to return the completed checklist. Completed and signed checklists can be submitted by hardcopy mail, email, or submitted electronically on-line. Most facilities return the checklist within the requested time period (in recent years, we have gotten about 75 percent returned in the required timeframe). For those that do not return the checklist by the due date, we follow-up once via email and once via telephone. This usually causes another 20 percent to return the checklist. We then inspect the remaining 5 percent because these facilities may not have returned the checklist because they are no longer SQGs. If a facility is found to no longer be an SQG, then that facility is not required to submit the checklist and is dropped from the self-certification program. Those facilities that are SQGs are issued a compliance advisory (an informal unenforceable action equivalent to a Warning Letter) for failing to submit the checklist and for any other violations discovered on the day of the inspection. Receiving the compliance advisory usually results in submittal of the outstanding checklists. If a

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program for best-management-practices, liability reduction, and/or because they may be a periodic SQG in the future, then we allow them to remain in the program.

<sup>2</sup> It is important to note that completing the checklist was not intended to be a difficult thought-provoking exercise on the part of the facility. It was meant to be a fairly quick re-familiarization with the key regulatory requirements that had broad applicability within the universe. A possible complaint about how our checklist is written is that it becomes very easy for a facility to just quickly complete the checklist answering “Yes”, the desired response, to every question without really thinking about compliance. This is a possibility, and some facilities may well do this. However, we have anecdotally confirmed what Massachusetts also discovered, and that is that concluding the checklist with the signed certification adequately discourages this behavior. The wording of that certification can be found in Appendix A.

facility still does not submit the checklist, we assess a \$2,000 penalty. In 2011, we only had to assess one \$2,000 penalty for failure to submit the self-certification checklist.

### **Task 2: Random Selection of Follow-up Inspections to Estimate SQG Universe Compliance Rates**

Once the self-certification checklists are returned, the number of follow-up inspections to be performed by Program staff can be determined. To ensure SQG universe compliance rates could be estimated based on inspection data, the follow-up inspections were a randomly selected subset of the SQG sector. Every year, our goal is to perform enough follow-up inspections to estimate SQG universe compliance rates with a +/- 10 percent margin of error with 90 percent confidence. We use the EPA sample size determination tool to calculate the minimum number of follow-up inspection needed (*see Appendix B*). We then add an extra 15 percent or so for contingency purposes knowing that some of the selected facilities will no longer be SQGs or are no longer in business.

Since 2007, the SQG universe size has hovered around 580 facilities. For a universe of that size, in order to get the desired statistical rigor, we needed to do about 80 inspections. Interestingly, this is a slightly lower number of SQG inspections than we performed prior to self-certification. From a resource point of view, then, implementation of the self-certification project consumes about the same amount of inspector time as our traditional inspections, but attains much higher compliance rates.

### **Task 3: Implementation of the Follow-up Inspections**

All of our hazardous waste inspectors perform self-certification follow-up inspections, but are trained so that all inspections were consistently performed. The inspectors use the same checklist completed by the facility so that direct comparability of facility responses with inspector responses is possible. All follow-up inspections are completed before the next round of self-certifications packets were sent to the SQGs. No follow-up inspections are performed more than one year after the self-certification forms are sent to the facilities.

### **Task 4: Evaluation of the data**

The self-certification checklist questions comprehensively cover the “standard” hazardous waste regulatory requirements applicable to SQGs. The questions do not cover unusual requirements like those applicable to hazardous waste tanks. Again, each checklist question is carefully worded such that a “Yes” response by either the facility or the inspector indicates compliance, a “No” response indicates non-compliance, and an “NA” response indicates the requirement does not apply at the facility. Occasionally, either the facility or the inspector left an item blank. We have not evaluated when or why a “blank” occurs.

**For an evaluation of compliance rates, we do not use the self-certification responses received by the facilities. Only results from the follow-up inspections are used.**

There are three reasons for this. The first reason is the discrepancy between how facilities judge their own compliance and how our inspectors judge the same compliance. From the information presented in Table 2 below, it is clear that the facilities, while

generally accurate in measuring their own compliance, do not find as much non-compliance as the department inspectors. Given that inspectors are determining compliance with the regulations everyday in a wide variety of facilities and circumstances, their compliance determinations are assumed to be correct. The second reason is to avoid the criticism of any self-inspection program – that being, facilities can never be trusted to accurately assess and honestly report their own compliance. We have never seen any abnormalities in the data that would suggest purposeful mis-reporting, but to avoid this possibility, we chose to only use the inspector data for compliance measurement. The last reason is that our goal for the self-certification program is not for facilities to accurately gauge compliance with regulations, but rather to educate them about the regulations. In this sense, the compliance rates as assessed through the self-certification are less important and independent of the outcome of educating facilities on the hazardous waste regulations.

**Table 2**

Facility response	Inspector response	2007		2008		2009		2010		2011	
		#	%	#	%	#	%	#	%	#	%
Yes		no data	no data	14876	87.7%	14462	89.7%	14525	91.7%	14219	91.6%
No		no data	no data	103	0.6%	57	0.4%	58	0.4%	73	0.5%
NA		no data	no data	1905	11.2%	1478	9.2%	1234	7.8%	1200	7.7%
None		no data	no data	81	0.5%	127	0.8%	17	0.1%	23	0.1%
	Yes	1641		1518	81.8%	1947	85.0%	2716	83.6%	2933	85.0%
	No	143		123	6.6%	114	5.0%	111	3.4%	57	1.7%
	NA			208	11.2%	183	8.0%	410	12.6%	439	12.7%
	None			7	0.4%	47	2.1%	11	0.3%	22	0.6%

Table 2 shows the number of “Yes”, “No”, and “NA” responses from facilities and inspectors along with the percentage of each. The table also shows the number of blank, or non-responses. The discrepancy between how often the facility and the inspectors evaluated compliance can be easily seen. For instance, in 2008, the percentage of “NA” and non-responses was about the same comparing facility responses and inspector results. However, in that same year, facilities reported that they were in compliance about 87.7 percent of the time and out of compliance only 0.6 percent of the time. In contrast, inspector results for the same measurements were 81.8 percent and 6.6 percent, respectively.

We believe the inspectors discovered more non-compliance for several reasons, including:

- As a facility completes the self-certification checklist, personnel are probably bringing non-compliant items into compliance and then checking “Yes”;
- The facility may think they are already in compliance with a requirement and check “Yes” even though they may not be in compliance; and/or
- In the time that elapses between the facility completing the self-certification checklist and the follow-up inspection, the facility may fall back out of compliance.

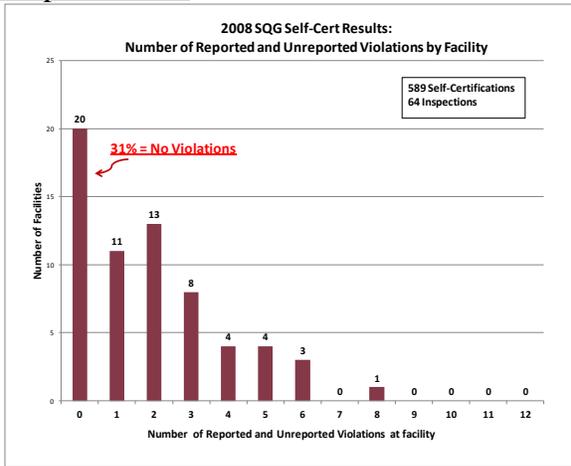
Going forward with the data evaluation, then, we looked at the compliance findings from the follow-up inspections. There are two useful methods to evaluate the inspector data: simple data counts, comparing each year to other years; and estimating universe

compliance rates based on inspection data. Each of these is discussed in the sections below.

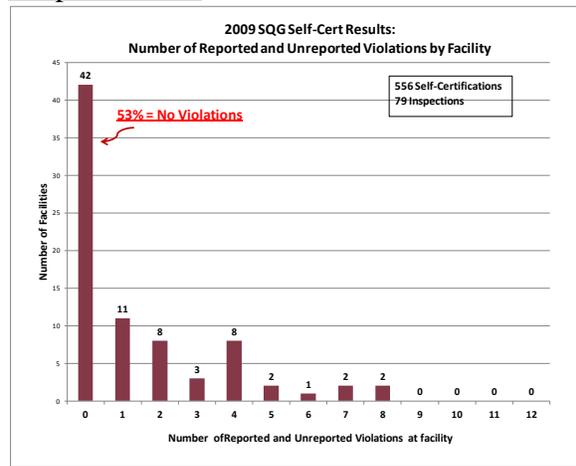
**Inspector Data – Using Data Counts to Estimate SQG Universe Compliance Rates**

A lot of information can be gathered by simply counting the number of “Yes,” “No,” and “NA” responses that occur each year. For instance, we counted the number of reported violations (both the facility and the inspector indicate “No” for a question on the checklist) and unreported violations (the facility indicates “Yes” or “NA” for a checklist question, but the inspector indicates “No”) that occurred at each inspected facility in each year. This simple evaluation does not consider the relative seriousness of the violations, yet still reveals important trends through time. Graphs 1 through 4 present this information for the years 2008 – 2011 (the latest year data is currently available):

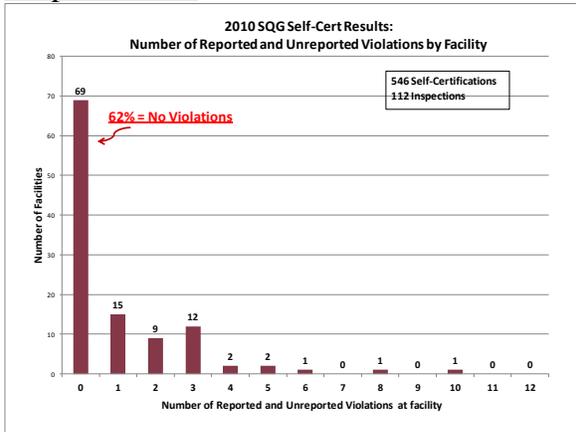
Graph 1 - 2008



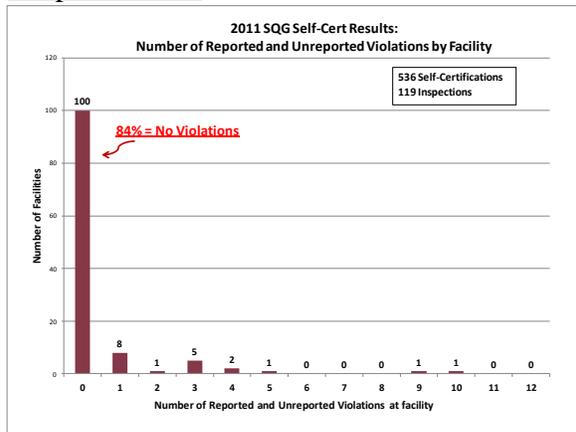
Graph 2 - 2009



Graph 3 - 2010



Graph 4 - 2011



Each graph presents the number of facilities along the vertical axis and the number of violations at each facility along the horizontal axis. Looking at the 2008 graph, 20 facilities had no reported or unreported violations (the inspector found no violations), 11 facilities had 1 violation, 13 had 2 violations, and so on. The 20 facilities with no violations represent 31 percent of the total number of follow-up inspections performed. This equates to an SQG universe-wide compliance rate of 31 percent. The statistical evaluation of this universe compliance rates is presented in the following section.

As each successive year is added to this evaluation, it is clear that the number and percentage of facilities with no violations increases, and the number of facilities with any number of violations goes down. This indicates that the overall SQG compliance rate, as measured by the number of facilities in complete compliance, is getting better each year. Graph 5, below, summarizes the improvement in the overall SQG compliance rate between 2008 and 2011.

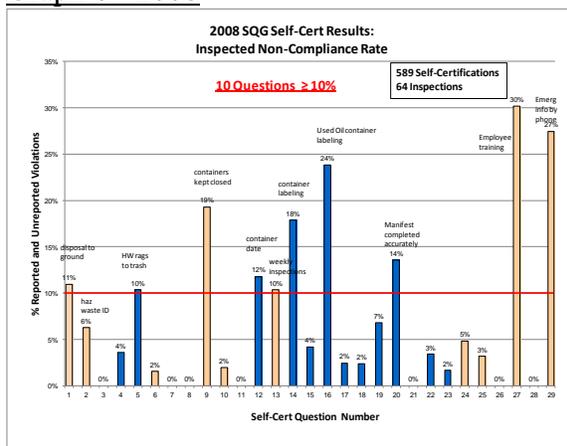
Graph 5



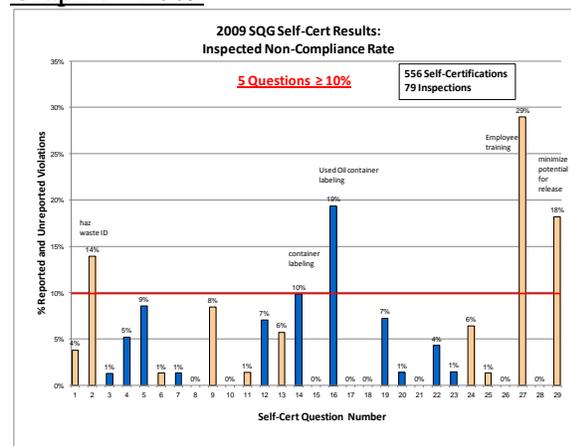
**Inspector Data - Using Data Counts to Measure Compliance Rates for Each Checklist Question**

Calculating the percent of the “No” inspector response for each checklist question across all of the randomly inspected facilities allows us to assess question-specific non-compliance rates. Graphs 6 through 9 present this information for the years 2008 – 2011:

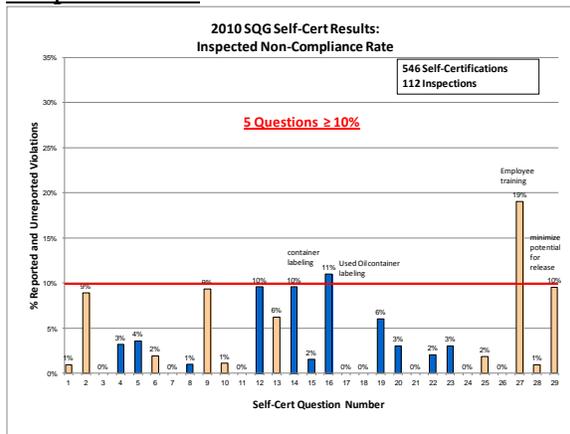
Graph 6 - 2008



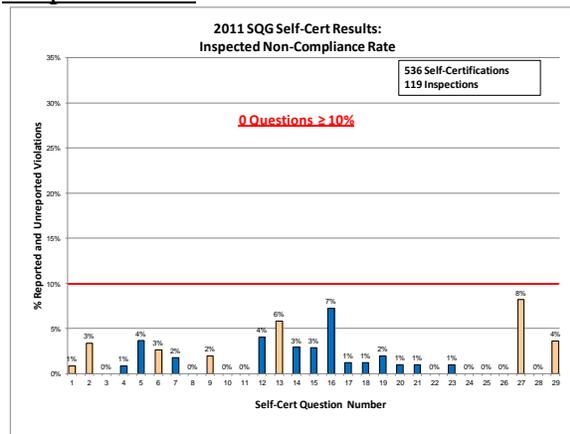
Graph 7 - 2009



Graph 8 - 2010



Graph 9 - 2011



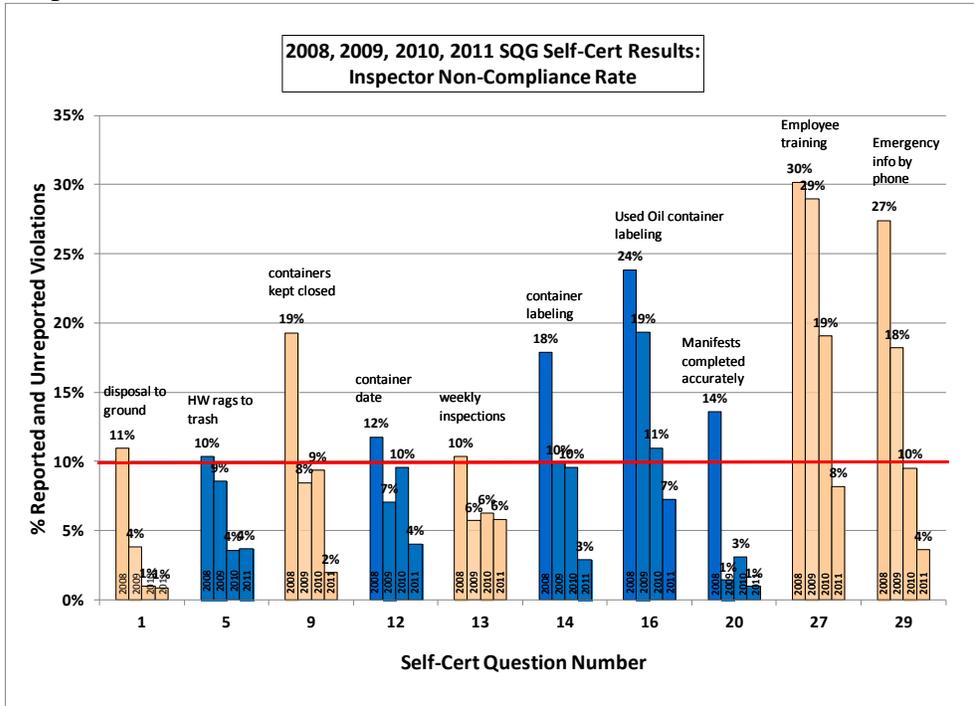
In this case, each graph presents the non-compliance percentage (the percent of “No” answers by the inspector which includes both reported and unreported violations) on the vertical axis and the checklist question numbers across the horizontal axis. In looking at the 2008 graph (Graph 6), for instance, Question 1 shows a non-compliance rate of 11 percent while Question 9 shows a non-compliance rate of 19 percent, and so on. These graphs also begin to consider the seriousness of the violations. We have designated 13 of the 29 checklist questions to be EBPIs (environmental business practice indicators; those requirements that, when violated, present a higher risk to human health and/or the environment than other violations). *(A more complete discussion of EBPIs is included in Appendix C.)* Questions 1, 2, 6, 9, 10, 11, 13, 24, 25, 26, 27, 28, and 29 are designated as EBPIs.<sup>3</sup> On the graphs, measurable non-compliance with any of these questions is indicated by the light-colored bars. The non-EBPI questions are indicated by darker bars.

Graphs 6 through 9 demonstrate that, over time, compliance rates are improving for almost every regulatory requirement. Even more importantly, compliance has markedly improved for those requirements that started out with high rates of non-compliance. For example, in 2008, there were 10 questions where the non-compliance rate exceeded 10 percent. By 2011, however, no questions had non-compliance rates greater than 10 percent. It is important to note that, without exception, the questions showing high rates of non-compliance in 2008 (Graph 6) had shown stubbornly high non-compliance for many years before the self-certification program was implemented. We have never been able to achieve improved compliance rates with these requirements, which can be difficult and expensive for facilities to comply with, until now.

<sup>3</sup> The question numbers listed here comport with the question numbers on Graphs 6 – 10. The questions numbers here do not match the question numbers on the self-certification checklist in Appendix A. Please see Appendix C for a cross-walk of checklist question numbers.

To further emphasize this point, Graph 10 includes the ten questions that exceeded 10 percent non-compliance in 2008 and follows the non-compliance for each of those questions through 2011. Each of the ten questions has a short label that describes the underlying regulatory requirement. Five of the ten questions were EBPIs (light-colored bars). Significantly, Graph 10 shows how the non-compliance for each question decreased over time such that, by 2011, all 10 questions have non-compliance rates less than 10 percent. Even more significantly, seven of the 10 questions shown on Graph 10 (questions 1, 9, 13, 16, 20, 27, and 29) show statistically significant compliance rate improvements on Tables 4 through 7.

**Graph 10**



**Statistical Evaluation**

There were two important statistical evaluations performed on the data collected during the follow-up inspections. First, the Hazardous Waste Program wanted to know if there was statistically significant improvement in SQG universe-wide compliance rates when compared year-to-successive year and when each successive year was compared back to 2008. Second, the Hazardous Waste Program wanted to know if there was statistically significant improvement in the compliance rates for each checklist question when compared year-to-successive year and when each successive year was compared back to 2008. 2008 does not meet the definition of a “baseline” year because facilities completed the self-certification prior to the inspectors selecting a random sample of facilities, but it is the first year in which we have comparable data.

As explained previously, from 2008 through 2011, a random sample of SQG sites was selected annually for inspection. Each year, a sample sufficient to assess SQG universe compliance rates with no more than a +/- 10 percent margin of error at 90 percent confidence was selected. In order to ensure an adequate sample size given some sites inspected may no longer be SQGs, a few additional sites were randomly selected each

year. The Unit chose to sample enough sites for a 90 percent confidence level with  $\pm 10$  percent margin of error for two reasons: 1) it meets minimum academic standards and 2) increasing sample size for greater statistical power is unrealistic given program time and staffing. Oversampling by sector was discussed; however, this also is unrealistic given program time and staffing. Table 3 indicates both SQG population and sample sizes from 2008 through 2011.

**Table 3: Small quantity generator population and sample sizes by year**

Year	Population size (N)	Sample size (n)	Margin of error at 90 percent confidence
2008	585 sites	64 sites	+/- 9.5 percent
2009	556 sites	79 sites	+/- 8.5 percent
2010	546 sites	112 sites	+/- 6.9 percent
2011	535 sites	119 sites	+/- 6.6 percent

**Statistic methods used to estimate population compliance rates**

Twenty-nine self-certification checklist questions were analyzed each year to assess overall (rate of inspections where site was found in full compliance) and per inspection point SQG universe compliance rates. Wording of questions have changed very little. Minor changes have served to clarify previous wording, rather than to change the meaning of the inspection point. *(See Appendices A and C for list of all checklist questions analyzed.)*

Universe-wide compliance rates were assessed each year as the percent of facilities in compliance with all applicable checklist questions. Compliance rates for individual checklist questions were assessed each year as the percent of facilities in compliance among all facilities for whom that checklist questions was applicable.

Given high sample compliance rates, the population’s underlying binomial distribution was used and universe compliance rates were estimated using the exact method (P=.7). Proportion was set to the lowest sample compliance rate among all 2008 through 2011 data (Employee Training in 2008; checklist question F1 and Graphs 6 – 10, question 27). Where the compliance rate was 100 percent, a SQG universe estimate could not be assessed; however, it is recognized that a compliance rate of 100 percent among a representative sample holds great programmatic relevance beyond its statistical relevance.

**Summary of Statistical Analysis and Findings**

Tables 4 through 7 present the SQG universe compliance rate estimates for each year. The first line in each table presents the overall compliance rates and the remainder of each table presents the compliance rate per question from the self-certification checklist. Green compliance rates indicate a statistically significant increase in universe-wide compliance rates compared to 2008. Bold compliance rates indicate a statistically significant increase in population compliance rates compared to the prior year. There were no statistically significant decreases compared to the 2008 baseline or from year to year.

**Table 4: 2008 SQG population compliance rate estimates**

Checklist Q#	Graph 6-10 Q#		# Non-Compliant	# Compliant or not applicable	Percent compliant	90 percent Confidence Limits	
						Lower	Upper
		Overall	44	20	31.25%	21.72%	40.78%
A5	1	GenDispGrnd	7	57	89.06%	82.65%	95.48%
A1	2	GenHWID	4	60	93.75%	88.77%	98.73%
A2	3	GenIDLoc	0	64	100.00%	N/A	N/A
A7	4	GenMercury	2	54	96.43%	92.35%	100.00%
A6	5	GenRags	6	52	89.66%	83.08%	96.23%
A4	6	GenTSD	1	63	98.44%	95.89%	100.00%
A3	7	GenTransport	0	64	100.00%	N/A	N/A
D7	8	HWCont180day	0	59	100.00%	N/A	N/A
D4	9	HWContClosed	11	46	80.70%	72.10%	89.30%
D6	10	HWContCompat	1	50	98.04%	94.85%	100.00%
D3	11	HWContCond	0	58	100.00%	N/A	N/A
D2	12	HWContDate	6	45	88.24%	80.81%	95.66%
D5	13	HWContLabel	10	46	82.14%	73.72%	90.56%
D1	14	HWContInsp	6	52	89.66%	83.08%	96.23%
C4	15	OilClosed	1	23	95.83%	89.12%	100.00%
C1	16	OilLabel	10	32	76.19%	65.38%	87.00%
C3	17	OilPreventSpill	1	40	97.56%	93.60%	100.00%
C2	18	OilSpill	1	41	97.62%	93.75%	100.00%
E4	19	ShipDoc3Yr	4	55	93.22%	87.84%	98.60%
E2	20	ShipDocComplete	8	51	86.44%	79.11%	93.77%
E1	21	ShipDocManifest	0	57	100.00%	N/A	N/A
E3	22	ShipLDR	2	57	96.61%	92.73%	100.00%
F5	23	TrainAisleSpace	1	59	98.33%	95.61%	100.00%
F6	24	TrainArrangeER	3	59	95.16%	90.68%	99.64%
F2	25	TrainEC	2	61	96.83%	93.19%	100.00%
F4	26	TrainEQ	0	62	100.00%	N/A	N/A
F1	27	TrainEmp	19	44	69.84%	60.33%	79.35%
F7	28	TrainMinimize	0	62	100.00%	N/A	N/A
F3	29	TrainPh	17	45	72.58%	63.26%	81.90%

*2008 is the first year complete data is available.*

**Table 5: 2009 SQG population compliance rate estimates**

Checklist Q#	Graph 6-10 Q#		# Non-Compliant	# Compliant or not applicable	Percent compliant	90 percent Confidence Limits	
						Lower	Upper
		<b>Overall</b>	<b>37</b>	<b>42</b>	<b>53.16%</b>	<b>43.93%</b>	<b>62.40%</b>
A5	1	GenDispGrnd	3	76	96.20%	92.67%	99.74%
A1	2	GenHWID	11	68	86.08%	79.67%	92.48%
A2	3	GenIDLoc	1	78	98.73%	96.67%	100.00%
A7	4	GenMercury	4	73	94.81%	90.65%	98.97%
A6	5	GenRags	6	64	91.43%	85.92%	96.93%
A4	6	GenTSD	1	76	98.70%	96.58%	100.00%
A3	7	GenTransport	1	76	98.70%	96.58%	100.00%
D7	8	HWCont180day	0	69	100.00%	N/A	N/A
D4	9	HWContClosed	6	65	91.55%	86.12%	96.98%
D6	10	HWContCompat	0	62	100.00%	N/A	N/A
D3	11	HWContCond	1	70	98.59%	96.29%	100.00%
D2	12	HWContDate	5	66	92.96%	87.96%	97.95%
D5	13	HWContLabel	7	64	90.14%	84.32%	95.96%
D1	14	HWContInsp	4	66	94.29%	89.72%	98.85%
C4	15	OilClosed	0	43	100.00%	N/A	N/A
C1	16	OilLabel	12	50	80.65%	72.39%	88.90%
C3	17	OilPreventSpill	0	62	100.00%	N/A	N/A
C2	18	OilSpill	0	61	100.00%	N/A	N/A
E4	19	ShipDoc3Yr	5	64	92.75%	87.62%	97.89%
<b>E2</b>	<b>20</b>	<b>ShipDocComplete</b>	<b>1</b>	<b>70</b>	<b>98.59%</b>	<b>96.29%</b>	<b>100.00%</b>
E1	21	ShipDocManifest	0	71	100.00%	N/A	N/A
E3	22	ShipLDR	3	67	95.71%	91.73%	99.70%
F5	23	TrainAisleSpace	1	67	98.53%	96.13%	100.00%
F6	24	TrainArrangeER	5	73	93.59%	89.03%	98.15%
F2	25	TrainEC	1	76	98.70%	96.58%	100.00%
F4	26	TrainEQ	0	77	100.00%	N/A	N/A
F1	27	TrainEmp	57	19	71.05%	62.50%	79.61%
F7	28	TrainMinimize	0	76	100.00%	N/A	N/A
F3	29	TrainPh	14	63	81.82%	74.59%	89.05%

*Shaded rows indicate a statistically significant increase in population compliance rates compared to 2008. Bolded rows indicate a statistically significant increase in population compliance rates compared to the prior year.*

**Table 6: 2010 SQG population compliance rate estimates**

Checklist Q#	Graph 6-10 Q#		# Non-Compliant	# Compliant or not applicable	Percent compliant or not applicable	90 percent Confidence Limits	
						Lower	Upper
		Overall	43	69	61.61%	54.05%	69.17%
A5	1	GenDispGrnd	1	103	99.04%	97.46%	100.00%
A1	2	GenHWID	10	102	91.07%	86.64%	95.50%
A2	3	GenIDLoc	1	111	99.11%	97.65%	100.00%
A7	4	GenMercury	3	91	96.81%	93.83%	99.79%
A6	5	GenRags	3	81	96.43%	93.10%	99.76%
A4	6	GenTSD	2	108	98.08%	95.86%	100.00%
A3	7	GenTransport	0	103	100.00%	N/A	N/A
D7	8	HWCont180day	1	98	98.99%	97.34%	100.00%
D4	9	HWContClosed	9	87	90.63%	85.73%	95.52%
D6	10	HWContCompat	1	87	99.11%	97.65%	100.00%
D3	11	HWContCond	0	96	100.00%	N/A	N/A
D2	12	HWContDate	9	85	90.43%	85.43%	95.42%
D5	13	HWContLabel	9	85	90.43%	85.43%	95.42%
D1	14	HWContInsp	6	90	93.75%	89.69%	97.81%
C4	15	OilClosed	1	63	98.44%	95.89%	100.00%
C1	16	OilLabel	9	73	89.02%	83.75%	94.70%
C3	17	OilPreventSpill	0	85	100.00%	N/A	N/A
C2	18	OilSpill	0	84	100.00%	N/A	N/A
E4	19	ShipDoc3Yr	6	93	93.94%	89.99%	97.88%
E2	20	ShipDocComplete	3	95	96.94%	94.08%	99.80%
E1	21	ShipDocManifest	0	97	100.00%	N/A	N/A
E3	22	ShipLDR	2	96	97.96%	95.64%	100.00%
F5	23	TrainAisleSpace	3	96	96.97%	94.14%	99.80%
F6	24	TrainArrangeER	0	111	100.00%	N/A	N/A
F2	25	TrainEC	2	106	98.15%	96.01%	100.00%
F4	26	TrainEQ	0	109	100.00%	N/A	N/A
F1	27	TrainEmp	20	85	80.93%	74.65%	87.26%
F7	28	TrainMinimize	1	107	99.07%	97.56%	100.00%
F3	29	TrainPh	10	95	90.48%	85.76%	95.19%

*Shaded rows indicate a statistically significant increase in population compliance rates compared to 2008. Bold rows indicate a statistically significant increase in population compliance rates compared to the prior year.*

**Table 7: 2011 SQG population compliance rate estimates**

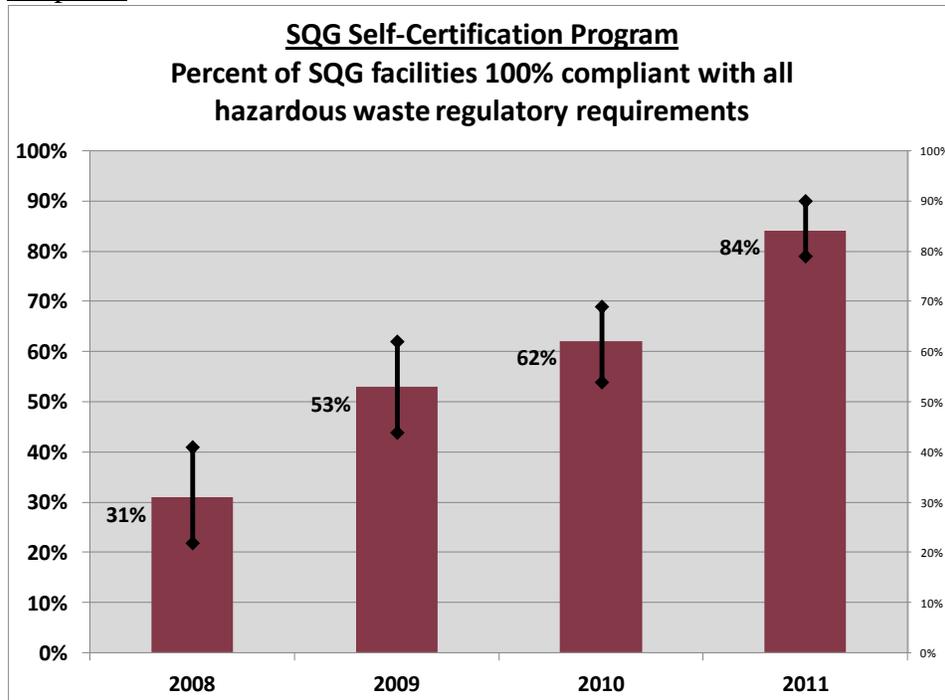
Checklist Q#	Graph 6-10 Q#		# Non-Compliant	# Compliant or not applicable	Percent compliant or not applicable	90 percent Confidence Limits	
						Lower	Upper
		<b>Overall</b>	<b>19</b>	<b>100</b>	<b>84.03%</b>	<b>78.51%</b>	<b>89.56%</b>
A5	1	GenDispGrnd	1	114	99.13%	97.71%	100.00%
A1	2	GenHWID	4	114	96.61%	93.87%	99.35%
A2	3	GenIDLoc	0	119	100.00%	N/A	N/A
A7	4	GenMercury	1	114	99.13%	97.71%	100.00%
A6	5	GenRags	3	79	96.34%	92.93%	99.75%
A4	6	GenTSD	3	112	97.39%	94.95%	99.84%
A3	7	GenTransport	2	112	98.25%	96.2%	100.00%
D7	8	HWCont180day	0	105	100.00%	N/A	N/A
D4	9	<b>HWContClosed</b>	<b>2</b>	<b>101</b>	<b>98.06%</b>	<b>95.82%</b>	<b>100.00%</b>
D6	10	HWContCompat	0	97	100.00%	N/A	N/A
D3	11	HWContCond	0	103	100.00%	N/A	N/A
D2	12	HWContDate	4	95	95.97%	92.70%	99.21%
D5	13	HWContLabel	3	100	97.09%	94.36%	99.81%
D1	14	HWContInsp	6	97	94.17%	90.38%	97.97%
C4	15	OilClosed	2	67	97.10%	93.78%	100.00%
C1	16	OilLabel	6	77	92.77%	88.10%	97.45%
C3	17	OilPreventSpill	1	82	98.80%	96.83%	100.00%
C2	18	OilSpill	1	82	98.80%	96.83%	100.00%
E4	19	ShipDoc3Yr	2	101	98.06%	95.82%	100.00%
E2	20	ShipDocComplete	1	102	99.03%	97.44%	100.00%
E1	21	ShipDocManifest	1	100	99.01%	97.39%	100.00%
E3	22	ShipLDR	0	103	100.00%	N/A	N/A
F5	23	TrainAisleSpace	1	102	99.03%	97.44%	100.00%
F6	24	TrainArrangeER	0	115	100.00%	N/A	N/A
F2	25	TrainEC	0	112	100.00%	N/A	N/A
F4	26	TrainEQ	0	113	100.00%	N/A	N/A
F1	27	<b>TrainEmp</b>	<b>9</b>	<b>101</b>	<b>91.82%</b>	<b>87.52%</b>	<b>96.12%</b>
F7	28	TrainMinimize	0	107	100.00%	N/A	N/A
F3	29	TrainPh	4	107	96.40%	93.49%	99.31%

*Shaded rows indicate a statistically significant increase in population compliance rates compared to 2008. Bold rows indicate a statistically significant increase in population compliance rates compared to the prior year.*

## Summary of Findings

The self-certification program has attained very impressive compliance rate improvements in the SQG universe in Colorado over the last four years. In fact, considering the entire SQG universe, statistically significant compliance rate improvements were attained in 2009 over 2008, and in 2011 over 2010. Even comparing 2010 data to 2009 data, there was marked compliance rate improvement in the sample universe, but confidence intervals were too large to ascribe those same improvements to the SQG universe. These improvements are indicated on Graph 11 following.

Graph 11



In addition, there were many statistically significant improvements in compliance rates across the four year period for individual checklist questions. These are presented previously on Tables 4 – 7.

The Colorado Department of Public Health and Environment is interested in replicating these results in other regulatory programs. In trying to pinpoint why this program succeeded, the Hazardous Waste Program believes several factors were important:

1. The SQG sector was relatively large and had a low inspection penetration by the Hazardous Waste Program each year. That is to say that, with no inspection overlap, at the rate we had been inspecting the SQG universe, it would take the Hazardous Waste Program more than 8 years to inspect the entire SQG universe. For sectors with a higher inspection penetration, normal inspection programs, where inspections are biased to “look for the bad guys,” may have already achieved high compliance rates.
2. All members of the SQG sector are subject to a consistent set of compliance requirements (i.e., requirements that do not vary from facility to facility). In contrast, it may be more difficult to implement a self-certification program where individualized permits determine unique facility-specific compliance requirements.

3. A lot of care, planning, and ground work was invested before the program was initiated. Much of this up-front work is explained in previous sections of this paper. We also incorporated lessons-learned from other state programs, notably Massachusetts' Environmental Results Program.
4. Colorado has a regulatory requirement ensuring 100 percent participation. While the facility-submitted checklists were not used to determine compliance rates, the training and familiarization that completing the checklist accomplished was, we believe, **the** most important reason compliance improved. Our follow-up inspections only documented what the training and familiarization achieved. The regulatory requirement ensured total participation in, and total exposure to, the training and familiarization aspect.
5. The Hazardous Waste Program is committed to constantly monitoring the program for 100 percent participation rates, inspection consistency, and data quality. This is not the type of program that can be "turned on" and then left to run on its own.

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**Appendix A:**

**2011 Self-Certification Checklist**

**SMALL QUANTITY GENERATOR (SQG)  
2011 HAZARDOUS WASTE COMPLIANCE SELF-CERTIFICATION  
CHECKLIST**

\_\_\_\_\_ **For Dept Use Only**

**Company Name:** \_\_\_\_\_ **EPA ID#:** \_\_\_\_\_

Physical location (address) of the facility: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**Company Contact:** \_\_\_\_\_ **Telephone:** \_\_\_\_\_

**Company Contact E-mail:** \_\_\_\_\_

**Business Owner:** \_\_\_\_\_ **Owner Telephone:** \_\_\_\_\_

Primary Products or Services: \_\_\_\_\_

Number of Employees: \_\_\_\_\_ Years at This Location: \_\_\_\_\_

Hours of Operation: \_\_\_\_\_

The self-certification checklist is designed to help you understand the hazardous waste regulations as they apply to your facility and to help you stay in compliance from this point forward. Any violations noted in follow up inspections of your facility after you have submitted the self-certification will be considered to be more serious because you have certified that you are in compliance with the environmental regulations.

***INSTRUCTIONS***

**The checklist questions below refer to your last 12 months of activity.**

- Mark **YES** if you are in compliance.
- Mark **NO** if you are out of compliance. If you answer **NO**, write in the comment box at the end of each **section** how and when you will return to compliance by correcting the violation.

If you need more information before answering any of the questions in this checklist, help is available line- by-line in the [Guidance Document](#) that addresses each question.

If the question does not apply to your facility, check “N/A.”

<b>A.</b>	<b>General</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section A</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1.	Has your facility determined which wastes generated at your facility are hazardous wastes and which wastes are not hazardous wastes?			
2.	Does the physical address at your facility match the address associated with your EPA Identification Number?			
3.	Does your facility use a transporter that is authorized to transport hazardous waste?			

A.	<b>General (continued)</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section A</a></i>	YES	NO	N/A
4.	Does your facility dispose of all hazardous waste through a permitted treatment, storage and disposal facility?			
5.	Does your facility ensure that no hazardous waste is disposed of on the ground, or to a sanitary sewer, storm drain, bodies of water, or in the trash?			
6.	Do you either dispose of contaminated rags and shop towels as hazardous waste or send them to a commercial laundry service if the rags have been in contact with certain hazardous F- listed solvents like MEK or toluene?			
7.	Do you manage your fluorescent lights, batteries, computers, aerosol cans and mercury containing devices as hazardous waste or universal waste instead of throwing them into the trash?			
8.	If you answered "NO" to any of the questions listed in Section A, please indicate the item (for example A.2.) and explain how and by what date you plan to return to compliance.			

**INSTRUCTIONS FOR SECTION B**

List your hazardous waste streams in the space provided below. Be sure to write in the quantity of waste and **specify whether the quantity is in gallons or pounds**. If you have more than five waste streams, list only the five that you generate in the highest volume. Do not list used oil or hazardous waste that you manage as universal waste (such as light bulbs, batteries, or electronic equipment).

B.	Waste Stream Description <i>For more information, go to the <a href="#">Guidance Document Link to Section B</a> and <a href="#">Appendix A</a></i>	Approximate Amount Generated During Busiest Month		
	Quantity	Gallons	Pounds	
1.				
2.				
3.				
4.				
5.				

<b>C. Used Oil Management</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section C</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Are containers of used oil marked with the words “Used oil”?			
2. Are all used oil spills and releases cleaned up immediately and properly managed?			
3. Has your facility taken the measures specified in the guidance document to prevent the release of used oil to the environment?  ( <b>Note:</b> examples of ways to prevent releases of used oil are discussed on page 11 of the guidance document.)			
4. Are all containers used to store used oil outside kept closed except when adding or removing waste?			
5. If you answered “NO” to any of the questions listed in Section C, please indicate the item (for example C.2.) and explain how and by what date you plan to return to compliance.			

<b>D. Hazardous Waste Container Management</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section D</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Are all containers used to store hazardous waste labeled with the words “Hazardous Waste”?			
2. Are all hazardous waste containers, except satellite accumulation containers, marked with the date when the first drop of hazardous waste is added to the container?			
3. Are all containers used to store hazardous waste in good condition (not rusted, dented, bulging or leaking)?			
4. Are all containers used to store hazardous waste kept closed except when adding or removing waste?			
5. Do you inspect weekly, and correct any issues noted, all containers that are used to store hazardous waste and look for: containers in poor condition, leaking containers, compatibility of wastes, hazardous waste labels, accumulation start dates, and ensure that the containers are closed?			
6. Are incompatible wastes segregated from each other? For example, are acids and bases stored separately?			

<b>D.</b>	<b>Hazardous Waste Container Management (continued)</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section D</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
7.	Are containers shipped to an appropriate treatment, storage, and disposal facility (TSD) within 180 days (or 270 days if the TSD is more than 200 miles away)?			
8.	If you answered “NO” to any of the questions listed in Section D, please indicate the item (for example D.2.) and explain how and by what date you plan to return to compliance.			

<b>E.</b>	<b>Off-Site Shipment of Hazardous Waste</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section E</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1.	Are off-site shipments of hazardous wastes that are not covered by a reclamation agreement accompanied by a hazardous waste manifest?			
2.	Are all hazardous waste manifests completed accurately?			
3.	Has land disposal restriction (LDR) documentation been completed for each waste stream and for each treatment and storage facility you send waste to?			
4.	Are all land disposal restriction forms and <b>FINAL SIGNED</b> hazardous waste manifests retained for 3 years?			
5.	If you answered “NO” to any of the questions listed in Section E, please indicate the item (for example E.2.) and explain how and by what date you plan to return to compliance.			

<b>F.</b>	<b>Hazardous Waste Training and Emergency Response</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section F</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1.	Do you <b>PERFORM TRAINING AND DOCUMENT</b> that all personnel involved with hazardous waste management, including signing hazardous waste manifests, are trained so that they are thoroughly familiar with proper hazardous waste handling, emergency response procedures, and other job-specific hazardous waste management responsibilities of their jobs?  ( <b>Note:</b> an example of the way to document training is on page 26 of the guidance document.)			

<b>F.</b>	<b>Hazardous Waste Training and Emergency Response (continued)</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section F</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
2.	Has an emergency coordinator been established for the facility <b>AND</b> is he/she familiar with his/her responsibilities in that position?			
3.	Has emergency response information, including <b>the locations of emergency equipment and the name and phone number of the emergency response coordinator</b> , been posted by the telephone(s)?			
4.	Have you determined what emergency equipment is appropriate for your facility?			
5.	Is adequate aisle space provided around the containers of hazardous waste to allow for unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment?  <b>(Note:</b> Hazardous waste inspectors will generally consider about two feet of aisle space as being adequate.)			
6.	Have emergency response arrangements, as appropriate for the type of waste handled and the potential need for services, been made with the local response organizations? (At a minimum, arrangements should be made with your local fire department.)  Write in the name of your fire protection district:			
7.	Is the facility operated in a manner that minimizes the potential for releases of hazardous waste?			
8.	If you answered "NO" to any of the questions listed in Section F, please indicate the item (for example F.2.) and explain how and by what date you plan to return to compliance.			

<b>G.</b>	<b>Air Pollution Control</b> <i>For more information, go to the <a href="#">Guidance Document Link to Section G</a></i>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1.	If you are required to, has your facility filed an Air Pollution Emission Notice (APEN) or been issued an air permit?			
2.	If you answered "NO" to the question listed in Section G, please indicate the item (for example G.1.) and explain how and by what date you plan to return to compliance.			

This is the end of the Small Quantity Generator Self-certification Checklist. Complete the certification below, print a copy for your files, and then select the "Submit" button to electronically send your data to the Department. **Your certification is not complete until you SUBMIT your data.**

**For the purposes of this form, the Colorado Department of Public Health and Environment accepts your typed name, title, and date as an electronic signature equivalent to your valid signature on a paper copy of the form. As such, this electronically completed form bears the same rights and responsibilities as a hand-signed form.**

I certify that:	
1. I have personally examined and am familiar with the information contained in this submittal;	
2. The information contained in this submittal is, to the best of my knowledge, true, accurate and complete in all respects; and	
3. I am fully authorized to make this certification on behalf of this facility.	
I am aware that there are significant penalties including, but not limited to, possible fines and imprisonment for willfully submitting false, inaccurate or incomplete information.	
_____	_____
<b>Facility Representative</b>	<b>Title</b>
_____	
<b>Date</b>	

**If you would like an email confirming that your completed form was received, please enter your email address on the line below:**

\_\_\_\_\_

**If you have questions about the proper response to certain items on this checklist, have questions about the underlying regulatory requirements, or have questions about a unique situation at your facility, please refer to the [Guidance Document for the Small Quantity Generator Self-Certification Checklist](#) included with this checklist, visit <http://www.cdphe.state.co.us/hm/>, or call the Self-Certification Project contacts listed below:**

- Hazardous Waste Questions-Amy Williams.....(303) 692-3461
- Hazardous Waste Questions – Derek Boer (English and Spanish) ..... (303) 692-3329
- Air Pollution Questions - Joni Canterbury (303) 692-3175 or Christine Hoefler.....(303) 692-3148
- Environmental Leadership-Lynette Myers ..... (303) 692-3477

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## **Appendix B:**

### **EPA Sample Size Tool**

## Estimate the Sample Size Required for One Round of Inspections

[Go Back to Instructions / Main Menu](#)

[To Definitions of Key Terms](#)

**When to use this spreadsheet:** When you want to find out how many inspections you should conduct in a round of random inspections, based on the margin of error and confidence level you are seeking.

Enter your data in the yellow cells		
The results are shown in green cells. These cells are locked.		
Assumptions and calculations are shown in gray cells. These cells are locked, too.		
<b>Information needed</b>	<b>Input/ Results</b>	<b>Statistical terminology</b>
<b>Enter Your Information</b>		
What confidence level do you want to have?	90% ▼	Confidence level
How many facilities is your ERP focusing on? (Estimate if you do not know.)	100	Population or N
What margin of error do you want, above and below the estimate of the proportion of facilities that have the characteristic you are measuring (e.g., are in compliance)?	10.0%	Margin of error or Half-width of confidence interval
<b>Results</b>		
Number of inspections required	40	Sample required (finite population corrected)
<b>For Advanced Users: Assumptions and Calculations</b>		
Inspections required with an infinite population	66	Sample required for Score interval
Assumed proportion, p	0.50	Assumed proportion, p
p(1-p)	0.25	p(1-p)
Confidence level	90%	Confidence level, (1- $\alpha$ )
Factor to achieve level of confidence required	1.645	Value of a standard normal, $Z_{(1-\alpha/2)}$
<b>Reference:</b>		
Derived from: Agresti and Coull. 1998. "Approximate is Better than 'Exact' for Interval Estimation of Binomial Proportions." <i>The American Statistician</i> , v. 52, no. 2, 119-126.		

This is a screen print of a statistical tool developed by EPA that has been available on their website since at least 2007. Under the “Enter Your Information” heading, there are three input variables that can be chosen and the tool calculates the “Results”. For the SQG self-certification project, we chose a 90 percent confidence and a 10 percent margin of error, then entered in the number of self-certification checklists returned in a given year. The Tool then calculated the number of follow-up inspections needed each year.

## **Appendix C:**

### **Discussion of EBPI Question Designation**

## Discussion of EBPI Question Designation

Certain checklist questions have been designated as EBPIs (environmental business practice indicators; indicated by orange shading in the table below). EBPIs are those requirements that, when violated, present a higher risk to human health and/or the environment than other violations. Using Tables A through F from the Self-Certification Checklist (see Appendix A), we have designated questions A1, A4, A5, D3, D4, D5, D6, F1, F2, F3, F4, F6, and F7 as EBPIs. Each of these questions is shaded in the table below and a rationale has been provided for both the EBPI questions and the non-EBPI questions.

A.	General	Graphs 6-10 Question Numbers	EBPI Justification
1.	Has your facility determined which wastes generated at your facility are hazardous wastes and which wastes are not hazardous wastes?	2	Making an adequate hazardous waste identification is the first step toward safe, secure, and compliant management. Therefore, getting this wrong could have extensive health and environmental effects. Hence, we designated this requirement an EBPI.
2.	Does the physical address at your facility match the address associated with your EPA Identification Number?	3	Getting this requirement wrong, by itself, would have little to no affect on public and environmental health. This is not, therefore, an EBPI.
3.	Does your facility use a transporter that is authorized to transport hazardous waste?	7	Whether the transporter used by the facility is authorized to transport hazardous waste or not does not, by itself, have much effect on public and environmental health. This is not, therefore, an EBPI.
4.	Does your facility dispose of all hazardous waste through a permitted treatment, storage and disposal (TSD) facility?	6	Hazardous waste must be finally dispositioned at a permitted TSD facility. If the waste goes to any other facility, there could be extensive effects on public and environmental health. Therefore, we have designated this requirement as an EPBI.
5.	Does your facility ensure that no hazardous waste is disposed of on the ground, or to a sanitary sewer, storm drain, bodies of water, or in the trash?	1	If hazardous waste is released into the environment, then there will be environmental effects and there may be public health effects. Therefore, we have designated this requirement as an EPBI.
6.	Do you either dispose of contaminated rags and shop towels as hazardous waste or send them to a commercial laundry service if the rags have been in contact with certain hazardous F- listed solvents like MEK or toluene?	5	Even if rags and shop towels contaminated with hazardous waste are improperly disposed, they are generally dried out by the time of disposal. In addition, if contaminated, they are usually disposed into the trash which is taken to a landfill. While technically this is improper disposal, it does not have much risk to public or environmental health. This is not, therefore, an EBPI.
7.	Do you manage your fluorescent lights, batteries, computers, aerosol cans and mercury containing devices as hazardous waste or universal waste instead of throwing them into the trash?	4	Universal wastes are generally lower risk and proper management is easy and readily available. As such, this requirement was not designated as an EBPI.

<b>C.</b>	<b>Used Oil Management</b>	<b>Graphs 6-10 Question Numbers</b>	<b>EBPI Justification</b>
1.	Are containers of used oil marked with the words "Used oil"?	16	Used oil is generally low toxicity and easily biodegradable. As such, violations of requirements for used oil present lower risk to public and environmental health and are, therefore, not EPBIs.
2.	Are all used oil spills and releases cleaned up immediately and properly managed?	18	
3.	Has your facility taken the measures specified in the guidance document to prevent the release of used oil to the environment?	17	
4.	Are all containers used to store used oil outside kept closed except when adding or removing waste?	15	

<b>D.</b>	<b>Hazardous Waste Container Management</b>	<b>Graphs 6-10 Question Numbers</b>	<b>EBPI Justification</b>
1.	Are all containers used to store hazardous waste labeled with the words "Hazardous Waste"?	14	Having a proper label, or not, has little direct effect on public and environmental health. Therefore, this requirement is not an EBPI.
2.	Are all hazardous waste containers, except satellite accumulation containers, marked with the date when the first drop of hazardous waste is added to the container?	12	Having an accurate date on a container label, or not, has little direct effect on public and environmental health. Therefore, this requirement is not an EBPI.
3.	Are all containers used to store hazardous waste in good condition (not rusted, dented, bulging or leaking)?	11	Containers being used to manage hazardous waste must not be leaking or in a condition where they could potentially leak. Leaks from containers could directly impact public and environmental health. Therefore, this requirement is an EBPI.
4.	Are all containers used to store hazardous waste kept closed except when adding or removing waste?	9	Containers that are open or improperly closed could tip over during use or transport, releasing hazardous waste and directly affecting public and environmental health. Therefore, this is an EBPI.
5.	Do you inspect weekly, and correct any issues noted, all containers that are used to store hazardous waste and look for: containers in poor condition, leaking containers, compatibility of wastes, hazardous waste labels, accumulation start dates, and ensure that the containers are closed?	13	The condition and integrity of containers can change rapidly and frequently. Once containers leak, they directly affect public and environmental health. Therefore, this is an EBPI.
6.	Are incompatible wastes segregated from each other? For example, are acids and bases stored separately?	10	If incompatible waste are allowed to mix, violent or heat releasing chemical reactions can occur. In turn, these reactions can directly affect public and environmental health. Therefore, this is an EBPI.
7.	Are containers shipped to an	8	Containers of hazardous waste shipped offsite

<b>D.</b>	<b>Hazardous Waste Container Management</b>	<b>Graphs 6-10 Question Numbers</b>	<b>EBPI Justification</b>
	appropriate treatment, storage, and disposal facility (TSD) within 180 days (or 270 days if the TSD is more than 200 miles away)?		after some period of time longer than 180 days does not, by itself, necessarily increase risk to public or environmental health. Therefore, this requirement is not an EPBI.

<b>E.</b>	<b>Off-Site Shipment of Hazardous Waste</b>	<b>Graphs 6-10 Question Numbers</b>	<b>EBPI Justification</b>
1.	Are off-site shipments of hazardous wastes that are not covered by a reclamation agreement accompanied by a hazardous waste manifest?	21	Manifest and LDR violations are essentially paperwork violations and do not, by themselves, increase risk to public or environmental health. Therefore, these requirements are not EBPIs.
2.	Are all hazardous waste manifests completed accurately?	20	
3.	Has land disposal restriction (LDR) documentation been completed for each waste stream and for each treatment and storage facility you send waste to?	22	
4.	Are all land disposal restriction forms and <b>FINAL SIGNED</b> hazardous waste manifests retained for 3 years?	19	

<b>F.</b>	<b>Hazardous Waste Training and Emergency Response (continued)</b>	<b>Graphs 6-10 Question Numbers</b>	<b>EBPI Justification</b>
1.	Do you <b>PERFORM TRAINING AND DOCUMENT</b> that all personnel involved with hazardous waste management, including signing hazardous waste manifests, are trained so that they are thoroughly familiar with proper hazardous waste handling, emergency response procedures, and other job-specific hazardous waste management responsibilities of their jobs?	27	We have found that providing adequate employee training is the single most important predictor of compliance with other requirements. Since the hazardous waste regulatory program is largely a prevention program – preventing hazardous waste from being improperly and uncontrollably released into the environment and preventing employee exposure to and injury from hazardous wastes – proper training safeguards both workers at the facility, people in the nearby environs, and the environment. Therefore, this requirement is an EBPI.
2.	Has an emergency coordinator been established for the facility <b>AND</b> is he/she familiar with his/her responsibilities in that position?	25	In an emergency, not having a designated emergency coordinator that knows what he/she is doing could endanger people and the environment. Therefore, this requirement is an EBPI.
3.	Has emergency response information, including <b>the locations of emergency equipment and the</b>	29	Emergency information that is quickly available can be vital in a proper emergency response. Timely response can minimize effects on public

	<b>name and phone number of the emergency response coordinator, been posted by the telephone(s)?</b>		and environmental health. Therefore, this is an EBPI.
4.	Have you determined what emergency equipment is appropriate for your facility?	26	Many times, fast action by facility staff to an emergency can be more valuable than waiting for emergency responders. Having appropriate emergency response equipment available to staff is vital. Therefore, this is an EBPI.
5.	Is adequate aisle space provided around the containers of hazardous waste to allow for unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment?	23	Adequate aisle space ensures that containers can be completely inspected. However, not having adequate aisle space does not, by itself, present high risk to public and environmental health. Therefore, this requirement has not been designated an EBPI.
6.	Have emergency response arrangements, as appropriate for the type of waste handled and the potential need for services, been made with the local response organizations? (At a minimum, arrangements should be made with your local fire department.)	24	In an emergency that is at a scale where facility staff is overwhelmed, the best defense against public and environmental effects is quick action by emergency responders. Arrangements must be made beforehand. Not having these arrangements significantly increases risk to public and environmental health. Therefore, this is an EBPI.
7.	Is the facility operated in a manner that minimizes the potential for releases of hazardous waste?	28	If a facility manages its hazardous waste in a sloppy manner, without good housekeeping and other "best management practices," the likelihood of a release into the environment goes up significantly. Therefore, this is an EBPI.