

# **Changes in State and Local Air Pollution Compliance Practices Due to Increased Title V and Other Permit Recordkeeping and Reporting Requirements**

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## **ABSTRACT**

This paper is directed to state and local air pollution control agencies responsible for air pollution compliance management and to the facilities regulated by these agencies.

Title V of the Clean Air Act and other operating permit requirements of stationary sources have created many new recordkeeping and reporting requirements for regulated facilities. These new requirements are causing air pollution control agencies to review and revise their prior compliance management practices to respond to this large growth in facility-reported compliance information.

A survey was conducted of 32 state air pollution control agencies on their current compliance practices and experience. The survey was divided into six parts: 1) General Information, 2) State Resources Devoted to Compliance Management Activities, 3) Permitted Air Pollution Sources and Common Compliance Problems, 4) Compliance Review and Inspection Practices, 5) Compliance Tracking Systems, and 6) Suggestions. Eleven states responded to the survey with nine providing complete responses and two providing partial responses.

Survey results showed a wide variation between the air pollution control agencies that participated in the survey in terms of the number of compliance staff within each agency and the number of permitted sources within each state.

There are over nine times as many permits per full time compliance staff member in the state with the least compared to the state with the most number of permits per compliance staff member. There are also 140 times as many sources per compliance problem in the state with the least compliance problems compared to the state with the most compliance problems per source. There are many possible reasons for these great differences in compliance activity.

The responses to the survey questions on compliance functions, common deviations, and compliance tracking systems show a wide range of existing compliance practices, allocation of agency resources to the different compliance functions, and uses of available compliance data.

The responses to survey questions on problems facing compliance agencies, recently implemented measures and advice to other state agencies offer insight into the challenges facing

state compliance organizations and recommendations on how to improve compliance management practices.

The results of this survey may be helpful to the managers of state and local air pollution control agencies and to Title V and other air permit holders concerned with how the compliance information they report and maintain is used by the state agencies to evaluate their compliance status.

## **INTRODUCTION**

The Clean Air Act gives state and local air pollution control agencies primary responsibility to issue air permits to regulate the release of air pollutants from facilities. These permits contain numerous recordkeeping and reporting requirements. State and local compliance and enforcement programs are aimed at monitoring activities at regulated facilities to identify permit deviations and violations and to bring regulated facilities into compliance with regulatory requirements. Operating a compliance and enforcement program requires considerable human and financial resources that are partially compensated for in the form of permit application fees and fines levied for permit violations.

The purpose of this study is to identify trends in the compliance practices of air pollution control agencies throughout the United States. Additionally, this study identifies compliance and enforcement tools and best practices used by these agencies to achieve compliance and to improve the efficiency and performance of such programs.

The results of this study are intended to provide these agencies with information that may help them improve their compliance and enforcement programs.

## **METHODOLOGY**

We designed a survey consisting of six parts: 1) General Information, 2) State Resources Devoted to Compliance Management Activities, 3) Permitted Air Pollution Sources and Common Compliance Problems, 4) Compliance Review and Inspection Practices, 5) Compliance Tracking Systems, and 6) Suggestions. The survey was first emailed to the air compliance directors of the 32 agencies listed in Table 1 and a few days later a hard copy of the survey was also mailed to these air compliance directors.

Eleven state agencies responded to the survey with nine providing complete responses and two providing partial responses. The responding state agencies are also listed in Table 1.

Individual state survey results were entered in a spreadsheet from which survey statistics and results were tabulated. Responding states were assigned separate numbers to maintain the confidentiality of each state's individual response. Where state responses were unclear or incomplete, the state agency was contacted to clarify or request additional information to complete their responses.

**Table 1.** Agencies Surveyed and Responding

<b>State</b>	<b>Response</b>	<b>Type of Response</b>
Alabama	No	
Arkansas	No	
Connecticut	No	
Delaware	No	
Florida	No	
Georgia	Yes	Complete
Illinois	No	
Indiana	Yes	Complete
Kentucky	Yes	Partial
Louisiana	No	
Maine	Yes	Complete
Maryland	No	
Massachusetts	No	
Michigan	Yes	Complete
Minnesota	Yes	Partial
Mississippi	No	
Missouri	Yes	Complete
Nebraska	No	
New Hampshire	No	
New Jersey	No	
New York	No	
North Carolina	Yes	Complete
Ohio	No	
Pennsylvania	Yes	Complete
Rhode Island	No	
South Carolina	No	
Tennessee	No	
Texas	No	
Vermont	No	
Virginia	Yes	Complete
West Virginia	No	
Wisconsin	Yes	Complete

## DISCUSSION OF RESULTS

The percent distribution of full-time technical staff by the headquarters, regional offices, and local agencies is presented in Table 2. The number of full-time technical staff devoted to compliance activities varied greatly among the respondent agencies with numbers ranging from 4 to 120.

On average, about one third of these staff are located at headquarters and over half are located in regional offices. 80% of the responding agencies have more than half of their equivalent full-time technical staff at regional or local air pollution agencies. Two of the responding states have no compliance staff in regional offices. Three out of the eleven responding state agencies have local air pollution control agencies. The state agencies that responded to the survey vary widely in number and allocation of equivalent full-time staff. This suggests that responses to other survey questions are potentially applicable to a diverse group of state air pollution agencies.

Tables 3, 4, and 5 summarize the allocation of compliance staff resources among on-site inspections, review of annual emission statements, review of compliance certifications, review of excess emission reports, initial review of new sources and other compliance activities at the headquarters, regional offices and local agencies, respectively. The responses for cases where the state compliance agency did not indicate staff members assigned to a specific compliance function have been denoted as "N/A".

Table 3 shows that approximately half of compliance staff resources at the agency's headquarters are devoted to "other" compliance activities. The most commonly cited "other" compliance activities include complaint investigation, stack test observation and review, policy development and interpretation, and review of additional reports and continuous monitoring. An average of 15% or less of headquarters compliance resources are allocated to each of the activities listed in the previous paragraph.

Analysis of the responses presented in Table 4 indicates that the regional offices vary in the amount of resources allocated to each function with their greatest emphasis on on-site inspections (50%) followed by "other" functions (24%). The reason for the high percentage of regional office resources being allocated to performing on-site inspections may simply be due to the fact that regional offices are often distributed throughout a state. Therefore it would be more economical and a better use of resources to send an inspector from a regional office to perform an on-site inspection of a facility than sending an inspector from the head office, which may be located hundreds of miles from a facility.

Respondents indicated that "other" functions mainly involve handling citizen complaint investigations, performing stack tests, and performing administrative or database management tasks. Table 4 also indicates that relatively small percentages of the resources at most of the regional offices are devoted to the review of Annual Emission Statements, review of Compliance Certifications, review of Excess Emission Reports and review of initial new source compliance with permit conditions.

**Table 2.** Percentage of Equivalent Full-Time Technical Staff Assigned to Compliance Review Functions That are Located at Headquarters, Regional Offices and Local Agencies

State ID	Total Number of Full-Time Technical Staff	Location		
		Headquarters (%)	Regional Offices (%)	Local Air Pollution Control Agencies (%)
1	47	32	43	26
2	27	15	85	0
3	126	6	79	16
4	75	15	85	0
5	10	30	70	0
6	59	64	25	10
7	8	13	88	0
8	35	69	31	0
9	120	17	83	0
10	4	100	0	0
11	7	0	0	100
Average	47	33	54	14

**Table 3.** Percentage of Personnel Resources at Headquarters Devoted to Various Agency Functions

State ID	Function Description					
	On-site Inspections (%)	Review of Annual Emission Statements (%)	Review of Compliance Certifications (%)	Review of Excess Emission Reports (%)	Initial New Source Compliance Review (%)	Other (%)
1	0	10	20	10	5	55
2	10	0	2	10	0	0
3	0	0	0	23	0	67
4	40	0	0	0	0	60
5	2	0	0	10	0	88
6	25	5	15	10	5	40
7	1	1	1	1	0	86
8	50	10	15	10	5	10
9	5	5	5	5	10	50
10	N/A	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A	N/A
Average	15	3	6	9	3	51

**Table 4.** Percentage of Personnel Resources at Regional Offices Devoted to Various Agency Functions

State ID	Function Description					
	On-site Inspections (%)	Review of Annual Emission Statements (%)	Review of Compliance Certifications (%)	Review of Excess Emission Reports (%)	Initial New Source Compliance Review (%)	Other (%)
1	75	0	0	0	5	25
2	70	10	5	10	5	0
3	58	8	5	3	1	25
4	35	5	5	1	0	15
5	20	10	15	10	10	35
6	30	5	20	10	5	30
7	40	0	10	10	0	40
8	N/A	N/A	N/A	N/A	N/A	N/A
9	70	70	30	30	10	0
10	N/A	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A	N/A
Average	50	14	11	9	7	24

**Table 5.** Percentage of Personnel Resources at Local Air Pollution Agencies Devoted to Various Agency Functions

State ID	Function Description					
	On-site Inspections (%)	Review of Annual Emission Statements (%)	Review of Compliance Certifications (%)	Review of Excess Emission Reports (%)	Initial New Source Compliance Review (%)	Other (%)
1	55	10	5	5	5	20
2	0	0	0	0	0	0
3 <sup>(a)</sup>	35/41	10/13	10/14	10/2	5/5	30/25
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A
11	30	15	20	10	10	15
Average	18	5	5	3	3	10

(a) Compliance activities performed by two local agencies in state.

Table 5 shows that an average of 18% of local compliance resources are devoted to on-site inspections. Review of annual emission statements, compliance certifications, review of annual reporting data and new source compliance review data play a minor role with an average of 3 to 5% of local compliance resources compared to "other" activities.

Table 6 summarizes the number of air pollution sources regulated by various air permits. There is a wide variation in the number of regulated sources and permit levels in states responding to the survey. The average number of permitted sources is 3,005, with a minimum of 577 and a maximum of 6,700. On average there are 1.9 times more conditional major sources than Title V sources in the reporting states. The highest average permit type was minor source permits at 1,384 and the lowest average permit type was Title V permits at 380.

Table 7 shows the ratio of permitted sources to equivalent full-time compliance staff. The average number of permitted sources to compliance staff for the responding states is 104, with a minimum of 20 and a maximum of 191. There are over *nine times* as many permits per full time compliance staff member in the state with the least compared to the state with the most number of permits per compliance staff member. There are many possible reasons for this wide variation in permits per compliance staff member. They include: 1) the complexity of sources, 2) the complexity of the operating permits and recordkeeping and reporting requirements per permit, 3) the amount of regionalization of compliance activities, 4) the amount of effort intentionally devoted by each state to its compliance activities, and 5) the overall efficiency of the compliance work by each state agency.

**Table 6.** Number of Air Pollution Sources Regulated by Various Permit Types

State ID	Total Number of Permits	Permit Type			
		Title V	Conditional Major	Minor	Other
1	2,033	337	290	1,406	0
2	2,275	595	985	695	0
3	2,575	671	616	1,288	0
4	5,503	426	681	4,396	0
5	1,659	289	243	1,127	0
6 <sup>(a)</sup>	6,650	630	520	> 1,000	> 4,500
7	1,050	70	198	632	150
8	6,700	450	3,350	2,200	700
9	2,947	355	659	1,933	0
10	577	319	258	0	0
11	1,087	42	170	550	325
Average	3,005	380	725	1,384	516

(a) In calculating the average number of Minor Permits and Other Permits, for State 6 we assumed the numbers were 1,000 and 4,500, respectively.

**Table 7.** Ratio of Permitted Sources to Full-Time Technical Staff

<b>State ID</b>	<b>Total Number of Permits</b>	<b>Total Number of Full-Time Technical Compliance Staff</b>	<b>Ratio of Permitted Sources to Full-Time Technical Compliance Staff</b>
1	2,033	47	43
2	2,275	27	84
3	2,575	126	20
4	5,503	75	73
5	1,659	10	166
6	6,650	59	113
7	1,050	8	131
8	6,700	35	191
9	2,947	120	25
10	577	4	144
11	1,087	7	155
Average	3,005	47	104

Table 8 presents a summary of annual compliance certifications received in the most recent year and the percent that were certified continuous versus intermittent compliance. An average of 525 annual compliance certifications were received, with the range spanning from 55 to 1,124 certifications. On average, in 62% of the certifications received sources reported continuous compliance while the other 38% of sources reported intermittent compliance. There is no correlation between the number of certifications received and the percentage of continuous or intermittent compliance.

Table 9 identifies the number of compliance problems for each agency for the most recent year of data available as well as a breakdown of the percentage of compliance problems that were handled by either the agency's compliance or enforcement divisions. The average number of compliance problems was 601, while the reported maximum and minimum number of compliance problems was 2,460 and 36, respectively. Table 10 also provides a breakdown of the percentage of compliance problems handled by the agency's compliance and enforcement divisions.

On average, 65.4% of the compliance problems were handled by the compliance organization and 43.6% were referred to enforcement although these percentages varied widely by state. The state agency identified as State ID 4 had the maximum percentage (88%) of compliance problems handled by the agency's compliance organization with a minimum percentage



**Table 8.** Percentage of Compliance Certifications Received that were Continuous Versus Intermittent for the Most Recent Year

<b>State ID</b>	<b>Year</b>	<b># Annual Compliance Certification</b>	<b>% Continuous Compliance</b>	<b>% Intermittent Compliance</b>
1	2005	620	75	25
2	2005	1133	89	11
3	2005	537	N/A	N/A
4	2005	430	48	52
5	2006	289	95	5
6	2005	1124	71	29
7	2005	55	40	60
8	2005	440	38	62
9	2006	352	N/A	N/A
10	2005	273	99	1
11	2002	N/A	5	95
Average	2005	525	62	38

**Table 9.** Percentage of Compliance Problems Addressed by the Compliance Branch and the Enforcement Branch for the Most Recent Year

State ID	Year	# compliance problems	% handled by compliance	% sent to enforcement
1	2005	272	100 <sup>(b)</sup>	100 <sup>(b)</sup>
2	2005	382	24	76
3	2005	2460	70	30
4	2005	534	88	12
5	2006	626	87	13
6	2005	900	75	25
7	2005	36	83	17
8	2006	48	50	50
9	2006	548	67	23
10	N/A	N/A	N/A	N/A
11	2002	200	10	90
Average		601	65.4	43.6

(b) This agency's compliance and enforcement duties are performed by a single division.

(12%) of compliance problems being handled by the agency's enforcement organization. The state agency identified as State ID 11 indicated the minimum percentage of compliance problems handled by the agency's compliance organization, 10%, with 90% of compliance problems being handled by the agency's enforcement organization.

Table 10 presents the ratio of permitted sources to compliance problems. The average number of permitted sources to compliance problems was 99, while the minimum was 1 and the maximum was 140. The ratio of permitted sources to compliance problems was 1 for the state agency that indicated the highest number of compliance problems, State ID 3. This ratio could indicate that most permitted sources have some type of compliance problem or it could also indicate that some permitted sources have multiple compliance problems.

Table 11 presents the ratio of current compliance problems to full-time technical staff. This table shows there are from 1 to 63 compliance problems per technical staff member with an average of 16 per staff member.

**Table 10.** Ratio of Permitted Sources to Compliance Problems

<b>State ID</b>	<b>Total Number of Permits</b>	<b>Number of Compliance Problems</b>	<b>Ratio of Permitted Sources to Compliance Problems</b>
1	2,033	272	7
2	2,275	382	6
3	2,575	2460	1
4	5,503	534	10
5	1,659	626	3
6	6,650	900	7
7	1,050	36	29
8	6,700	48	140
9	2,947	548	5
10	577	N/A	N/A
11	1,087	200	5
Average	3005	47	99

**Table 11.** Ratio of Compliance Problems to Technical Staff

<b>State ID</b>	<b>Number of Compliance Problems</b>	<b>Total Number of Full-Time Technical Staff</b>	<b>Ratio of Compliance Problems to Full-Time Technical Staff</b>
1	272	47	5.79
2	382	27	14.15
3	2460	126	19.52
4	534	75	7.12
5	626	10	62.60
6	900	59	15.25
7	36	8	4.50
8	48	35	1.37
9	548	120	4.57
10	N/A	4	N/A
11	200	7	28.57
Average	601	47	16

Table 12 shows state inspection practices among the state agencies that responded to the survey. An average of 57% of Title V and conditional major sources are inspected each year, with minimum and maximum inspection rates of 23% and 90%, respectively. An average of 75% of inspections are unannounced.

However, survey results showed contrasting practices in this area. Seven states responded that 90% or more of inspections are unannounced, while the remaining 3 respondents indicated that less than 50% are unannounced. The most common deviations compliance inspectors find while performing on-site inspections are failure of sources to keep adequate records required by their permit, followed by monitoring noncompliance and emission violations.

**Table 12.** Percentage of Title V and Conditional Major Sources that Have Annual On-site Inspections

State ID	Inspection Type	
	% On-site Inspections	% Unannounced Inspections
1	80	100
2	23	0
3	90	> 95%
4	80	90
5	50	98
6	60	99
7	30	50
8	62	100
9	66	100
10	35	N/A
11	50	20
Average	57	75

Table 13 shows the number of inspections per technical compliance staff person per year, ranging from 6 to 67 inspections and with an average rate of 21 inspections. There is an inverse correlation between the percent of sources inspected each year and the number of sources inspected per technical compliance staff person. This potentially indicates that where the number of sources inspected annually per staff person is larger, the compliance review may be less intensive.

Table 14 summarizes compliance tracking systems utilized by state compliance agencies. Ten of the eleven responding states utilize computer software to track complaints, however only 3 of the compliance organizations reported using computerized systems to track deviations. Furthermore, none of the state reported using computerized software to identify deviations. A potential opportunity for future development in the compliance field may be to expand computerized tracking of deviations and automate initial screening processes.

**Table 13.** Number of Title V and Conditional Major Sources Inspected Annually per Technical Staff Person

<b>State ID</b>	<b>% On-site Inspections</b>	<b># Title V &amp; Conditional Major Sources</b>	<b># Title V &amp; Conditional Major Sources Inspected Annually</b>	<b>Total Number of Full-Time Technical Compliance Staff</b>	<b># Sources Inspected Annually per Technical Compliance Staff Person</b>
1	80	627	502	47	11
2	23	1,580	363	27	13
3	90	1,287	1158	126	9
4	80	1,107	886	75	12
5	50	532	266	10	27
6	60	1,150	690	59	12
7	30	268	80	8	10
8	62	3,800	2337	35	67
9	66	1,014	669	120	6
10	35	577	202	4	50
11	50	212	106	7	15
Average	57	1105	628	47	21

**Table 14.** State Air Quality Compliance Database Systems

State ID	Does your agency utilize any type of software or tools to do the following:	
	Track Air Quality Complaints and/or Deviations?	Identify Deviations?
1	Yes, we have developed our own database.	No
2	Yes, a database has been set up in Microsoft Access for tracking complaints, but it is not universally used across the program.	No
3	Yes, all complaints are logged and tracked in the Complaint Tracking System (CTS). There is no ability for companies or the public to directly report excess emissions or deviations other than emergencies.	No
4	Yes, we currently utilize a compliance database system for the tracking of complaints. A separate spreadsheet is currently used to track all incoming Title V certification and deviation reports. A new program is being developed and is scheduled to be deployed at the end of 2006 and will replace both these tracking systems.	No
5	Yes, a Pollution Response database. Inspections of sources resulting from complaints are recorded and maintained in the compliance database as well.	No
6	Yes, Air Compliance and Enforcement System (ACES) and Communications Database. ACES is a web and Oracle based system. Yes, ACES is used to track deviations.	No
7	No.	No
8	Yes, we have a complaint tracking system.	No.
9	Yes, a complaint database. Deviations are tracked by office.	No.
10	Yes, the agency has developed incident management system on oracle database tracking both complaints and deviations.	No, but this is planned for future development
11	Yes, the agency uses a custom privately developed database.	No

Table 15 indicates that while many of agencies have internal databases, tracking systems, and internally accessible websites to track citizen complaints and complaint investigations, none of the eleven surveyed states have websites available to citizens to track complaints against a source. One of the eleven agencies (State ID 3) has a website that citizens can access; however the agency first has to initiate an investigation of the complaint before it can be tracked a citizen. Four of the eleven respondents indicated that citizens can contact the agency to get further information about the complaint incident or to find out if an investigation into the complaint has been initiated.

Table 16 presents a summary of survey responses to the question about the biggest problems faced by state compliance review and their solutions to these problems. The primary problem identified is inadequate staffing levels. Nine state agencies responded to this question.

Table 17 summarizes the new measures instituted in recent years to improve compliance review performance, identified by the 10 state agencies responding to this question. Three of the eleven respondents indicated that they have developed either a database or electronic filing system to manage compliance information. Two of the eleven respondents indicated that they have conference calls with air compliance staff to improve communication within the division. Other respondents indicated that they have developed guidelines on resolving violations and how to identify, track, and resolve violations while another respondent indicated that they have improved communication with sources to help the source understand the requirements of their air permit and to improve the quality of air permits. Two of the eleven respondents indicated that they have implemented the Compliance Monitoring Strategy mandated by the U.S. EPA.

Table 18 presents suggestions from state compliance agencies to other compliance agencies on how to achieve effective compliance. The most common suggestions included creating a relationship with the sources that fosters open communication channels and learning opportunities for the permit writer and the source as well as strong field presence and enforcement response to ultimately encourage compliance.

**Table 15.** Citizens Access to Compliance Tracking Systems for Citizens

State ID	Does your agency have a tracking system where citizens can find details about a complaint incident or find out information about the investigation of an incident?
1	No.
2	No.
3	No, but complaints to the CTS that result in an inspection; can be tracked online if an enforcement action is initiated as a result of a complaint.
4	No.
5	No.
6	No. The system is not available on line, but complainants can contact the assigned inspector and inspectors are required to notify complainants about the investigation.
7	No.
8	Complaint tracking system does not have direct access for citizens.
9	Not online. However, f a complaint is filed, citizens can request update information. Additionally, citizens can review our files or view information available on our website.
10	Must request status report from our office.
11	No. The database used internally is not directly available on our website. Information requests are handled individually and manually.



**Table 16.** Biggest Problems Facing State Compliance Review Organizations and the Measures Taken to Address Them

State ID	What are the biggest problems facing your Compliance Review organization, and what are you doing to address these problems?
1	Retention of trained employees.
2	Lack of funding for compliance activities at non-Title 5 sources. Very initial discussions have occurred with our EPA region concerning possible options to address this.
3	N/A
4	Our biggest challenge is the periodic legislative renewal of fees to adequately support our Title V program.
5	Making sure the 7 regional offices consistently interpret and enforce the regulations. This is accomplished best by promoting an open dialog between regions and the central office, providing standard operating procedures to orchestrate how we do business, conduct audits of the regional office files to address then correct problems if detected.
6	Volume of quarterly reports is the biggest problem and this is being addressed with a virtual file room, electronic reporting, and ACES.
7	Work load now exceeds staffing levels.
8	Work load now exceeds staffing levels.
9	Tracking and targeting of compliance activities. AFS and our data systems need to be modernized before MDRs are increased.
10	N/A
11	The biggest problem is due to several staff vacancies and several new staff members in various stages of training.

**Table 17.** New Measures Instituted in Recent Years to Improve Compliance Review Performance

State ID	What new measures have been instituted in the past few years to improve your organization's performance in compliance reviews?
1	Development of our database.
2	Bi-monthly statewide conference calls for all air compliance staff to discuss issues.
3	Implemented the "Guidelines for Identifying, Tracking and Resolving Violations of Air Quality" policy. This policy provides specific timelines for completing each step for identifying, tracking and resolving violations.
4	Implementation of the new Compliance Monitoring Strategy.
5	The development and implementation of additional Air Standard Operating Procedures and the re-implementation of monthly Air Compliance Managers conference calls.
6	Standard Operating Procedures and ACES.
7	Standardization of forms and reports; Electronic report filing.
8	Integrated Air information Platform database.
9	Measures that have improved our performance include better-written permits, more communication with the facilities to understand the requirements, and a high degree of field presence.
10	N/A
11	Implementation of the U.S. EPA's Compliance Monitoring System.

**Table 18.** State Compliance Organization Suggestions for Other State Air Compliance Directors to Achieve Effective Compliance

State ID	What are the most important suggestions you have for other state air compliance directors to achieve effective compliance?
1	Train your employees and pay enough so that they will stay.
2	Nothing to suggest at this time.
3	Provide a strong field presence by maintaining a higher inspection frequency than required by the compliance monitoring strategy.
4	Having Title V permits written by the compliance inspectors.
5	Keep the lines of communication open. Provide good and consistent guidance and promote regional cooperation in following proper protocol and procedure.
6	Nothing to suggest at this time.
7	Develop good working relation with emission sources but always keep them on their toes. Remember that money is the biggest motivator for the private sector. You need to have a fair, consistent and strict penalty program.
8	Provide a strong field presence.
9	Outreach and education are important elements of the overall effort to achieve compliance. They can be effective carrots. But is must be coupled with a strong enforcement response. The carrot may not be effective for very long without the stick.
10	N/A
11	N/A

## CONCLUSIONS

Survey results showed a wide variation in the states responding in terms of permitted sources and number of staff involved in compliance review. This suggests that responses to other questions in the survey may be applicable to states with both a large and small permit volume by number of full-time technical staff dedicated to compliance review.

The survey responses to questions related to personnel resources allocation and ratio of compliance problems to full time staff show that eighty percent of the responding agencies have more than 50% of their equivalent full-time technical staff at regional or local air pollution agencies. Personnel resources at the headquarters are generally employed in other "other" compliance activities, which include complaint investigation, stack test observation and review, policy development and interpretation, and review of additional reports and continuous monitoring. Personnel resources at the regional offices have a greater emphasis on on-site inspections followed by "other" functions. And, personnel at the local agencies are regularly devoted to on-site inspections.

There are over nine times as many permits per full time compliance staff member in the state with the least compared to the state with the most number of permits per compliance staff member. There are also 140 times as many sources per compliance problem in the state with the least compliance problems compared to the state with the most compliance problems per source. There are many possible reasons for these great differences in compliance activity.

The responses to the survey questions on biggest problems and solutions, best practices and advice to other state agencies show that the primary problem identified is inadequate staffing levels and offer a broad set of recommendations on how to improve compliance practices.

The results of this survey may be helpful to the managers of state air pollution control agencies in making budgeting and operational decisions to improve further the air pollution permitting process especially in the presence of limited budgetary funds.