

Permitting Practices, Resources and Performance of State Air Pollution Control Agencies

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ABSTRACT

This paper is directed to state and local air pollution control agencies responsible for managing and preparing air pollution construction and operating permits.

A survey was conducted of 30 state air pollution control agencies plus the District of Columbia on their permitting practices and experience for the most recent year. The survey was divided into five parts: 1) General Information, 2) Permit Output, 3) Resources Required by the State to Prepare Air Pollution Permits, 4) Permitting Practices, and 5) Suggestions. Eleven states responded to the survey with seven providing complete responses and four providing partial responses.

Survey results showed a wide variation in the states responding in terms of permit output and number of staff involved in preparing permits. This suggests that responses to other questions in the survey may be applicable to states with both a large and small permit volume by permit type.

There was a wide variation of survey responses including a wide variation in the efficiency of state agencies in preparing air pollution permits.

The responses to the survey questions on biggest problems and solutions, best practices, and advice to other state agencies offer a broad set of recommendations on how to improve permitting 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.

INTRODUCTION

State air pollution control agencies are mandated under the federal Clean Air Act and state laws to prepare air pollution construction and operating permits for all stationary air pollution sources above certain thresholds in emissions. These mandates require considerable human and financial resources that are partially compensated for in the form of permit application fees.

We believe there is a need for benchmarking and best practices surveys of state air pollution permitting practices similar to the kinds of studies conducted in the private sector in view of the budget pressures on state agencies and the decisions that must be made each year on how to carry out the funded and unfunded mandates with limited budgetary funds.

We conducted a prior study¹ of the benchmarking and best practices of state air pollution control agency air quality monitoring programs. This study applies a similar methodology to state air pollution permitting practices.

METHODOLOGY

We designed a survey consisting of five parts: 1) General Information, 2) Permit Output, 3) Resources Required by the State to Prepare Air Pollution Permits, 4) Permitting Practices, and 5) Suggestions. The survey was mailed to the director of the state air pollution control agency in each of the 30 states listed in Table 1 plus the District of Columbia.

Ten of the states responded to the survey. Seven of the states provided complete responses and three provided partial responses. The responding states are also indicated in Table 1. Of the three states providing partial responses, the responses from Alabama are included in Tables 1 through Table 3 and the partial responses for Illinois and Texas are included in Tables 9 and 10.

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 was contacted to clarify and complete the applicable response.

DISCUSSION OF RESULTS

Half of the states responding to this question delegate a portion of their permit preparation to regional or local air pollution agencies as detailed in Table 2.

Table 3 provides the breakdown and number of permits issued by permit type for the most recent 12 months for the eight states responding to this question. On average, 11.3% of the issued permits were Title V-related, 9.1% were FESOP-related, 51.9% were MSOP-related and all others represented 27.8%. On average, 1,553 air pollution permits were issued per year per state agency.

This table also presents the minimum and maximum number of permits issued per year among the eight state agencies responding to this survey question. These minimums and maximums vary greatly. This suggests that responses to other questions in the survey may be applicable to states with both a large and small permit volume by permit type.

Table 1. States requested to respond to the survey and states responding.

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

Table 2. States delegating part of their permit preparation to regional/local air pollution agencies.

State
Alabama
Iowa
Missouri
Ohio

Table 3. Number of air pollution permits of each type issued in the most recent 12 months by the state agency.

Permit Type	# Permits Issued in the Most Recent 12-Month Period by State Air Pollution Control Agency		
	Average	Minimum	Maximum
Title V and New Source Title V	114	6	238
Title V Renewal	13	0	38
Title V All Others : (Significant Source Modification, Significant Permit Modification, Minor Source Modification, Minor Permit Modification, Administrative Amendments, Other)	48	12	106
Total All Title V- Related Permits	175 (11.3%)		
FESOP and New Source FESOP	104	3	198
FESOP Renewal	10	0	66
FESOP All Other: (Significant Permit Revision, Minor Permit Revision, Administrative Amendments, Other)	27	5	83
Total All FESOP- Related Permits	141 (9.1%)		
Minor Source Operating Permit (MSOP) and New Source MSOP	575	11	1306
MSOP Renewal	113	0	765
MSOP All Other: (Significant Permit Revision, Minor Permit Revision, Administrative Amendment, Other)	118	0	458
Total All MSOP- Related Permits	806 (51.9%)		
Miscellaneous All Others: (Registrations, Exemptions, General Permits, etc.)	432 (27.8%)	17	1177
Total	1,554		

Table 4 presents the number of equivalent full-time state air pollution control agency staff used to prepare the state-issued air pollution permits given in Table 3. An average of 64.6 permit writers, 7.0 clerical and secretarial personnel and 11.5 managers work to prepare air pollution permits in the seven agencies responding. This table also presents the minimum and maximum number of equivalent full-time state employees preparing air pollution permits. These minimums and maximums vary greatly. This suggests that responses to other questions in the survey may be applicable to states with both a large and small number of staff involved in air pollution permit preparation.

On average, there are 6.2 equivalent full-time permit writers and clerical/secretarial staff per manager and there are 9.2 permit writers for each equivalent full-time clerical/secretarial staff member. This information may be helpful in budget planning to evaluate the reasonability of the number of staff required at each level to carry out effectively the air permit preparation functions.

Table 5 presents an analysis of the efficiency in preparing state air pollution permits for the seven state agencies providing complete survey responses. Efficiency is defined as the equivalent number of Title V permits prepared per equivalent full-time state employee involved in air pollution permit preparation. The equivalent full-time state employees were determined directly from the survey responses, as summarized in Table 4.

The equivalent number of Title V permits prepared in the most recent 12-month period by each state was determined as follows. Each state provided in its survey response the number of permits of each type prepared in the past year, a summary of which is given in Table 3. Based on the experience of one state agency and our experience for that agency in preparing air pollution operating permits over the past decade, we have assembled a standard number of hours required to prepare each type of permit listed in Table 3. This standard represents an approximate average of the number of hours required by permit type for all persons working on permit preparation.

The equivalent number of Title V permits prepared by each state agency for the survey year was determined by applying a weighting factor to the number of permits prepared of each type and then summing the weighted numbers over all permit types to determine the equivalent number of Title V permits prepared. The weighting factor for each permit type was the standard number of hours required to prepare a permit of that type divided by the standard number of hours required to prepare a Title V permit.

As a simplified example for illustration purposes, suppose a state only prepared two types of permits in the survey year: 20 Title V permits and 50 MSOPs. Suppose the standard number of hours to prepare a Title V permit is 120 hours and the standard number of hours to prepare an MSOP is 60. Then the equivalent number of Title V permits prepared would be $20 + (60/120) \times 50 = 45$.

The results in Table 5 show a wide range of efficiency by state in preparing state air pollution permits with efficiency varying from 4.5 to 28.5 equivalent Title V permits per equivalent full-time employee per year.

Some of the reasons for this large variation in efficiency may be: 1) differences in permit regulations and requirements by state due, in part, to differences in the state's air quality and type of sources resulting in differences in the average time needed to prepare the permits, 2) differences in the permit applicants' cooperation and responses to state permit work, and 3) differences in the organizational approach of each state in preparing state air pollution permits.

Table 4. Staff used to prepare the issued air pollution permits.

Staff Level	# of State Employees		
	Average	Minimum	Maximum
Permit Writers	64.6 (77.8%)	10	100
Clerical and Secretarial	7.0 (8.4%)	0	20
Managers	11.5 (13.8%)	1	25
Total	83.1 (100%)		

Table 5. Efficiency in preparing state air pollution permits.

State	Equivalent Number of Title V Permits Prepared Per Full Time Employee Per Year
1	15.4
2	28.5
3	6.8
4	4.5
5	5.4
6	12.5
7	9.4

Table 6 presents a summary of survey responses to the question about the biggest problems faced by state agencies in preparing air pollution permits and their solutions to these problems. Seven state agencies responded to this question

Table 7 presents a summary of the biggest problems faced by states in delegating air pollution permitting work to regional and local air pollution agencies and their solutions to these problems. Two of the four states responding to the survey that delegate their work to regional and local air pollution agencies provided responses.

Table 8 provides the survey responses of the seven states providing their state permit fee schedules for permit applications and annual emission statements. Only two states charge a state permit application fee. All states charge an annual emissions fee. This fee ranges from \$12.83 to \$45.00 per ton per year for each regulated air pollutant. Four of the seven states charge annual emission fees in the range of \$31.75 to \$36.98. The limit on actual tons per year per regulated pollutant to which the emissions fee applies is 4,000 tons for four of the states, 5,000 tons for one state, 6,000 tons for one state and no limit for one state. One state places a 12,000 ton per year limit on the actual total tons per year to which the emissions fee applies.

Table 6. Biggest problems faced by state air pollution control agencies in preparing air pollution permits and their solutions to these problems.

State	Problem	Solution
1	Permit backlog resulted in 62-day average turnaround time for per facility with an average of three permits .	Adopted Japanese business process improvement method "Kaizen". The results were that the average review time of 62 days was reduced to 12 days. However, this does not include the complex permits, which take about 8 months to complete.
2	<p>1) High turnover rate in personnel. Takes time to re-train.</p> <p>2) The pay scale for environmental scientist is too low, especially at the entry level. Person works for 1-2 years and then hired by a consulting firm for a much higher salary.</p> <p>3) Under-staffing at all levels.</p> <p>4) Environmental groups are starting to appeal every permit in certain areas.</p>	<p>3) Working on hiring more permit writers and support staff.</p> <p>4) Companies in areas with high environmental concerns can hold public outreach meetings to inform the public about upcoming projects. These companies need to keep the community better informed of any proposed expansions.</p>
3	<p>1) Lack of implementation and guidance material from EPA regarding "what is needed in a Title V program and how to write an effective Title V Permit".</p> <p>2) Inadequate staffing.</p> <p>3) Consistency across the nation with Title V permits.</p> <p>4) Implementation of "gap-filling", reporting requirements.</p> <p>5) Need guidance on what defines minor and significant modifications and off-permit changes.</p>	<p>1) Development of White Papers I and II by EPA assisted with initial guidance. However, we are still facing challenges.</p> <p>2) Addressed staffing issues by hiring contractors.</p> <p>3) Checking other state permits and developing a standard wording template for regulation to address consistency issue and constantly updating the template based on public and EPA comments.</p> <p>4) Develop guidance documents to assist the reporting, amendments and modifications issue.</p>

State	Problem	Solution
4	<p>1) Decreasing staff due to retirement, transfers to other programs and other state agencies.</p> <p>2) Complex permits being developed during final phase of Title V permitting and increased comments on permit quality and/or adequacy by EPA and other interest groups including PIRG and EarthWatch; and</p> <p>3) Computer use and computer programming problems make some permit processing difficult.</p>	<p>1) More training of permit staff to handle permit processing, involvement of more central office staff who previously did little or no permitting;</p> <p>2) Increased involvement of central office staff in ongoing interaction with original permitting staff to handle complex permits; and</p> <p>3) Modification and/or upgrades to existing computer system to ease permitting problems and allow faster, more accurate permit issuance.</p>
5	<p>1) Recent shift in the regulatory basis for MSOP from an emissions unit basis to source-wide basis;</p> <p>2) Surge in NSR permit applications for proposed Electrical Generating Units (EGUs);</p> <p>3) Remaining current on newly issued MACT regulations in permitting;</p> <p>4) Incorporating new MACT requirements into NSR and Title V permits;</p> <p>5) Incorporating NO_x trading requirements into Title V permits;</p> <p>6) Incorporating Phase II Acid Rain permit requirements into Title V permits;</p> <p>7) Meeting the revised EPA deadlines for Title V permit issuance in response to legal challenges to EPA's approval of the state's Title V program; and</p> <p>8) Increased public interest in new projects, especially EGU projects.</p>	<p>1) Implemented new Minor NSR permitting guidance;</p> <p>2) Created an EGU working group to research and develop permitting guidance specific to this source type;</p> <p>3) Implemented central tracking and status reporting concerning proposed and promulgated MACT regulations;</p> <p>4) Developed a list of possible affected sources for use in updating Title V permits when the MACT becomes effective;</p> <p>5) Issued new procedures and revised the boiler plate for Title V permits to include NO_x trading provisions;</p> <p>6) Issued new procedures and revised the boiler plate for Title V permits to include Acid Rain provisions;</p> <p>7) Implemented centralized tracking and monthly reporting of the state's progress on issuing Title V permits. Eased the problem of overtaxed permitting resources by farming applications out to available resources in other regional offices; and</p> <p>8) Publication of the draft permits on DEQ's public website.</p>
6	<p>1) Too many permits to process. We have an estimated 80,000 emissions units that need to be permitted. We currently are only able to keep up with the installation permits and the initial Title V permits. Only a small quantity of non-Title V permits to operate are currently being processed.</p> <p>2) Funding cuts. We had to reduce staff by over 30 positions in the past couple of years due to state budget cuts. More cuts are planned.</p>	<p>1) We are currently working to revise our regulations to eliminate the need for permits for a large number of sources. We are adding (1) a new small source exemption (generally <10.0 ton per year), (2) permit-by-rule exemptions for a number of common small sources, and (3) a general permit program designed to expedite the issuance of common sources.</p> <p>2) We currently have no immediate solution to the budget cut problem. Additional cuts are expected.</p>

State	Problem	Solution
7	1) Lack of facility ability/willingness to respond quickly to information requests on operating permits. 2) Insufficient resources to respond to permit volume. 3) Incomplete permit applications. 4) Legislative activity diverting key resources from permit writing. 5) Lack of adequate data management systems.	1) Consistent follow-up with facilities regarding status of responses to information requests. 2) Diversion of program resources to permitting activities. 3) Preapplication meetings. 4) Minimize permit writer involvement in legislative inquires. 5) Permit process software development and integrating data between permits, compliance and emissions inventory.

Table 7. Biggest problems faced by states in delegating air pollution permitting work to regional and local air pollution control agencies and state solutions to these problems.

State	Problem	Solution
1	Ensuring that new responsibilities for Additional MACTS, ambient monitoring and dispersion modeling are done adequately.	
2	Staffing, communication and consistency issues. Staffing issues constitute turnover, project priorities and training of new employees	1) Consistency issues addressed by developing a standard wording template for the permitting regulation and constantly updating the template based on public and EPA comments. 2) Communication issues addressed by having regular meetings and developing implementation agreement for operating permit projects and training program for Part 70 permits. 3) Staffing issues addressed by hiring contractors to assist in drafting operating permits and helping local agencies by drafting some of their initial Title V permits.

Table 8. State air pollution control agency permit fee schedules for permit applications.

State	Application Fee	Annual Emissions Fee Per Ton Per Year For Each Regulated Air Pollutant (\$)	Limit On Actual Tons Per Year Per Regulated Pollutant To Which The Emissions Fee Applies (Tons)	Limit On Actual Total Tons Per Year To Which The Emissions Fee Applies (Tons)
1	0	\$31.75	4,000	No Limit
2	\$5,354 (Part 70 only)	\$12.83	4,000	No Limit
3	\$100	\$34.00	4,000	12,000
4	0	\$45.00	6,000	No Limit
5	0	\$36.98	No limit	No Limit
6	0	\$25.00	4,000	No Limit
7	0	\$ 35.71	5,000	No Limit

Table 9 presents a summary of the best practices the state air pollution control agencies have instituted to improve the quality and reduce the time to prepare air pollution construction and operating permits.

Finally, Table 10 presents a summary of advice for other state air pollution control agency directors on how to achieve high quality permit preparation with the most efficient use of resources.

CONCLUSIONS

Survey results showed a wide variation in the states responding in terms of permit output and number of staff involved in preparing permits. This suggests that responses to other questions in the survey may be applicable to states with both a large and small permit volume by permit type.

There was a wide variation of survey responses including a wide variation in the efficiency (number of equivalent Title V permits prepared per equivalent full time staff member) of state agencies in preparing air pollution permits. This wide variation in efficiency may be due to several reasons indicated including ones beyond the control of the state agency. The responses to the survey questions on biggest problems and solutions, best practices and advice to other state agencies offer a broad set of recommendations on how to improve permitting 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.

REFERENCES

1. Ellis, Howard, Ritz, Phillip, Bench Marking Survey of State Air Pollution Control Agencies on the Resources Required to Conduct Air Quality Monitoring Programs, Paper #724, Air and Waste Management Association Annual Meeting, Baltimore, MD, June 2002

Table 9. Best Practices the state air pollution control agencies have instituted to improve the quality and reduce the time to prepare air pollution construction and operating permits.

State	Best Practices for Preparing State Air Pollution Permits
1	1) Adding "800" number. 2) Instituting "welcome call" to client for additional information and letting client know when they can expect response. 3) Closely track projects and pay special attention to projects approaching 1.5 times average turnaround.
2	1) Devised a Standard Oil and Gas permit to substantially reduce the drafting time for these kind of permits. 2) Developed a "Notice and Go" procedure for Insignificant Activities to be approved. 3) Streamlined the routing procedures for some permit types. 4) Incorporated federal rules into state rules wherever possible.
3	1) For operating permits, developed a template for the Title V permits and several general permits. Title V template has included requirements applicable to all the installation and the reviewer just adds process equipment and requirements specific to the installation. 2) Developed procedure manuals and standard wording to streamline the operating permit process. 3) Work with Environmental Assistance Office to improve the quality of operating permit applications.
4	1) Developed question/answer guidance for most common permitting problems. 2) Developed Quality Assurance document for permit issuance including paper and computer guidance. 3) Cross-trained Central Office and Regional management and permitting staff on permit processing to better aid their development and issuance. 4) Updated and enhanced permit system to streamline permit issuance and permit renewal efforts. 5) Provided guidance, as necessary, to aid permitting staff.
5	(a) The practices that have most improved the quality of permits are: 1) The implementation of comprehensive regional permit checklists. 2) Creation and maintenance of an internal DEQ website that promotes permit writer access to state regulations, DEQ policy and previous air permitting actions. 3) The use of centralized permit processing procedures, boiler plate language, emission spreadsheets and presumptive BACT (for Minor Source NSR) for selected source types. (b) The practices that have reduced the time to issue permits are: 1) The elimination of centralized review of draft permits. All pre-issuance review is now done at the regional level where the applications are reviewed and the permit is drafted. Centralized review is only done for auditing purposes after the permits are issued. 2) Applications for a general permit may be filled out and submitted online.

State	Best Practices for Preparing State Air Pollution Permits
6	<ol style="list-style-type: none"> 1) Develop and use standard terms and conditions for common emissions units. 2) Do concurrent review of major permits by having our field staff and our central office review staff work together to develop the permit. 3) Conduct pre-application meetings with companies and conduct periodic calls or meetings with companies for major projects. 4) Develop additional exemptions, general permits and permit-by-rules.
7	<ol style="list-style-type: none"> 1) Staff networking on similar industry categories, development of standardized permit language, use of departmental reports such as compliance inspections and emissions inventory, and the expanded use and development of permit writing software and internet technologies.
8	<ol style="list-style-type: none"> 1) Utilizing model permits as templates ensures high quality permits and reduces the time necessary for permit preparation; 2) Using "outline" model permit for all the Title V permits in conjunction with a library of permits and permit conditions for types of source and units; 3) The permit and library of permit conditions are periodically updated to include improvements; and 4) Finally, all the discussed above approaches allow the permit engineers to prepare consistent, high quality permits in a timely manner, as well as providing for a continual program of improvement to the permits.
9	<ol style="list-style-type: none"> 1) Reevaluated which applications required actual site review, and eliminated this step for certain applications; 2) Establishes a concurrent EPA review process for Title V applications; 3) Reduced data entry time by eliminating a form used to compare our computer generated permit with the requirements identified by the applicant; 4) Developed a computer generated process to evaluate compliance history; 5) Developed standard responses to certain types of comments received in response to public notice; 6) Used EPA grant money to develop permit processing tools, reassigned staff from non-production areas to help with permit reviews and increased use of interns for non-production activities; and 7) Began process of looking where general permits can be used effectively.

Table 10. Advice for other state air pollution control agency directors on how to achieve high quality permit preparation with the most efficient use of resources.

State	Advice for Other State Air Pollution Control Agency Directors
1	<ol style="list-style-type: none"> 1) Permit staff should intensively examine "non-value added" portion of permitting process for wasted time. 2) Focus staff on continued quality of actual review. 3) Opportunity to spend more time on complex permits.
2	<ol style="list-style-type: none"> 1) Implement a good training program for new reviewers and offer refresher training to current employees. 2) There should be a standardized mechanism for disseminating changes in policy.
3	<ol style="list-style-type: none"> 1) Upper management should be patient, open minded and listen to the stakeholders (permit writers, industry environmental staff and consultants). 2) Stakeholders can identify places to streamline the process as well as identify future areas for improvement. To improve a process, upper management needs to be willing to listen to permitting staff as well as industry personnel. Streamlining will help identify where the problem exists and after the problem is identified, one can determine the options available to address the issue and plot a course of action.
4	<ol style="list-style-type: none"> 1) Cross train staff to handle all aspects of permit program, especially the computer training needed to efficiently develop permits. 2) Make sure all technical staff can help out with the permitting efforts to lighten the workload. 3) Make sure the computer system is updated and enhanced to meet the needs of all users. 4) Develop permit QA issuance procedures to make sure all permit staff issue technically valid enforceable permits. 5) Provide tools to ensure consistent permit review among all regional and central office staff.
5	<ol style="list-style-type: none"> 1) Maximize the use of agency's public website to disseminate permitting information about permit applications, the status of applications and the proposed permits. 2) Use an internal agency website to disseminate permitting information to permit writers. It is a great "consistency" tool. 3) Promote the submission of permit applications through the internet, especially for General Permits. 4) Look for opportunities to use General Permits to simplify the permit process for small sources.
6	<ol style="list-style-type: none"> 1) Minimize the number of sources that need permits. 2) Develop and use template permits or template terms and conditions. 3) Develop and use an ongoing training program for permit writing staff.
7	<ol style="list-style-type: none"> 1) Maximize the use of electronic technology, frequently communicate with permit applicants, utilize other departmental data that may be more current than permit application and acknowledge the achievements of staff completing work.
8	<ol style="list-style-type: none"> 1) Adopting Best Practices approaches to permitting as given above could achieve similar benefits; 2) For controversial sources or sources of public interest, obtaining the participation of stakeholders early in the permitting process can save valuable time and resources. 3) Obtaining and retaining good employees should be primary area of focus.
9	<ol style="list-style-type: none"> 1) Advise permitting directors to look at the entire process 2) Trying to eliminate the things directors are doing that have really nothing to do with the permits. This may require sitting down with agency upper management or even legislative staff 3) Develop general permitting process.

State Advice for Other State Air Pollution Control Agency Directors	
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3	<ol style="list-style-type: none"> 1) Upper management should be patient, open minded and listen to the stakeholders (permit writers, industry environmental staff and consultants). 2) Stakeholders can identify places to streamline the process as well as identify future areas for improvement. To improve a process, upper management needs to be willing to listen to permitting staff as well as industry personnel. Streamlining will help identify where the problem exists and after the problem is identified, one can determine the options available to address the issue and plot a course of action.
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6	<ol style="list-style-type: none"> 1) Minimize the number of sources that need permits. 2) Develop and use template permits or template terms and conditions. 3) Develop and use an ongoing training program for permit writing staff.
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