

Internal Audit Report

**State of Michigan
Department of Environmental Quality
Permit and Authorization Process
August 2009**



Office of Internal Audit Services

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August 26, 2009

TO: Steven Chester
Director, Michigan Department of Environmental Quality

FROM: Doug Ringler, Director
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SUBJECT: Internal Audit Report – Permit and Authorization Process

This document contains our audit report of the Department of Environmental Quality's, Permit and Authorization Process.

In addition to the two findings and two corresponding recommendations contained within, this report also includes the executive summary; program description and background information; and scope, methodology, management responses, and noteworthy accomplishments. Our findings and recommendations are segregated by audit objective. The management responses were obtained from department staff subsequent to our audit field work.

Summary of the significant finding(s)

The most significant findings we noted during our audit related to IT Controls and Electronic Recordkeeping. We determined that information technology systems and applications used for permit processing and tracking lacked controls to ensure the confidentiality, integrity, and availability of system information. The lack of controls included weaknesses related to security administration and monitoring, business continuity/disaster recovery, change management, and application controls (input/processing/output). We also determined that DEQ had not established policies and procedures to manage electronic recordkeeping files to comply with requirements or technical standards established by the Administrative Guide and HAL.

We provided program-specific observations and deficiencies to appropriate managers under separate correspondence.

I appreciate the professional courtesy extended by your staff during the course of this project. We stand ready to provide counsel regarding appropriate corrective actions to help mitigate the risks identified in the findings.

cc: Robert Emerson, State Budget Director
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Jim Sygo, Deputy Director, DEQ
JoAnn Merrick, Senior Exec Asst to Dir
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Executive Summary and Management Responses

Executive Summary

Audit Objective #1

To assess the adequacy, effectiveness, and availability of application materials to potential applicants, assistance provided to applicants in preparing and submitting applications, and if application materials were in accordance with legislation.

Conclusion

We concluded that DEQ's application materials were adequate, effective, and available to applicants; assistance was available; and the materials complied with appropriate legislation.

Material Weaknesses or Reportable Conditions Noted

None

Audit Objective #2

Assess the adequacy and effectiveness of the application review process to determine if it considered all legislatively required criteria, was performed by appropriate staff, completed within specified time limits, and established accurate records to support the process.

Conclusion

We concluded the application review process was generally effective and addressed all required criteria.

Reportable Condition Noted

DEQ had not established department-wide policies and procedures to ensure programs established and maintained digitized records according to the Administrative Guide to State Government and the Department of History, Arts & Library's standards. (See Finding #1).

Audit Objective #3

Assess the effectiveness of the permit decision process to determine if programs made decisions in a timely manner, if criteria used to make final decisions complied with legislation, if the appropriate level staff made authorization decisions, if programs conducted public hearings when required, and if records supported the decision process.

Conclusion

We concluded that qualified DEQ personnel made permit decisions based on established criteria, conducted public hearings as required, and made final decisions

within a reasonable time-frame.

Material Weaknesses or Reportable Conditions

None

Audit Objective #4

Determine if DEQ staff established procedures to monitor the expiration of permits and initiate the renewal process in a timely manner.

Conclusion

We concluded that process established to monitor the expiration of permits and initiate renewal actions in a timely manner was effective.

Material Weaknesses or Reportable Conditions

None

Audit Objective #5

Determine if DEQ staff established general and application specific controls for IT applications supporting the permit and authorization process in accordance with the CobiT framework.

Conclusion

We concluded that general and application specific IT controls required improvement.

Reportable Condition Noted

The information technology (IT) systems/applications used for permit processing and tracking lacked controls to ensure the confidentiality, integrity, and availability of system information. This lack of controls included weaknesses related to security administration and monitoring, business continuity/disaster recovery, change management, and application controls (input/processing/output) (See Finding #2).

Management Responses

Department staff indicated that they agreed with one and partially agreed with one of the findings referenced above.

Via separate correspondence we provided program-specific observations and deficiencies to appropriate managers.

Program Description and Background Information

The Department of Environmental Quality (DEQ) consists of several organizational units (one Bureau, seven Divisions, and six Offices). The organizational units provide support and resources to DEQ, the State of Michigan, and its citizens. Each organizational unit has a unique mission and resource needs. As a result, DEQ is a highly decentralized organization. Each program establishes the policies and procedures to implement their requirements.

During the internal control evaluation and biennial reporting cycle that ended September 30, 2004, DEQ identified seven core processes common throughout the department. These processes encompassed how DEQ conducted its business and accomplished its mission. One of the core processes was the issuing of authorizations and permits. Authorization and permit activities include the initiating and renewing of licenses, permits and other forms of authorization to conduct regulated activities within the state. These include the following areas:

- Personal licenses/certifications
- Business and operational licenses
 - miscellaneous
 - transporters/haulers
 - storage tank systems
 - waste disposal facilities
- Permitted activities
 - air permits
 - water quality related permits
 - construction/engineering plan related permits
 - waste related construction permits
 - land/water interface permits
 - mining related permits
 - oil, gas, and mineral wells

Scope, Methodology, and Noteworthy Accomplishments

Audit Scope

Our audit scope was to evaluate existing procedures and records related to the DEQ Permits and Authorization Process. It included an analysis of transaction activity and detailed testing of transactions and records from the period covering October 1, 2005 to September 30, 2007.

DEQ had 38 programs that issued 54 different types of permits or authorizations. Because of the size, complexity, and diversity of programs we judgmentally selected four programs to evaluate in detail. These programs issued construction permits and operating licenses. Due to a recent OAG audit of the Land and Water Management Division permitting activities, we did not include any of those programs. We evaluated the following programs:

- Office of Geological Survey (OGS) - Oil and Gas Well Program
- Water Bureau (WB) Environmental Health Program – Public Swimming Pools
- Air Quality Division (AQD) - Renewable Operating Permits (ROP)
- Waste and Hazardous Materials Division (WHMD) - Hazardous Waste Treatment, Storage, and Disposal Facilities

Audit Methodology

We completed our audit fieldwork primarily between January 2, 2008 and August 31, 2008. Our audit period included an examination of procedures, records, and transaction activity for the period of October 1, 2005 to September 30, 2007.

For objective #1, we conducted an extensive search of information on the DEQ internet site and in DEQ publications pertaining to permits and authorizations. We reviewed the DEQ Permit and Licensing Guidebook, program specific web pages and publications, and the DEQ Permit Information Checklist. We reviewed the DEQ calendars to identify training opportunities provided to the public. We compared application materials to the applicable laws and rules to determine if they contained all required information.

For objective #2, we conducted interviews with program staff and reviewed permit files to evaluate the effectiveness of their process. We reviewed permit files to determine if they maintained sufficient documentation to support the review process. We compared the time required to review applications to the standards established in applicable legislation. We used random and judgmental sampling to select files for review.

For objective #3, we reviewed a sample of permit files and data from applicable IT applications to determine the time required to approve applications and if there was

adequate documentation to support the decision. We reviewed organizational charts to determine the classifications of personnel approving the applications. We compared criteria used in the permit decision processes to the applicable laws to verify use of appropriate criteria.

For objective #4, we reviewed a sample of permit files and supporting IT applications to determine if the programs established a method to monitor the expiration of their permits and initiate the renewal process. We reviewed the sample and IT applications to determine if any permits were expired without having a renewal application submitted.

For objective #5, we interviewed staff from each program responsible for managing IT applications to evaluate IT general and application specific controls. We used a standardized questionnaire for all of our interviews. We reviewed IT evaluations completed during the internal control evaluations for the period ending September 30, 2006. We compared information from sampled permit files to information recorded in supporting IT applications to verify accuracy.

We conducted a preliminary review of applicable laws, rules and regulations, and policies pertaining to permits and authorizations with DEQ, primarily documented in the following policies and procedures:

- Public Act (PA) 451 of 1994, Natural Resources and Environmental Protection Act, as amended
- PA 368 of 1978, Public Health Code, as amended
- The Federal Resource Conservation and Recovery Act
- DEQ Permit and Licensing Guidebook – June 2005
- DEQ Permit Information Checklist
- Michigan Manufacturers Guide
- State of Michigan requirements and guidance on internal controls contained in the *DMB Act* (PA 431 of 1984, as amended) and the *General Framework* (State of Michigan Financial Management Guide, Part VII, Chapter 1), and the *Ad Guide* (State of Michigan Administrative Guide to State Government)
- DEQ Internet and Intranet Sites
- Detailed application forms developed for each program

We conducted meetings with personnel involved in the permitting process at various levels throughout the programs. We met with DEQ personnel from each bureau/division/office to gain an understanding of the number and types of permits and authorizations in each area. We identified the programs that issued permits and authorizations using the information obtained during the preparation of the DEQ Risk Based Audit Plan.

DEQ had 20 IT applications that supported the processing, issuing and monitoring of permits. We reviewed the general and application controls for the programs we

selected for testing. This included conducting interviews with program personnel to complete a detailed questionnaire. We reviewed internal control evaluations for applicable IT applications completed for the period ending September 30, 2006.

Noteworthy Accomplishments

DEQ programs did an excellent job communicating permit and authorization requirements to the public and regulated community. Information and required forms were readily available on the program internet pages along with the appropriate points of contact. Guidance and training materials were of excellent quality. Programs, in conjunction with the Environmental Sciences and Services Division provided periodic training on key programs throughout the year.

DEQ programs established excellent procedures to monitor the expiration of permits and to initiate the renewal process.

Conclusions, Findings, Recommendations, and Management Responses

Application Materials and Assistance to Applicants

Audit Objective

To assess the adequacy, effectiveness, and availability of application materials to potential applicants, assistance provided to applicants in preparing and submitting applications, and if application materials were in accordance to legislation.

Conclusion

We concluded that DEQ's application materials were adequate, effective, and available to applicants; assistance was available; and the materials complied with appropriate legislation.

Application Review Process

Background

Permits issued by DEQ are highly technical in nature and require extensive supporting documentation and analysis of the application prior to the permit decision. As a result, the application review process varies significantly from one program to another. The time required for the review process ranged from days to years. Legislation for some permits specified the length of time for completing the review while other programs established internal goals. Records supporting the permit process varied and were in both hard copy and electronic formats. DEQ must ensure permit files are accurately maintained and available for review.

Audit Objective

Assess the adequacy and effectiveness of the application review process to determine if it considered all legislatively required criteria, was performed by appropriate staff, completed within specified time limits, and established accurate records to support the process.

Conclusion

We concluded that the application review process was generally effective and addressed all required criteria; however, we noted a weakness related to the lack of standardized policies for electronic record keeping (See Finding #1).

Finding #1

Electronic Recordkeeping

DEQ had not established policies and procedures to manage electronic recordkeeping files to comply with requirements or technical standards established

by the Department of History, Arts & Library (HAL) and in the Administrative Guide to State Government (Ad Guide).

Michigan Compiled Laws (MCL) Section 24.401-24.406 establishes statewide requirements for records reproduction. The MCL requires HAL to promulgate technical standards to ensure the continued accessibility and usability of digitized records throughout their retention period. The law specifically prohibits departments from using specific methods or mediums (micro-reproduction, digitization, digital migration, digital imaging) until HAL adopts a standard, issues a directive, or promulgates a rule governing the medium.

Section 0920.04 of the Ad Guide establishes policies and requirements for the establishment of electronic records. These include creating, using, managing, preserving, and destroying electronic records. Users should list all records, regardless of their physical form or characteristics on a Retention and Disposal Schedule. This section also requires users to monitor changes in technology that may affect recordkeeping systems to ensure changes do not prevent access to information in the future. The guide requires departments to create, update, and document changes, and retain all documentation related to any electronic recordkeeping system, as long as it is operational.

HAL established Technical Standards for Capturing Digital Images from Paper and Microfilm, effective 8/15/2005. This document establishes policies in the following areas:

- Applicability
- Definitions
- Agency responsibilities
- Compression method standard
- File format standard
- Resolution standard
- Enhancement technique standard
- Document preparation standard
- Indexing standard
- Quality control standard
- Quality assurance standard
- Scanners and scanning standards
- Media standard

HAL also established Best Practices for the Capture of Digital Images from Paper or Microfilm. These practices enhance and expand on the technical standards.

DEQ has not established standardized policies and procedures for establishing and maintaining electronic files. DEQ was waiting for HAL to establish a statewide standard for electronic filing systems before developing policies. Some programs

within DEQ have converted their records to digital formats without standardized policies.

We reviewed records from various programs within DEQ. These included Oil and Gas Well Permits, Public Swimming Pool Permits, ROPs, and Hazardous Waste Permits. Each of these programs had unique requirements for supporting documentation.

Divisions/programs within DEQ have independently initiated the process of converting records to electronic/digital formats. This usually involved scanning the hard copy documents into a PDF file format. We found that divisions have not documented their system of electronic recordkeeping to ensure they meet established standards and maintain them on a consistent basis.

DEQ had not established specific policies concerning the retention or destruction of original documents after scanning into a digital format. As a result, in some instances program personnel destroyed original documents after scanning them into a PDF file format. However, some digital files contained images of original documents that were not legible. Without the original document, we could not verify the content of the electronic copy. The standards established by HAL require that no information can be lost due to converting the original document to an electronic format.

We reviewed the DEQ Files Retention and Disposal Schedules for AQD, OGS, WB, and WHMD to determine if they specifically addressed electronic records. In most instances, the schedules did not address electronic or digital records. These schedules should include all types of files established and maintained by a division or program.

Recommendation

We recommend that DEQ coordinate with a HAL records specialist to ensure that DEQ procedures satisfy the established standards for electronic records and establish standard policies concerning the establishment and maintenance of electronic files. At a minimum, the policies should provide guidance on establishing electronic records, required supporting documentation, and the retention of original documents.

In addition, bureaus, divisions, and offices establishing electronic files should update their records retention schedules to address all types of files maintained within their areas of responsibility.

Management Comments

DEQ currently has no effective tools to manage its electronic records. In 2008, DEQ requested \$500,000 to implement an Enterprise Content Management (ECM) pilot in the Grand Rapids District office. Staff has been working with the Department of

History, Arts and Libraries; Records Center Services staff for the past three years to research and recommend an enterprise solution for electronic records management. DEQ released an RFP in February 2009 for an ECM system that will address all of the issues in this finding. If successful in the pilot stage in providing measurable efficiency gains, the department will implement this system in the other areas of the agency as budget permits.

Policies and procedures for all electronic records management will be implemented on a statewide basis as a result of this initiative. DEQ will adopt all policies and procedures relating to electronic records management as these are further developed.

Permit Decision Processes

Audit Objective

Assess the effectiveness of the permit decision process to determine if programs made decisions in a timely manner, if criteria used to make final decisions complied with legislation, if the appropriate level staff made authorization decisions, if programs conducted public hearings when required, and if records supported the decision process.

Conclusion

We concluded that qualified DEQ personnel made permit decisions based on established criteria, conducted public hearings as required, and made final decisions within a reasonable time-frame.

Permit Expiration and Renewals

Audit Objective

Determine if DEQ staff established procedures to monitor the expiration of permits and initiate the renewal process in a timely manner.

Conclusion

We concluded that process established to monitor the expiration of permits and initiate renewal actions in a timely manner was effective.

General and Application Specific IT Controls

Audit Objective

Determine if DEQ staff established general and application specific controls for IT applications supporting the permit and authorization processes, in accordance with the CobiT framework.

Conclusion

We concluded that general and application specific IT controls required improvement (See Finding#2). Control deficiencies included:

- A lack of security monitoring.
- The need for business continuity/disaster recovery plans.
- The need for change management policies.
- Required improvements to input/processing/output controls
- The lack of formal security administration policies and procedures
- The lack of audit trails
- Segregation of duties

Finding#2

IT Controls

The IT systems/applications used for permit processing and tracking lacked controls to ensure the confidentiality, integrity, and availability of system information. These control weaknesses related to security administration and monitoring, business continuity/disaster recovery, change management, and application controls (input/processing/output).

The core of the Control Objectives for Information and Related Technology (CobiT) framework is managing and controlling information in a manner that helps ensure alignment to business requirements. To satisfy business objectives, information needs to conform to certain control criteria that CobiT refers to as business requirements for information. These criteria include effectiveness, efficiency, confidentiality, integrity, availability, compliance, and reliability. Controls over IT applications and its information should include steps that will identify and assist in the mitigation of the risk of intentional or unintentional compromise of the information contained within the systems.

We interviewed staff about common general and application controls such as input, processing, and output controls; segregation of duties; disaster recovery/business continuity; audit trails; change management; and logical access. During our audit, we noted the following internal control weaknesses related to the operation of these systems:

- Personnel did not always review, approve, and/or validate data during the input, processing, and output-phases.

CobiT's application control objectives state that 1) transactions should be accurate, complete, and valid; 2) the integrity and validity of data throughout the processing cycle should be maintained; and 3) verification, detection, and correction of the accuracy of the output should occur. Without sufficient application controls, staff cannot guarantee information entered into the

system remains complete and accurate during processing and its output. As a result, the likelihood increases that inappropriate data transactions or errors could be introduced and/or exist within the system without detection.

We reviewed the information concerning the processing of ROP applications to verify information from the permit records matched the information in the database on the file transfer point. US EPA accesses this information to update their permit records. The database contains key dates, such as when DEQ received the application, the date they determined it was administratively complete, and the date issued. During the period of 10/1/2005 to 9/30/2007, AQD received ten applications for initial ROPs and 104 applications for renewals. We compared the information in the database to the source documents to determine the accuracy and completeness of the data. We found 34 (30%) of the dates received, 60 (53%) of the administratively complete dates, and 26 (23%) of the permit-issued dates did not agree with the supporting documents or the cell was empty. This resulted from a lack of effective controls to verify the integrity and accuracy of output data and controls to verify the integrity once entered into the system.

We reviewed the information for 19 permit records in the Waste Information System to evaluate their completeness and accuracy. These records pertain to the permits for hazardous waste treatment, storage, and disposal facilities. We reviewed information for the most recent operating licenses issued to the facilities to determine if they contained key dates. Eight (42%) of the records did not contain an entry for when the application was determined to be administratively complete and technically accurate. This is an important date to measure when the permit decision should occur.

- The five programs we reviewed did not monitor user accounts and their associated access rights and did not have formal procedures relating to the administration of these accounts. CobiT's Ensure Systems Security (DS5) requires regular reviews of all user accounts and related privileges. It also states that procedures should exist to request, establish, suspend, modify, and close user accounts. Regular reviews help ensure that user access rights to systems and data are in line with defined and documented business needs.
- Business continuity plans have not been fully developed, documented, and tested for any of the five systems we reviewed. In addition, disaster recovery plans have not been developed, documented, and tested. CobiT's Ensure Continuous Service (DS4) states that an IT continuity framework should be established that drives the development, maintenance, and testing of disaster recovery and IT contingency plans. Without these plans, DEQ does not have reasonable assurances about continued operation and processing of their

systems and operations in the event of a disaster or other service disruption.

- Effective change management controls had not been formally established or communicated for the five systems we reviewed. CobiT's Manage Changes (AI6) requires formal change management procedures, to handle all requests in a standardized manner. Without documented change management procedures, management cannot ensure that only authorized, tested, and documented changes to their application programs and data go into production.
- Three of five systems did not maintain a proper audit trail of transaction, user, or security administration activity. CobiT's Identify Automated Solutions (AI1) states that audit trails exist to support accountability. The lack of an audit trail decreases the accountability of users' actions within the system.

Program evaluators identified many of these deficiencies during the internal control evaluation and biennial reporting processes for the period ending September 30, 2006. Some were material weaknesses that still existed at the time of our audit.

Lack of controls to ensure ongoing confidentiality, integrity, and availability over information can result in inaccurate data, loss of data, and untimely reporting or incorrect decisions based on the compromised data. During our audit, we noted instances in which records were incomplete or were inaccurate.

Recommendation

We recommend that DEQ implement appropriate general and application controls to ensure the confidentiality, integrity, and availability of system information.

Management Comments

DEQ is aware that there are several IT systems in use throughout the agency that have internal control deficiencies as indicated in this audit report. This is true in particular with the use of Microsoft Access applications, as is the case with the Swimming Pool program. The control issues identified will require a rewrite of these IT systems.

In 2006, DEQ drafted an IT Security Program in order to address these issues. Due to budget limitations, it has not been feasible to fill the IT Security Officer positions to oversee this program and address all IT Security issues.

DEQ recognizes the importance of this role and is exploring alternative means of filling this position including sharing the costs across several agencies or reassigning existing resources on a part-time basis. We believe that the Internal

Control Evaluation process is helping to determine where our greatest risks are in terms of IT Security and we have been addressing these issues as funding allows.

DEQ is actively trying to replace older legacy systems as indicated in the division responses. However, budget constraints and lack of appropriation has prohibited us from being able to do so. With the addition of an IT Security Officer, it may be possible to identify manual processes that can be implemented to address some of the stated deficiencies.