



MICHIGAN

OFFICE OF THE AUDITOR GENERAL

AUDIT REPORT



THOMAS H. MCTAVISH, C.P.A.
AUDITOR GENERAL

The auditor general shall conduct post audits of financial transactions and accounts of the state and of all branches, departments, offices, boards, commissions, agencies, authorities and institutions of the state established by this constitution or by law, and performance post audits thereof.

– Article IV, Section 53 of the Michigan Constitution

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Michigan *Office of the Auditor General* **REPORT SUMMARY**

Performance Audit

Office of Oil, Gas, and Minerals

Department of Environmental Quality

Report Number:
761-0300-13

Released:
September 2013

The Office of Oil, Gas, and Minerals (OOGM) oversees the locating, drilling, operating, and plugging of wells used for the exploration and production of oil, gas, brine, and other minerals, including wells for underground storage and waste disposal. OOGM also regulates the operation and reclamation of mines. OOGM's mission is to promote the best use of Michigan's nonrenewable geological resources for their social and economic benefits while protecting associated resource values, property rights, the environment, and public health and safety.

Audit Objective:

To assess the effectiveness of OOGM's efforts to monitor oil and gas wells to protect resource values, the environment, and the public's health and safety.

Audit Conclusion:

We concluded that OOGM's efforts to monitor oil and gas wells to protect resource values, the environment, and the public's health and safety were effective. However, we noted one reportable condition ([Finding 1](#)).

Reportable Condition:

OOGM did not complete field inspections of all well sites at the targeted inspection frequencies identified in OOGM policy and procedure ([Finding 1](#)).

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Audit Objective:

To assess the effectiveness of OOGM's efforts to promote compliance with selected oil and gas well regulations.

Audit Conclusion:

We concluded that OOGM's efforts to promote compliance with selected oil and gas well regulations were moderately effective. We noted five reportable conditions (Findings 2 through 6).

Reportable Conditions:

OOGM did not always enter into stipulation and consent agreements (SCAs) and transfer settlement agreements (TSAs) on a timely basis or enforce all terms of those agreements. In addition, when OOGM modified the terms of SCAs or TSAs, it did not always document why the modifications occurred ([Finding 2](#)).

OOGM did not always notify the well's responsible party of violations noted during inspections. Also, OOGM did not conduct or document that it conducted follow-up inspections to ensure that the responsible party corrected the violations ([Finding 3](#)).

OOGM did not consistently document inspection and violation information within the Michigan Implementation of Risk Based Data Management System or maintain supporting documentation related to violations within the wells' hard-copy files (Finding 4).

OOGM had not pursued changes in legislation to update current well drilling laws related to surety bonds (Finding 5).

OOGM did not ensure that permittees updated contingency plans for wells that contained hydrogen sulfide (H₂S) (Finding 6).

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Audit Objective:

To assess the effectiveness of OOGM's efforts to track production volumes that are used to calculate severance tax and privilege fee amounts collected from producing oil and gas wells.

Audit Conclusion:

We concluded that OOGM's efforts to track production volumes that are used to calculate severance tax and privilege fee amounts collected from producing oil and gas wells were moderately effective. We noted one reportable condition (Finding 7).

Reportable Condition:

OOGM and the Department of Treasury should coordinate their efforts to reconcile oil production totals and gas sold amounts (Finding 7).

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Agency Response:

Our audit report contains 7 findings and 9 corresponding recommendations. The Department of Environmental Quality's preliminary response indicates that it agrees with all of the recommendations. The Department of Treasury's preliminary response indicates that it agrees with Finding 7.

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A copy of the full report can be obtained by calling 517.334.8050 or by visiting our Web site at: <http://audgen.michigan.gov>



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THOMAS H. MCTAVISH, C.P.A.
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September 27, 2013

Mr. Dan Wyant, Director
Department of Environmental Quality
Constitution Hall
Lansing, Michigan

Dear Mr. Wyant:

This is our report on the performance audit of the Office of Oil, Gas, and Minerals, Department of Environmental Quality.

This report contains our report summary; description of agency; audit objectives, scope, and methodology and agency responses; comments, findings, recommendations, and agency preliminary responses; four exhibits, presented as supplemental information; and a glossary of acronyms and terms.

Our comments, findings, and recommendations are organized by audit objective. The agency preliminary responses were taken from the agency's response subsequent to our audit fieldwork. The *Michigan Compiled Laws* and administrative procedures require that the audited agency develop a plan to comply with the audit recommendations and submit it within 60 days after release of the audit report to the Office of Internal Audit Services, State Budget Office. Within 30 days of receipt, the Office of Internal Audit Services is required to review the plan and either accept the plan as final or contact the agency to take additional steps to finalize the plan.

We appreciate the courtesy and cooperation extended to us during this audit.

Sincerely,

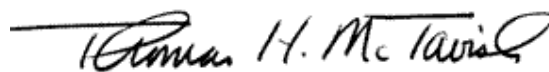

Thomas H. McTavish, C.P.A.
Auditor General

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Description of Agency

The Office of Oil, Gas, and Minerals (OOGM) is responsible for ensuring the efficient and orderly development of fossil fuel and mineral resources while protecting property, the environment, and public health and safety. OOGM oversees the locating, drilling, operating, and plugging of wells used for the exploration and production of oil, gas, brine, and other minerals, including wells for underground storage and waste disposal. OOGM also regulates the operation and reclamation of mines for rock products, metallic minerals, industrial sand, and coal. Further, OOGM develops and distributes a variety of maps, publications, and data on fossil fuels, minerals, and groundwater for industry and public use and conducts informational meetings on hydraulic fracturing*.

OOGM's mission* is to promote the best use of Michigan's nonrenewable geological resources for their social and economic benefits while protecting associated resource values, property rights, the environment, and public health and safety.

Since OOGM began permitting wells in 1927, OOGM has issued permits for over 60,665 wells. OOGM informed us that it completed 17,692 inspections of wells during calendar year 2012. Exhibit 1 presents a summary of well activity by well type. Exhibit 2 presents oil and gas production and market value for fiscal years 2010-11 and 2011-12.

OOGM geologists are located in the Department of Environmental Quality's (DEQ's) 7 district offices. Primary responsibilities of OOGM geologists include permit application reviews; field inspections of the drilling process, active wells*, and the plugging of wells; enforcement activities; and response to contamination of the environment.

OOGM implemented a computerized system, the Michigan Implementation of Risk Based Data Management System (MIR), that allows the electronic input and tracking of oil and gas well applications, field inspection activities, compliance cases, and production information. MIR also electronically issues oil and gas permits and well transfers.

** See glossary at end of report for definition.*

OOGM is primarily funded by revenue from the Oil and Gas Regulatory Fund and the Orphan Well Fund. Section 324.61524 of the *Michigan Compiled Laws* allows DEQ to assess up to a 1% fee on the gross cash market value of oil and gas produced to be used for the monitoring, surveillance, administration, and enforcement of those wells. Proceeds from the fee are deposited by the Department of Treasury in the Oil and Gas Regulatory Fund. Section 205.314 of the *Michigan Compiled Laws* allows 2% of revenue collected by the Department of Treasury for severance taxes* to be credited to the Orphan Well Fund.

For fiscal year 2012-13, OOGM was appropriated \$11.7 million to support 61 full-time equivalent employees. Of that total, \$8.9 million was appropriated from the Oil and Gas Regulatory Fund and \$2.2 million was appropriated from the Orphan Well Fund.

* See glossary at end of report for definition.

Audit Objectives, Scope, and Methodology and Agency Responses

Audit Objectives

Our performance audit* of the Office of Oil, Gas, and Minerals (OOGM), Department of Environmental Quality (DEQ), had the following objectives:

1. To assess the effectiveness* of OOGM's efforts to monitor oil and gas wells to protect resource values, the environment, and the public's health and safety.
2. To assess the effectiveness of OOGM's efforts to promote compliance with selected oil and gas well regulations.
3. To assess the effectiveness of OOGM's efforts to track production volumes that are used to calculate severance tax and privilege fee amounts collected from producing oil and gas wells.

Audit Scope

Our audit scope was to examine the program and other records of the Office of Oil, Gas, and Minerals. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our audit procedures, conducted from September 2012 through April 2013, generally covered the period October 1, 2009 through March 31, 2013.

As part of our audit, OOGM and the Department of Treasury provided supplemental information, which we compiled and presented as Exhibits 1 through 4. Our audit was not directed toward expressing a conclusion on this information and, accordingly, we express no conclusion on it.

** See glossary at end of report for definition.*

Our audit was also not directed toward examining the environmental impact of hydraulic fracturing or expressing a conclusion on hydraulic fracturing and, accordingly, we express no conclusion on hydraulic fracturing.

Audit Methodology

We conducted a preliminary review to gain an understanding of OOGM operations and internal control* in order to establish our audit objectives and methodology. Our review included interviewing OOGM staff; reviewing selected policies and procedures, *Michigan Compiled Laws*, and administrative rules related to mining and oil and natural gas wells; examining well records; and analyzing production reports.

To accomplish our first objective, we reviewed DEQ's policies and procedures related to completing field inspections of drilling operations, producing oil and gas wells, and plugging activities. We judgmentally selected a sample of 124 wells to review from a population of approximately 21,000 active wells (see Exhibit 1) to determine if OOGM completed field inspections at targeted intervals. Because we judgmentally selected the sample, the results cannot be projected to the entire population. We conducted interviews with OOGM staff related to the monitoring of oil and gas well operations. Also, we visited oil and natural gas wells in Bay County to gain a better understanding of a well's operation (see Exhibit 4).

To accomplish our second objective, we reviewed the *Michigan Compiled Laws* and administrative rules to determine what information is required to be documented within OOGM's well records. We also reviewed DEQ's policies and procedures on enforcement actions available to OOGM to bring a permittee into compliance with laws or administrative rules. We judgmentally selected a sample of 124 wells to review from a population of approximately 21,000 active wells (see Exhibit 1) to determine if the permit was properly documented and approved, the drilling and boring information was present, and the record of product encountered was being reported to OOGM. We interviewed OOGM staff regarding activities related to violations and reviewed a judgmentally selected sample of permittee files that contained violations, stipulation and consent agreements*, and transfer settlement agreements* that were active after October 1, 2009. We also compared the costs that OOGM incurred to plug a well to the amounts that were recovered from surety bonds.

* See glossary at end of report for definition.

To accomplish our third objective, we reviewed DEQ's policies and procedures and State regulations related to the reporting of oil and gas production and taxes associated with that production. We interviewed OOGM staff to determine what was done with reported production totals and if the production totals were used to verify tax amounts that were based on production. We reviewed production reports received from permittees to determine if production amounts were recorded monthly during calendar year 2012. We attempted to reconcile production totals reported to OOGM by two permittees with production totals reported to the Department of Treasury. We also attempted to reconcile total oil production and gas sold as reported to OOGM for fiscal years 2010-11 and 2011-12 with production totals reported to the Department of Treasury (see Exhibit 3). In addition, we verified the calculation of the privilege fee*.

When selecting activities or programs for audit, we use an approach based on assessment of risk and opportunity for improvement. Accordingly, we focus our audit efforts on activities or programs having the greatest probability for needing improvement as identified through a preliminary review. Our limited audit resources are used, by design, to identify where and how improvements can be made. Consequently, we prepare our performance audit reports on an exception basis.

Agency Responses

Our audit report contains 7 findings and 9 corresponding recommendations. DEQ's preliminary response indicates that it agrees with all of the recommendations. The Department of Treasury's preliminary response indicates that it agrees with Finding 7.

The agency preliminary response that follows each recommendation in our report was taken from the agency's written comments and oral discussion subsequent to our audit fieldwork. Section 18.1462 of the *Michigan Compiled Laws* and the State of Michigan Financial Management Guide (Part VII, Chapter 4, Section 100) require DEQ to develop a plan to comply with the audit recommendations and submit it within 60 days after release of the audit report to the Office of Internal Audit Services, State Budget Office. Within 30 days of receipt, the Office of Internal Audit Services is required to review the plan and either accept the plan as final or contact the agency to take additional steps to finalize the plan.

* See glossary at end of report for definition.

COMMENTS, FINDINGS, RECOMMENDATIONS, AND AGENCY PRELIMINARY RESPONSES

EFFECTIVENESS OF OOGM'S EFFORTS TO MONITOR OIL AND GAS WELLS

COMMENT

Audit Objective: To assess the effectiveness of the Office of Oil, Gas, and Minerals' (OOGM's) efforts to monitor oil and gas wells to protect resource values, the environment, and the public's health and safety.

Audit Conclusion: We concluded that OOGM's efforts to monitor oil and gas wells to protect resource values, the environment, and the public's health and safety were effective. However, our audit disclosed one reportable condition* related to field inspections (Finding 1).

FINDING

1. Field Inspections

OOGM did not complete field inspections of all well sites at the targeted inspection frequencies identified in OOGM policy and procedure. Conducting inspections at targeted inspection frequencies helps OOGM ensure compliance with Michigan's oil and gas regulations.

OOGM policy and procedure 3.3-3a established targets for the number of on-site inspections conducted based on established priorities. This policy prioritized inspections of oil and gas wells in the following order: complaints and spills; permit applications; drilling operations; final completion, including plugging and site restoration; compliance follow-up inspections; and production sites. OOGM informed us that the frequency of inspections may vary from the established targets based on priority of work, staff availability, and risk.

* See glossary at end of report for definition.

To determine if OOGM completed inspections at targeted frequencies, we selected a total of 187 oil and gas wells, including 30 drilled wells, 33 plugged wells, and 124 producing wells, for the period October 1, 2009 through December 31, 2012. Our review disclosed:

- a. OOGM did not inspect 4 (13.3%) of the 30 drilled wells at the targeted inspection frequency. OOGM policy recommends that staff inspect wells with drilling operations at least every three days during the drilling period, emphasizing pressure tests of safety systems, casing, and cementing operations. For the 4 wells, OOGM did not complete 11 (68.8%) of the 16 recommended inspections, including 2 wells that were not inspected at all during their drilling activity. At 1 of the 2 wells, drilling occurred for 4 days, whereas the other well was drilled for 11 days.
- b. OOGM did not inspect 2 (6.1%) of the 33 plugged wells during the plugging process. OOGM policy recommends that staff inspect wells that the operator is plugging at least once during the plugging process.
- c. OOGM did not inspect 85 (68.5%) of the 124 producing wells at the targeted inspection frequencies. For the 85 wells, OOGM did not complete 216 (49.8%) of the 434 recommended inspections. OOGM did not complete 1 inspection for 19 (22.4%) of the 85 wells, 2 inspections for 32 (37.6%) of the 85 wells, and 3 or more inspections for 34 (40.0%) of the 85 wells. OOGM policy recommends that staff inspect producing oil wells at least two times a year and producing gas wells one time each year.

RECOMMENDATION

We recommend that OOGM complete field inspections of all well sites at the targeted inspection frequencies identified in OOGM policy and procedure.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendation and indicated that inspections were not always completed at the targeted frequencies because OOGM uses a risk-based management system to prioritize and conduct inspections. OOGM stated that, in order to minimize risk and to comply with OOGM policy and procedure, OOGM prioritizes its work load. OOGM indicated that higher priority assignments include

responding to emergency conditions, field reviews of well permit applications, inspection of drilling operations, final well completion operations, public outreach activities, compliance follow-up inspections, well transfer and bond release inspections, and well rework/completion/testing operations. OOGM also indicated that it continues to address high priority tasks and reprioritize them as needed based on risk. In addition, OOGM indicated that not meeting targeted inspection frequencies does not result in a greater threat to the environment or public health when responding to higher priority work. OOGM further indicated that, if other priorities of greater risk begin to routinely impact the ability to meet targeted inspection frequencies for an area, workload analysis will indicate the need for additional staff.

EFFECTIVENESS OF OOGM'S EFFORTS TO PROMOTE COMPLIANCE

COMMENT

Audit Objective: To assess the effectiveness of OOGM's efforts to promote compliance with selected oil and gas well regulations.

Audit Conclusion: We concluded that OOGM's efforts to promote compliance with selected oil and gas well regulations were moderately effective. Our audit disclosed five reportable conditions related to the enforcement of stipulation and consent agreements and transfer settlement agreements, the monitoring of violations, the documentation of inspections and violations, bond amounts, and updated contingency plans (Findings 2 through 6).

FINDING

2. Enforcement of Stipulation and Consent Agreements and Transfer Settlement Agreements
OOGM did not always enter into stipulation and consent agreements (SCAs) and transfer settlement agreements (TSAs) on a timely basis or enforce all terms of those agreements. In addition, when OOGM modified the terms of SCAs or TSAs, it did not always document why the modifications occurred. As a result, environmental concerns were allowed to exist for extended periods of time.

An SCA is an agreement between OOGM and the permittee that allows the permittee an opportunity to resolve alleged violations. The SCA includes a deadline by which the permittee is to accomplish specific tasks to bring a well or facility into compliance with statutes, rules, or permit language. The TSA is a document to facilitate the transfer of a permit to another party for a well that is in violation of statutes, rules, or permit language that has not been corrected. The TSA allows the acquiring party to be afforded the opportunity to correct all identified violations or unsatisfactory conditions. OOGM has the authority to modify the deadlines or other conditions in the agreements, as needed, to obtain compliance.

We judgmentally selected 17 wells with an open SCA and 10 wells with an open TSA on or after October 1, 2009 to determine if OOGM had monitored the agreements and worked with the permittees to resolve the violations and unsatisfactory conditions within established deadlines. Our review disclosed:

- a. OOGM did not always enter into agreements on a timely basis. For the 5 wells we reviewed at one district office, OOGM took an average of 563 days from the date of the violation to issue the agreement. In that district, OOGM took between 123 and 1,157 days from the date it documented that the violation occurred until it obtained a signed agreement from the permittee.
- b. OOGM did not enforce all terms of the agreements. For example:
 - (1) OOGM did not enforce the deadline dates documented in the agreements. OOGM routinely extended the agreed-to deadlines of the agreements. For 1 (3.7%) of the 27 wells, OOGM extended the deadline 5 times; for 3 (11.1%) of the 27 wells, OOGM extended the deadlines 4 times; and, for 7 (25.9%) of the 27 wells, OOGM extended the deadlines 1 to 3 times.
 - (2) OOGM did not always assess monetary penalties against permittees for failing to meet the terms of the agreements. Of the 27 wells reviewed, OOGM collected fines of \$19,275 from 3 (11.1%) of the wells. However, OOGM did not assess or collect monetary penalties from permittees for 9 (33.3%) of the 27 wells that failed to meet the terms of their agreements by the stated deadlines. OOGM did not always document the reasons for

not pursuing fines in the wells' files. For these 9 wells, OOGM could have issued fines of \$357,500.

- c. OOGM did not always document why it modified the terms of the agreements. For example, at one district office, we reviewed 3 agreements involving 4 wells that had a total of 13 extensions granted. OOGM had not documented within the permitted well's files the reasons why it granted extensions.

OOGM stated that enforcement activities such as monetary penalties are just one tool available, as compliance is the ultimate goal. Also, DEQ's compliance and enforcement policy stipulates that penalties assessed may be subject to negotiations.

RECOMMENDATIONS

We recommend that OOGM enter into SCAs and TSAs on a timely basis and enforce all terms of the agreements.

We also recommend that, when OOGM modifies the terms of SCAs or TSAs, it document why the modifications occurred.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendations and will comply. OOGM indicated that the ultimate goal for its compliance and enforcement program is for companies to achieve compliance. OOGM also indicated that entity solvency issues and logistics can require extensions for longer periods of time to ensure that a site reaches compliance. OOGM stated that, in order to achieve compliance, it does extend the deadlines for both SCAs and TSAs. OOGM indicated that the process for documenting modifications to SCAs and TSAs is being reviewed and that changes will be implemented to ensure that proper documentation exists in the future. OOGM also indicated that it recently began using an electronic document management system that will allow a uniform place for retention of compliance and enforcement documentation.

FINDING

3. Monitoring of Violations

OOGM did not always notify the well's responsible party of violations noted during inspections. Also, OOGM did not conduct or document that it conducted follow-up inspections to ensure that the responsible party corrected the violations. As a result, OOGM may not have pursued or resolved compliance violations on a timely basis.

OOGM policy and procedure 3.3-3a requires field staff to notify the well's responsible party if a violation is identified during an inspection. OOGM policy also states that compliance follow-up inspections should be conducted and documented until the violation has been closed and, if the requested work is not completed within an acceptable time frame, additional compliance procedures should be pursued.

We judgmentally sampled 42 well violations that occurred between September 15, 2009 and September 30, 2012. Our review disclosed:

- a. For 4 (9.5%) of the 42 violations, OOGM did not document that it had ever contacted the well's responsible party to make it aware of noted violations. Also, for 5 (11.9%) of the 42 violations, OOGM did not document that it had contacted the well's responsible party for at least 10 days after OOGM had identified the violation. The number of days until OOGM contacted the responsible party ranged from 10 to 48 days. OOGM policy does not state the number of days OOGM has to contact the well's responsible party of violation. These delays increased the risk that waste could occur.
- b. OOGM did not conduct or document that it conducted a follow-up inspection of 6 (14.3%) of the 42 wells after the date that OOGM identified the violation. At the time of our review, the amount of time since OOGM had identified the violation ranged from 16 to 40 months. Also, OOGM did not conduct timely follow-up inspections of 3 (7.1%) violations. OOGM completed the follow-up inspections from 13 to 23 months after OOGM had identified the violations. The lack of timely inspections prevents OOGM from documenting that the well's responsible party had taken corrective actions.

RECOMMENDATIONS

We recommend that OOGM always notify the well's responsible party of violations noted during inspections.

We also recommend that OOGM conduct and document that it conducted follow-up inspections to ensure that the responsible party corrected the violations.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendations and will comply. OOGM indicated that it is finalizing an updated policy and procedure for compliance communications. OOGM also indicated that it is in the process of implementing an electronic document management system and an updated program database that will be used to track follow-up inspection data. The database upgrades will streamline data entry for compliance communications; document, track, and initiate follow-up inspections; and provide greater query ability for program efficiency.

FINDING

4. Documentation of Inspections and Violations

OOGM did not consistently document inspection and violation information within the Michigan Implementation of Risk Based Data Management System (MIR) or maintain supporting documentation related to violations within the wells' hard-copy files. As a result, OOGM did not have assurance that all recorded violations that required further review or that information related to violations were available for all staff to use for responding to inquiries regarding a well.

MIR is an automated system used by OOGM to track follow-up inspections of noncompliant activities and to report operating results to OOGM management. MIR is an older system with limitations on the amount of data that it can track and count. Also, MIR was not specifically designed to provide queried information, and the results of queries depend on how staff input the data into MIR. OOGM maintained information related to oil and gas wells in MIR, other software systems, or hard-copy files.

OOGM policy and procedure 3.3-3a requires OOGM to conduct inspections and, when possible, document those inspections within MIR. OOGM policy suggests several items that should be documented, including all violations observed during an inspection.

We judgmentally selected a sample of electronic and hard-copy records related to 42 violations and 187 oil and gas well inspections at four district offices. Our review disclosed:

- a. District office staff did not consistently record inspection or violation information in MIR. For example, staff at one district used the data field within MIR intended for documenting violations to record inspection results, whereas staff at another district recorded items in MIR as violations even though the items were not actually violations. As a result, because of the inconsistent use of MIR, OOGM management could not identify the number of unresolved violations that district office staff were tracking or not pursuing. Based on our review, we could not verify how many of the 2,795 violations identified on MIR for the period October 1, 2009 through September 30, 2012 were actually violations.
- b. OOGM did not maintain all electronic and hard-copy records associated with violations. One district, which was the district with the most wells to monitor, did not maintain documentation of e-mail and verbal communication as part of the wells' official records. Without complete records, the full context of issues surrounding the violation and efforts to resolve the violations may not be available to management or other district staff involved with the situation.

OOGM informed us that it had requested the Department of Technology, Management, and Budget (DTMB) to make enhancements to MIR to enable it to more effectively query and track inspections and violations. OOGM also informed us that a rewrite of MIR will address the exceptions identified in the finding. As of June 7, 2013, DTMB was pursuing contracts for the enhancements.

RECOMMENDATION

We recommend that OOGM consistently document inspection and violation information within MIR and maintain supporting documentation related to violations within the wells' hard-copy files.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendation and will comply. OOGM indicated that it is in the process of developing and implementing processes to support consistent document management, including implementing an electronic document management system to allow consistent documentation, record storage, and retrieval.

FINDING

5. Bond Amounts

OOGM had not pursued changes in legislation to update current well drilling laws related to surety bonds. Current bond amounts allowed by statute are not sufficient to cover OOGM's cost of plugging a well. An increase in the required amount of the surety bond would help reduce OOGM's costs to plug nonproductive wells.

Section 324.61506(p) of the *Michigan Compiled Laws* gives DEQ the authority to require financial security from the owner or operator of a well in an amount that will ensure compliance with environmental and operating rules. During our audit period, the financial security, in the form of surety bonds, for a single well was as follows:

<u>Bond Amount</u>	<u>Well Depth</u>
\$10,000	≤ 2,000 feet
\$20,000	2,001 - 4,000 feet
\$25,000	4,001 - 7,500 feet
\$30,000	>7,500 feet

When a permittee is not in compliance with the *Michigan Compiled Laws* or administrative rules, OOGM can create an SCA with the permittee to bring the wells back into compliance. Issues that may lead to an SCA include failure to clean up leaks or releases or no production from a well for greater than 12 consecutive months. When the permittee does not comply with the SCA, OOGM can escalate its enforcement activity and take steps to plug the well. If OOGM has to plug the well, its costs will be partially offset by the surety bond and any remaining costs must be paid by OOGM.

Since 2005, OOGM has plugged 13 wells for which the permittee did not comply with required laws and regulations. The total cost to plug the 13 wells was \$693,638, of which \$229,568 was paid from the bonds and the remaining \$464,070 was paid by OOGM. The average cost incurred by OOGM to plug the 13 wells was \$53,357, while the average bond amount for the 13 wells was \$21,538, creating a shortfall of \$31,819 per well.

Increasing the amount of bonding required for future well permits would decrease the liability to the State for a permittee who cannot plug and restore the well site to its original state. It could also allow OOGM to quickly remediate wells that are not in compliance because it would have the funds to bring the wells into compliance.

RECOMMENDATION

We recommend that OOGM pursue changes in legislation to update current well drilling laws related to surety bonds.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendation and indicated that the surety bond amounts are insufficient and have not been updated since 1996. DEQ also indicated that it will initiate stakeholder discussions regarding appropriate bonding amounts and potential recommended administrative rule revisions to update current laws related to surety bonds.

FINDING

6. Updated Contingency Plans

OOGM did not ensure that permittees updated contingency plans for wells that contained hydrogen sulfide (H₂S). As a result, OOGM, the permittee, or the local emergency preparedness coordinator* may not have the correct list of parties to alert or an updated site plan to utilize in case of an H₂S release that could endanger the public's health and safety.

* See glossary at end of report for definition.

H₂S is a colorless gas with the characteristic of having a foul odor of rotten eggs. It is heavier than air, very poisonous, corrosive, flammable, and explosive. H₂S is commonly found in natural gas.

Michigan Administrative Code R 324.1110 requires the permittee to prepare a contingency plan for alerting and protecting personnel at an H₂S well site and the public in the event of a release. The contingency plan should contain an accurate map that shows the locations of all existing structures used for public or private occupancy, areas maintained for public recreation, roads, and railroads within a given radius of the well. The contingency plan should also contain a list of names, telephone numbers, and addresses of all businesses, schools, places of worship, private residents, governmental offices, and seasonal residences in the area of the H₂S well. In addition, *Michigan Administrative Code R 324.1110* requires that every three years permittees shall review their contingency plans and certify to OOGM and the local emergency preparedness coordinator that the contingency plans are accurate.

We reviewed OOGM's files for 11 H₂S wells that had been in production longer than three years to determine if the permittee had provided OOGM with an updated contingency plan. We noted:

- a. Two (18.2%) of the 11 permittees had not provided an updated contingency plan to OOGM. OOGM informed us that it contacted the permittees to obtain a current contingency plan.
- b. Four (36.4%) of the 11 permittees had not submitted complete updated contingency plans. The four permittees did not submit an updated contact list, authorized signature, and date. The authorized signature certifies that no other changes had occurred at the well site since the permittee had submitted previous contingency plans.

RECOMMENDATION

We recommend that OOGM ensure that permittees update contingency plans for wells that contain H₂S.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendation and will comply. OOGM indicated that, as of August 21, 2013, DEQ was in the process of requesting contingency plans. OOGM also indicated that it established a process for ensuring that the plans are updated in the future and anticipates the ability to use the electronic document management system to notify staff when three years has elapsed and an updated plan is due.

EFFECTIVENESS OF OOGM'S EFFORTS TO TRACK PRODUCTION VOLUMES

COMMENT

Audit Objective: To assess the effectiveness of OOGM's efforts to track production volumes that are used to calculate severance tax and privilege fee amounts collected from producing oil and gas wells.

Audit Conclusion: We concluded that OOGM's efforts to track production volumes that are used to calculate severance tax and privilege fee amounts collected from producing oil and gas wells were moderately effective. Our audit disclosed one reportable condition related to the reconciliation of oil and gas totals (Finding 7).

FINDING

7. Reconciliation of Oil and Gas Totals

OOGM and the Department of Treasury should coordinate their efforts to reconcile oil production totals and gas sold amounts. As a result, the Department of Treasury did not know the total number of active wells, if production was being reported for all active wells, and the production totals reported to OOGM. Without this information, the Department of Treasury cannot ensure that severance taxes and privilege fees were accurately calculated. Also, OOGM did not know the production totals used to calculate severance taxes and privilege fees.

Michigan Administrative Code R 324.610 requires a person who is producing, purchasing, or transporting oil or gas to report to OOGM the amount produced

within 45 days after the month of production. OOGM allows producers and transporters to report gas by the units sold rather than the units produced to account for amounts used to power production facilities prior to transporting the product. OOGM reviews the reported information for accuracy and inputs the information into MIR.

Section 205.303 of the *Michigan Compiled Laws* requires an oil and gas producer or transporter to pay the Department of Treasury a severance tax based on the gross cash market value of the total production of oil and gas. Severance tax rates were 6.6% of the gross cash market value of the total production of oil and 5% of the total production of gas. In addition, Section 205.303 of the *Michigan Compiled Laws* requires that a 1% privilege fee of the gross cash market value of oil and gas produced shall be collected by the Department of Treasury for OOGM's monitoring, surveillance, enforcement, and administration of oil and gas wells. The Department of Treasury informed us that it did not analyze production totals for reasonableness.

The Department of Treasury collected the following severance taxes and privilege fees for fiscal years 2010-11 and 2011-12:

	Fiscal Year 2010-11		Fiscal Year 2011-12	
	Oil	Gas	Oil	Gas
Severance taxes collected	\$ 32,004,103	\$ 27,979,999	\$ 36,060,493	\$ 20,131,884
Privilege fees collected	\$ 4,408,218	\$ 3,962,989	\$ 5,881,546	\$ 3,874,986

To determine if OOGM and the Department of Treasury pursued a coordinated reconciliation process, we met with staff and obtained production totals from both OOGM and the Department of Treasury and attempted to reconcile OOGM's total oil produced and total gas sold to the Department of Treasury's production totals for fiscal years 2010-11 and 2011-12. Our review disclosed:

- a. OOGM and the Department of Treasury did not coordinate their efforts to reconcile oil and gas amounts on a monthly, quarterly, or annual basis. Although the Department of Treasury is responsible for collecting taxes and

fees, reconciling oil and gas amounts between OOGM and the Department of Treasury may identify reporting variances and help ensure the accuracy of the taxes and fees paid by oil and gas producers and transporters.

- b. OOGM did not periodically provide the Department of Treasury with a listing of active wells. As of November 15, 2012, OOGM informed us that there were 21,048 active wells, of which 14,555 wells were producing oil or gas. Entities that transport oil and gas usually pay the taxes of producing wells. The Department of Treasury informed us that 87 entities paid severance taxes and privilege fees for fiscal years 2010-11 and 2011-12. These 87 entities each paid the taxes for multiple producing wells. These payments should have been accompanied by a gross production by well schedule. By providing the Department of Treasury with a listing of active wells, the Department of Treasury could select a sample from the listing to ensure that producers or transporters accurately reported oil and gas production on the gross production by well schedule.

We noted variances of less than 2% (see Exhibit 3) when we reconciled oil production and gas sold totals received from OOGM to production totals provided by the Department of Treasury. We noted that OOGM's gas totals for fiscal year 2011-12 were greater than the amounts reported by the Department of Treasury. Because OOGM reports gas sold after usage and the Department of Treasury reports units produced, we expected the Department of Treasury totals to be greater.

RECOMMENDATION

We recommend that OOGM and the Department of Treasury coordinate their efforts to reconcile oil production totals and gas sold amounts.

AGENCY PRELIMINARY RESPONSE

DEQ agrees with the recommendation. DEQ indicated that it will continue to work to strengthen the coordination between OOGM and the Department of Treasury. Specific effort is needed to fully understand the discrepancies identified in Exhibit 3 for natural gas liquids (condensate).

The Department of Treasury agrees and will comply subject to the enactment of legislative amendments to the Severance Tax Act that will allow that compliance. Although coordination between OOGM and the Department of Treasury has helped Treasury to better understand the oil and gas industry and infrastructure, it has not addressed and, given the current state of the law, cannot address the problems inherent in the Severance Tax Act. Treasury indicated that the archaic and complex Severance Tax Act is the largest obstacle to a meaningful coordination of their efforts and, more importantly, to Treasury's ability to accurately determine whether the State of Michigan is receiving all of the tax that is due. Treasury also indicated that the fact that the severance tax is based on the value of the oil and gas and not on the volume or production figures does not allow Treasury to accurately determine if the correct amount of tax is received even if it has the production figures for each well. In addition, Treasury indicated that it would also need additional financial information concerning sales of oil and gas as well as information that will allow it to determine all of those persons and entities that should be paying severance tax and whether they are doing so properly. Consequently, without legislative amendments to the Severance Tax Act, it will continue to be difficult or even impossible to administer the tax in a manner that will ensure that all tax due is collected.

The Department of Treasury indicated that Treasury personnel, including the special taxes administrator, the legislative liaison, and a representative from the Bureau of Tax Policy, met in August 2013 concerning steps that are currently being taken to prepare legislation that would update the Severance Tax Act. In addition to other issues that need to be addressed, Treasury indicated that the new legislation would address the Office of the Auditor General's concern, which Treasury also shares. Treasury also indicated that a representative of other interested departments, including someone from OOGM, will be involved in developing the legislation.

SUPPLEMENTAL INFORMATION

OFFICE OF OIL, GAS, AND MINERALS
Department of Environmental Quality (DEQ)

Summary of Well Activity by Well Type
As of November 15, 2012

Activity	Brine Disposal Well	Dry Hole Well	Gas Well	Gas and Brine Disposal Well	Gas Condensate Well	Gas Storage Observation Well	Liquid Petroleum Gas Well	Location Only Well	Lost Hole Well
Active	728	0	0	0	2,370	504	40	0	0
Drilling complete	0	1	0	0	0	0	0	18	0
Orphan well	0	3	0	0	0	0	0	0	0
Permitted well	0	0	0	0	0	0	0	270	0
Plugged back	0	18	6	3	4	1	0	1	0
Plug completed	41	190	140	0	163	61	5	9	11
Producing	0	0	10,739	14	54	0	0	0	0
Shut in	12	2	90	0	2	0	0	1	0
Suspension	1	0	1	0	0	0	0	5	0
Temporarily abandoned	6	31	150	0	3	0	2	14	0
Unknown	1	0	0	0	0	0	0	0	0
Well completed	2	38	55	0	2	0	0	0	0
Total wells	<u>791</u>	<u>283</u>	<u>11,181</u>	<u>17</u>	<u>2,598</u>	<u>566</u>	<u>47</u>	<u>318</u>	<u>11</u>

Note: The activity classifications are defined as follows:

Active	A well being used for its intended purpose.
Drilling complete	The well has reached its permitted depth, or DEQ has determined that drilling has ceased.
Orphan well	Owner not available to accept responsibility for the well; listed to receive response funding.
Permitted well	A proposed well permitted, but drilling is not completed yet.
Plugged back	The well was plugged off from producing, injecting, or other useable portions of the well but not to completely plug to abandon the well.
Plug completed	Final abandonment from the surface and the surface plug has been set.
Producing	The well is producing gas, oil, or brine.
Shut in	Action by the permittee to close down a producing well.
Suspension	DEQ closes down a portion or all components of a well's operation.
Temporarily abandoned	A shut in well that has DEQ's approval to cease operations for up to 12 months.
Unknown	Unknown owner or activity.
Well completed	The time when a well has been tested and found incapable of producing a product.

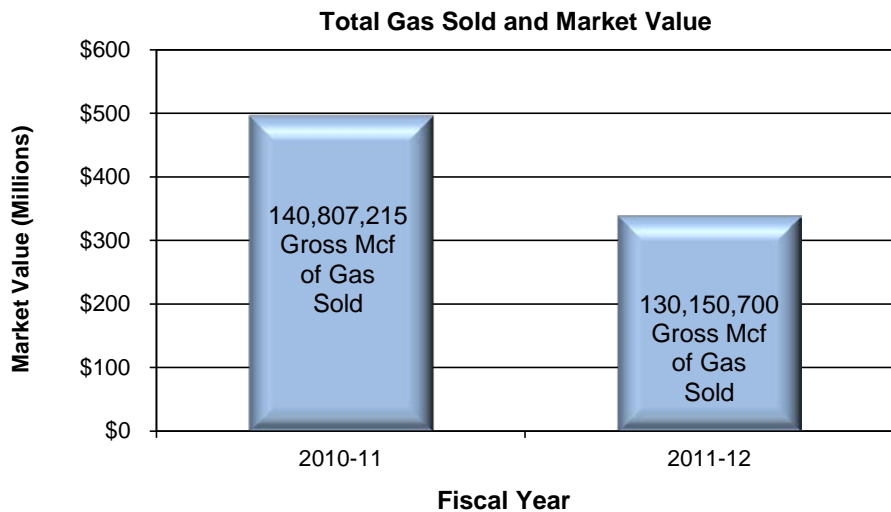
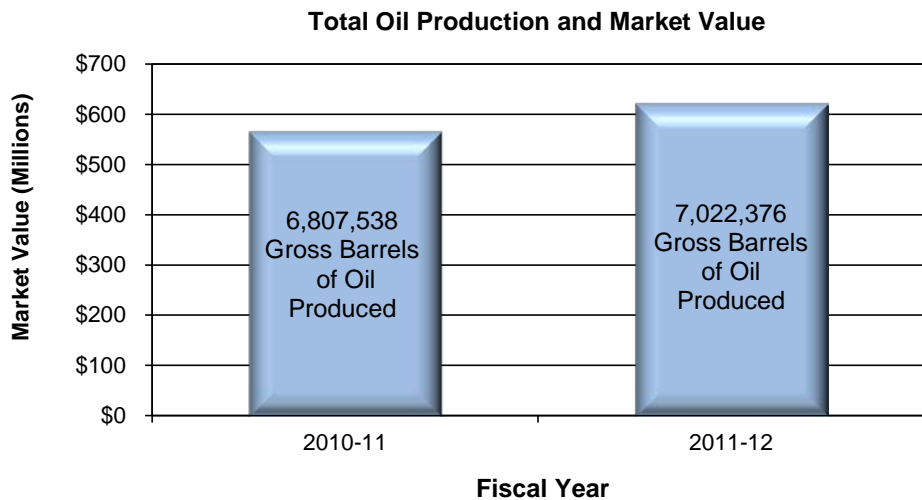
Source: The Office of the Auditor General prepared this exhibit based on data obtained from the Office of Oil, Gas, and Minerals.

UNAUDITED
Exhibit 1

Observation Well	Other Well	Other Injection Well	Oil Well	Water Injection Well	Not Identified Wells	Totals
28	2	12	0	536	0	4,220
0	0	0	0	0	0	19
0	0	0	1	0	0	4
0	0	0	0	0	0	270
0	0	0	20	9	0	62
9	0	0	342	32	1	1,004
0	0	0	3,748	0	0	14,555
1	0	0	208	4	0	320
0	0	0	2	0	0	9
8	2	3	191	21	4	435
0	0	0	0	0	0	1
0	4	0	46	0	2	149
<u>46</u>	<u>8</u>	<u>15</u>	<u>4,558</u>	<u>602</u>	<u>7</u>	<u>21,048</u>

OFFICE OF OIL, GAS, AND MINERALS
Department of Environmental Quality

Oil and Gas Production and Market Value
For Fiscal Years 2010-11 and 2011-12



Source: The Office of the Auditor General prepared this exhibit based on data obtained from the Bureau of Tax Policy, Department of Treasury.

OFFICE OF OIL, GAS, AND MINERALS (OOGM)
Department of Environmental Quality

Analysis of Reported Oil and Gas Production
For Fiscal Years 2010-11 and 2011-12

This exhibit presents a comparison of production totals for oil, gas condensate, and natural gas liquids reported to OOGM by the producing wells' operators to production totals reported to the Department of Treasury for taxing purposes. This exhibit also presents a comparison of units of gas sold reported to OOGM by the producing wells' operators to units of gas produced reported to the Department of Treasury for taxing purposes.

<u>Oil</u>	Barrels Produced		
	2010-11	2011-12	Total
Fiscal year			
Reported by OOGM	6,480,981	6,811,591	13,292,572
Reported by the Department of Treasury (gross barrels)	6,588,017*	6,859,503*	13,447,520
Difference in reported totals	-107,036	-47,912	-154,948
Percentage difference	-1.62%	-0.70%	-1.15%

<u>Gas</u>	Mcfs Sold		
	2010-11	2011-12	Total
Fiscal year			
Reported by OOGM (Mcf sold)	138,705,485	131,589,399	270,294,884
Reported by the Department of Treasury (gross Mcf produced)	140,807,215	130,150,700	270,957,915
Difference in reported totals	-2,101,730	1,438,699	-663,031
Percentage difference	-1.49%	1.11%	-0.24%

<u>Gas Condensate</u>	Barrels Produced		
	2010-11	2011-12	Total
Fiscal year			
Reported by OOGM	472,721	389,139	861,860
Reported by the Department of Treasury	621,332	449,457	1,070,789
Difference in reported totals	-148,611	-60,318	-208,929
Percentage difference	-23.92%	-13.42%	-19.51%

<u>Natural Gas Liquids</u>	Barrels Produced		
	2010-11	2011-12	Total
Fiscal year			
Reported by OOGM	498,338	630,334	1,128,672
Reported by the Department of Treasury	2,727,813	2,535,387	5,263,200
Difference in reported totals	-2,229,475	-1,905,053	-4,134,528
Percentage difference	-81.73%	-75.14%	-78.56%

Source: The Office of the Auditor General prepared this exhibit based on data obtained from the Office of Oil, Gas, and Minerals and the Bureau of Tax Policy, Department of Treasury.

* Totals vary from Exhibit 2 because condensate totals are included in the amounts presented in Exhibit 2. Condensate totals are reported separately on this exhibit.

OFFICE OF OIL, GAS, AND MINERALS
Department of Environmental Quality

Photographs of Oil and Gas Wells



A tank battery and surrounding berm.



A pump jack over an oil well.



Operating natural gas well with pipes painted yellow to indicate that the well contains hydrogen sulfide (H_2S).

Source: Photographs taken by Office of the Auditor General staff on March 13, 2013. These facilities are in the Kawkawlin Field, Bay County.

GLOSSARY

Glossary of Acronyms and Terms

active wells	A well that is being used for its intended purpose.
DEQ	Department of Environmental Quality.
DTMB	Department of Technology, Management, and Budget.
effectiveness	Success in achieving mission and goals.
H ₂ S	hydrogen sulfide.
hydraulic fracturing	The process of creating fractures in rocks and rock formations by injecting a mixture of sand and water into the cracks to force the underground to open further. The larger fissures allow more oil and gas to flow out of the formation and into the well bore, from where it can be extracted.
internal control	The plan, policies, methods, and procedures adopted by management to meet its mission, goals, and objectives. Internal control includes the processes for planning, organizing, directing, and controlling program operations. It includes the systems for measuring, reporting, and monitoring program performance. Internal control serves as a defense in safeguarding assets and in preventing and detecting errors; fraud; violations of laws, regulations, and provisions of contracts and grant agreements; or abuse.
local emergency preparedness coordinator	An appointed individual who coordinates emergency planning or services within the county or municipality.
Mcf	An abbreviation denoting a thousand cubic feet of natural gas. For example, a natural gas well that produces 400 Mcf

of gas per day operates with a daily production rate of 400,000. A single Mcf is equal to approximately 1,000,000 Btu (British thermal units) of energy. The "M" in Mcf comes from the ancient Roman letter M, which stands for one thousand.

MIR	Michigan Implementation of Risk Based Data Management System.
mission	The main purpose of a program or an entity or the reason that the program or the entity was established.
OOGM	Office of Oil, Gas, and Minerals.
performance audit	An audit that provides findings or conclusions based on an evaluation of sufficient, appropriate evidence against criteria. Performance audits provide objective analysis to assist management and those charged with governance and oversight in using the information to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.
privilege fee	A maximum 1% fee on the gross gas market value of oil and gas produced. DEQ sets the fee rate annually based on the balance of the Oil and Gas Regulatory Fund. The fee is to be used by DEQ for the purpose of monitoring, surveillance, enforcement, and administration of oil and gas wells.
reportable condition	A matter that, in the auditor's judgment, is less severe than a material condition and falls within any of the following categories: an opportunity for improvement within the context of the audit objectives; a deficiency in internal control that is significant within the context of the audit objectives; all instances of fraud; illegal acts unless they are

inconsequential within the context of the audit objectives; significant violations of provisions of contracts or grant agreements; and significant abuse that has occurred or is likely to have occurred.

severance tax

A tax on each producer of natural gas or oil or pipeline company, common carrier, or common purchaser, for and on behalf of a producer, in the amount of 5% of the gross cash market value of the total production of gas or 6.6% of the gross cash market value of the total production of oil during the preceding monthly period, exclusive of the production or proceeds from the production attributable to the state, the government of the United States, or a political subdivision of the state or government of the United States. Also, the severance tax required to be paid by each producer or by a pipeline company, common carrier, or common purchaser, for and on behalf of a producer on crude oil from marginal properties in the amount of 4% of the gross cash market value of the total production of the oil, during the preceding monthly period, exclusive of the production or proceeds from the production attributable to the state, the government of the United States, or a political subdivision of the state or government of the United States.

stipulation and
consent agreement
(SCA)

A settlement document issued by DEQ that includes a schedule by which a permittee is to accomplish specific tasks in order to bring a well(s) or a facility into compliance with various regulations. These permittees have been notified of violations at their well site(s) and have not made the required corrections.

transfer settlement
agreement (TSA)

A prepared settlement document issued by DEQ to facilitate the transfer of a permit to drill and operate a well that had been previously noticed as being in violation of regulations and the violations have not been corrected.

