Report
to
The LEGISLATIVE FINANCE COMMITTEE

Taxation and Revenue Department
Energy, Minerals and Natural Resources Department and State Land Office
Status of the Oil and Natural Gas Administration and Revenue Database
February 10, 2015

Report #15-03

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State of New Mexico
LEGISLATIVE FINANCE COMMITTEE
325 Don Gaspar, Suite 101 • Santa Fe. NM 87501
Phone: (505) 986-4550 • Fax (505) 986-4545

David Abbey
Director

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February 9, 2015

Demesia Padilla, Secretary
Taxation and Revenue Department
Joseph Montoya Building
1100 South St. Francis Drive
Santa Fe, New Mexico 87502

David Martin, Secretary
Energy, Minerals and Natural Resources Department
2200 South St. Francis Drive
Santa Fe, New Mexico 87505

Aubrey Dunn, Commissioner of Public Lands
New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Secretary Padilla, Secretary Martin, Commissioner Dunn:

On behalf of the Legislative Finance Committee (Committee), I am pleased to transmit the program evaluation on the status of the Oil and Natural Gas Administration and Revenue Database (ONGARD). The evaluation assessed the current status of ONGARD, adequacy of the business continuity and disaster recovery plan and feasibility of the agency's proposed plan to rebuild or replace the ONGARD system, including the impact of maintenance and operations of the existing system.

The report will be released to the Legislature and public on February 10, 2015. An exit conference was held on February 5, 2015, with the Taxation and Revenue Department, Energy, Minerals and Natural Resources Department and the State Land Office to discuss the contents of this report. The Committee would like a plan to address recommendations in this report within 30 days of the release of the report.

I believe this report addresses issues the Committee asked us to review and hope your department will benefit from our efforts. We appreciate the cooperation and assistance we received from your staff.

Sincerely,

David Abbey, Director

DA:BF/je

Cc: Representative Luciano "Lucky" Varela, Chairman, LFC
       Senator John Arthur Smith, Vice-Chairman, LFC
       Darryl Ackley, Secretary, Department of Information Technology
       Keith Gardner, Chief of Staff, Office of the Governor
       Timothy Keller, State Auditor
       Dr. Tom Clifford, Secretary, Department of Finance and Administration

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In FY14, ONGARD collected $2 billion: $1.2 billion tax revenue and $820 million in royalties.

ONGARD Stabilization and Modernization Project
(in thousands)

Laws 2012 Appropriation	$6,000.0
*Stabilization Project Expenditures	$1,781.0
Estimated Project Costs	$3,491.0
Funding Balance	**$728.0**

Source: ONGARD Project Management Plan
*SHARE actual costs

The ONGARD Service Center expects to issue the request for proposals for the redesign and modification of ONGARD by February of 2016.

Taxes and royalties related to the extraction of oil and natural gas are a major source of revenue for the State of New Mexico. The oil and natural gas administration and revenue database (ONGARD) collects approximately 30 percent of all state revenues. The ONGARD system was developed between 1990 and 1992 as a mainframe application written in COBOL. ONGARD has served the state well over the past 20 years. However, improving the system is limited by the technology available when it was developed. A business process analysis, initiated in December 2014, will determine the extent of the limitations and additional needs of the current system and influence the design of a replacement system.

The objective of this evaluation was to assess the current status of ONGARD, adequacy of the business continuity and disaster recovery plan and feasibility of the agency's proposed plan to rebuild or replace the ONGARD system, including the impact of maintenance and operations of the existing system.

In 2012, the Legislature appropriated $6 million to the Taxation and Revenue Department (TRD) to stabilize and begin modernizing ONGARD. The stabilization project sought changes to the mainframe operating system and database management system as they relate to the ONGARD application code.

The ONGARD stabilization project primarily consists of documenting the most critical business processes. This effort was completed on time and on budget and yielded the most detailed documentation on the ONGARD system in many years. In addition, the stabilization project successfully improved ONGARD by removing millions of lines of unnecessary code including upgrading the code base to Enterprise COBOL and updating it to run on currently supported hardware and software.

With the improvements made during the stabilization project and further improvements planned, remaining funds from the 2012 appropriation should provide the ONGARD Service Center the ability to keep the system operational for the duration of the modernization project. However, to continue the modernization effort, TRD requested $11 million for FY16 and anticipates a need for another $22 million to upgrade or replace ONGARD over the next three years.

Based on evaluation results, the ONGARD Service Center should develop a comprehensive disaster recovery plan. The current plan lacks detail and policy is needed to be in line with best practices.

In conclusion, once the comprehensive business process analysis is complete and design proposals are submitted in response to the request for proposals, it will be possible to evaluate the costs, risks, and feasibility of each option compared to the costs and risks associated with continuing to maintain the existing, outdated system. Therefore, it is premature to recommend additional funding for the modernization project in FY16.

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Background. The oil and natural gas administration and revenue database (ONGARD) system is responsible for approximately 30 percent of all New Mexico state revenue collections. ONGARD supports business processes associated with collection of taxes and royalties paid on the extraction of oil and natural gas resources, as well as the revenues from other State Land Office (SLO) leasing activities. The ONGARD Service Center is a Taxation and Revenue Department (TRD) division formed through a Joint Powers Agreement (JPA) by TRD, SLO and Energy, Minerals and Natural Resources Department (EMNRD) in September 1990. ONGARD Service Center employees are TRD employees. Collectively, the agencies are referenced as the tri-agencies in the JPA for ONGARD process related matters. The ONGARD Service Center is responsible for maintaining, operating, and upgrading the ONGARD system and supports the tri-agencies. Each agency uses the ONGARD system for different purposes depending on their needs. Approximately 180 state employees are active users of ONGARD.

In FY14, ONGARD system collected $2 billion: $1.2 billion tax revenue from TRD and $820 million in royalties from SLO. Annual detail by agency is shown in **Appendix B**.

Chart 1. ONGARD Annual Tax and Royalty Revenues
(in millions)
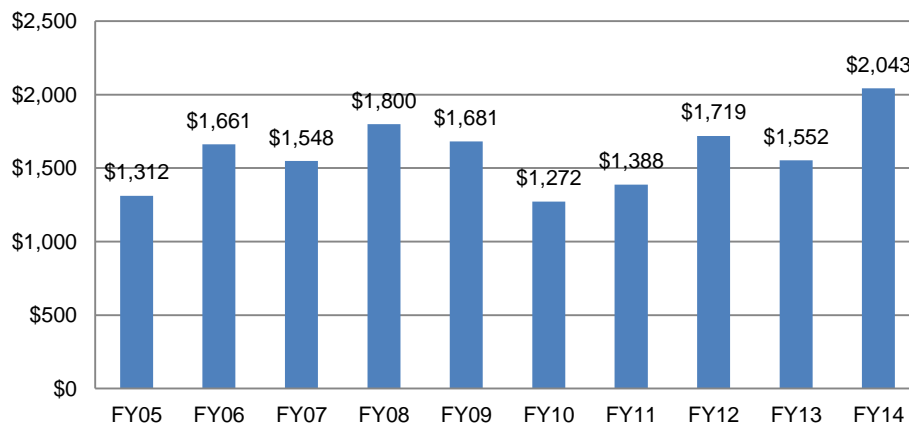
Source: FY16 ONGARD IT Plan

The ONGARD system was developed between 1990 and 1992 as a mainframe application written in COBOL. In 2001, the tri-agencies recognized the 20 year old ONGARD system required re-engineering and began the process to analyze and determine next steps, and intermittent changes to ONGARD followed. Then in 2005, the tri-agency staff developed a server-based web front-end system allowing remitters and royalty payers to submit their filings online. This resulted in an increase in the amount of returns filed electronically and has also reduced the amount of edits and error operations significantly for TRD and SLO. ONGARD now consists of two primary components: a mainframe application and a web-based application. The mainframe application is the core of the ONGARD system and handles all of the primary functions associated with managing the database and performing all the computations for tax and royalty processing and distribution.

The web application is used for tax submission, royalty reporting, service requests, and limited audit support. The web application provides public access for inquiries regarding tax and revenue reporting, land office leases, and production unit number (PUN) details. In all, there are approximately 30 reports available to the public, compared to about 250 reports available to state employees. Finally, ONGARD users from the tri-agencies can submit support request through the web-hosted Service Request Inquiry system. It is used to facilitate tracking and resolution of issues related to every aspect of the ONGARD system, including status reports.

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Currently there are approximately 27,921 oil and gas remitter identification numbers registered with ONGARD. These represent operators of oil wells, distributors, companies, and individuals with ownership interest in wells, industry consultants, wildcatters, and others who submit tax returns or invoices. Every month, approximately 100,000 lines of tax detail data are submitted to ONGARD by these filers. The tax return data is distributed into six different funds in accordance with the legislation governing these taxes.

SLO uses ONGARD for administering state trust lands, land leases, and for processing and distributing royalties from oil and gas production on state trust lands to beneficiaries. ONGARD is SLO's primary tool for oil and gas royalty production and distribution processing. The royalties go to support the schools, universities, hospitals, and other beneficiaries whose land is held in trust by the State and managed by the SLO. Since the ONGARD system is not designed to meet surface leasing and land management business needs, SLO is moving those operations to the Land Information Management System (LIMS). SLO initiated the LIMS project in FY14 and anticipates it to be completed in January 2016.

EMNRD's Oil Conservation Division has no direct interaction with the system. EMNRD uses the ONGARD system primarily as a conduit for transmitting oil and gas production data to the ONGARD Service Center in a format suitable to the mainframe system so TRD and SLO may then process tax and royalties. During FY14, EMNRD sent a total of seven million records to ONGARD. However, EMNRD uses its own systems to track and manage the permitting and regulatory functions that are central to its mission.

Maintenance Costs. In its FY16 IT Plan the ONGARD Service Center reported the state's investment in maintaining the system is significantly lower than industry best practices. Based on Gartner Inc., best practice estimates the annual maintenance investment in a financial system should be in the range of one percent to eight percent of revenue collected by the system. A summary of the annual maintenance costs since FY11 is shown below. The mainframe charges include the tri-agencies.

Table 1. ONGARD
Maintenance Cost Summary
(in thousands)

ONGARD	FY11	FY12	FY13	FY14	FY15*
Operating Budget	$1,457.4	$1,439.1	$1,355.4	$1,382.2	$1,488.7
Mainframe Charges	$712.6	$431.7	$1,044.7	$741.6	$787.7
Maintenance Total	**$2,170.0**	**$1,870.8**	**$2,400.1**	**$2,123.8**	**$2,276.4**

Source: ONGARD Service Center

* FY15 Actual cost through October 2014 - projections for remaining of FY15

Software maintenance is a very broad activity that includes error correction, enhancements of capabilities, deletion of obsolete capabilities, and optimization. So any work done to change the software after it is in operation is considered to be maintenance work. The purpose is to preserve the value of software over the time. The value can be enhanced by meeting additional requirements, becoming easier to use, more efficient and employing newer technology.

Funding. In 2007 the legislature appropriated initial funding of $500 thousand and an additional $1 million in 2008 to plan and begin the replacement of ONGARD. As a result, a comprehensive ONGARD Strategic Roadmap for modernization and transformation was developed and accepted by stakeholders and the Department of Information Technology (DoIT). The 2008 ONGARD Strategic Roadmap for modernization indicated the final architecture must be flexible enough to support statutory requirements, business needs and changes in the marketplace, while preserving current functionality. In December 2008, the project activity was suspended due to the question of future funding with the economic downturn and as a result, $1 million of the appropriated funding reverted to the general fund during solvency. The ONGARD Service Center requested $5.5 million in 2009 to move the system to a modern architecture but was unsuccessful in receiving funding. However, the ONGARD

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Service Center maintains use of the 2008 ONGARD Strategic Roadmap in its continued effort to modernize the system.

Laws 2012, Chapter 19, appropriated $6 million to TRD to stabilize and begin modernizing ONGARD. Four million dollars of the appropriation came from the computer systems enhancement fund, and $2 million from the land maintenance fund. The stabilization project sought changes to the mainframe operating system and database management system as they relate to the ONGARD application code. On completion of the stabilization of the existing system, the ONGARD service center, with approval of the three agencies, is required to develop a five-year action plan that includes distinct phases and estimated costs for the replacement system and to jointly produce a request for proposals to initiate the replacement of ONGARD.

In December 2012, the LFC issued a report on the status of the ONGARD Modernization Project. The mainframe stabilization was Phase I of the project. The ONGARD stabilization primarily consists of documenting 40 of the most critical business processes and to write and execute test cases. This effort was completed on time and on budget and yielded the most detailed documentation on the ONGARD system in many years. As a result, the ONGARD staff has proven documentation to test the system against any future DoIT upgrades of the operating system and the database. These test cases will also aid in any internal testing of ONGARD enhancements. In addition to addressing the top business processes, the project was to perform a number of maintenance and support activities, including upgrading the code base.

The current ONGARD Modernization Project Management Plan describes how the $6 million appropriation has been and will be spent.

**Table 2. Funding Summary - ONGARD
Stabilization and Modernization Project**
(in thousands)

Description	Funding	Expenditure
Laws 2012 Appropriation	$6,000.0	
Stabilization Project*		$1,781.0
Business Process Analysis		$1,026.4
Printing Process Analysis		$135.0
Backfill Positions**		$934.0
COBOL Developers**		$776.0
Miscellaneous**		$620.0
Subtotal		**$5,272.4**
Funding Balance	**$727.6**	

Source: ONGARD Project Management Plan

* SHARE actual costs

** Estimated costs

The remaining $728 thousand is unassigned and the ONGARD Service Center anticipates the available balance will be used to:
- Support initiatives for improvements found during the business process analysis project;
- Potentially develop a request for information to refine cost estimates after the "to-be" model is developed during the business process analysis project;
- Solicit the preparation of a request for proposals for the redesign and modernization of ONGARD; and
- On-going stabilization activity such as database upgrades.

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WITH SUCCESS OF THE ONGARD STABILIZATION PROJECT, THE ONGARD SERVICE CENTER CAN CONTINUE TO OPERATE THE SYSTEM FOR YEARS, IF NECESSARY

<u>The ONGARD Stabilization Project was successfully completed on time and under budget by $129 thousand.</u> The ONGARD Service Center expended $1.7 million of the $6 million appropriation, to stabilize the existing system and begin modernizing ONGARD. The remaining project budget of $129 thousand was released and combined with remaining funds in the appropriation. The stabilization project successfully improved ONGARD by removing millions of lines of unnecessary code including upgrading the code base to Enterprise COBOL and updating it to run on currently supported hardware and software. In addition, for the first time in 20 years, the ONGARD Service Center staff has proven documentation to test the system against any future DoIT upgrades of the operating system and database. The improvements to ONGARD will make supporting the existing system easier for the ONGARD Service Center. The service center planned the stabilization to keep the current system running long enough to transition to a redesigned or otherwise modernized ONGARD system. The improvements made during the stabilization project and further improvements planned with the remaining funds from the 2012 appropriation should provide the ONGARD Service Center the ability to keep the system operational during the duration of the project.

The stabilization and modernization project legislation requires ONGARD Service Center project manager to supply "monthly status and independent validation and verification (IV&V) reports." These reports are generated by POD, Inc., and have been delivered consistently on time. The IV&V reports indicate the stabilization and modernization project has been consistently meeting its planning and scheduling goals. The latest IV&V report, dated January 2, 2015, indicates the project is on schedule and budget.

ONGARD Service Center has experienced capable technical staff to keep the current system running and maintained during the modernization effort. The service center employs and contracts programmers and system administrators who oversee the programming of the ONGARD mainframe application and the system administration and software maintenance of the web-based ONGARD interface. However, it has become increasingly more difficult and expensive to find technical experts capable of managing and modifying ONGARD's COBOL code base. None of New Mexico's major universities still teach COBOL. TRD has had an authorized position for a database administrator, open with full time recruiting on-going for over two years. This position may be difficult to fill because of the state's IT salary structure.

Some staff in the tri-agencies most familiar with the current ONGARD system plan to retire in the near future, posing a significant risk to the Business Process Analysis project. As staff retires, critical institutional knowledge on how to use ONGARD will be lost. New employees hired to replace them will require years of experience to learn the unintuitive systems. To mitigate some of the risk, the ONGARD Service Center has requested approval to "backfill" positions at SLO and TRD to free up resources for the project. TRD and SLO approved backfill positions to support ONGARD subject matter experts in day-to-day responsibilities to devote more time to the project. All positions are term positions.

The TRD Audit and Compliance Division Oil and Gas bureau is responsible for the collection and audit of oil and gas producer tax returns. The bureau chief, a key TRD and senior management team member, plans to retire in February. The TRD Oil and Gas Bureau Chief double fill posting has closed in NeoGov and interviews are scheduled for January 9th. As of December 17, 2014, the Department of Finance and Administration (DFA) and State Personnel Office (SPO) approved the SLO double fill positions and are expected to be posted sometime in January. DFA approved the other TRD backfill positions on December 26, 2014 and have been forwarded to SPO for approval.

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The JPA states the ONGARD Service Center Director is responsible for training service center employees. However, ONGARD Service Center does not have an ONGARD training core curriculum as a baseline. The service center director stated new employees are assigned to work with knowledgeable staff members to train in the use of ONGARD. ONGARD training has been designated as an agency responsibility for SLO and EMNRD. SLO has internal training by division with user manuals specific to each division's ONGARD responsibilities. There is an inherent risk if there is not adequate documentation and training materials for the individuals hired for the backfill positions as well as new employees.

Through a competitive procurement process, TRD awarded Mathtech, Inc., a $1 million contract to conduct an end-to-end business process analysis of the ONGARD system. The ONGARD Service Center initiated the Business Process Analysis (BPA) project December 1, 2014, with an anticipated completion date of November 6, 2015. The BPA project will determine the extent of the limitations and additional needs of current ONGARD system and will greatly influence the design of a replacement system. The contract deliverables will define the functional requirements of the future ONGARD system, define the to-be business workflows as well as document the inputs, outputs, and financial calculations associated with all the respective workflows.

The gathering of all requirements, business processes, and reporting and data needs is critical to determining the new technology platform for the ONGARD system. The BPA project will be in two main phases; mapping of the ONGARD process as it currently functions, followed by definition of requirements for the new, modernized system. Mathtech, Inc. is expected to develop a detailed set of functional requirements detailing the business functions and processes of each step of the data flow across ONGARD for the "as-is" processes, as well as the recommended changes to be made to the "to-be" business processes. The results of the BPA will be the primary basis for the development of the request for proposals (RFP) for the replacement of ONGARD.

Recommendations

The Taxation and Revenue Department should
- Develop a comprehensive training program for new hires on the existing ONGARD system; and
- Ensure the future ONGARD system functional requirements are defined based on the results of the business process analysis.

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THE ONGARD SERVICE CENTER EXPECTS TO ISSUE THE REQUEST FOR PROPOSALS FOR THE REDESIGN AND MODIFICATION OF ONGARD BY FEBRUARY OF 2016

Although ONGARD has served the state well over the past 20 years, it needs to be modernized. ONGARD was designed to meet specific business processes in use at the time of its creation, and technology used is not flexible to adjust to changes in the industry and to the changing needs of the agencies that depend on it. Computer technology has advanced significantly over the past 20 years, and the solutions available for large-scale databases are far more capable today than they were in 1990. The progression of database technology and web based applications and programming languages has made the system's original database design antiquated and costly to maintain. The current system is an outdated technical implementation of a good idea; as time goes on, the disparity between what ONGARD should be able to do and what it actually does will continue to grow. Modern database systems have greater flexibility and can more easily be modified to reflect changes in the industry.

The version of ONGARD being used today has multiple issues stemming directly from the limitations of the technology used to build it. For example, ONGARD was not designed to support Geospatial Information Systems (GIS) data, which is now commonly used for recording physical locations. Also, links between data in different tables are managed by the applications that use the database instead of the database itself. Additionally, TRD's 2013 Financial Audit reported an IT ONGARD control finding. ONGARD is not transactional in nature and does not provide the capability to maintain a system automated audit trail for all database changes, consistent with IT best practices for change control. Unlike modern database architecture, the last transaction is permanently recorded in a transaction log and only the last change is available if auditing is necessary. This deficiency cannot be corrected on the existing platform without a major system change and is another example supporting the need to modernize ONGARD.

Changes to the system are expensive and time consuming. In order to overcome limitations of ONGARD under changing circumstances, tri-agency employees have to create workarounds, adding additional work to using the system. Workarounds illustrate the current design of ONGARD is inadequate to the current needs of the tri-agencies. For example, whenever a filer submits a file containing more than 50,000 lines of tax detail, the file must be split into multiple files for entry into ONGARD. Although it is rare for a single tax report to have so many lines, it does happen when there are a large number of prior period adjustments or erroneous past reporting.

In 2013, a proposal was researched for making a change to the unique number assigned by the American Petroleum Institute (API) that identifies all oil wells. At the time ONGARD was designed, the API number consisted of 10 digits, so the database fields were created as ten-digit numbers. The industry has adopted a 14-digit number. The first 12 digits identify the well and bore, and the last two are variable and are used differently by various producers. Because of the difficulty of making such a fundamental change in the COBOL DB2 database structure, changing the API number field had an estimated cost ranging from $2 million to $4 million over 18 months. There is no guarantee the standard would not change again in the future to reflect further developments in the technology used for oil extraction. A change in the standard requiring the use of alphanumeric or special characters would require further costly changes to the ONGARD system.

The ONGARD Service Center has researched several options for the modernization of ONGARD. The viable options include a commercial-off-the-shelf solution, custom build and adopting an existing system already in use in another state. Each potential solution was evaluated to determine the best approach to modernize ONGARD, and none of these approaches has been completely eliminated from consideration until the business process analysis quantifies the needs of the tri-agencies.

POD, Inc. studied the commercial-off-the-shelf (COTS) approach to modernization and detailed the results in the October 2008 Updated COTS Alternative Assessment. This assessment analyzed the responses to a request for information (RFI) issued by the ONGARD Service Center to taxation and revenue COTS programs vendors. The RFI specified the needs requirements for a modernized ONGARD system, and POD consultants evaluated the responses to determine suitability. The assessment identified four solutions that could potentially meet New

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Mexico's needs but they did not provide functionality for Oil and Gas Taxation business processes, and only partially fulfilled leasing and land management functionality. In addition, the COTS assessment concluded at a maximum, the better of the four solutions would only achieve approximately 50 percent of the business functionality required, and therefore would require significant customization and integration costs. This magnitude of customization defeats the COTS strategy. Overall, the assessment concluded no COTS solutions currently exist to meet the needs of ONGARD modernization.

Solutions used by other states do not meet the needs of the ONGARD Modernization Project. The alternative of adopting a system used by another state was analyzed by the ONGARD Service Center and independent contractors in 2003 and updated in 2008. The study surveyed seven states to determine what solutions are used for processing oil and gas taxation. The Risk Based Database Management System (RBDMS) is in use in some capacity in most of the states surveyed. RBDMS is a client server-based, fully-relational and normalized information management system that was specifically designed for use by state oil and gas regulatory agencies responsible for oil and gas production and associated injection. RBDMS does not have GIS capabilities. In New Mexico, EMNRD uses a customized version of RBDMS to track oil and gas inspections, compliance activities, and environmental tasks, and uses an internally developed system to capture and track oil and gas production information. However, none of the states appeared to have an information-sharing arrangement similar to New Mexico's tri-agencies, and other states use either a custom-built solution or tracked revenues manually using spreadsheets.

Table 3. Summary of 2008 Other States Study

State	System
Alaska	Spreadsheet; transitioning to GenTax
Colorado	Custom built
Kansas	Custom built
Louisiana	Custom built - Strategic Online Natural Resources Information System
Oklahoma	Spreadsheet
Texas	Custom built - Energy Land Lease Inventory System
Wyoming	Custom built

Source: 2008 COTS Alternative Assessment, POD, Inc.

In 2009, as part of the ONGARD Modernization Project, the ONGARD Service Center contacted other oil-producing states concerning their IT practices for collecting oil and gas revenues from three sources: taxation, royalties, and permitting. The ONGARD Service Center conducted an additional survey with most of the states shown above as well as Arizona, Montana, and Nebraska to determine if they use functions similar to ONGARD. No two states have the same organization structure for taxing, land management, and permitting. Lack of uniformity presented a minor complication in trying to compare states.

Although research into other states revealed the ineffectiveness of attempting to compare them to New Mexico, it is not clear whether New Mexico's tri-agency approach is more efficient and effective. Comparing New Mexico to different states is difficult because of organizational structure, as no other state has a multi-agency collaboration for taxation and royalty processing. It appears transferring another states' solution offers no benefits over other options and considerable modification would be necessary to meet the unique needs of New Mexico. Alaska tried to use Wyoming's tax system, resulting in over $3 million in unexpected tailoring costs. As of 2009 no other state has implemented collaboration among the permitting, royalty, and taxation functionality like New Mexico. The ONGARD Service center stated it plans to refresh the comparison to other states as part of the business process analysis project.

TRD submitted a $33 million budget request for FY16 to modernize and redesign ONGARD based on a Function Point Analysis. The $33 million request is for a three-year period, beginning in FY16 for $11 million each year. Functional Point Analysis is a methodology developed by IBM in the 1970s and adopted by the International Standards Organization and the International Electrotechnical Commission. A Function Point

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Analysis attempts to quantify the complexity of a computer application in order to estimate the work required to construct it. It is accepted to be an accurate technique for sizing, documenting and communicating a system's capabilities. Function Point Analysis can be used to evaluate a new system or redesign an existing one. The analysis is technology-independent, because it abstracts the application into standard "function points" that represent individual user functions. It expresses the resulting work in terms of functionality from the users' perspective. It estimates the cost and time involved in creating an application with the exact same functionality as the current system.

In 2008 the ONGARD Service Center contracted with POD, Inc to conduct a Function Point Analysis to determine the size of the current ONGARD application and create an estimate for the cost of a new, custom-built solution with the same functionality on a modern technical platform. In 2014, the ONGARD Service Center contracted with Mainline Information Systems to update the Functional Point Analysis. Both projects used a consultant from IBM to complete the Functional Point Analysis. Depending on the results of the business process analysis the functionality requirements for the replacement system may differ significantly from the current system. As a result, the Function Point Analysis may or may not provide an accurate estimate of the costs for the new system. Until a specific technical architecture, system design, and programming language are chosen, it will be difficult to accurately quantify the costs and timeline required for the modernization project.

The modernization project faces several risks, shown below.

RISK	CONSEQUENCES
Funding for the modernization may not be approved by the Legislature	The existing ONGARD system can continue to be maintained by the ONGARD Service Center, but will continue to become more expensive and less suited to the needs of the tri-agencies every year. Although the modernization may be expensive, there are also costs associated with doing nothing. These include mainframe maintenance costs, expensive projects to make minor modifications to the existing system, costs for each agency to develop additional applications to support functionality that should be handled in ONGARD, and workflow inefficiencies.
Costs of modernization may escalate as the project continues	Estimating the costs of such a large development project is difficult, and an incomplete system may or may not have any useful functionality. However, the cost estimate provided by the Functional Point Analysis may be higher than the actual cost of the modernization, given the technologies available today. By requesting a large appropriation in the beginning, the ONGARD Service Center can insulate itself against unexpected costs.
The timeline for a large modernization project is difficult to predict, and may change.	The estimated timelines for the modernization effort are based on the Function Point Analysis, and may change significantly depending on new requirements discovered by the Business Process Analysis. Changes in the expected delivery date of a modernized system may incur additional costs.
Identifying and managing the requirements of the tri-agencies may be difficult, creating controversy over a new system.	The redesign of a long-established system creates an opportunity for a diverse array of stakeholder input, which can lead to debate between them over the design of the new system. Design requirements and details should be documented thoroughly and agreed upon by all involved parties before state money is spent on the project.

Source: CAaNES Assessment

In conclusion, once the comprehensive business process analysis is complete and design proposals are submitted in response to the RFP, it will be possible to evaluate the costs, risks, and feasibility of each option compared to the costs and risks associated with continuing to maintain the existing, outdated system. Therefore, it is premature to recommend additional funding for the modernization project in FY16.

Recommendation

The Legislature should consider deferring additional funding for the ONGARD Modernization Project until the business process analysis is completed and the request for proposals have been evaluated.

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ALTHOUGH ONGARD HAS A CURRENT DISASTER RECOVERY PLAN, IT LACKS DETAIL AND POLICY IS NEEDED TO BE IN LINE WITH BEST PRACTICES

The current ONGARD Information Technology Disaster Recovery Plan was written in 2012 and revised in October 2014. However, ONGARD Service Center does not have a policy to direct the development, implementation, and testing of the disaster recovery plan. A disaster recovery policy establishes the framework for the management, development, and implementation, training and maintenance of a disaster recovery program, ensuring a disaster recovery plan is developed, tested and kept up-to-date. Information technology (IT) business continuity and disaster recovery planning is the process of analyzing information system infrastructure, systems, applications, and processes, and developing a plan for resumption of these functions and elements in the event of a system interruption or disaster.

The ONGARD IT disaster recovery plan addresses recovery of the ONGARD Service Center. However, it does not address the recovery of the ONGARD system running on the mainframe at the Department of Information Technology (DoIT) data center. One of the assumptions made in the plan is that DoIT has a disaster recovery plan for the mainframe. This is a very important component of the overall plan. If the mainframe was involved in the disaster the ONGARD Service Center disaster recovery plan would be redundant.

DoIT has implemented its disaster recovery strategy for the mainframe and installed applications, however, a plan has not been formally documented and fully tested. All applications and systems data is being replicated to a mainframe at the New Mexico State University disaster recovery site in Las Cruces. The disaster recovery site is considered a warm site as the mainframe there is powered but inactive. DoIT estimates less than one minute of data may be lost in its disaster recovery strategy. Yet this disaster recovery plan is not, as yet, formally documented and not been fully tested. DoIT stated the mainframe disaster recovery plan will be documented and tested in early 2015, and then will be made available to state agencies.

Vital information is not adequately documented in the disaster recovery plan; as a result a comprehensive plan is needed to ensure ONGARD activities can be recovered in the event of a disaster. For example, the plan does not include appendices that cover detailed procedures necessary for recovery. There are supporting documents to the plan such as call trees and some procedures but these are not referenced in the plan. In addition, the ONGARD Service Center conducted a disaster recovery risk assessment but it is not referenced in the disaster recovery plan. It is not clear when the risk assessment was done, how often it is updated and how it flows into the disaster recovery plan.

Roles and responsibilities are documented by job position in accordance with best practices. However, there is not a disaster recovery plan organization chart to indicate who is involved in the recovery process and who reports to whom for disaster recovery purposes. The plan states it has been distributed to key personnel but does not list key personnel receiving the plan. It is preferable to use job positions rather than named individuals. In addition, the plan does not contain an inventory of replacement equipment. This should be included with the plan so in the event of a disaster, replacement equipment can be ordered in a timely manner. Having a comprehensive disaster recovery plan is crucial to ONGARD's operational reliability and minimizing the impact of any disruption to mission essential activities.

The ONGARD Service Center did not perform a business impact analysis before the IT disaster recovery plan was developed. A business impact analysis (BIA) is an essential component and first step in the business continuity and disaster recovery planning process. The BIA includes a work flow analysis and an assessment and prioritization of the business functions and processes that must be recovered. The current recovery time objective for the ONGARD Service Center following loss of the ONGARD data center is estimated at two-and-a-half weeks. The ONGARD Service Center does not know if this is acceptable to the business units associated with ONGARD and a BIA will confirm whether or not it is. If the results of the BIA require a return to operations of less than two-and-half weeks, an alternative site should be identified and documented in the disaster recovery plan.

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A BIA will identify how quickly essential business units and processes have to return to full operation following a disaster situation and the resources required to resume the business operations. Business impacts are identified usually on worst-case scenario, assuming the physical infrastructure supporting each respective business unit is destroyed and all records, equipment, etc. are not accessible for 30 days. The financial impacts and operational impacts must be addressed as well as the estimated recovery time frame. With ONGARD being a critical system impacting the state's revenue stream the need for a business impact analysis cannot be over emphasized.

Recommendations

The Department of Information Technology should:
- Document and test its mainframe disaster recovery plan;
- Ensure once it has been documented and tested, that it be provided to the ONGARD Service Center; and
- Provide the disaster recovery plan to all state agencies using the mainframe.

The Taxation and Revenue Department should ensure the ONGARD Service Center:
- Develops a formal disaster recovery plan policy;
- Conducts a business impact analysis and risk assessment to determine the requirements for the disaster recovery plan including business areas from all three state agencies in addition to ONGARD IT personnel prior to any revisions or updates to the plan;
- Documents the findings of the business impact analysis in the disaster recovery plan;
- Reviews and updates the business impact analysis regularly to reflect significant changes to the business operations and lessons learned during the testing process;
- References the risk assessment in the disaster recovery plan and documents any high risk areas along with mitigation strategies;
- Develops a formal disaster recovery testing plan and conducts training and periodic testing at least annually;
- Include a list of key personnel who receive a copy of the plan;
- Documents the plan revision history, ensuring personnel receiving the plan have the current version; and
- Reviews, updates and distributes the disaster recovery and business continuity plan at least annually.

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TAXATION & REVENUE
NEW MEXICO

February 5, 2015

David Abbey, LFC Director
Legislative Finance Committee
325 Don Gaspar, Suite 101
Santa Fe, NM 87501

RE: ONGARD Evaluation Response

Dear Director Abbey:

Please accept this letter as the Taxation & Revenue Department (TRD) response to the 2015 ONGARD evaluation. The re-engineering of ONGARD is extremely important to New Mexico and TRD is pleased that the Legislative Finance Committee evaluated the current status of this initiative. TRD is in agreement with the department specific recommendations and is willing to provide a status of the implementation of these recommendations at a hearing of the evaluation. Furthermore, TRD is in agreement with the recommendation that additional funding should be deferred until after the completion of the business process analysis. However, a real sense of urgency exists to move forward with this project in a thorough and comprehensive process. TRD fears that the ONGARD Modernization project will be put off for the third time in the last decade. Therefore, TRD will be strongly advocating for funds to support this project in FY17 and will work closely with the other agencies involved in the ONGARD Service Center, LFC and DFA.

There are a few minor factual corrections that we have provided in response to the draft report in the attached document. Thank you for the opportunity to respond to this evaluation and thank you to Brenda Fresquez for leading this important evaluation.

Sincerely,

Demesia Padilla, CPA
Secretary, Taxation & Revenue Department

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State of New Mexico
Commissioner of Public Lands

Aubrey Dunn
COMMISSIONER

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

COMMISSIONER'S OFFICE
Phone (505) 827-5760
Fax (505) 827-5766
www.nmstatelands.org

February 5, 2015

David Abbey, Director
Legislative Finance Committee
325 Don Gaspar, Suite 101
Santa Fe, NM 87501

Dear Mr. Abbey:

The Commissioner of Public Lands would like to acknowledge the Legislative Finance Committee (LFC) for the extraordinary time, talent, and thoughtfulness invested in researching and developing the evaluation report of the ONGARD system. The Land Office is pleased to be included in this evaluation phase, and even more so to be invited to provide a response to the findings.

After review of the evaluation report and recognizing there are challenges and opportunities for improvements towards achieving the objectives of the ONGARD system at a functional, agency and technological level.

With this letter we present comments to the LFC report. It appears to be factually accurate and represents a consistent picture of the current state of the ONGARD Stabilization and Modernization effort. However, we feel it is important to note the following:

ONGARD Stabilization:
- As is documented, the $6 million was appropriated to TRD to stabilize and begin modernization. The stabilization Phase sought out to improve operational level changes in refining standards, removing unsupported software and developing testing procedures. It also sought to mitigate the risk of potential service interruption due to outdated mainframe hardware and out of compliance and unsupported versions of the operating system and database management systems. The Department of Information Technology (DoIT) should continue to play a key role in ensuring the operating state and disaster recovery effectiveness of the mainframe environment. The stabilization project was cooperatively completed with DoIT and new hardware and mainframe operating and database management systems were brought into compliance and sufficient maintenance support levels. However, this is an ongoing activity and without the appropriate attention, funding and maintenance, it will continue to place the ONGARD system and the revenue it manages at risk.

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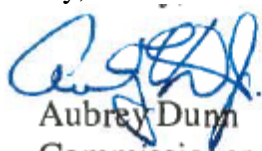February 10, 2015

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ONGARD Options for Modernization and Strategic Plan:
- The options for consideration of potential ONGARD replacement are also somewhat dated and **do not have the endorsement** of the Land Office. The claims that COTS products or utilizing other states' systems are not beneficial in modernizing ONGARD should be reassessed. These options were examined some time ago and might need to be reconsidered in the face of the results of the business process analysis project and availability of newer technologies and major changes in the oil and natural gas industry. Moreover, the strategic plan for the modernization of ONGARD is seven years old and does not reflect the current requirements or align with modern computer technologies.

We are committed to advancing the objectives of the ONGARD system by working with our stakeholders and customers to address the challenges through effective planning and execution of proven best practices. Similarly, the office through a collaborative effort with the tri-agencies, other state entities, and the oil and gas industry desires to accomplish the functional objectives of the ONGARD system.

In closing, the Commissioner of Public Lands would like to thank the Legislative Finance Committee and particularly the members of the Program Evaluation Team who worked so diligently and professionally to develop the report.

Sincerely,

Aubrey Dunn
Commissioner of Public Lands

cc: Charles Sallee, Deputy Director of Program Evaluation
          Brenda Fresquez, Program Evaluator
          Jonas Armstrong ESQ, Fiscal Analyst

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Susana Martinez
Governor

David Martin
Cabinet Secretary

Office of the Secretary

Brett F. Woods, Ph.D. Deputy
Cabinet Secretary

David Abbey, LFC Director
State Capital North
325 Don Gaspar, Suite 101
Santa Fe, NM 87501 (505)
976-4550

Director Abbey,

EMNRD has actively supported and assisted in the Legislative Finance Committee ONGARD status study.

After receiving the draft version of the ONGARD status report we did identify minor factual inaccuracies for which we have already provided corrections and supporting documentation to Brenda Fresquez.

EMNRD acknowledges receipt of the final version of the report.

This letter is the official agency response as requested by Brenda Fresquez on Feb 4th, 2015. Sincerely,

David Martin
Cabinet Secretary

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APPENDIX A: Evaluation Objectives, Scope, and Methodology

Evaluation Objectives.
Assess the current status of ONGARD, the adequacy of the business continuity and disaster recovery plan and the feasibility of the agency's proposed plan to rebuild or replace the ONGARD system, including the impact of maintenance and operations of the existing system and if the system is optimal.

Scope and Methodology.
- Reviewed applicable laws and regulations.
- Reviewed prior LFC reports.
- Reviewed TRD FY13 Financial Audit Report.
- Reviewed the TRD – ONGARD Information Technology plans for FY13, FY14, FY15 and FY16.
- Reviewed the TRD Business Case for the ONGARD Modernization project.
- Reviewed available project management plans, project status reports and project deliverables.
- Reviewed the 2008 ONGARD Strategic Roadmap.
- Reviewed available independent verification and validation (IV&V) project reports.
- Reviewed available project contracts, budgets, and financial data.
- Interviewed the tri-agency's chief information officers, project sponsors, managers and other staff.
- Interviewed Department of Information Technology staff.

Evaluation Team.
Brenda Fresquez, Program Evaluator
Tina MacGregor, Ph. D., IT Compliance Consultant
Craig Butler, IT Consultant

Authority for Evaluation. The LFC is authorized under the provisions of Section 2-5-3 NMSA 1978 to examine laws governing the finances and operations of departments, agencies, and institutions of New Mexico and all of its political subdivisions; the effects of laws on the proper functioning of these governmental units; and the policies and costs. The LFC is also authorized to make recommendations for change to the Legislature. In furtherance of its statutory responsibility, the LFC may conduct inquiries into specific transactions affecting the operating policies and cost of governmental units and their compliance with state laws.

Exit Conference. The contents of this report were discussed with representatives from the Taxation and Revenue Department, Energy, Minerals and Natural Resources Department, and the State Land Office during the exit conference on February 5, 2015.

Report Distribution. This report is intended for the information of the Office of the Governor, the Taxation and Revenue Department, the Energy, Minerals and Natural Resources Department, the State Land Office and Office of the State Auditor, and the Legislative Finance Committee. This restriction is not intended to limit distribution of this report, which is a matter of public record.

Charles Sallee
Deputy Director for Program Evaluation

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APPENDIX B – ONGARD Annual Tax and Royalty Revenue

ONGARD Annual Tax and Royalty Revenue
(in millions)

Agency	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	Total
TRD	$933.3	$1,166.6	$1,073.4	$1,253.1	$1,140.8	$851.2	$888.7	$1,067.9	$974.9	$1,223.1	$10,573.0
SLO	$378.5	$494.8	$474.9	$547.0	$540.0	$420.9	$499.0	$651.4	$577.4	$819.6	$5,403.5
Total	**$1,311.8**	**$1,661.4**	**$1,548.3**	**$1,800.1**	**$1,680.8**	**$1,272.1**	**$1,387.7**	**$1,719.3**	**$1,552.3**	**$2,042.7**	**$15,976.5**

Source: TRD - FY16 ONGARD IT Plan

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