Department of Education

Internal Audit

Student Assessment Administrative Review – Phase 1

Issue Date: March 2015

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Department of Education
Student Assessment Administrative Review – Phase 1
Executive Summary

AUDIT OF:	DATE:	AUDIT RATING:
Student Assessment	Fieldwork performed January 2015 – February 2015	Acceptable [ ] Marginal [X] Unacceptable [ ]

INTRODUCTION:
In connection with the Department of Education's (DOE) Updated Risk Assessment and Internal Audit Plan approved on August 5, 2014, Internal Audit (IA) performed a *"Student Assessment Administration Review – Phase 1."* The purpose of this project was to review Assessment and Accountability Branch's internal controls and business processes over the administration of student assessments, including the distribution and maintenance of student assessment material and the collection and reporting of student assessment results. The review also focused on assessing the design and operating effectiveness of controls over student assessment data to ensure data is adequately secured and controlled. This review excluded an assessment of the controls and processes associated with the development of student assessments.

BACKGROUND:
The Student Assessment Administrative Review – Phase I was approved as part of the DOE Updated Risk Assessment and Internal Audit Plan (July 1, 2014 – June 30, 2019).

The Office of Strategy, Innovation and Performance (OSIP) is designed to systemize and support the ongoing implementation of educational reform and includes assessments, data governance and data analysis efforts. Within OSIP is the Assessment and Accountability Branch which administers a series of exams designed to measure student progress toward standards competency, and to ensure students are on path toward college and career readiness. Within the Assessment and Accountability Branch are the Assessment Section and the Accountability Section. The Assessment Section works with a third party contractor, the American Institute of Research (AIR), to develop and administer large scale statewide assessments.

The DOE supports and administers the following state assessments and national and college entrance tests. Taken together, they paint a picture of what the testing framework looks like for a Hawaii public school student.

State Exams/Surveys
- <u>Smarter Balanced Assessment</u>: Throughout the year, October through May. Given to students in Grades 3-8 and 11. Results are sent to parents in August.

- <u>ACT College & Career Readiness System</u>: April and May. Given to students Grades 8-11. Results are available to principals and Complex Area superintendents during the summer.

- <u>School Quality Survey</u>: Winter. Given to students, parents and teachers. Report released in June.

National Exams
- <u>The National Assessment of Educational Progress (NAEP) exam</u>: Compiled for the Nation's Report Card, this exam is administered to a sample of students in grades 4, 8 and 12 during winter, testing them in reading, writing, math and science. Results are released in the fall. You can view Hawaii's and other states' performance on the NAEP State Profiles page.

Within OSIP, there are a number of groups who provide guidance to the DOE for collecting and reporting data as required by federal, state, and local regulations. The DOE compiles data from the multiple state assessments over the course of a school year to gauge the performance of Hawaii's public schools and their students. Data Governance and Analysis Branch (DGA) works with the Data Management Section (DMS) in the Office of Information Technology Services (OITS) to ensure the data from the Assessment Section is accurate and reliable prior to giving the data to the Accountability Section. The Accountability Section then works with a third party contractor, DataHouse Consulting, Inc. (DataHouse), to run additional validations and prepare reported metrics. The Accountability Section uses these metrics annually to create timely and accurate reports for state and federal accountability purposes such as the Superintendent's Annual Report, School Status Improvement Reports (SSIR) and Trend Report: Educational & Fiscal Accountability. Below is a brief overview of these reports:

Superintendent's Annual Report
The Superintendent's Annual Report highlights information on school performance and improvement in Hawaii's public schools. The report profiles noteworthy academic events, trends, and outcomes at two organizational levels: state and complex. Featured are tables, figures and narrative sections related to demographic, financial, and educational performance. Also, comparisons to other states with relevant characteristics similar to Hawaii are provided to illustrate our State's relative progress or status on specific indicators.

School Status Improvement Reports
The School Status & Improvement Report (SSIR) addresses standard-based education reporting requirements in §302A-1004, Hawaii Revised Statutes. The DOE prepares an individual SSIR for each school. Each school report contains a description of the school and its setting, a summary of school improvement progress, available resources, and vital signs on school performance.

Trend Report: Educational & Fiscal Accountability
The Trend Report: Educational and Fiscal Accountability provides three years of trend data on school, complex, and state performance at selected benchmark grade levels with performance indicators in areas relating to student achievement, safety and well-being, and civic responsibility. These reports are designed to present trend data information to the public in a concise two-page format for each complex and school.

Below is a depiction of the basic assessment and reporting process.
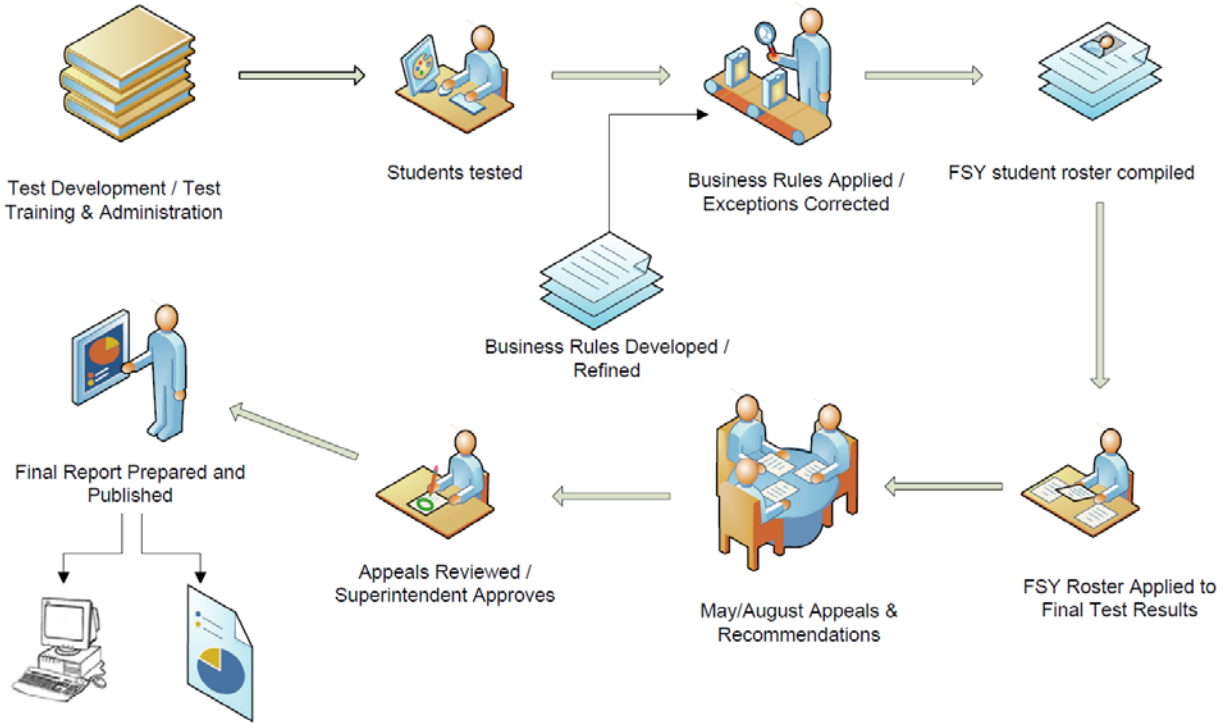
Information regarding Student Assessment and Accountability Branch is kept in various locations including, but not limited to, DOE Memos and Notices posted in Lotus Notes, the DOE Intranet, and the Accountability Resource Center Hawaii (ARCH) website. The Elementary and Secondary Education Act (ESEA), No Child Left Behind (NCLB), and Section 302A-1004 of the Hawaii Revised Statutes (HRS), are the main regulatory influences over student testing and the reporting of the results.

SCOPE and OBJECTIVES:

The scope of our review included an examination of the student assessment processes and the reporting of student assessment results. We reviewed the design of the existing control procedures in place around these processes. The scope of our review specifically focused on the processes related to the following subcategories that IA deemed as high risk:
1. Monitoring third party vendors
    a. American Institute for Research (AIR) – Testing
    b. DataHouse – Reporting
2. Validating testing results and student demographics
3. Reporting results

The scope of the testing covered fiscal year 2013-2014 and fiscal year 2014-2015 up to fieldwork date.

The objectives of our review included the following:
1. To obtain a general understanding of the design and operating effectiveness of the administration of student assessments.
2. To review, evaluate and test the design of the administration of student assessments from the point of receiving the test results to publishing the results in various reports, so as to ensure that key controls have been adequately put into place and that processes are in compliance with policies and procedures.
3. To review, evaluate and test the design of the monitoring of third party contracts involved in the student assessment and reporting processes.
4. To review the student assessment process and identify opportunities for efficiency and operational improvements within the administration of student assessments.

OBSERVATIONS:
Based upon our review, we found the DOE's controls related to student assessment are functioning at a "marginal" level. A marginal rating indicates that there may be a potential for loss to the auditable area and ultimately to the DOE. Some improvements are necessary to bring the unit to an acceptable status, and if weaknesses continue without attention, further deterioration of the rating to an unacceptable status may occur.

Please refer to the Risk Ratings section of this report for a complete definition of the ratings used by IA and the Observations and Recommendations section for a detailed description of our findings.

We discussed our preliminary findings and recommendations with management and they were receptive to our findings and agreed to consider our recommendations for implementation.

Each observation presented in this report is followed by specific recommendations that will help to ensure that control gaps are addressed and, if enforced and monitored, will mitigate the control weaknesses. In summary, our observations are as follows:

1. Lack of monitoring and oversight of third party vendors
2. Insufficient controls over changes made to the final test results
3. Inefficient transfer and inadequate protection of data
4. Lack of documentation of management's approval for multiple processes
5. Untimely and incomplete reporting of students who were not tested

PLANNED FOLLOW UP BY MANAGEMENT AND INTERNAL AUDIT:

IA will follow up with management on their progress of completion for their action plans and report accordingly through the audit committee quarterly updates.

OVERALL RATING SCALE	
Acceptable	No significant deficiencies exist, while improvement continues to be appropriate; controls are considered adequate and findings are not significant to the overall unit/department.
Marginal	Potential for loss to the auditable unit/department and ultimately to the DOE. Indicates a number of observations, more serious in nature related to the control environment. Some improvement is needed to bring the unit to an acceptable status, but if weaknesses continue without attention, it could lead to further deterioration of the rating to an unacceptable status.
Unacceptable	Significant deficiencies exist which could lead to material financial loss to the auditable unit/department and potentially to the DOE. Corrective action should be a high priority of management and may require significant amounts of time and resources to implement.

OBSERVATION RATING SCALE	
High (1)	1 - The impact of the finding is <u>material</u>[1] and the likelihood of loss is probable in one of the following ways: • A material misstatement of the DOE's financial statements could occur; • The DOE's business objectives, processes, financial results or image could be materially impaired; • The DOE may fail to comply with applicable laws, regulations or contractual agreements, which could result in fines, sanctions and/or liabilities that are material to the DOE's financial performance, operations or image. *Immediate action is recommended to mitigate the DOE's exposure*
Moderate (2)	2 - The impact of the finding is <u>significant</u>[1] and the likelihood of loss is possible in one of the following ways: ➢ A significant misstatement of the DOE's financial statements could occur; ➢ The DOE's business objectives, processes, financial performance or image could be notably impaired; ➢ The DOE may fail to comply with applicable laws, regulations or contractual agreements, which could result in fines, sanctions and/or liabilities that are significant to the DOE's financial performance, operations or image. *Corrective action by management should be prioritized and completed in a timely manner to mitigate any risk exposure.*
Low (3)	3 – The impact of the finding is moderate and the probability of an event resulting in loss is possible. *Action is recommended to limit further deterioration of controls.*

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[1] The application of these terms are consistent with the guidelines provided by the Institute of Internal Auditors

The detailed observations noted herein were based on work performed by IA through the last date of fieldwork and are generally focused on internal controls and enhancing the effectiveness of processes for future organizational benefit.

Obs. No.	Description	Page #
1	Lack of monitoring and oversight of third party vendors	7
2	Insufficient controls over changes made to the final test results	9
3	Inefficient transfer and inadequate protection of data	12
4	Lack of documentation of management's approval for multiple processes	13
5	Untimely and incomplete reporting of students who were not tested	15

Observations

Observation Number: 1	
Observation: Lack of monitoring of third party vendors	**Rating: Moderate**

The DOE has two major vendors involved in the student assessment process. The American Institute for Research (AIR) is contracted to help develop test items, administer the assessments, and score the assessments. DataHouse Consulting, Inc. (DataHouse) is involved later in the process by assisting the DOE in reporting the student assessment results.

As these outsourced functions are critical to the student assessment process, IA reviewed the respective contracts to determine whether the contract language allowed the DOE to audit the books and records of the contractor. IA found that the AIR contract included such language, and the DataHouse contract did not. Through discussion with Assessment and Accountability Branch, IA found that the DOE did not properly monitor the third party vendors to have assurance that the controls in place at these organizations ensured confidentiality, security, availability, and processing integrity of the outsourced functions.

Impact

Lack of monitoring of third party vendors may lead to:
- ➢ Inaccurate reporting of student assessment results
- ➢ Noncompliance with state, federal, and/or DOE guidance
- ➢ Inadequate controls over the integrity and safeguarding of data

Recommendation

Recommendations to address the lack of monitoring of third party vendors include:

The DOE should consider requesting both vendors to have a Service Organization Control (SOC) 2 Report completed over the respective outsourced functions. SOC 2 reports generally report on controls at a Service Organization relevant to security, availability, processing integrity, confidentiality and privacy over data and information. A SOC2 Report would provide DOE management with an assessment of the service organization's internal controls, and address the risks associated with the outsourced functions. It would provide the DOE with a greater assurance that the assessment results are reported accurately and reliably.

The DOE should execute its right to review the books and records of AIR. In addition, the DOE should consider including language allowing DOE to review the books and records in future contracts with DataHouse. Once such language is included, DOE should execute its rights to review the books and records of DataHouse.

Observations

Management Plan
Management appreciates the intent of the student assessment administrative review and the preliminary findings provided in this report. There is agreement of the importance of implementing controls over the student assessment data to ensure that the data is adequately secured and more importantly possess the highest level of validity possible in serving as an indicator of academic achievement at the student, school and system levels. Management agrees that the level of control over the collection, processing and reporting of student assessment data should be improved in order to attain an acceptable level of operation. The issues identified in the report are largely due to the multiple organizational changes that have occurred over the past three years and the change in coordination of the functions from solely being under the Assessment and Accountability Branch (formerly the Systems Accountability Office) to being distributed to OITS and DGA. Timing constraints will prevent implementation of major changes to be put in place for the current school year and the importance of the data behooves management to approach the project judiciously. Except for observation 3, management would propose to report back to the Internal Audit Office in 6 months with the results of the effort proposed implementation plan. The timing will allow for a comprehensive and vigilant process and provide for implementation of the controls with the SY15-16 assessment and accountability data. The following response specifically addresses observation #1: Management agrees with the need to more closely monitor third party vendors involved in the student assessment process.   Instead of addressing the "process" issues, observations 1, 2, and 4, independently, management proposes to undertake a more comprehensive review of the entire data management breadth encompassed under the Assessment and Accountability Branch. Management proposes to engage the services of an external resource to review, analyze, and recommend appropriate process changes, tools and a governance structure based upon industry-accepted best practices under the enterprise information management and master data management disciplines.
Responsible Office
Assessment Section Accountability Section

Observation Number: 2	
Observation: Insufficient controls over changes made to the final test results	**Rating: Moderate**

Assessment Results

Data Governance and Analysis Branch (DGA) is tasked with ensuring that the student assessment results are valid. To do this, they run business rules to identify any exceptions, and then manually review each exception and determine how it should be handled. If the exception is identified before the testing window is closed, the change is communicated to AIR to update the test record. If the exception is noted after the close of the testing window, when the final test result file is received, then the change to the test record is made by DGA and documented on an 'exception log.' The exception log is then transmitted to the Accountability Section with the final test result file.

a) **Exceptions identified during the testing window are informally communicated to AIR.**
DGA generates an exception log and manually inputs the required corrections for AIR to make. The requests are communicated to AIR via email and a follow-up telephone call. The exception log does not document who made the request, who was contacted at AIR, nor the date and time the request was made.

b) **No automated report is provided to show requested changes were processed.**
DGA does not receive confirmation from AIR that changes requested during the testing window were processed. Rather, DGA waits until the end of the test window, when the final test result file is received, and re-runs the business rules. At that time, if the exception is not re-generated, then that acts as validation that AIR made the change.

c) **DGA's exception log includes manually entered fields and is missing critical information.**
DGA generates an exception log to record all exceptions to business rules identified after the testing window is closed. DGA makes corrections to the final test result file, and then manually logs the corrections that were made on the exception log. IA reviewed the exception log for SY2013-2014 and noted that it included manually entered fields. Further, the SY2013-2014 exception log only listed the changes made; it did not include the date and time or the person that made the change.

d) **DGA's exception log is not summarized or reviewed.**
Once DGA has addressed all the business rule exceptions the final test result file is transmitted to the Accountability Section. The exception log is provided at the same time as the final test result file. However, based on discussions with the Accountability Section, the exception log is not summarized nor reviewed for reasonableness.

Department of Education
Student Assessment Administrative Review – Phase 1
Observations

Accountability Results

DataHouse creates a master student roster as of May 1st based on student enrollment at three points in time during the school year. DataHouse identifies exceptions and inconsistencies with the enrollment data, and works with the Accountability Section to resolve the issues, and finalize the master student roster. DataHouse will then post the preliminary demographics on the Accountability Resource Center Hawaii Database (ARCHdb) for schools to review.

a) **Accountability Section does not review DataHouse's system generated transaction table to show that requested changes were processed properly.**
   After Accountability Section requests changes to student demographic data, Accountability Section is not provided with, nor does it review, a system generated report showing that the changes were made. Rather, to ensure that demographic changes requested were properly processed, the final results are reviewed prior to being posted to the ARCHdb.

After the preliminary results are posted on ARCHdb, there is a pre-appeals process that allows schools the opportunity to review their student's demographic data, and file claims for corrections. The Accountability Section compiles all of the claims, and develops recommendations for how to handle each claim. The recommendations are presented to the Superintendent for review and approval. DataHouse will then make the respective changes to the student demographic data. The appeals process begins when the testing window is closed. At this time, the test results are finalized by DGA, and the final test result file is merged with the master student roster based on student ID. The results are posted to the ARCHdb, and the schools are again given the opportunity to review and appeal the results.

b) **No automated report is provided to show requested pre-appeals and appeals changes were processed.**
   Based on the Superintendent's approved pre-appeal and appeal recommendations, the Accountability Section communicates student information and test record changes to DataHouse. DataHouse makes the appropriate changes and manually logs the changes made on Accountability Section's pre-appeals or appeals log. DataHouse does not provide a system generated report of the changes made. To ensure the changes were properly reflected, the Accountability Section reviews the final results prior to DataHouse posting them on the ARCHdb.

Impact
Insufficient controls over changes made to the final test results may lead to: ➢ Inaccurate reporting of student assessment results and accountability results ➢ Unauthorized changes to student assessment results and accountability results ➢ Requested changes to student assessment results are not made timely ➢ Lack of accountability for changes to the data

Recommendation
Recommendations to address insufficient controls over changes made to the final test results include: DGA should formalize the process of requesting AIR to make corrections to the test results. At a minimum, the exception log should include the employee who submitted the request, the AIR representative who received the request and the date and time the request was made. The Assessment and Accountability Branch should request AIR and DataHouse to provide an audit log of all changes they make to the final files. The audit logs should be system generated, and identify the users who made changes to the data, and the date and time when the changes were made. DGA and Accountability Section should review these audit logs to ensure all changes are authorized. DGA and Accountability Section should review these audit logs for reasonableness and trending. OITS and DGA should have an automated audit log to identify all changes they make to the final test result file. The audit logs should be system generated, and identify the users who made changes to the data, and the date and time when the changes were made. Management from the Accountability Section should review and analyze OITS and DGA's audit log. The audit log is a control tool that should be utilized to monitor the changes made to the data, and detect possible unauthorized changes. Further, the audit log should be summarized so that it can be used as a tool to measure reasonableness as well as identify patterns of exceptions that could be alleviated or minimized for future tests.

Management Plan
Instead of addressing the "process" issues, observations 1, 2, and 4, independently, management proposes to undertake a more comprehensive review of the entire data management breadth encompassed under the Assessment and Accountability Branch. Management proposes to engage the services of an external resource to review, analyze, and recommend appropriate process changes, tools and a governance structure based upon industry-accepted best practices under the enterprise information management and master data management disciplines. Also see Management's Plan in Observation #1

Responsible Office
DGA Accountability Section

Observation Number: 3	
Observation: Inefficient transfer and inadequate protection of data	**Rating: Moderate**

Throughout the processing and reporting of student assessment results, data transfers from department to department without a common server where all authorized parties have access to the data.

   a) **DGA transfers data to the Accountability Section through an unsecured flash drive.**
After DGA runs the business rules they export the final test result file to an excel file, text file, or access formatted file for the Accountability Section. The final test result file is saved on a flash drive and is hand delivered to the Accountability Section. The final test result file is not encrypted.

Impact

Inefficient transfer and inadequate protection of data may lead to:
- Delays in receiving time-sensitive files due to the manual transfer process
- Loss or theft of data, including personally identifiable information, during transfer of the flash drive to the Accountability Section
- Transfer of malware
- Noncompliance with state, federal, and/or DOE guidance
- Inadequate controls over the integrity and safeguarding of data
- Reputational exposure to the DOE.

Recommendation

Recommendations to address the inefficient transfer and inadequate protection of data include:

Management should evaluate alternative methods for the transfer of the final test results from DGA to the Accountability Section, such as having a server that both DGA and Accountability Section can access. At the very least, management should encrypt files transferred via a thumb drive with a strong password.

Management Plan

Management acknowledges this observation and has alleviated the issue with the assistance of OITS who has setup a Secure Shell (SSH) File Transfer Protocol (also known as Secure File Transfer Protocol or SFTP) site where the encrypted file can be copied to and retrieved by the Accountability Section.

Responsible Offices

DGA

Accountability Section

Observation Number: 4	
Observation: Lack of documentation of management's approval for multiple processes	**Rating: Low**

In SY2013-2014, with the re-organization of OSIP, and DGA's increased role in validation of student assessment results, formal business rules were created. The business rules were established to automate and document a previously unclear manual process.

    a) **There is no documentation of approval after the review of business rules.**
       Business rules were created based on past manual reviews, as well as determining how to standardize responses to scenarios arising in SY13-14 and hypothetical scenarios. DataHouse assisted in developing the business rules and writing or reviewing the scripts to execute the business rules. Business rules were discussed in joint meetings with OITS, DGA, Accountability Section and Assessment Section; however, there was no documented approval of the business rules by management. Also, the basis or underlying authority (i.e. ESEA, HRS, etc.) for such decisions is not documented.

Preliminary demographic and assessment results are posted on the ARCHdb for schools to review. Then an appeals process allows schools to make requests for corrections to demographic or assessment results.

    b) **Superintendent's approval of appeals is not documented.**
       Appeals are sent to the Accountability Section for review and compilation. The Accountability Section develops recommendations on how to handle each appeal. The Accountability Section then meets with the Superintendent and presents the recommendations for her final approval; however, there is no documentation of Superintendent's approval or denial of the recommendation.

Impact

Lack of documentation of management's approval for multiple processes may lead to:
- ➢ Unauthorized changes
- ➢ Lack of accountability

Recommendation

Recommendations to address lack of documentation of management's approval for multiple processes include:

Management should document their review and approval of all existing and new business rules. In addition, regulatory guidance in which business rules are based on should be documented with the business rule.

Management's review and recommendation for acceptance or denial of all appeals should be documented. In addition, Superintendent's review and approval of Accountability Section's recommendation for approval or denial of all appeals should also be documented.

Management Plan
4a. Instead of addressing the "process" issues, observations 1, 2, and 4, independently, management proposes to undertake a more comprehensive review of the entire data management breadth encompassed under the Assessment and Accountability Branch. Management proposes to engage the services of an external resource to review, analyze, and recommend appropriate process changes, tools and a governance structure based upon industry-accepted best practices under the enterprise information management and master data management disciplines. 4b. With the creation of the Office of Strategy, Innovation and Performance (OSIP), the final approval for the appeals has been delegated to the assistant superintendent. The approval of the final decision of the appeals will be documented with a written signature. Also see Management's Plan in Observation #1
Responsible Office
DGA Accountability Section

Observation Number: 5	
Observation: Untimely and incomplete reporting of students who were not tested	**Rating: Low**

Over the summer, DGA creates a listing of untested students by comparing a snapshot of all active students at the end of the testing window per Electronic Student Information System (eSIS) to the listing of students with a valid test record per AIR. Students are aggregated by school and lists of untested students are sent to the respective schools to provide an explanation as to the reason why the students were not tested. When schools respond, their explanations are compiled for federal reporting requirements.

Per discussion with DGA, a field could be added to the AIR testing window that would require the administrator to input an explanation for all students not tested at the scheduled testing time. This would eliminate many of the findings listed below.

    a) **Untimely reporting of untested students.**
        By performing the review of untested students after the close of the test window, untested students who should have been tested do not have an opportunity to take the tests that they missed.

    b) **Inefficient use of resources.**
        The process of creating lists of untested students by school is cumbersome. After the close of the testing window, lists of untested students are compiled by school and are sent out to schools to provide an explanation as to the reason why the students were not tested. Schools responses are then collected and compiled for federal reporting purposes.

    c) **Poor response rate of why students were not tested.**
        The response rate of schools explaining why students were not tested is extremely poor. Per discussions with DGA, less than half of the requests were returned in SY2013-2014.

Impact
Untimely and incomplete reporting of students who were not tested may lead to:

- ➢ Schools not having an opportunity to test students who were inadvertently not tested
- ➢ Incomplete testing results
- ➢ Inconsistent reporting of untested and tested students due to referencing of different sets of data
- ➢ Limited resources being allocated to tasks that could be automated
- ➢ Noncompliance with state, federal, and/or DOE guidance

Recommendation
Recommendations to address untimely and incomplete reporting of students who were not tested include: The DOE should have AIR include a field to input the reasons as to why students were not tested at the time of the scheduled test. This would eliminate the need for reports to be compiled by school. It would drastically increase the response rate to providing reasons why students were not tested. Further, it would notify schools of students who were not tested in a timely fashion such that untested students could take the test if desired. If the DOE is unable to have AIR include a field to input why students were not tested, the DOE should consider ways that they could report untested students timely to schools so inadvertently untested students can be tested. The DOE should also explore ways to increase the response rate to requests for explanations of untested students.

Management Plan
Management acknowledges the issue and will be working with the test delivery vendor to manage the testing status of all students (tested and untested) through its test management system. Schools will be provided with a field which tracks untested students and the reasons for not testing. The ability of the Assessment section to monitor the status of the field through the test management system will improve the response rate. Also see Management's Plan in Observation #1

Responsible Offices
DGA Assessment Section

Acknowledgements

In SY2013-2014, with the re-organization of OSIP, and DGA's increased role in validation of student assessment results, formal business rules were created. The business rules were established to automate and document a previously undocumented and manual process. IA would like to commend the DOE on the exponential growths and improvements that were made to this process in SY13-14.

We also wish to express our appreciation for the cooperation and assistance afforded to the review team by management and staff during the course of this review.