



# Secretary of State Audit Report

## Oregon Department of Human Services: Integrated Information System Application Controls Review

### Summary

#### PURPOSE

The purpose of this audit was to evaluate the effectiveness of key general and application computer controls governing the Oregon Department of Human Service's (department) Integrated Information System (system). Our specific audit objectives were to determine whether the department implemented processes to reasonably ensure system data integrity, backup and restoration, program change management, and logical access control.

#### RESULTS IN BRIEF

Automated and manual application controls did not reasonably ensure all transaction data would be complete, accurate, or valid. Specific control weaknesses included:

- Adoption Assistance payment parameters were not independently validated after staff manually entered them into the system.
- Staff did not perform timely or effective reconciliations of system payments.
- Replacement checks for lost or stolen checks were not properly recorded in the system.
- The department did not adequately separate duties for entering Adoption Assistance clients and initiating the associated automatic payments.
- Department staff did not document adjustments they made to correct system transactions that did not properly post to the state's financial application.

It is also unlikely that the department could timely restore the system in the event of a disaster or major disruption because it did not have a defined backup strategy, system restoration plan, or service level agreement with the State Data Center.

Department staff did not always follow appropriate program change management procedures or ensure that important quality assurance steps occurred.

Logical access controls did not adequately protect the system and its data from unauthorized use, disclosure, modification, damage, or loss.

Because of the sensitive nature of system security, we issued a separate confidential report outlining specific details of our findings, as well as recommendations to improve security. That confidential report was prepared in accordance with ORS 192.501 (23), which exempts such information from public disclosure.

#### RECOMMENDATIONS

To resolve these issues, we recommend that department management:

- independently validate Adoption Assistance payment data after they are manually entered into the system,
- ensure monthly reconciliations of system payments are timely and effectively performed,
- properly record the issuance and payment of replacement checks,
- separate duties for establishing Adoption Assistance clients in the system and setting up their associated automatic payments,
- ensure adjusting entries to correct system transactions are fully documented to better facilitate their review and approval,
- assign responsibility for developing, implementing, and testing complete system backup and restoration strategies,
- develop more robust program change management policies and procedures and ensure all necessary quality assurance steps are performed, and
- implement the recommendations included in our confidential security report.

#### AGENCY'S RESPONSE

The Department of Human Services generally agrees with the recommendations.

## Background

The Oregon Department of Human Services (department) is responsible for administering numerous programs that provide assistance to qualified persons in need. To help administer these programs, the department utilizes various automated computer applications and systems.

The department implemented the Integrated Information System (system) to help administer its child welfare programs. The system consists of a suite of applications designed to maintain client records, provide management information, and facilitate payments to clients and their caregivers. The system is maintained and operated by department personnel and hosted on a Department of Administrative Services mainframe computer at the State Data Center.

Because the system functions as a payment system, financial transactions processed through it are automatically posted to the state's centralized Statewide Financial Management Application (SFMA) to facilitate department and statewide financial reporting. During September 2007, the system processed payments totaling approximately \$14 million.

The system was developed between 1979 and 1984. In March 2008 the department contracted with CGI Technologies Inc. to implement a computer application to replace the system because it does not currently meet all federal requirements. The department indicated the application is scheduled to be implemented in 2010.

The purpose of this audit was to evaluate the effectiveness of key general and application computer controls governing the system. Specifically, we evaluated controls over programming changes, system backup and restoration, security, and application controls governing payments made through the system.

## Audit Results

### Application Controls did not Always Ensure Accurate and Valid Payments

Application controls include both manual and automated processes to ensure only complete, accurate, and valid information is entered into a computer system; data integrity is maintained during processing; and system outputs conform to anticipated results. These controls may include data validity checks, transaction balancing routines, and error detection and correction processes. They may also provide or support other internal controls such as transaction authorization or separation of critical accounting functions.

We found that automated and manual application controls did not reasonably ensure all transaction data would be complete, accurate, or valid. The effectiveness of these controls varied depending on the payment type. Specific application control weaknesses included:

- Adoption Assistance payment parameters were not independently validated after staff manually entered them into the system.
- Staff did not perform timely or effective reconciliations of system payments.
- Replacement checks for lost or stolen checks were not properly recorded in the system.
- The department did not adequately separate duties for entering Adoption Assistance clients and initiating the associated automatic payments.
- Department staff did not document adjustments they made to correct system transactions that did not properly post to SFMA.

As a result, the department was not able to exercise appropriate

control over assets. For example, insufficient application controls over transaction input and processing sometimes allowed reoccurring overpayments to adoption subsidy recipients. In one such instance, the system generated 43 automatic payments of \$3,778 per month rather than the authorized \$378 per month.

During fieldwork, auditors detected a similar error which resulted in the system paying a provider \$4,977 rather than \$497. Those payments occurred for five consecutive months prior to discovery. When notified of this problem, the department stopped future overpayments and began loss recovery efforts. However, the overpayments would likely have continued for an extended period because the department did not have effective controls to detect that type of error.

Also, because the system did not include a record of checks the department issued to replace lost or stolen checks, SFMA did not always reflect those transactions. This condition made the reconciliation process cumbersome and increased the risk that unauthorized transactions could be entered into the system without being detected. Furthermore, because reconciliations were not always performed timely, department management would likely be unaware of a problem, should one occur.

Inadequate documentation of adjusting entries also diminished the effectiveness of review and approval processes for those transactions, thus decreasing the likelihood that errors would be detected.

Because the system did not have robust automated application controls, the department relied on managers to design and implement manual controls to ensure appropriate system input, processing and output. The above weaknesses existed because department staff had not designed

appropriate manual controls or they did not follow existing policies as prescribed.

**We recommend** that department management design and/or implement controls to:

- independently validate Adoption Assistance payment parameters after they are manually entered into the system,

**Agency's Response:**

*The department agrees with this recommendation.*

*In May 2007, the department initiated the automation of a monthly report allowing for a match comparison of data entered into the two databases, Adoption Recruitment Management System (ARMS) and Integrated Information System (IIS). The intent of these data check runs was to ensure that errors are identified and addressed in a timely manner. However, the focus was to identify any miscoding errors related to IV-E eligibility. Upon awareness that incorrect entries were occurring beyond the IV-E coding, the monthly report runs were modified to include newly negotiated agreement amounts.*

*The most recent error identified since the implementation of the monthly report through the audit involved a renegotiated agreement rather than a newly negotiated agreement. The matter was immediately addressed and has been resolved.*

*DHS, as of April 2008, has initiated a monthly comparison report (ARMS-IIS-Amounts) that compares all new agreements and renegotiated agreements entered into ARMS and IIS to identify discrepancies of payment amounts and IV-E eligibility entries. This report is reviewed by department management of the Adoptions Unit and any discrepancies are corrected.*

Anticipated Completion Date:  
*Completed April 2008.*

- ensure monthly reconciliations of system payments are timely and effectively performed,

**Agency's Response:**

*DHS partially agrees with this recommendation.*

*This is a large system with a complex reconciliation. We found that review of the reconciliation report for the sample month (September 2007) was completed on November 28, 2007 or within 45 days of the September SFMA cutoff in mid-October. This is considered timely from our perspective. This reconciliation report was completed on a current basis during the first ten months of 2007-2008 having been both submitted for approval and reviewed within 45-days. We continue to look at ways to improve the effectiveness of the report by including comparisons with SFMA, IIS, and Treasury data. The Office of Financial Services will continue to work with the Office of Information Services to get better reports to assist with the reconciliation process. We anticipate further efficiencies in the reconciliation with the implementation of the replacement, ORKIDS, system.*

Anticipated Completion Date:  
*Improvement efforts are ongoing. ORKIDS is scheduled for implementation in February 2010.*

- properly record the issuance and payment of replacement checks,

**Agency's Response:**

*DHS agrees with this recommendation.*

*The Office of Financial Services will work with the Office of Information Services to identify programming changes in the IIS system to properly record replacement checks. The replacement system, ORKIDS, will incorporate controls in these areas.*

Anticipated Completion Date:  
*Business process changes will be identified by January 2009.*

*ORKIDS will be implemented by February 2010.*

- separate duties for establishing Adoption Assistance clients in the system and setting up their associated automatic payments, and

**Agency's Response:**

*DHS agrees with this recommendation.*

*The department is currently reviewing the process in order to separate the role functions. The Adoptions Unit will make the necessary changes to separate duties to address risks and improve efficiencies.*

Anticipated Completion Date:  
*January 2009.*

- ensure adjusting entries to correct system transactions are fully documented to better facilitate their review and approval.

**Agency's Response:**

*DHS agrees with this recommendation.*

*The Office of Financial Services will work with the Office of Information Services on system enhancements to get improved documentation for adjusting entries. A new process will be developed and implemented for the current IIS system by January 2009. A new process will be implemented with the replacement system, ORKIDS, in the future.*

Anticipated Completion Date:  
*The new process will be implemented by January 2009. ORKIDS is scheduled for implementation in February 2010.*

## **Backup and Restoration Strategies were Inadequate**

Organizations should ensure that usable backups are regularly performed in accordance with a defined back-up strategy. This strategy should ensure all critical files are copied as frequently as needed and securely stored at both

on-site and off-site locations. In addition, restoration procedures should be well documented and tested to facilitate proper and timely restoration of the system from backup media.

When organizations rely on external service providers to host their operating environment, they should have formal service level agreements defining each party's specific expectations in carrying out these responsibilities.

The department did not have a defined backup strategy, a system restoration plan, or a service level agreement with the State Data Center defining each party's expectations or responsibilities during a restoration effort. In addition, the department could not provide auditors with evidence that all critical files were backed up or stored at the data center or an off-site location.

Based on the above, it is unlikely that the department could timely restore the system in the event of a disaster or major disruption.

These weaknesses existed because the department had not formally assigned a system owner with the responsibility for ensuring these important functions were accomplished.

**We recommend** that department management assign responsibility for developing, implementing, and testing complete system backup and restoration strategies. Items needing specific and immediate attention include ensuring all critical files are backed up and stored off-site, specific roles and responsibilities are defined and assigned, and backup and restoration efforts are formally coordinated with the State Data Center via a written service level agreement.

***Agency's Response:***

*DHS agrees with this recommendation.*

*The process for backup and recovery or restoration involves*

*numerous components. Staff has been identified to address these components from which we will determine the work that needs to be accomplished, who needs to conduct the work and the time frame such work can be completed.*

*Database backups are created on hard drives and reside at the SDC building in Salem. Staff at the SDC has informed us an additional backup copy of our databases is put onto cartridges and stored away from the Salem area, however we have not independently verified SDC's process. Documentation of the backup and restoration process has improved since the time of the audit and we will continue to make improvements in this area.*

*We agree the business needs to identify which files they determine to be "critical" files and thus determined critical for backup. This also includes the implementation of service level agreements (SLA's) between OIS and the business and a written SLA between DHS and the State Data Center.*

*Anticipated Completion Date:*  
*November 25, 2008.*

**The Department did not have Appropriate Change Management Controls**

Management should ensure that changes to computer applications are appropriately authorized, documented, and tested. Proper change management processes should also ensure that only authorized changes are implemented.

Department staff did not always follow appropriate program change management procedure or ensure that important quality assurance steps occurred. Most notably absent was the completion of independent technical reviews of modified code, formulation and performance of testing plans, and performance of code compares to ensure only authorized changes were performed. Also, the department

did not appropriately restrict access to authorized code prior to moving it to production.

As a result, department managers did not have reasonable assurance that all program modifications were performed as intended, or that the code they moved into production only included the intended and authorized changes.

These issues existed because department management had not developed or implemented complete change management policies and procedures.

**We recommend** that department management develop more robust program change management policies and procedures to ensure authorized code is safeguarded and all necessary quality assurance steps are performed and documented prior to elevating the code to production.

***Agency's Response:***

*DHS agrees with this recommendation.*

*DHS will work to improve weaknesses in change management processes identified in the audit report. Specifically, the department will address the absence of independent reviews of modified code, formulation and performance of testing plans, and performance of code compares to ensure only authorized changes are performed. We will also restrict access to authorized code prior to moving it to production.*

*Anticipated Completion Date:*  
*July 2010.*

**Logical Access Controls Did Not Adequately Protect the System**

Executive management is responsible for establishing an overall approach to security and internal control to ensure protection of resources and to maintain integrity of computer systems. Logical access controls are a vital

part of an organization's overall security approach.

We concluded that the department's logical access controls did not adequately protect the system and its data from unauthorized use, disclosure, modification, damage, or loss.

Because of the sensitive nature of system security, we have issued a separate confidential report outlining specific details of our findings, as well as recommendations to improve security. That report was prepared in accordance with ORS 192.501 (23), which exempts such information from public disclosure.

**We recommend** that department management implement the recommendations included in our confidential report.

***Agency's Response:***

*DHS agrees with recommendations in the confidential report. Department responses to specific recommendations in the confidential report are included in a separate letter.*

*Anticipated Completion Date:*  
*As specified in the confidential report response.*

## Objectives, Scope and Methodology

The purpose of this audit was to evaluate the effectiveness of key general and application computer controls relating to the Integrated Information System.

Our specific audit objectives were to determine whether the department had implemented controls to provide reasonable assurance that:

- data input into the application were complete, accurate and valid, and remained so during system processing and output;
- system files and data were appropriately backed up and could be timely restored in the

event of a disaster or major disruption;

- modifications to the application followed appropriate change management procedures; and
- programs and data files were protected against unauthorized use, disclosure, modification, damage, or loss.

To achieve these objectives, we interviewed department personnel and reviewed department documentation. We also performed tests of specific application controls, backup procedures, and logical access controls.

We limited our review of transaction data to Adoption Assistance and Regular Foster Care payments processed by the system during September 2007. These two transaction types constituted approximately 50% of payments processed through the system during that period.

We used the IT Governance Institute's (ITGI) publication, "Control Objectives for Information and Related Technology," (CobiT) to identify generally accepted and applicable internal control objectives and practices for information systems.

We conducted our audit according to generally accepted government auditing standards.



**Secretary of State  
Audits Division**

**255 Capitol St. NE, Suite 500  
Salem, OR 97310**

**Auditing to Protect the  
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AUDIT MANAGER: *Neal E. Weatherspoon, CPA, CISA, CISSP*

AUDIT STAFF: *Robert M. Johnson, MBA  
Erika A. Ungern, CISA  
Adam Nasset*

DEPUTY DIRECTOR: *William K. Garber, CGFM*

*Courtesies and cooperation extended by officials and staff of the  
Department of Human Services were commendable and much  
appreciated.*

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*Internet: <http://www.sos.state.or.us/audits/index.html>*

*Phone: at 503-986-2255*

*Mail: Oregon Audits Division  
255 Capitol Street NE, Suite 500  
Salem, OR 97310*