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Secretary of State
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**CERTIFICATION OF AN UPGRADE TO
THE ELECTION SYSTEMS & SOFTWARE (ES&S) UNITY VOTING SYSTEM**

In April of 2008 Election Systems & Software, Inc (ES&S) of Omaha, Nebraska requested the review and examination of enhancements to a Washington State certified Unity voting system to Unity 3.0.1.1.

Upon examination of the system, the Secretary of State finds the Unity system satisfies the requirements of Washington State law. This version of the system, NASED N-2-02-22-22-006 (2002) consists of:

- *Hardware* comprised of:
 - Model 650, Central Count Tabulator, v. 2.1.0.0 (Green & Red LED)
Hardware Revision 1.1, 1.2
 - Model 100, Precinct Tabulator, v. 5.2.1.0
 - AutoMARK Electronic Ballot Marker, v. 1.1.2258
Hardware Revision A100, A200
- *Software* comprised of:
 - Unity System 3.0.1.1, consisting of:
 - Audit Manager (AM) v. 7.3.0.0
 - Election Data Manager (EDM) v. 7.4.4.0
 - ES&S Image Manager (ESSIM) v. 7.4.2.0
 - Hardware Programming Manager (HPM) v. 5.2.4.0
 - Election Reporting Manager (ERM) v. 7.1.2.1
 - AutoMARK Information Management System (AIMS) v. 1.2.18

Under the provisions of RCW 29A.12.020 and 030, the Office of the Secretary of State hereby approves the ES&S Unity System, along with the AutoMARK for use in Washington State as an optical scan electronic vote tallying system and electronic ballot marking system when used in compliance with the procedures in this certification, the accompanying report and findings, and Washington State law.



Certified on this June 2, 2008


SAM REED
Secretary of State

NOTE: Accessible version of certificate.

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VOTING SYSTEMS REVIEW BOARD FINDINGS AND RECOMMENDATION

By consensus, the Voting Systems Review Board adopts the recommendation of Secretary of State staff that the Election Systems & Software's Unity 3.0.1.1 Voting System with the Model 650 Central Count tabulator, Model 100 precinct tabulators, AutoMARK electronic ballot marker (EBM) for accessible voting, and associated software be certified for use in Washington State.

There was no public testimony concerning the certification of Unity 3.0.1.1 as approved under NASED N-2-02-22-22-006.

REPORT OF THE SECRETARY OF STATE ON THE EXAMINATION AND EVALUATION OF AN UPGRADE TO THE ELECTION SYSTEMS & SOFTWARE (ES&S) UNITY VOTING SYSTEM

In April of 2008 Election Systems & Software, Inc. (ES&S) of Omaha, Nebraska requested the review and examination of an upgrade of the Unity Voting System to Unity 3.0.1.1. The Unity voting system is comprised of Model 650 Central Count tabulator, Model 100 precinct tabulators, AutoMARK electronic ballot marker (EBM) for accessible voting, and a suite of software products for programming the election under the heading Unity. This includes Audit Manager (AM), Election Data Manager (EDM), Election Systems & Software Image Manager (ESSIM), Hardware Programming Manager (HPM), and Elections Results Manager (ERM). In addition, the software program that allows the creation of the election-specific programming for the AutoMARK is the AutoMARK Information Management System (“AIMS”).

Testing and evaluation of Election Systems & Software’s Unity 3.0.1.1 Voting System was conducted by Secretary of State staff on May 15, 2008 at the Secretary of State Elections office in Olympia, Washington. Examining the system for the Office of the Secretary of State was Libby Nieland, Certification and Training Program Specialist. The vendor made a presentation of the Unity and AIMS Election system and test elections were conducted using groups of test decks prepared at the direction of the Office of the Secretary of State.

In addition to testing the 650 tabulator with red light sensors, which are currently used in Washington Counties, green light was also tested with this certification. The red light and green light are independent of firmware versions.

The following tests were performed:

650 Central Count Tabulators

- A functional test of a primary election demonstrating the equipment’s ability to properly handle a blank ballot, over-voted ballot, write-in ballot, multiple page ballot and properly marked ballots.
- A volume test of a primary election demonstrating the equipment’s ability to count and tabulate a large quantity of ballots including handling of split precincts, and verification of the results with the tabulator’s report.
- A functional test of a general election demonstrating the equipment’s ability to properly handle a blank ballot, over-voted ballot, write-in on a ballot ballot, and properly marked ballots.
- A volume test of a general election demonstrating the equipment’s ability to count and tabulate a large quantity of ballots including handling of split precincts and verification of the results with the tabulator’s report.

M100 Poll Site Tabulators

- A functional test of a primary election demonstrating the equipment's ability to properly handle a blank ballot, over-voted ballot, write-in ballot, absentee ballot, multiple page ballots, ballots feeding from top or bottom and upside down, power outage and properly marked ballots including handling of split precincts.
- A functional test of a general election demonstrating the equipment's ability to properly handle a blank ballot, over-voted ballot, write-in ballot, absentee ballot, multiple page ballots, ballots feeding from top or bottom and upside down, power outage and properly marked ballots including handling of split precincts.

AutoMARK Accessible Voting Units

- A functional test of a primary election demonstrating the equipment's ability to properly handle a blank ballot, under-voted ballot, over-voted ballot (not possible), write-in vote, cancelled vote, power outage (battery backup), audio ballot, and properly marked ballots.
- A functional test of a general election demonstrating the equipment's ability to properly handle a blank ballot, under-voted ballot, over-voted ballot (not possible), write-in vote, cancelled vote, power outage (battery backup), audio ballot, and properly marked ballots.

Merged Results

- A functional test of Election Results Manager (ERM) demonstrating the proper merging and reporting of results from multiple 650 Central Count Tabulator files and M100 results.

FINDINGS OF THE SECRETARY OF STATE

In March of 2008 the California Secretary of State denied certification of Election Systems & Software's Unity 3.0.1.1 and Unity 2.4.3.1 for failing to submit California Use Procedures as a condition of certification.

ES&S is in the process of providing this documentation to California. It involves California use procedures that are not necessarily required in Washington State. For instance, California requires the vendor to identify and provide an automated configuration verification mechanism to counties, and provide full instructions for its use. Our state has already identified a hash code utility - fsum - to be used for this purpose, and our office has provided it to all counties. We have performed the check ourselves (our office retrieved hash codes from all computers.) If a county upgrades to Unity 3.0.1.1 we will instruct the county how to run this check and provide us the file so that we can check against the new hash codes. Our state does not require the vendor to provide this mechanism.

The report in California on the functional testing of the system concluded the system was capable of performing all necessary functions.

The accessibility report in California concludes the system represents an adequately accessible voting system capable of effectively serving the large range of voters with disabilities that should be accommodated according to the HAVA requirements.

A red team analysis (penetration testing) was used in California to compromise the security of the voting system. The team demonstrated that several components of the voting system are vulnerable to attack. In addition, the functional testing revealed many serious deficiencies in the security features of the system. We are well aware of these deficiencies, and have a security inventory process in place to ensure physical security measures are in place to offset the inadequate internal security of the voting system applications. It is also noted that many of the California requirements pertain to the increased risk with precinct tabulators in polling places. ES&S Counties in Washington State are all Vote by Mail.

After a thorough review of California's report, it is the conclusion of this office that current procedures in Washington State adequately address the concerns raised in California's report.

After an evaluation of Election Systems & Software's Unity 3.0.1.1 voting system and a review of the accompanying documentation, staff believes the system and its components meet current Washington State requirements as outlined in WAC 434-335-040. The documentation accompanying the application for certification shows the system was fully reviewed by federally approved independent testing authorities and received NASED certification.

SECRETARY OF STATE STAFF RECOMMENDATION

Staff recommends the Election Systems & Software's Unity 3.0.1.1 voting system with the 650 central count tabulator, M100 poll site tabulator and AutoMARK accessible voting unit under NASAD (N-2-02-22-22-006) be certified for use in counties in Washington State provided all procedures addressed in Washington State law – Revised Code of Washington (RCW) and Washington Administrative Code (WAC) are used in conjunction with the system, along with the following:

- 1) The county must purchase enough AutoMARK units to have back-up units available at all elections.
- 2) The county follows the recommendation of the vendor to replace the ink-jet cartridge of the AutoMARKs frequently; at a minimum, once before the fall elections and once before the spring elections.
- 3) The memory card and zip disk must be treated with the same accountability and security practices that are employed with un-voted and voted paper ballots.
- 4) All physical security requirements must be met as outlined in each county's Security Inventory report.