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April 19, 2004

Mr. John Mott-Smith  
Chief, Elections Division  
Office of the Secretary of State  
1500 11th Street, Elections 5<sup>th</sup> Floor  
Sacramento CA 95814

Dear Mr. Mott-Smith:

R&G Associates LLC is pleased to present the attached Parallel Monitoring Program Summary Report. If you have any questions regarding the content of this Draft Report please do not hesitate to contact Jocelyn Whitney at your earliest convenience.

Once again, it has been a privilege to provide assistance to the Secretary of State in this important engagement.

Sincerely,

/s/

R&G Associates LLC  
Kent Gould  
Partner

Cc: JBW, File



SECRETARY OF STATE  
**KEVIN SHELLEY**  
STATE OF CALIFORNIA

**PARALLEL MONITORING PROGRAM**

*California*  
**PRIMARY ELECTION**  
Tuesday, March 2, 2004

**SUMMARY REPORT**

**PREPARED BY:**

**R&G ASSOCIATES, LLC**

**APRIL 19, 2004**

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**Parallel Monitoring Program**  
**March 2, 2004**  
**Summary Report**

**Executive Summary**

**Introduction**

The adoption of Direct Recording Electronic (DRE) or touch screen voting systems by seventeen California counties gave rise to public concerns about the security of these systems. The principle concern expressed has been the possibility that unauthorized programmers could illegally manipulate the software that counts ballots on DRE equipment.

On February 5, 2004 Secretary of State Kevin Shelley directed counties using DRE voting systems to take additional security measures for the March 2004 Presidential Primary Election. One of the required security measures was the Parallel Monitoring Program (Program), originally proposed by the Ad Hoc Touch Screen Task Force in February of 2003.

Members of the Secretary of State Election Division staff, along with independent consultants from the consulting firm of R&G Associates, LLC (R&G), developed the Program to implement the Secretary's directive. The Program would provide for the random selection of voting equipment to be set aside for experts to vote on Election Day, simulating actual voting conditions, to determine the accuracy of the machines to record, tabulate, and report votes.

**Program Scope**

Current federal, state, and county accuracy testing of Direct Recording Electronic (DRE) voting systems occurs prior to elections and does not mirror actual voting conditions. The March Parallel Monitoring Program was developed as a supplement to the current accuracy testing processes. The goal was to determine the presence of malicious code by testing the accuracy of the machines to record, tabulate, and report votes using a sample of DRE equipment in selected counties under actual voting conditions on Election Day.

Notwithstanding this additional level of testing, there are forms of malicious code that could affect the accuracy of a voting system that would not be detected by federal, state, local or parallel testing. Other detection methods, such as the Accessible Voter Verified Paper Audit Trail (AVVPAT), are necessary to expose these types of election tampering.

The Program results provide a "snapshot" of a specific Election Day. Thus the value of the results is limited to the March 2, 2004 Election Day.

## **Program Requisites**

Security of the testing process in each of the selected counties was of paramount consideration. Thus to be successful, the Program required that:

1. The counties agree to participate in the Program and host testing teams on March 2, 2004;
2. Selection of voting equipment in each of the counties be determined by random, utilizing random number generator computer software to eliminate human error or bias;
3. Voting equipment be fully operational, prepared for the March 2, 2004 Election by the county and accessible for selection prior to March 2<sup>nd</sup> and for testing on March 2<sup>nd</sup>;
4. Secure storage area would be available at each county to house the selected voting equipment prior to March 2, 2004;
5. Tamper evident serially numbered security labels and/or serially numbered security cable locks would be placed on the selected voting machines;
6. A secure, appropriately equipped testing room would be available at each county for the testing team on March 2, 2004;
7. The testing team would move, or monitor the movement of, selected machines from storage to the testing room on the testing day, March 2, 2004;
8. A county representative would be available to assist or provide guidance on logistical issues while the team was in the county prior to and on March 2, and;
9. Testing on March 2, 2004 would be conducted by the testing teams without the involvement of voting system vendors.

## **County Selection**

Secretary of State Kevin Shelley directed that all DRE voting equipment models currently installed in California be tested in representative counties. In addition, Secretary Shelley directed that all counties using the Diebold TSx voting systems be included in the program.

One county was selected to test each of the Diebold TS, ES&S iVotronic, Hart eSlate and Sequoia AVC Edge voting systems. Where more than one county used one of these systems, the county with the highest voter registration was selected for testing. All four counties utilizing the Diebold TSx system were selected for testing.

The selection process resulted in eight test counties. Two DRE units were tested in each county. Within each of the counties one precinct was identified. The official ballot of the selected precinct provided the foundation for the development of test scripts used in that county. The eight counties selected for the Program were:

- Alameda
- Kern
- Merced
- Orange
- San Diego
- San Joaquin
- Santa Clara
- Solano

### **Program Methodology**

A test methodology was created to provide a framework for developing test scripts, defining the roles and training the testers, observers and team leaders, documenting testing activity and discrepancy reporting, equipment security and tracking test artifacts.

Test scripts served as the tool to achieve the main goal of validating the accuracy of the DRE equipment. Test scripts were designed to mimic actual voter experience. Each script represented the attributes of a voter (party affiliation, language choice) and specified a candidate for which the tester should vote in a specific contest. The test script form was laid out to record requisite details of the voting process for a “test voter” and served as a means to tally test votes and assist in verifying if all votes were properly recorded, summarized, and reported by the DRE unit.

For each county, 101 test scripts were developed. All contests, contest participants, voter demographics, script layouts and contents, and monitoring results were entered to an MS Access™ database. The database was a tool to manage dozens of contests, over 250 contest participants, instructions for five different types of DRE equipment, and approximately 4,300 test voter selections from over 800 test scripts. The database also served as tool to verify the accuracy and completeness of the 800 test scripts.

### **Test Team Composition**

Testing teams were comprised of 52 individuals including fourteen Secretary of State employees, nineteen consultant testers and nineteen videographers. With the exception of the videographers, each team member received 4.5 hours of Parallel Monitoring Program training on February 27, 2004. Team leaders received two additional hours of training specifically focused on team lead responsibilities on March 1, 2004.

## **Test Execution**

Test teams arrived at their assigned county at 5:45 a.m. to meet with county representatives, retrieve the voting equipment from storage, and be escorted to the testing room. Test teams followed a specific test schedule that identified set times of executing 101 test scripts on each DRE unit. The schedule provided for 9.25 hours of testing over a 14-hour period. All testing activity was video recorded.

During the course of the testing, the teams completed a Discrepancy Report for each deviation from the test script and/or test process and for any issues related to equipment malfunction.

At the completion of the testing, teams produced the closing tally report for their assigned DRE unit. The test teams did not reconcile the tally tapes in the field and had no knowledge of the expected outcomes. The tapes were returned to the Secretary of State, Sacramento office.

## **Parallel Monitoring Program Results**

The analysis of the data and the reconciliation of actual to expected results began on March 3, 2004. The analysis included a review of the Discrepancy Reports for all counties and the videotapes, as necessary to determine the source of all discrepancies.

Results of the reconciliation analysis indicate that the DRE equipment tested on March 2, 2004 recorded the votes as cast with 100% accuracy.

This report documents the results of the Parallel Monitoring Program conducted on March 2, 2004.

**Parallel Monitoring Program  
March 2, 2004  
Summary Report**

**I. Introduction**

In March 2002 California voters enacted the Voting Modernization Bond Act, establishing a fund of \$200 million for counties to upgrade voting equipment. Concurrently, the federal Help America Vote Act (HAVA) was enacted by Congress and signed into law by the President requiring election reforms and funding for improvements.

These actions provided incentives for counties to purchase Direct Recording Electronic (DRE) voting equipment, including touch screen voting systems. The adoption of touch screen voting systems by seventeen California counties gave rise to public concerns about the security of these systems. The principle concern expressed has been the possibility that unauthorized programmers could illegally manipulate the software that counts ballots on DRE equipment.

In response to the above concerns, Secretary of State Kevin Shelley created the Ad Hoc Touch Screen Task Force on February 19, 2003 to study and make recommendations to the Secretary on possible improvements in the security of Direct Recording Electronic voting equipment. Among other recommendations the Task Force recommended:

“Conducting random on-site sampling (otherwise known as ‘parallel monitoring’) of a specific number of machines on Election Day to confirm that each system in operation is registering votes accurately.”

February 5, 2004 Secretary of State Kevin Shelley directed counties using DREs to take additional security measures for touch screen (DRE) voting systems for the March 2004 Presidential Primary Election (see Appendix A – Security Measures for Touch Screen (DRE) Voting Systems for the March Election). One of the required security measures was the Parallel Monitoring Program. The Parallel Monitoring Program would randomly select voting machines to be set aside for experts to vote on March 2, Election Day, simulating actual voting conditions, to determine the accuracy of the machines to record, tabulate and report votes.

Members of the Secretary of State Election Division staff, along with independent consultants, developed a Parallel Monitoring Program to implement the Secretary’s directive.



## II. Parallel Monitoring Program Overview

### A. Program Scope

Current federal, state, and county accuracy testing of Direct Recording Electronic (DRE) voting systems occurs prior to elections and does not mirror actual voting conditions. This creates the potential that malicious code could be present that would be resistant to these test processes and affect the accuracy of a system on any given election day. Examples of this type of tampering might include DRE units originally programmed to activate malicious code on a specific date (e.g. March 2, 2004) or code inserted into a particular DRE unit on Election Day to affect the outcome of a specific contest.

The March Parallel Monitoring Program was developed as a supplement to the current accuracy testing processes. The goal was to determine the presence of malicious code by testing the accuracy of the machines to record, tabulate, and report votes using a sample of DRE equipment in selected counties under actual voting conditions on Election Day. An underlying assumption of the Program was that all DRE units from a particular vender were programmed with the same code and therefore if malicious code were present on one DRE unit, it would be present on all of the DRE units in a given voting system. As such, only a small sample size was required to be tested on March 2, 2004.

Parallel testing under actual voting conditions was intended to provide another level of verification that systemic malicious code was not present in the DRE voting systems. Notwithstanding this additional level of testing, and as noted above, there are forms of malicious code that could affect the accuracy of a voting system that would not be detected by federal, state, local or parallel testing. Other detection methods, such as the Accessible Voter Verified Paper Audit Trail (AVVPAT), are necessary to expose these types of election tampering.

The Program results provide a “snapshot” of a specific Election Day. Thus the value of the results is limited to the March 2, 2004 Election Day. The Program would need to be repeated in future elections in order to provide the extra verification of accuracy that was provided for the March 2, 2004 election.

### B. Program Requisites

Security of the testing process in each of the selected counties was of paramount consideration. Thus to be successful, the Program required that:

1. The counties agree to participate in the Program and host testing teams on March 2, 2004;
2. Selection of voting equipment in each of the counties be determined by random, utilizing random number generator computer software to eliminate human error or bias;
3. Voting equipment be fully operational, prepared for the March 2, 2004 Election by the county and accessible for selection prior to March 2<sup>nd</sup> and for testing on March 2<sup>nd</sup>;
4. Secure storage area would be available at each county to house the selected voting equipment prior to March 2, 2004;
5. Tamper evident serially numbered security labels and/or serially numbered security cable locks would be placed on the selected voting machines;
6. A secure, appropriately equipped testing room would be available at each county for the testing team on March 2, 2004;
7. The testing team would move, or monitor the movement of, selected machines from storage to the testing room on the testing day, March 2, 2004;
8. A county representative would be available to assist or provide guidance on logistical issues while the team was in the county prior to and on March 2, and;
9. Testing on March 2, 2004 would be conducted by the testing teams without the involvement of voting system vendors.

### **C. Test County Selection**

Seventeen counties utilized DRE equipment for the March 2, 2004 election. Of these, three counties were excluded from the program because they only used DRE equipment for early voting and not in the precincts on Election Day.

From the remaining fourteen, counties were selected in order to provide a sampling of the five different DRE systems currently used in California. For counties using the Diebold TS, ES&S iVotronic, Hart eSlate and Sequoia AVC Edge the county with the highest voter registration was selected for participation in the program. For the Diebold TSx, all four counties were selected. This resulted in a total of eight counties selected to participate in the Parallel Monitoring Program.

In addition to selecting the counties to participate in the Program it was also necessary to identify one precinct within each county. The official

ballot for the selected precinct would provide the foundation for the development of test scripts for testing the DRE units in that county. A precinct within each county was selected using a random number generator software tool using a weighted selection based on the total registration of the precincts. Once the precinct was identified, the county provided the official sample ballots for that precinct.

The counties were notified of their selection for the Program by the Secretary of State, Chief of the Elections Division on Friday, February 13, 2004.

The table below illustrates the counties, precincts and equipment selected to participate in the Program.

**Test Counties, Precincts and Equipment**

<b>County</b>	<b>Consolidated Precinct</b>	<b>DRE Equipment</b>	<b>Card Activator</b>
Alameda	21350000	Diebold TS	PCM 500
Kern	40	Diebold TSx	PCM 100
Merced	LIV3 / 98	ES&S iVotronic	Communications Pack
Orange	003940B	Hart eSlate	JCB
San Diego	160700	Diebold TSx	PCM 500
San Joaquin	33505	Diebold TSx	Diebold Tscintx
Santa Clara	2005	Sequoia AVC Edge	Card Activator
Solano	1194	Diebold TSx	PCM 100

**Table 1**

**D. Test Equipment Selection and Security**

The DRE equipment to be tested in the counties was selected using one of two methodologies. For counties where the DRE equipment was pre-programmed and/or pre-assigned to a specific precinct, two units in the selected precinct were identified using a random number generator software tool. This selection method was used for the counties of Alameda, Kern, Orange, San Diego, San Joaquin, Santa Clara and Solano.

In Merced County, where the DRE equipment was not pre-programmed and/or pre-assigned to a specific precinct, selection was accomplished by randomly selecting two numbers from the total number of DRE units in the county inventory using a random number generator software tool.

Representatives from the Secretary of State's office traveled to and met with representatives from each county for the purpose of identifying and securing selected DRE equipment. The SOS representative identified the equipment using the methodology outlined above in the *Voting System Component Selection Form* (Appendix B). SOS Security labels and/or cables, depending on the DRE model, were then affixed to the equipment (see Appendix C – Equipment and Seals Index). The equipment was then segregated from the balance of the County inventory and secured on the county premises for housing until March 2, 2004. Encoders or voter card activators, voter access cards, supervisor cards and other items necessary for testing were also secured.

Table 2 below reflects the dates the equipment was secured in each county.

**Dates Testing Equipment Secured**

<b>County</b>	<b>Representative</b>	<b>Testing Equipment</b>	<b>Testing Accessories</b>	<b>Date Secured</b>
Alameda	Michael Wagaman	Diebold TS, PCM 500	Voter Access Cards, Supervisor Cards, DRE Key	2/25/2004
Kern	Jocelyn Whitney	Diebold TSx, PCM 100	Voter Access Cards, Supervisor Cards, DRE Key	2/19/2004
Merced	Michael Wagaman	ES&S iVotronic, Communication Pack	3 PEB and 1 Master PEB	2/24/2004
Orange	Jocelyn Whitney	Hart eSlate, JCB	No access cards required	2/23/2004
San Diego	Jocelyn Whitney	Diebold TSx, PCM 500	Voter Access Cards, Supervisor Cards, DRE Key	2/23/2004
San Joaquin	Michael Wagaman	Diebold TSx	Voter Access Cards, Supervisor Cards, DRE Key	2/24/2004
Santa Clara	Michael Wagaman	Sequoia AVC Edge, Card Activator	Voter Access Cards	2/21/2004
Solano	Michael Wagaman	Diebold TSx, PCM 100	Voter Access Cards, Supervisor Cards, DRE Key	2/21/2004

**Table 2**

## E. Test Team Member Selection

Testing teams were comprised of 52 individuals; fourteen Secretary of State employees, nineteen consultant testers and nineteen videographers (see Appendix D – Team Member Index).

In six of the eight counties testing teams were comprised of a Secretary of State employee, a consultant tester and a videographer assigned to each DRE to be tested. Due to the unique configuration of the Hart eSlate DRE system in Orange County, an additional testing team was required consisting of one consultant and a videographer. San Diego had an additional videographer. In Kern County an additional consultant was substituted for one Secretary of State employee.

### Test Methodology

Procedures were created to provide a framework for: developing test scripts; defining the roles of the testers, observers and team leaders; documenting testing activity and discrepancy reporting; documenting equipment security, and; tracking test artifacts (see Appendix E – Parallel Monitoring Program Procedures).

### Database Development

Test scripts served as the tool to achieve the main goal of validating the accuracy of the DRE equipment. The required accuracy of the equipment is defined in the Secretary of State's Task Force Report, as "precision in recording, calculations and outputs".

Test scripts were designed to mimic the actual voter experience. Each script represented the attributes of a voter (party affiliation, language choice) and specifies a candidate for which the tester should vote in a specific contest. The test script form was laid out to record requisite details of the voting process for a "test voter" and served as a means to tally test votes and assist in verifying if all votes were properly recorded, summarized, and reported by the DRE unit.

For each county 101 test scripts were developed. While the test scripts were different for each county—depending on the demographics and the local contests—within a county, both DRE teams executed the same 101 test scripts.

All contests, contest participants, voter demographics, script layouts and contents, and monitoring results were entered to an MS Access™ database. The database was a tool to manage dozens of contests, over

250 contest participants, instructions for four different types of DRE equipment, and approximately 4,300 test voter selections from over 800 test scripts.

The database also served as a tool to verify the accuracy and completeness of the 800 test scripts. Several reports were generated from data contained in the MS Access™ database to verify such things as:

- Demographic profile of each county
- Coverage of all contests and contest participants
- Ballot restrictions (no cross party voting and addition restrictions for decline to state voters)

## **F. Test Script Characteristics**

### **1. Test Scripts**

Test scripts contained a various number of contests per county that included the following primary election contests:

- Statewide: President, US Senate, Propositions 55, 56, 57, and 58
- Legislative: Assembly, State Senate, and Congress
- Local: Party Committee, Judicial, School, County, City, and Local Measures

Test scripts were developed to mirror the actual distribution of voter demographics in a selected precinct and to ensure that the test scenarios matched actual ballot options including cross party voting rules for the Primary Election (see Appendix F - Demographic Data and Test Script Characteristics by County). Test script selections were limited to the contests and contest candidates appropriate to the test voter's ballot type based on the following primary election guidelines:

- a) Voter's Registered as the following party types could only vote for candidates of the same party type in partisan contests: Republican, Democrat, Green, American Independent, Peace and Freedom, Libertarian and Natural Law.
- b) All registered voters could vote for any candidate in a nonpartisan contest.
- c) Decline to State or Non Partisan party affiliations had additional stipulations in accordance with SB 28 for the March 2, 2004 Primary election, and are indicated below:

- (1) Decline to State - Democratic: These voters could vote for Democratic candidates in all partisan contests except the County Central Committee contests.
- (2) Decline to State – Republican: These voters could vote for Republican candidates for US Senator, Member of the US House of Representatives, State Senator, and Member of the State Assembly.
- (3) Decline to State - American Independent: These voters could vote for American Independent candidates for all partisan contests.
- (4) Decline to State / Non Partisan - Unaffiliated voters could only vote for Non Partisan contests.

2. Script Type

- a) A random series of voting preferences for contests were included on each test script. Each set of scripts for a county contains a combination of script types:
  - Every contest available in the precinct was included on the script (approximately twenty percent of the total number of scripts).
  - One or more contests, but not all contests available in the precinct, were included on the script.
  - No contest selections (blank ballot) – there was at least 1 blank ballot script for each county.
  - Card Reuse – Attempt to reuse a voter access card with out first reactivating.
- b) At least ninety percent of all contests received at least one test vote on the script in order to verify it was being tallied correctly.
- c) Each set of scripts for a county contained each of following common voter error scenarios at least once:
  - Change a candidate selection on the same screen.
  - Change a candidate selection after advancing one screen.
  - Change a candidate selection after viewing the final summary/confirmation screen.
  - Attempt to use a voter access card more than once without reactivating the card.



- d) At least 2 write-in candidates for each precinct were included in a set of test scripts for a county.
- e) At least 1 provisional ballot was included in the set of test scripts for each county that voted provisional ballots on the DRE equipment.

### 3. Test Script Components

Each test script consisted of the following components (see Appendix G – Sample Test Script):

#### a) Section 1:

- (1) System type – options were: Diebold TS, Diebold TSx, ES&S iVotronic, Hart e-Slate, or Sequoia AVC Edge. System type was pre-printed on the script.
- (2) System serial number – serial number of the DRE tested. Completed by the tester at test time.
- (3) System vendor – the name of the vendor was preprinted on the form.
- (4) County – name of the county where the test was conducted. County name was preprinted on the form.
- (5) Precinct – The precinct number used to develop the test scripts. The precinct number was pre-printed on the form.
- (6) Tester – The name of the tester. Tester name was completed by the tester when the test script was initiated.
- (7) Observer – the name of the observer. Observer name was completed by the tester when the test script was initiated.
- (8) Video Recorder – the name of the videographer. Videographer name was completed by the tester when the test script was initiated.

#### b) Section 2:

- (1) Time Block – the period of time in which the script was scheduled to be completed. Time block was pre-printed on the script.
- (2) Actual Start time – the actual time the script was initiated. Start time was filled in by the tester when the script was initiated.

#### c) Party / Language / Provisional / Script Type:

- (1) Ballot types - indicates the party affiliation to be activated for the test script (See Appendix H - Test Script Options - List A).

The ballot type was pre-printed on the script. Test scripts for Decline to State ballots were divided between the four types of Decline to State categories.

- (2) Voting Language – the language to be activated for the test script (See Appendix H – Test Script Options – List B). The voting language was pre-printed on the script.
- (3) Provisional – indicator specifying whether the test voter is voting under a provisional status. The provisional ballot status was pre-printed on the script.
- (4) Script Type – one of 4 script types (See Appendix H – Test Script Options – List C). The script type was pre-printed on the script.

d) Step / Action:

This section outlined the steps required to complete the test script:

- (1) Step 1 – instructed the tester to display the test script number so it was clearly visible to the video camera. This would facilitate the process of verifying anomalies through the review of the videotape.
- (2) Step 2 – provided county/equipment specific information on how to issue ballots (i.e., cards, or id's)
- (3) Step 3 – indicated what candidates for vote for in each specified contest (see Appendix H – Test Script Options - List D for Statewide Contests and list E for Local Contests). When the tester made the selection on the screen, they would manually check the “select” box on the test script. Any deviation from the script would require a discrepancy report to be completed. The discrepancy report number was then recorded in the defect column.

Common voter errors (see Appendix H – Test Script Options – List F) are randomly placed within a script's sequence of contest selections.

- (4) The remaining steps are unique to the county/equipment and typically instructed the observer to review all choices on the final summary/ confirmation screen. The observer would manually check the verify box when the selection was verified on the final summary/confirmation screen.

e) Signature Blocks:

The tester and observer signed or initialed in the signature block upon completion of each test script.

f) Actual test scripts from March 2 for each county:

The actual test scripts from March 2 for each county (Appendix I – Test Scripts by County) are represented as links to Adobe Acrobat™ (\*.pdf) documents due to the size of the documents (101 pages each - 808 pages in total). Click on the icon for each test script to open the document. You must have Adobe Acrobat reader on your computer to view the files. You may download the free Adobe Acrobat Reader from [www.adobe.com](http://www.adobe.com) <<http://www.adobe.com>>

**G. Training the Test Team Members**

With the exception of the videographers, each team member received 4.5 hours of Parallel Monitoring Program training. The training consisted of an overview of Secretary of State Kevin Shelley's directive regarding Parallel Monitoring Program, the objectives of the Program, an overview of the testing methodology, the roles and responsibilities of the testers and team leads, a demonstration of each of the voting systems by the system vendors and logistical information (see Appendix J – Training Program Agenda). Team leaders received two additional hours of training specifically focused on discrepancy reporting, pre-test and post-test equipment security, documenting testing activities, required completion of forms, scheduled contact with the Project Managers, and protocols for interacting with county officials, employees and other observers.

In the event that a schedule team member was unable to participate in the test activity on March 2<sup>nd</sup>, two alternate consultants and one alternate Secretary of State employee were requested to attend the training session.

1. Team Member Roles and Responsibilities

Team members rotated between the roles of tester and observer. The responsibility of the tester was to:

- Read the test script carefully
- Activate the voter access card in accordance with the test script
- Make voting selections on the screen in accordance with the test script
- Document voting selections on the test script

The responsibility of the observer was to:

- Read the test script carefully

- Verify that the voter access card is activated in accordance with the test script
- Verify that the voting selections made by the tester are consistent with the test script
- Document voting selection verification on the test script

In addition to the above, one of the consultant testers in each county was given the duty of team leader responsible for oversight of all aspects of the testing process and for acting as liaison with the county officials.

The team leader was responsible for:

- Ensuring all pre and post test activities were completed according to the training manual and the manufacturer's poll workers guide
- Ensuring the test scripts were executed correctly and timely
- Reviewing and signing discrepancy reports, and logging discrepancy reports
- Acting as a liaison for contact with the county personnel
- Initiating regular communications with the Project Managers at SOS headquarters in Sacramento
- Recognizing and elevating issues, as appropriate

Both the tester and observer were responsible for completing discrepancy reports and elevating issues to their team leader.

At least two videographers were present at each county site. The videographer responsibilities were to:

- Record the pre-test activities including documenting the condition of the security labels, equipment set-up, printing of "zero tally report", and opening the polls
- Record execution of the test scripts
- Ensure that the video was clearly focused on the DRE units through the entire testing process, including breaks
- Ensure that the summary page was captured for each vote cast
- Record the Post-test activities including closing the polls, printing "tally report", removal of memory card, and application of security labels

### **III. Schedule of Activity for March 2, 2004**

Test teams were scheduled to arrive at their assigned county at 5:45 a.m. to meet with county representatives, retrieve the voting equipment from storage, and be escorted to the testing room.

#### **A. Pre-Test Set Up**

From 6 a.m. to 7 a.m. each team was scheduled to:

- Coordinate with the videographer and ensure all relevant activity is recorded
- Examine and document the condition of the tamper evident labels and/or cable locks applied to the equipment using the Equipment Security and Chain of Custody form (see Appendix K - Equipment Security and Chain of Custody Forms)
- Setup the DRE units and card activator equipment
- Organize all equipment and supplies necessary to conduct the testing in a manner that would allow for executing the test
- Run the “zero tally” report for each DRE

#### **B. Executing the Test Scripts**

Test teams were directed to follow a specific test schedule. The test schedule was developed based on voting trends. Therefore, more tests scripts were to be executed during peak times. The first peak of the day was between 7:00 a.m. and 9:00 a.m., the second peak was between 11:45 a.m. and 1:30 p.m., and the last peak was between 5:00 p.m. and 8:00 p.m.

The team leaders were instructed to contact the Project Managers at SOS headquarter at prescribed times: initiation of testing, lunch break, dinner break, at the end of testing, and anytime a discrepancy disrupted the normal testing schedule (see Appendix L - March 2, 2004 Events Form for an overview of the contacts each team lead had with the Project Managers).

The test schedule identifies set break times and set times of executing test scripts. Start and end times were printed on test scripts in order to facilitate adherence to the test schedule.

**Testing Schedule**

<b>Activity</b>	<b>Start</b>	<b>End</b>	<b># Tests</b>
Set-up	6:00 a	7:00 a	
<b>Vote</b>	<b>7:00 a</b>	<b>9:00 a</b>	<b>25</b>
Break	9:00 a	9:30 a	
<b>Vote</b>	<b>9:30 a</b>	<b>10:15 a</b>	<b>5</b>
Break	10:15 a	10:30 a	
<b>Vote</b>	<b>10:30 a</b>	<b>11:15 a</b>	<b>5</b>
Lunch	11:15 a	11:45 a	
<b>Vote</b>	<b>11:45 a</b>	<b>1:30 p</b>	<b>20</b>
Break	1:30 p	1:45 p	
<b>Vote</b>	<b>1:45 p</b>	<b>2:30 p</b>	<b>6</b>
Break	2:30 p	2:45	
<b>Vote</b>	<b>2:45 p</b>	<b>3:30</b>	<b>5</b>
Break	3:30 p	3:45 p	
<b>Vote</b>	<b>3:45 p</b>	<b>4:30 p</b>	<b>6</b>
Dinner	4:30 p	5:00 p	
<b>Vote</b>	<b>5:00 p</b>	<b>6:30 p</b>	<b>15</b>
Break	6:30 p	6:45 p	
<b>Vote</b>	<b>6:45</b>	<b>8:00</b>	<b>14</b>
Close	8:00	9:00	
		<b>Total:</b>	<b>101</b>

**Table 3**

The test schedule provided for 9.25 hours of testing. An average of 5.5 minutes was allowed to activate the voter card and execute the test script. This allowed time to complete discrepancy reporting, as necessary.

**C. Documenting Discrepancies**

During the course of the testing the teams completed a Discrepancy Report for each deviation from the test script and/or test process and for any issues related to equipment malfunction. Each Discrepancy Report was reviewed and signed by the County Team Leader and logged on the Discrepancy Log form. Discrepancy Reports were preprinted and numbered sequentially. Discrepancy Reports and Discrepancy Logs were returned to the Secretary of State when testing was completed, along with all other testing artifacts (see Appendix M - Discrepancy Reporting Forms).

#### D. Post Testing Activities

Between 8 p.m. and 9 p.m. the teams ran the closing tally tape for their DRE equipment, secured the DRE equipment with security labels, documented the security label numbers, collected, inventoried and verified labels on all video tapes (see Appendix N - Videotape Index), completed the *Test Artifacts Checklist* form ensuring all required items are sealed for return to the SOS (see Appendix O), returned the equipment to a secure location where the equipment will be stored until directed by the Secretary of State. The test teams did not reconcile the tally tapes and had no knowledge of the expected outcomes.

#### IV. Reconciling the Testing Results

Team leaders returned test artifacts to the Secretary of State's office in Sacramento on March 3, 2004. Each team leader met with the Project Team Leaders and provided a briefing on how the testing proceeded in their assigned county, reviewed the inventory of artifacts, discussed each discrepancy report in detail, and reviewed all the required documentation to ensure all had been completed correctly and that the Project Managers understood all situations that had prompted the completion of a discrepancy report.

Test artifacts included the hardcopy tally printouts from the DRE equipment recording the results of the "test voting" for the day. Some DRE equipment had a printout for each DRE, while other DRE equipment generated a consolidated printout for both DRE units (Merced and Orange).

The analysis of the data and the reconciliation of actual results to expected results included the following tasks.

1. The DRE printouts from each machine were compared to the expected baseline tally figures from the Access database to identify inconsistencies between the actual results and the expected baseline tally figures (see Appendix P – Baseline vs. Actual Tally).
2. Discrepancy reports were reviewed and analyzed to determine what, if any, impact the described discrepancy would have on the actual results (see Appendix Q – Overview of all Discrepancy Reports).

For example, a test script instructs the tester to vote for a candidate two times, the tester votes only once, and documents the discrepancy. During the reconciliation process a review of the totals shows the actual total differs by one from the expected total. The analyst reviews the

discrepancy report that documents the deviation from the test script. This triggers a review of the specific test script, which confirms that the test script called for the tester to vote for a candidate two times, in error. The cause of the discrepancy is a test script error.

3. Anomalies documented in discrepancy reports were verified by completing a review of the test scripts (see Appendix R – Discrepancy Reports that Affected the Tally by County).
4. If a discrepancy was not resolved by a review of the test scripts, the videotapes of the testing were analyzed. If the source of the anomaly was identified through a review of the videotape, a discrepancy report was completed.

For example, a test script erroneously instructs the tester to activate a voter access card for a decline to state democrat ballot and specifies the contests and candidates to select. The tester activates a voter card for Democrat—in error—then votes the ballot as specified by the test script. During the reconciliation process a review of the totals shows the actual total is off by one from the expected total in two categories. The analyst reviews the discrepancy reports and notes that there are no discrepancy reports that explain this difference. This triggers a review and analysis of the videotapes. The video reveals the tester voting a democrat ballot for a test script number that instructed the tester to activate a card for a decline to state democrat ballot. The videotape reveals the source of the error. The analyst completes a discrepancy report noting the test script number, the error and the impact on the expected results. The cause of the discrepancy is a tester error.

5. There were additional discrepancy forms completed in each of the counties that did not affect the actual results. These discrepancy forms usually related to testers making corrections to selections before casting the ballot and testing delays due to changing tapes for the video recordings.

## **V. Parallel Monitoring Program Findings**

Results of the reconciliation analysis indicate that the DRE equipment tested on March 2, 2004 recorded the votes as cast with 100% accuracy.

In two counties—Solano and San Joaquin—the results matched exactly for all contests and no further analysis was required to reconcile the results.

For the remaining six counties, discrepancy reports completed during the testing were reviewed and analyzed to see if they pointed to the source of the variation. In three counties—San Diego, Alameda and Santa Clara—this



analysis revealed the source of all the discrepancies to be tester error, test script errors, or provisional ballot variation.

For the remaining three counties—Kern, Merced and Orange—variations remained which could not be explained by the discrepancy reports completed during the testing. In these cases, the video recordings were analyzed. In all cases the analysis revealed the source of the discrepancies to be tester error.

## **A. Analysis and Results by County**

This section provides the details of the analysis and specific test results for each county. Each county analysis is divided into three sections. Section 1 describes any variations from the test methodology, section 2 describes the comparison of the expected and the actual results and section 3 describes the process undertaken to determine the source of the discrepancies.

### **1. Alameda County**

#### **a) Variations in Test Methodology**

- (1) Selection of Equipment - During the on-site visit to the county, it was determined that the equipment for the randomly selected precinct had already left the warehouse. The random select was thus repeated until a precinct was selected that had not left the warehouse.
- (2) Opening of Polls - Due to a delay in entering the testing room, testing did not begin until approximately 7:35 AM.
- (3) Testing of Equipment - A non-member of the testing team, the Chair of the Secretary of State's Technical Oversight Committee cast test scripts 91-93. This resulted in variations from the test scripts noted in discrepancy logs as described below.
- (4) Storage of Equipment - After sealing the memory cards in bags and using seals provided by the Secretary of State's office, the memory cards were locked in a secure location by a representative of the county. In the morning a representative of the Secretary of State's office verified the seals. Those seals were then broken to allow the county elections official to record the serial numbers from the memory cards. The cards were then returned to the Secretary of State's office without leaving the custody of the office's representative.

#### **b) Comparison of Expected and Actual Results**

After the initial comparison of the expected and actual results, a total of eight discrepancies were identified.

Alameda County Comparison

Team	Office	Party	Selection	Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1	Party Committee	Democratic	Carl Jaramillo - County Committee Member - 14th Assembly Dist	5	4	-1	#13	4	4	0
1	Party Committee	Democratic	Lucy W. Sells - County Committee Member - 14th Assembly Dist	4	3	-1	#14	3	3	0
1	Party Committee	Green	Janet Arnold - County Committee Member - County Council, at large	6	5	-1	#5	5	5	0
1	Prop 57	All	Prop 57 - The Economic Recovery Bond Act - Yes	25	24	-1	#11	24	24	0
2	Party Committee	Democratic	Carl Jaramillo - County Committee Member - 14th Assembly Dist	5	4	-1	#13	4	4	0
2	Party Committee	Democratic	Lucy W. Sells - County Committee Member - 14th Assembly Dist	4	3	-1	#14	3	3	0
2	Party Committee	Green	Janet Arnold - County Committee Member - County Council, at large	6	5	-1	#5	5	5	0
2	Prop 57	All	Prop 57 - The Economic Recovery Bond Act - Yes	25	24	-1	#11	24	24	0

Table 4

c) Reconciliation of Discrepancies

The following discrepancy reports were completed during testing and adequately identified the source of all variations:

- Report #5 - Test script error: There was an error on the test script where the same candidate was listed twice. The testers voted for the candidate once. This resulted in the expected tally being one too high for the candidate. This resolved 2 discrepancies
- Report #11 - Test script error: There were two votes on the test script for Proposition 57. The testers voted the first. This resulted in the expected tally being one too high for the second vote. This resolved 2 discrepancies
- Report #13 - Test script error: There was an error on the test script where seven candidates were listed to be voted for when only six could be voted for. The testers voted for the first six listed candidates. This resulted in the expected tally being one too high for the seventh candidate. This resolved 2 discrepancies
- Report #14- Test script error: There was an error on the test script where seven candidates were listed to be voted for when only six could be voted for. The testers voted for the first six listed candidates. This resulted in the expected tally being one too high for the seventh candidate. This resolved 2 discrepancies

2. Kern County

a) Variations in Test Methodology.

(1) Verification of Equipment - The serial numbers on the PCM did not match the numbers typed on the log. Testing proceeded on the equipment. It was determined that the typed number verification log was inaccurate and the numbers recorded by the testing team matched the numbers recorded when the equipment was originally secured.

(2) Opening of Polls - The PCM 100 when activated showed two cards as already having been activated. This required the unit to be reset. This delayed the beginning of testing to approximately 7:35 AM.

b) Comparison of Expected and Actual Results.

After the initial comparison of the expected and actual results, a total of eight discrepancies were identified.

**Kern County Comparison**

Team	Office	Party	Selection	Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1	President	American Independent	Michael A. Peroutka - President	2	3	1	#14	3	3	0
1	President	Decline to State - American Independent	Michael A. Peroutka - President	1	0	-1	#14	0	0	0
1	President	Decline to State - Democratic	John Edwards - President	1	0	-1	#17	0	0	0
1	President	Decline to State - Democratic	John F. Kerry - President	2	0	-2	#16, 18	0	0	0
1	President	Decline to State - Democratic	Al Sharpton - President	1	0	-1	#15	0	0	0
1	President	Democratic	John Edwards - President	24	26	2	#17, 19	26	26	0
1	President	Democratic	John F. Kerry - President	15	16	1	#16, 18, 19	16	16	0
1	President	Democratic	Al Sharpton - President	9	10	1	#15	10	10	0

**Table 5**

c) Reconciliation of Discrepancies

None of the discrepancy reports completed on March 2nd resolved the identified variations.

The following discrepancy reports were completed after review of testing videotapes and identified the source of remaining variations from the expected results:

- Report #14 – Card Activator Tester Error: The testers improperly activated a Decline to State (American Independent) ballot as an American Independent ballot, resulting in votes being recorded under the wrong party. This resolved 2 discrepancies

- Report #15 – Card Activator Tester Error: The testers improperly activated a Decline to State (Democratic) ballot as a Democratic ballot, resulting in votes being recorded under the wrong party. This resolved 2 discrepancies
- Report #16 – Card Activator Tester Error: The testers improperly activated a Decline to State (Democratic) ballot as a Democratic ballot, resulting in votes being recorded under the wrong party. This partially resolved 2 discrepancies
- Report #17 – Card Activator Tester Error: The testers improperly activated a Decline to State (Democratic) ballot as a Democratic ballot, resulting in votes being recorded under the wrong party. This resolved one discrepancy and partially resolved another discrepancy
- Report #18 – Card Activator Tester Error: The testers improperly activated a Decline to State (Democratic) ballot as a Democratic ballot, resulting in votes being recorded under the wrong party. This partially resolved 2 discrepancies
- Report #19 – Candidate Selection Tester Error: The testers improperly selected John Edwards instead of John Kerry for President. This resolved 2 discrepancies

### 3. Merced County

#### a) Variations in Test Methodology

- (1) Verification of Equipment - The serial numbers on one of the DRE units did not match the expected numbers. Testing proceeded on the equipment. It was determined that the number “5” in the serial number had been recorded as the letter “S”.
- (2) Testing - Test script 101 was not executed. Due to the design of the voting system, it is impossible to attempt to reuse a voting card.

#### b) Comparison of Expected and Actual Results

The results for Merced County were produced as an aggregate for both machines.

After the initial comparison of the expected and actual results, a total of eight discrepancies were identified.

**Merced County Comparison**

Team	Office	Party	Selection	Initial Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1 & 2	President	Decline to State - Democratic	Dick Gephardt - President	2	1	-1	#11b	1	1	0
1 & 2	U.S. Senate	Decline to State - Democratic	Barbara Boxer - U.S. Senate	8	7	-1	#11b	7	7	0
1 & 2	U.S. Senate	Decline to State - Republican	Bill Jones - U.S. Senate	2	1	-1	#12b	1	1	0
1 & 2	U.S. Senate	Decline to State - Republican	Rosario Marin - U.S. Senate	2	3	1	#7a	3	3	0
1 & 2	President	Democratic	Dick Gephardt - President	12	13	1	#11b	13	13	0
1 & 2	U.S. Senate	Democratic	Barbara Boxer - U.S. Senate	88	89	1	#11b	89	89	0
1 & 2	U.S. Senate	Republican	Bill Jones - U.S. Senate	8	9	1	#12b	9	9	0
1 & 2	U.S. Senate	Republican	Rosario Marin - U.S. Senate	8	7	-1	#7a	7	7	0

**Table 6**

c) Reconciliation of Discrepancies

None of the discrepancy reports completed during testing resolved the identified variations.

The following discrepancy reports were completed after review of the testing videotapes and identified the source of remaining variations from the expected results:

- Report #7a – Card Activator Tester Error: The testers improperly activated a Republican ballot as a Decline to State (Republican) ballot, resulting in votes being recorded under the wrong party. This resolved two discrepancies
- Report #11b – Card Activator Tester Error: The testers improperly activated a Decline to State (Democratic) ballot as a Democratic ballot, resulting in votes being recorded under the wrong party. This resolved four discrepancies

- Report #12b - Card Activator Tester Error: The testers improperly activated a Decline to State (Republican) ballot as a Republican ballot, resulting in votes being recorded under the wrong party. This resolved two discrepancies

4. Orange County

a) Variations in Test Methodology:

- (1) Team Membership - At the request from the county, an additional team member was assigned in order to operate and monitor the Judges Control Booth (JBC). In addition, an additional camera operator was assigned to record the JBC.
- (2) Testing - The sample ballots provided by the county were for a different precinct than what was programmed on the Judges Booth Control. This resulted in contests for the 68<sup>th</sup> Assembly District appearing in the test script but not on the DREs and contests in the 67<sup>th</sup> Assembly District appearing on the DREs but not in the test scripts. No votes were cast in either of these contests and discrepancy reports were completed on all of them.

b) Comparison of Expected and Actual Results:

The results for Orange County were produced as an aggregate for both machines.

After the initial comparison of the expected and actual results, a total of thirty discrepancies were identified.

**Orange County Comparison**

Team	Office	Party	Selection	Initial Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1 & 2	State Assembly	Decline to State - Democratic	Al Snook - State Assembly - 68th District	4	0	-4	#1b	0	0	0
1 & 2	State Assembly	Decline to State - Republican	Mark Leyes - State Assembly - 68th District	2	0	-2	#1b	0	0	0
1 & 2	U.S. House	Democratic	J. Tilman Williams - U.S. Representative 40th District	10	11	1	#2a	11	11	0

**Table 7**

**Parallel Monitoring Program Summary Report for March 2, 2004**

				Initial Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1 & 2	State Assembly	Democratic	Al Snook - State Assembly - 68th District	22	0	-22	#1b	0	0	0
1 & 2	Party Committee	Democratic	Caren Bolinger - County Central Committee - 68th Assembly Dist	18	0	-18	#1b	0	0	0
1 & 2	Party Committee	Democratic	J. Tilman Williams - County Central Committee - 68th Assembly Dist	20	0	-20	#1b	0	0	0
1 & 2	Party Committee	Democratic	James N. Grammas - County Central Committee - 68th Assembly Dist	18	0	-18	#1b	0	0	0
1 & 2	Party Committee	Democratic	Paul Lucas - County Central Committee - 68th Assembly Dist	16	0	-16	#1b	0	0	0
1 & 2	Party Committee	Democratic	R. Stephen Bolinger - County Central Committee - 68th Assembly Dist	16	0	-16	#1b	0	0	0
1 & 2	Party Committee	Democratic	Ron Renish - County Central Committee - 68th Assembly Dist	12	0	-12	#1b	0	0	0
1 & 2	Party Committee	Democratic	Teresa Renish - County Central Committee - 68th Assembly Dist	14	0	-14	#1b	0	0	0
1 & 2	Party Committee	Green	Bob Hill - County Council	4	0	-4	#1b	0	0	0
1 & 2	Party Committee	Green	Craig Lee Merrihue - County Council	4	0	-4	#1b	0	0	0
1 & 2	Party Committee	Green	Henry H. Duke - County Council	2	0	-2	#1b	0	0	0
1 & 2	Party Committee	Green	Jason R. Keeler - County Council	4	0	-4	#1b	0	0	0
1 & 2	Party Committee	Green	Stephanie R. Pedroza - County Council	2	0	-2	#1b	0	0	0
1 & 2	Party Committee	Green	Tom Lash - County Council	4	0	-4	#1b	0	0	0

**Table 7 (Continued)**



**Parallel Monitoring Program Summary Report for March 2, 2004**

Team	Office	Party	Selection	Initial Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1 & 2	Party Committee	Green	William J. Kolar - County Council	2	0	-2	#1b	0	0	0
1 & 2	President	Natural Law	Write in Candidate for President (Marina Yu)	0	1	1	#5b	1	1	0
1 & 2	U.S. Senate	Natural Law	Write in Candidate for Senate (Marina Yu)	2	1	-1	#5b	1	1	0
1 & 2	State Assembly	Republican	Mark Leyes - State Assembly - 68th District	8	0	-8	#1b	0	0	0
1 & 2	State Assembly	Republican	Van Tran - State Assembly - 68th District	18	0	-18	#1b	0	0	0
1 & 2	Party Committee	Republican	Ed Royce, Sr. - County Central Committee - 68th Assembly District	10	0	-10	#1b	0	0	0
1 & 2	Party Committee	Republican	Erik K. Weigand - County Central Committee - 68th Assembly District	20	0	-20	#1b	0	0	0
1 & 2	Party Committee	Republican	John F. Bankson - County Central Committee - 68th Assembly District	22	0	-22	#1b	0	0	0
1 & 2	Party Committee	Republican	Jon Aiken - County Central Committee - 68th Assembly District	26	0	-26	#1b	0	0	0
1 & 2	Party Committee	Republican	Kermit Marsh - County Central Committee - 68th Assembly District	22	0	-22	#1b	0	0	0
1 & 2	Party Committee	Republican	Larry R. Crandall - County Central Committee - 68th Assembly District	10	0	-10	#1b	0	0	0
1 & 2	Party Committee	Republican	Lucille Kring - County Central Committee - 68th Assembly District	24	0	-24	#1b	0	0	0
1 & 2	Party Committee	Republican	Steve Sarkis - County Central Committee - 68th Assembly District	22	0	-22	#1b	0	0	0

**Table 7**  
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c) Reconciliation of Discrepancies

The following discrepancy reports were completed during the testing on March 2nd and adequately identified the source of twenty-seven of the variations:

- Report #1b - Test script error: The sample ballots provided by the county were for a different precinct than that being tested. This resulted in contests for the 68<sup>th</sup> Assembly District appearing in the test script but not on the DREs and contests in the 67<sup>th</sup> Assembly District appearing on the DREs but not in the test scripts. As a result, no votes were cast in these contests. This resolved 27 discrepancies

The following discrepancy reports were completed after review of testing videotapes and identification of the source of remaining variations from the expected results:

- Report #2a – Candidate Selection Tester Error: The testers improperly selected Tilman Williams instead of casting a blank ballot for U.S. House of Representatives. This resolved one discrepancy
- Report #5b – Candidate Selection Tester Error: The testers improperly wrote-in Marina Yu for President instead of casting a write in vote for Marina Yu for U.S. Senate. This resolved two discrepancies

5. San Diego County

a) Variations in Test Methodology:

(1) Team Membership - An additional camera operator was assigned to record the card activator.

b) Comparison of Expected and Actual Results:

After the initial comparison of the expected and actual results, a total of ten discrepancies were identified.

San Diego County Comparison

Team	Office	Party	Selection	Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1	President	Democratic	Wesley Clark - President	3	2	-1	#9	2	2	0
1	President	Republican	George W. Bush - President	42	43	1	#6	43	43	0
1	U.S. Senate	Democratic	Barbara Boxer - U.S. Senate	28	27	-1	#9	27	27	0
1	U.S. Senate	Republican	Barry L. Hatch - U.S. Senate	4	5	1	#6	5	5	0
1	State Senate	Republican	Larry Stirling - State Senator - 39th District	3	2	-1	#7	2	2	0
1	City	All	Dick Murphy - Mayor - City of San Diego	5	4	-1	#8	4	4	0
2	President	Democratic	Wesley Clark - President	3	2	-1	#9	2	2	0
2	U.S. Senate	Democratic	Barbara Boxer - U.S. Senate	28	27	-1	#9	27	27	0
2	State Senate	Republican	Larry Stirling - State Senator - 39th District	3	2	-1	#7	2	2	0
2	City	All	Dick Murphy - Mayor - City of San Diego	5	4	-1	#8	4	4	0

Table 8

c) Reconciliation of Discrepancies

The following discrepancy reports were completed during the testing and adequately identified the source of all variations:

- Report #6 – Duplicate Ballot Tester Error: The testers voted the same test script twice, resulting in one extra vote for each candidate on that ballot. This resolved two discrepancies
- Report #7 – Test script error: There was an error on the test script where the same candidate was listed twice. The

testers voted for the candidate once. This resulted in the expected tally being one too high for the candidate. This resolved two discrepancies

- Report #8 – Test script error: There was an error on the test script where the same candidate was listed twice. The testers voted for the candidate once. This resulted in the expected tally being one too high for the candidate. This resolved two discrepancies
- Report # 9 – Provisional ballot tabulation variation: Provisional ballots were not printed as part of the actual tabulation produced by the DRE resulting in one less than the expected result for all candidates on that ballot. This resolved four discrepancies

## 6. San Joaquin County

### a) Variations in Test Methodology.

(1) Verification of Equipment - The serial number and security seal numbers on the DRE unit used as a card activator did not match the typed numbers on the log. Testing proceeded on the equipment. It was determined that the number verification log was inaccurate and the numbers recorded by the testing team matched the numbers recorded when the equipment was originally secured.

(2) Opening of Polls - Due to a delay in securing access to the testing room, testing did not begin until approximately 7:05 AM.

### b) Comparison of Expected and Actual Results

Actual results matched expected results 100%.

### c) Reconciliation of Discrepancies

No reconciliation was necessary.

## 7. Santa Clara County

### a) Variations in Test Methodology

(1) Opening of Polls - Santa Clara does not normally use a printer to produce a zero tape when opening the polls. The testing team did use a printer provided by the county and produced such a tape as part of the program. Due to a delay during set-up, testing did not begin until approximately 7:15 AM.

(2) Closing of Polls - Santa Clara does not normally use a printer to produce a summary tape when closing the polls. The testing team did use a printer provided by the county and produce such a tape as part of the program.

b) Comparison of Expected and Actual Results.

After the initial comparison of the expected and actual results, a total of four discrepancies were identified.

**Santa Clara County Comparison**

Team	Office	Party	Selection	Comparison			Adjusted for Discrepancy Logs			
				Expected	Actual	Diff.	Log #	Adjusted Expected	Adjusted Actual	Adjusted Diff.
1	President	Democratic	Howard Dean - President	3	2	-1	#8a	2	2	0
1	U.S. Senate	Democratic	Barbara Boxer - U.S. Senate	59	58	-1	#8a	58	58	0
2	President	Democratic	Howard Dean - President	3	2	-1	#11b	2	2	0
2	U.S. Senate	Democratic	Barbara Boxer - U.S. Senate	59	58	-1	#11b	58	58	0

**Table 9**

c) Reconciliation of Discrepancies

- Report # 8a – Provisional ballot tabulation variation: Provisional ballots were not printed as part of the total tabulation produced by the DRE resulting in one less than the expected result for all candidates on that ballot. This resolved two discrepancies
- Report #11b – Provisional ballot tabulation variation: Provisional ballots were not printed as part of the total tabulation produced by the DRE resulting in one less than the expected result for all candidates on that ballot. This resolved two discrepancies

8. Solano County

a) Variations in Test Methodology

(1) Team Membership - At the request from the video consultant, an additional camera operator was assigned during set-up for testing.

- (2) Verification of Equipment - The security seal numbers on the DRE units did not match the expected numbers. Testing proceeded on the equipment. It was determined that the numbers had been transposed between the two units when the equipment was originally secured.
  - (3) Storage of Equipment - After sealing the memory cards in bags and using seals provided by the Secretary of State's office, the County Registrar requested that they be allowed to make a copy of the memory cards. The seals were broken and the registrar made a copy. The originals were then returned to the representative of the Secretary of State's office. The cards were then returned to the Secretary of State's office without leaving the custody of the SOS representative.
- b) Comparison of Expected and Actual Results  
Actual results matched expected results 100%.
  - c) Reconciliation of Discrepancies  
No reconciliation was necessary.