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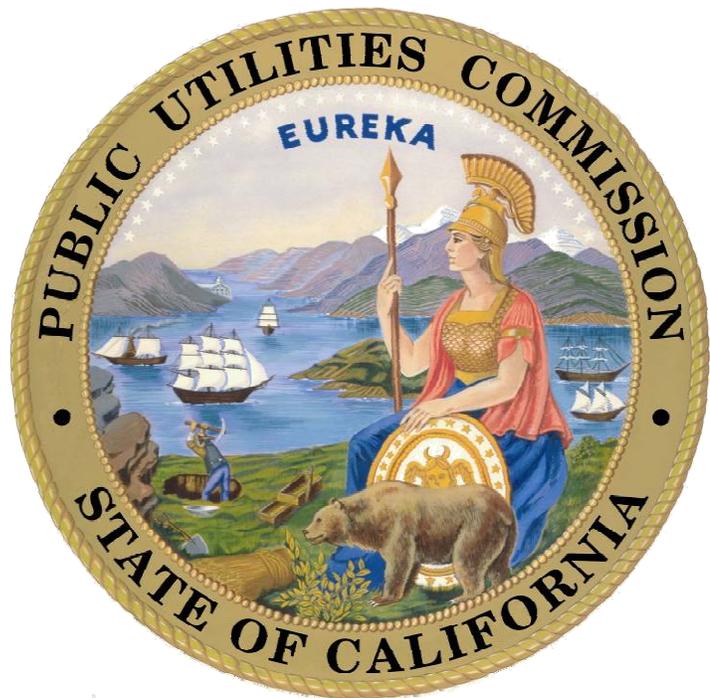
**2008**  
**TRIENNIAL ON-SITE**  
**SAFETY AND SECURITY REVIEW**  
**SACRAMENTO REGIONAL TRANSIT DISTRICT**  
**(SRTD)**

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RAIL TRANSIT SAFETY SECTION  
RAIL TRANSIT AND CROSSINGS BRANCH  
CONSUMER PROTECTION AND SAFETY DIVISION  
CALIFORNIA PUBLIC UTILITIES COMMISSION  
505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102

August 14, 2008

Final Report



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Consumer Protection and Safety Division

# 2008 TRIENNIAL ON-SITE SAFETY AND SECURITY REVIEW SACRAMENTO REGIONAL TRANSIT DISTRICT (SRTD)

## ACKNOWLEDGEMENT

The California Public Utilities Commission's Rail Transit Safety Section, with the assistance of the Commission's Railroad Operations Safety Branch, conducted this system safety and security programs review. Staff members directly responsible for conducting safety and security review and inspection activities include:

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## 1. EXECUTIVE SUMMARY

The California Public Utilities Commission's (Commission) Consumer Protection and Safety Division (CPSD), Rail Transit Safety Section staff (staff), with assistance from the Railroad Operations Safety Branch and Utilities Safety Branch staff (staff), conducted an on-site safety and security review of Sacramento Regional Transit District's (SRTD) system safety program in April 2008.

The on-site review was preceded by a pre-review conference with SRTD personnel on April 7, 2008.

Staff conducted the 2008 SRTD on-site safety and security review from April 7 to April 11 and April 18, 2008. The review focused on verifying the effective implementation of the system safety and security program plans.

Staff held a post-review conference with SRTD personnel following the on-site safety and security review on April 28, 2008. Staff provided SRTD personnel with a synopsis of the preliminary review findings and possible recommendations for corrective actions.

The review results indicate that SRTD has a comprehensive System Safety Program Plan (SSPP) and has effectively carried out that plan. SRTD was also found to have a strong detection and deterrence program and is well prepared to respond effectively to natural and human caused security threats. However, exceptions were noted during the review. These are described in the Findings and Recommendations section of each checklist. Of the 32 checklists, staff made nine recommendations for corrective action. These are distributed among the Engineering, Operations, Wayside and LRV Maintenance departments.

The Introduction for this report is presented in Section 2. The Background, in Section 3, contains a description of SRTD rail system and the 2005 on-site safety review results. Section 4 describes the review procedure. The review findings and recommendations are depicted in Section 5. The 2008 SRTD Triennial Safety Review Checklist Index and the Recommendations List are included, respectively, in Appendices A and B. The Review Checklists are presented in Appendix C.

## 2. INTRODUCTION

The Commission's General Order (GO) 164-D<sup>1</sup>, *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration's (FTA) Rule, Title 49 Code of Federal Regulations (CFR) Part 659, *Rail Fixed Guideway Systems: State Safety Oversight*, require the designated State Safety Oversight Agencies to perform a review of each rail transit agency's system safety program and system security plan at a minimum of once every three years. The purpose of the triennial review is to verify compliance and evaluate the effectiveness of each rail transit agency's System Safety Program Plan (SSPP) and System Security Plan (SSP) and to assess the level of compliance with GO 164-D as well as other Commission safety requirements. The previous on-site safety review of SRTD was conducted by staff in June 2005.

SRTD General Manager was advised by letter dated March 7, 2008 that the triennial review was scheduled for the week of April 7, 2008. The letter included 32 checklists that served as the basis for the review. Four of the 32 checklists outlined inspection of track, signals, electric power systems, and vehicles. The remaining 28 checklists focused on the verification of the effective implementation of the safety and security program plans.

On April 22 and 23, 2008 staff from the Commission's Rail Operations Safety Branch conducted inspections of SRTD's track and signals. Vehicle inspections were conducted on April 21, 2008. Staff conducted a pre-review conference on April 7, 2008 with SRTD executives and department managers.

Staff conducted the on-site safety review and records review from April 7, 2008 to April 11, 2008. At the conclusion of each review activity, staff provided SRTD personnel a summary of the preliminary findings and discussed any preliminary recommendations for corrective actions.

On April 28, 2007, staff conducted a post-review exit meeting with SRTD's executives and department managers. Staff provided the attendees a synopsis of the findings from the 32 checklists and discussed the need for corrective actions where applicable.

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<sup>1</sup> The FTA's latest revision of 49 CFR Part 659 became effective in May 2006. Subsequently, the Commission revised and adopted General Order 164-D which superseded 164-C on May 3, 2007. Until the Commission's adoption of GO 164-D, staff requested SRTD to revise their SSPP according to the FTA's latest revision of 49 CFR Part 659 which would be, in essence, the requirements of GO 164-D. Since this audit covered the time period that GO 164-D requirements were not applicable, the reviewers referred to GO 164-C for a portion of the review. However, the reviewers referred to GO 164-D where applicable.

### 3. BACKGROUND

SRTD is governed by an 11-member Board of Directors comprised of members of the Sacramento, Rancho Cordova, Citrus Heights, Elk Grove, Folsom City Councils as well as the Sacramento County Board of Supervisors.

#### **SRTD Rail System Description**

SRTD currently operates approximately 39 miles, covering a 418 square-mile service area and 47 Stations. Light rail trains operate from 4:30 AM to 1:00 AM daily with service every 15 minutes during the day and every 30 minutes in the evening. Weekday ridership averages 52,000 passengers.

SRTD began operations in 1973 with the acquisition of the Sacramento Transit Authority. Over the next decade, SRTD continued to expand its bus service while a cooperative effort emerged among city, county and state government officials to develop a light rail system. In 1987 the 18.3-mile light rail system opened linking the northeastern (Interstate 80) and eastern (Highway 50) corridors with downtown Sacramento. SRTD completed its first light rail expansion in 1998 with the opening of the Mather Field extension. Additional system extensions are as follows:

#### South Line Phase I

The 6.3-mile South Line Phase I began service in September 2003 and extended the system from Downtown Sacramento to Meadowview Road. Seven new stations were added serving a minimum of 10,500 daily passengers.

#### South Line Phase II

The 4.9-mile light rail addition to Phase I will extend the system further south to the City of Elk Grove. This project is in its Preliminary Engineering (PE) stage.

#### Amtrak/Folsom Line

The Amtrak/Folsom light rail line is a 16-mile extension that follows Highway 50 and extended the system from the Amtrak Station in downtown Sacramento to the City of Folsom. The project included four areas of improvements that added 10 new stations. Area 1 (Amtrak) is a 0.55-mile extension to the Sacramento Valley Station, which was completed in December 2006. Area 2 (Bee Bridge) added double tracking on an adjoining bridge from east of 16<sup>th</sup> Street to 23<sup>rd</sup> Street. Area 3 (Brighton to Sunrise) was completed in June 2004 with additional double tracking of previous single track areas and a 2.8-mile double track extension from Mather Field to Sunrise Boulevard and three stations. Area 4 (Sunrise to Historic Folsom) was completed in October 2005 adding 7.4 miles and four stations.

## **2005 On-Site Safety Audit Result**

Staff performed the previous triennial on-site safety audit of SRTD System Safety Program in June 2005. The 32 checklists resulted in 14 recommendations.

SRTD developed corrective action plans to implement the recommendations. All but one recommendation have been closed. The remaining open recommendation pertains to GO 95 Rule 74.4-F for which SRTD submitted a compliance plan on April 19, 2005 to CPSD Director. Implementation of this plan will bring the entire system into compliance with GO 95 by the end of 2009.

## 4. REVIEW PROCEDURE

Staff conducted the review in accordance with the Rail Transit Safety Section Procedure RTSS-4, *Procedure for Performing Triennial Safety Audits of Rail Transit Systems*.

Staff developed thirty-two (32) checklists to cover various aspects of system safety responsibilities, based on Commission and FTA requirements, SRTD SSPP, safety related SRTD documents, and the staff's knowledge of the transit system. The 32 checklists are included in Appendix C.

Each checklist identifies safety-related elements and characteristics that staff reviewed or inspected. Each of the checklists also references Commission, SRTD, and other documents that establish the safety program requirements. The completed checklists include review findings, and recommendations if the review findings indicate deficiencies. The completed checklists may include comments and suggestions to improve SRTD's system safety program. The methods used to perform the review include:

- Discussions with SRTD management
- Reviews of procedures and records
- Observations of operations and maintenance activities
- Interviews with rank and file employees
- Inspections and measurements of equipment and infrastructure

The review checklists concentrated on requirements that affect the safety of rail operations and are known or believed to be important in reducing safety hazards and preventing accidents.

## 5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors concluded that the SRTD rail system has a comprehensive SSPP and has been effectively implementing the plan.

Review findings identify areas where changes should be made to further improve SRTD system safety program. The review results are derived from activities observed, documents reviewed, issues discussed with management, and inspections. Overall, the review result confirms that SRTD is in compliance with its SSPP. The review identified nine recommendations from the 32 checklists. Following are the findings and recommendations for each checklist:

### 1. **Vehicle Maintenance Inspection**

No deficiencies.

### 2. **Track and Switch Inspection**

No deficiencies.

### 3. **Gated Grade Crossings Warning Devices Inspection**

Staff found the following deficiency:

- Two crossing gate tips were below the required 3'-6" from roadway as required by GO 75-D and FRA 234.223.05.

#### **Recommendation:**

1. SRTD should revise its appropriate grade crossing preventive maintenance procedures to add the requirement of ensuring crossing gate heights comply with General Order 75-D.

### 4. **Traction Power Inspection**

No deficiencies.

### 5. **Overhead Catenary System Inspections and Records**

Staff found the following deficiency:

- There were inconsistencies in OCS noted repairs, inspected locations, and responsible linemen for OCS maintenance.

**Recommendation:**

2. SRTD should take the necessary measures to consistently document OCS noted defects, repairs, locations of OCS inspections, final status of equipment, and linemen responsible for OCS maintenance (LR-SOP-86-405).

**6. Substation Inspections and Records**

Staff found the following deficiency:

- The description of the substation noted defects and corresponding repairs were not clearly documented in the Substation Quadrennial reports.

**Recommendation:**

3. SRTD should take the necessary measures to clearly and consistently document repairs with completion dates on the Substation Quadrennial Inspection records (LR-SOP-86-403).

**7. Internal Safety and Security Audits/Reviews**

No deficiencies.

**8. Right-of-Way Maintenance**

Staff found the following deficiency:

- At some locations, fencing was found to be in need of repair and vegetation control was found to be inadequate. SRTD has already implemented a satisfactory corrective action plan and developed a detailed inspection/repair checklist. Therefore, no recommendation was issued.

**9. Vital Relays Inspections, Maintenance and Records**

No deficiencies.

**10. Employee and Contractors Safety Program**

No deficiencies.

**11. Calibration of Measuring and Testing Equipment Program**

Staff found the following deficiency:

- Inconsistencies were found which made it difficult to ascertain that all tools requiring calibration are in fact being calibrated.

**Recommendation:**

4. SRTD should take the necessary measures to clearly document records pertaining to the annual calibration requirement of SOP-01-224 and maintain an updated Master List detailing calibration status.

**12. Gated Crossing Maintenance**

No deficiencies.

**13. Accident/Incident Reporting and Investigation**

Staff found the following deficiency:

- One of the accident reports submitted by SRTD Safety to CPUC staff list primary, contributing, and potential recommendations as pending determination by the Accident Grading Board Committee.

**Recommendation:**

5. SRTD should convene Accident Grading Board Meetings to provide SRTD Safety the opportunity and info it needs to complete its accident investigation responsibilities (SA-SOP-00-006).

**14. Safety Certification**

No deficiencies.

**15. Configuration Management**

Staff found the following deficiency:

- During the last few months SRTD did not hold CRC meetings consistently because of lack of support from different departments.

**Recommendation:**

6. SRTD should take the necessary measures to hold the Change Review Committee (CRC) meetings on a consistent or as needed basis (PC-SOP-96-001).

**16. Review Operating Rules and Procedures Manual**

No deficiencies.

**17. Hazardous Materials Programs / Environmental Management**

No deficiencies:

**18. Emergency Response Planning, Coordination, Training**

No deficiencies.

**19. Light Rail Training and Certification**

Staff found the following deficiency:

- Training elements, retraining criteria, and record retention were not specified in DOP LR-04-003.

**Recommendation:**

7. SRTD should revise DOP LR-04-003 to specify and outline initial, periodic, retraining, and record retention requirements (GO 143-B, Section 13.03).

**20. Light Rail Vehicle Maintenance**

No deficiencies.

**21. Drug and Alcohol Program**

No deficiencies.

**22. Track Warrants & Cab Passes**

No deficiencies.

**23. Hours of Service – Train Operators, Train Controllers, and Supervisors**

No deficiencies.

**24. Operator Training, Retraining, and Efficiency Test Records**

Staff found the following deficiency:

- Not all required efficiency testing has been conducted for all operators.

**Recommendation:**

8. SRTD should take the necessary measures to make certain all rail operator efficiency testing requirements are met per LR-SOP-99-027.

**25. Bridges/Structures Inspections and Reports**

Staff found the following deficiency:

- SRTD has not yet approved its structural inspections SOP and its staff do not adequately track deficiencies identified from the structural inspections to closure with corrective action plans including action steps, schedule completion dates, obstacles to completion, and reports to management.

**Recommendation:**

9. SRTD should finalize the approval of the structural inspections Standard Operating Procedure (SOP) and track deficiencies identified from the required inspections to closure, with appropriate corrective action plans and implementation schedules.

**26. Procurement**

No deficiencies.

**27. Facility Inspections**

No deficiencies.

**28. Track Components Inspection**

No deficiencies.

**29. Security**

No deficiencies.

**30. Safety Data Collection and Analysis**

No deficiencies.

**31. Hazardous Management Process**

No deficiencies.

**32. System Modification**

No deficiencies.

## **APPENDICES**

- A. SRTD 2008 Triennial Safety Review Checklist Index
- B. SRTD 2008 Triennial Safety Review Recommendations List
- C. SRTD 2008 Triennial Safety Review Checklists

## APPENDIX A

### 2008 SRTD TRIENNIAL SAFETY & SECURITY REVIEW CHECKLIST INDEX

Checklist No.	Department	Element/Characteristics
1	Vehicle Maintenance	Light Rail Vehicle Inspection – CPUC INSPECTOR
2	Wayside Maintenance	Track and Switch Inspection – CPUC INSPECTORS
3	Wayside Maintenance	Gated Grade Crossings Warning Devices – CPUC INSPECTOR
4	Wayside Maintenance	Traction Power Inspection – CPUC INSPECTOR(S)
5	Wayside Maintenance	Overhead Catenary System Inspections and Records
6	Wayside Maintenance	Substation Inspections and Records
7	Safety Department	Internal Safety & Security Audits/Reviews
8	Facilities Maintenance	Right-of-Way Maintenance
9	Wayside Maintenance	Vital Relays Inspections, Maintenance and Records
10	Safety Department	Employee and Contractors Safety Program
11	Quality Assurance	Calibration of Measuring and Testing Equipment Program
12	Wayside Maintenance	Gated Crossing Maintenance
13	Safety Department Operations	Accident/Incident Reporting and Investigation
14	Safety Department Engineering	Safety Certification
15	Quality Assurance Engineering Safety Department	Configuration Management
16	Operations Safety Department	Review Operating Rules and Procedures Manual
17	Safety Department	Hazardous Material Programs/Environmental Management
18	Operations	Emergency Response, Planning, Coordination, Training
19	Operations	Light Rail Supervisor/Controller Certification Program
20	Vehicle Maintenance	Light Rail Vehicle Maintenance
21	Human Resources	Drug & Alcohol Program

22	Operations	Track Warrants & Cab Passes
23	Operations	Hours of Service – Train Operators, Train Controllers, and Supervisors
24	Operations	Operator Training, Retraining, & Efficiency Testing Records
25	Engineering	Bridges/Structures Inspections & Reports
26	Materials Mgmt.	Procurement
27	Facilities Maintenance	Facility Inspections
28	Wayside Maintenance	Track Components Inspection
29	Police Services	Security
30	Safety Department	Safety Data Collection and Analysis
31	Safety Department	Hazard Management Process
32	Engineering Safety Department	System Modification

## APPENDIX B

### 2008 SRTD TRIENNIAL SAFETY REVIEW RECOMMENDATIONS LIST

No.	Recommendation	Checklist No.
1	SRTD should revise its appropriate grade crossing preventive maintenance procedures to add the requirement of ensuring crossing gate heights comply with General Order 75-D.	3
2	SRTD should take the necessary measures to consistently document OCS noted defects, repairs, locations of OCS inspections, final status of equipment, and linemen responsible for OCS maintenance (LR-SOP-86-405).	5
3	SRTD should take the necessary measures to clearly and consistently document repairs with completion dates on the Substation Quadrennial Inspection records (LR-SOP-86-403).	6
4	SRTD should take the necessary measures to clearly document records pertaining to the annual calibration requirement of SOP-01-224 and maintain an updated Master List detailing calibration status.	11
5	SRTD should convene Accident Grading Board Meetings to provide SRTD Safety the opportunity and info it needs to complete its accident investigation responsibilities (SA-SOP-00-006).	13
6	SRTD should take the necessary measures to hold the Change Review Committee (CRC) meetings on a consistent or as needed basis (PC-SOP-96-001).	15
7	SRTD should revise DOP LR-04-003 to specify and outline initial, periodic, retraining, and record retention requirements (GO 143-B, Section 13.03).	19
8	SRTD should take the necessary measures to make certain all rail operator efficiency testing requirements are met per LR-SOP-99-027.	24
9	SRTD should finalize the approval of the structural inspections Standard Operating Procedure (SOP) and track deficiencies identified from the required inspections to closure, with appropriate corrective action plans and implementation schedules.	25

## **APPENDIX C**

### **2008 SRTD TRIENNIAL REVIEW CHECKLISTS**

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>1</b>	Persons Contacted
Date of Audit	<b>04/21/08</b>	Laura Espinoza, LRV Maintenance Superintendent
Auditors	<b>Randy McCaul</b>	Mike Ornelas – Maintenance Supervisor (LR)
Department	<b>Vehicle Maintenance</b>	

REFERENCE CRITERIA

1. LR-SOP-86-200 through 202

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

**LIGHT RAIL VEHICLE INSPECTION – CPUC INSPECTOR**

Utilizing the services of CPUC/FRA qualified inspector from the Commission’s Railroad Branch:

1. Review and evaluate the adequacy of SRTD’s Light Rail Vehicle Inspection and Maintenance programs.
2. Randomly select at least three CAF and three Siemens cars and perform detailed inspections to determine if SRTD is properly and adequately maintaining:
  - a. Traction motors
  - b. Truck/wheel components
  - c. Brake systems
  - d. Doors and pantographs assemblies
  - e. Coupling mechanism
  - f. Passenger component/safety appliances
  - g. Operator cab/appurtenance
3. Based on the review and the inspections, determine whether or not the selected LRVs are in compliance with the applicable reference criteria.

FINDINGS AND RECOMMENDATIONS

Activities and Findings:

Staff conducted an inspection on the Sacramento Regional Transit District LRVs Nos. 127 & 217 (Light Rail Vehicles) at their main repair facility at 2700 Academy Way, Sacramento, California. The scope of inspections included visual checks of passenger cab/safety appliances, trucks/wheels components, traction motors, brake systems, coupling mechanism, and an observation of workmen during preventive maintenance inspection/repairs of LRVs while on shop tracks. The inspection showed adherence to the district’s preventive maintenance procedures of LRVs with no evidence of deferring any safety sensitive maintenance items.

No exceptions were noted.

Recommendation:

None.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>2</b>	Persons Contacted
Date of Audit	<b>04/22/08</b>	Rick Stevens, Wayside Maintenance Supervisor
Auditors	<b>Edward Chavez Brian Chavez Sherman Boyd</b>	
Department	<b>Wayside Maintenance</b>	

**REFERENCE CRITERIA**

1. LR-SOP-91-424
2. Code of Federal Regulations CFR 49, Part 213-Track Safety Standards
3. GO 143-B, Section 14.04-Track Maintenance Practices

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**TRACK AND SWITCH INSPECTIONS – CPUC INSPECTORS**

Utilizing the services of CPUC/FRA qualified inspector from the Commission’s Railroad Safety Branch:

1. Review and evaluate the adequacy of SRTD’s track and signal inspection and maintenance programs and standards.
2. Randomly select at least two sections of the mainline track, two Rail crossings and two turnout/diamond crossings on the South Line and North Line and perform visual & dimensional inspection/measurements to determine whether or not all track components within the areas selected are in compliance with the applicable reference criteria.
3. Randomly select four switches and inspect for gauge measurements and components and perform an adjustment and functional check of selected switch machines to determine whether or not all selected components are in compliance with the applicable reference criteria.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff conducted routine track and signal inspection with SRTD representative Rick Stevens at F199B, F199A, F196A, and F196B on the Gold Line. The results of the inspections showed minor defects of worn or missing cotter pins at F199B and F196B, as well as, improper fit between switch point and stock rail at switches F199A and F196A. Immediately following the inspection, SRTD Wayside Maintenance personnel took appropriate actions to address the inspection findings.

No violations were recommended in the inspection report prepared by CPUC inspectors Chavez and Boyd. The report also indicated no exceptions were noted when 17 track inspection reports were

reviewed.

Recommendations:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>3</b>	Persons Contacted
Date of Audit	<b>04/22/08</b>	Rick Stevens, Wayside Maintenance Supervisor
Auditors	<b>Sherman Boyd</b>	
Department	<b>Wayside Maintenance</b>	

**REFERENCE CRITERIA**

1. Code of Federal Regulations CFR 49, Part 234-Grade Crossing Signal System Safety
2. LR-SOP-86-408
3. CFR 49 Part 234

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**GATED GRADE CROSSINGS WARNING DEVICES – CPUC INSPECTOR**

1. Review and evaluate the adequacy of SRTD’s Gate Crossing Preventive Maintenance programs and standards.
2. Randomly select five gated crossings and perform detailed inspections to determine whether or not warning devices are in compliance with the applicable reference criteria. The inspection includes the alignment of warning lights, reflective striping on the gate arms, and the voltage levels of the warning lights both in normal mode (AC power) and in standby mode (DC battery power).

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff inspected the gated grade crossings at the Mather Field and Mills Park Roads and Coloma pedestrian crossing on the Gold Line and reviewed corresponding preventive maintenance records as well as associated trouble calls. Staff also visually inspected two insulated joints and junction boxes of the aforementioned crossings. The results were as follows:

1. No exceptions were noted in regards to the records reviewed.
2. No exceptions were noted in regards to the inspected insulated joints.
3. Gates G-1 and G-5 at the Mather Field & Mills Park Road crossings were below the required minimum height of 3’ 6” from crown of road as required by General Order (GO) 75-D. SRTD Wayside Maintenance personnel immediately raised these gates to the required minimum following the inspection.
4. No exceptions noted in regards to the inspected Coloma Road and Mather Field pedestrian

crossings.

5. Junction boxes were not sealed on flasher on either one of the crossings inspected. This is a standard construction practice and should have been performed by the contractor. On future new construction, SRTD should hold its contractor responsible for sealing the junction boxes.

Recommendation:

SRTD should revise its appropriate grade crossing preventive maintenance procedures to add the requirement of ensuring crossing gate heights comply with General Order 75-D.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>4</b>	Persons Contacted
Date of Audit	<b>04/24/08</b>	Michael Cormiae – Maintenance Superintendent, Wayside
Auditors	<b>Dennis Lee Stephen Artus</b>	Jarrold Burklow – Maintenance Supervisor, Wayside
Department	<b>Wayside Maintenance</b>	

**REFERENCE CRITERIA**

1. CPUC General Order 95-Rules for Overhead Electric Line Construction
2. GO 143-B, Section 10-Traction Power Requirements and Section 14.06-Traction Power System Inspections and Records
3. LR-SOP-86-405

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**TRACTION POWER INSPECTION – CPUC INSPECTOR(S)**

1. Review and evaluate the adequacy of SRTD’s Overhead Catenary System (OCS) Maintenance programs and standards.
2. Randomly select at least three OCS sections and three Traction Power Sub Stations (TPSS) on the North Line, Gold Line, and South Line to perform detailed inspections and determine whether or not the selected OCS sections and TPSS are in compliance with the applicable reference criteria.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff selected three sections from the Blue and Gold Lines each and four Transit Power Substations (TPSS). The following was found:

1. TPPS were in good condition and were well maintained.
2. Various OCS heights measured were in compliance with General Order (GO) 95.
3. The OCS system was in good condition.
4. N4315 and N4314, both located in non-public areas, were in violation of GO 95, Rule 74.4-F.
5. SRTD Wayside Department personnel stated that all public areas have been brought into compliance with GO 95, Rule 74.4-F. The remaining non-public areas will be brought into compliance with GO 95, Rule 74.4-F by the end of 2009 as per an approved compliance plan submitted in response to the 2005 CPUC Triennial Audit of SRTD.
6. Globe Station’s outbound contact wire was in violation of GO 95, Rule 35 & Rule 37 (Table 1, Case 13). SRTD Wayside Department personnel stated that the Globe Station’s vegetation near the contact wire will be trimmed and brought into compliance with GO 95, Rule 35 & Rule 37 (Table 1, Case 13)

by the end of day in which the inspection occurred (4/24/08).

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>5</b>	Persons Contacted
Date of Audit	<b>4/8/2008</b>	Michael Cormiae - Maintenance Superintendent –Wayside
Auditors	<b>Vincent Kwong</b>	Jarrold Burklow - Maintenance Supervisor – Light Rail
Department	<b>Wayside Maintenance</b>	

**REFERENCE CRITERIA**

1. GO 143-B, Section 14.06-Traction Power System Inspections and Records
2. LR-SOP-86-405, Traction Power OCS-Quarterly Inspection, Dated 11/26/86

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**OVERHEAD CATENARY SYSTEM INSPECTIONS AND RECORDS**

Review the records of Overhead Catenary System (OCS) inspections performed during the last three years to determine whether or not:

1. OCS was inspected and adjusted at the required frequencies as specified in the reference criteria.
2. Inspections were properly documented and tracking method used to verify the timely closure of work orders when generated as a result of scheduled inspections.
3. Noted defects were corrected in a timely manner.

**FINDINGS AND RECOMMENDATIONS**

Activities & Findings:

Staff interviewed SRTD representatives and selected all OCS segments on the Folsom, North, and South lines and reviewed their quarterly inspection records as required by LR-WMP-86-405-Traction Power OCS-Quarterly Inspection SOP. The findings were as follows:

- SRTD dedicates each month to a particular line for scheduled inspections and maintenance repairs. OCS Inspections are documented with any defects on the Quarterly Inspection Form for all segments as required by LR-WMP-86-405, Section 8. However, there were inconsistencies in noted repairs, inspected locations, and responsible linemen. These inconsistencies were as follows:
  - Folsom Line (Outbound) – February 2008: missing status on 11 items; missing location(s) for Item 12.
  - Folsom Line (Inbound) – February 2008: missing status and locations for Items 1-12.
  - South Line (Outbound and Inbound) – July 2007: missing start date and linemen responsible for inspections.
  - Folsom Line (Outbound and Inbound) – March 2007: missing status and locations for all items.

- For the period between July 2006 to January 2007, records showed no defects were noted on the Quarterly Inspection Forms as follows:
  - South Line (Outbound and Inbound) – January 2007,
  - North Line (Outbound and Inbound) – December 2006,
  - Folsom Line (Outbound and Inbound) – November 2006,
  - South Line (Outbound and Inbound) – October 2006,
  - North Line (Outbound and Inbound) – September 2006,
  - Folsom Line (Outbound and Inbound) – August 2006,
  - South Line (Outbound and Inbound) – July 2006,SRTD representatives explained that in the earlier years (i.e. 2006), the inspection teams did not document minor defects or repairs as is currently practiced.
- Most maintenance issues and defects occur on the hanger due to loose parts and weather conditions. According to the SRTD staff, these defects are immediately repaired or are scheduled for repair within 24 hours depending on severity and impact on the system.
- Immediate notifications to the supervisor occur for serious defects such as broken parts, significant sagging, and cracking. Wayside Maintenance Supervisor stated that the Section Leaders who lead the group during inspections are experienced and well qualified to supervise the repairs.

Recommendation:

SRTD should take the necessary measures to consistently document OCS noted defects, repairs, locations of OCS inspections, final status of equipment, and linemen responsible for OCS maintenance (LR-SOP-86-405).

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>6</b>	Persons Contacted
Date of Audit	<b>4/08/2008</b>	Michael Cormiae - Maintenance Superintendent –Wayside
Auditors	<b>Vincent Kwong</b>	Jarrold Burklow - Maintenance Supervisor – Light Rail
Department	<b>Wayside Maintenance</b>	Tim Kent – Wayside Maintenance Supervisor

**REFERENCE CRITERIA**

1. GO 143-B, Section 14.06-Traction Power System Inspections and Records
2. LR-SOP-86-402, Traction Power Substation Weekly Inspection, Dated 10/29/86
3. LR-SOP-86-403, Traction Power Substations-Quarterly Inspection, Dated 11/03/93
4. LR-SOP-86-404, Traction Power Substations-Biennial Inspection, Dated 11/03/93

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**SUBSTATION INSPECTIONS AND RECORDS**

Randomly select at least four substations and review their inspection records prepared during the last three years to determine whether or not:

1. Each substation was inspected at the required frequencies as specified in the reference criteria
2. Inspections were properly documented and tracking method used to verify the timely closure of work orders when generated by scheduled inspections.
3. Noted defects were corrected in a timely manner

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives and selected TPSS F8, TPSS S6, TPSS F13, TPSS A1, TPSS N5, & TPSS Y2 traction power substations out of a total of 41 and reviewed their inspection records. The following was found:

SRTD performs biweekly, quarterly, and quadrennial inspections on the traction power substations. Overall, inspections and repairs are consistently performed as per the following:

Biweekly

- The following Substation Weekly Inspections (Rev 4/02/04) reports were reviewed and found to be acceptable:
  - TPSS F8 – 4/05/06\*; 4/12/06; 4/19/06; 4/28/06; 10/02/07; 10/07/07; 10/16/07; 10/23/07;

1/25/08;

- TPSS S6 – 4/04/06; 4/13/06; 4/17/06; 4/27/06; 10/04/07; 10/17/07; 1/10/08; 1/22/08;
- TPSS F13 – 4/08/06; 4/14/06; 10/05/07; 10/12/07; 1/16/08; 1/02/08; 1/22/08; 1/29/08;
- TPSS A1 – 10/13/07; 10/20/07; 12/31/07; 1/10/08; 1/14/08; 1/21/08;
- TPSS N5 – 4/04/06; 4/17/06; 10/02/07; 10/07/07; 10/10/07; 1/06/08; 1/20/08; 1/27/08;
- TPSS Y2 – 4/20/06\*; 4/27/06; 9/30/07; 10/07/07; 1/02/08; 1/9/08; 1/16/08;

\* indicates the alarm flashing for 64V which was implemented in early 2006 but was later calibrated to a lower sensitivity.

- SRTD supervisors make random visits with the inspection teams every other month to 5-6 substations.
- On rare occurrences, SRTD resolved major defects immediately after inspections were completed as was the case on 4/12/06 (TPSS F8, battery replacement)

#### Quarterly

- The following three variations of the substation quarterly inspection reports that correspond to the 41 substations were consistent with the requirements of LR-WMP-86-403, Traction Power Substation Quarterly Inspections.
  - CPC (1) Mega Watt Substations: N2, N3, N4, N5, Y1, F6 & F7
  - Impulse (2) Mega Watt Substations: Y2, S1, S2, S3, S4, S5, S6, S7, S8, F10, F11, F12, F13, F14, F15, F16, F17, F18, F19 & A1
  - SMC & CPC/SMC (2) Mega Watt Substations: N1, F1, F2, F3, F4, F5, F8 & F9
- Quarterly inspections were performed consistently. When these inspections fell on the same date as a quadrennial, they were recorded on the quadrennial inspection report instead.
  - TPSS F8 – 2/09/06; 5/09/06; 8/10/06; 11/09/06; 2/12/07; 5/07/07; 11/13/07; 2/11/08
  - TPSS S6 – 1/06/06; 4/17/06; 10/12/06; 1/16/07; 4/12/07; 7/16/07; 10/07/07;
  - TPSS F13 – 10/25/05; 1/18/06; 10/19/06; 1/24/07; 4/18/07; 7/23/07; 10/22/07; 2/15/08
  - TPSS A1 – 11/30/06; 4/24/07; 10/30/07; 1/24/08
  - TPSS N5 – 9/28/05; 12/27/05; 6/22/06; 9/12/06; 12/14/06; 3/15/07; 9/18/07; 12/10/07; 3/12/08
  - TPSS Y2 – 3/09/06; 6/12/06; 9/06/06; 3/14/07; 6/28/07; 9/18/07; 1/09/08; 3/27/08;
- Some inspections resulted in defects or necessary repairs which were performed at the time of the inspection as was the case during the following inspections:
  - TPSS S6 – 10/12/06, replaced lever on right side of broken bolt.
  - TPSS F13 – 1/18/06, troubleshoot alarm system on the same day.
  - TPSS F13 – 1/24/07, replaced door handle to back outside door.
  - TPSS Y2 – 6/12/06, tightened nuts on loose bolts.
  - TPSS Y2 – 9/06/06, re-soldered broken resistors.

### Quadrennial

- Quadrennial inspection reports were consistent with the requirements of LR-WMP-86-404, Traction Power Substations, Quadrennial Inspection. These inspections begin with Protective Relay and PMI testing as required by LR-WMP-86-404.
  - TPSS F8 – September 2007
  - TPSS S6 – September 2006
  - TPSS F13 – February 2008
  - TPSS A1 – September 2006 (Protective Relay), May 2006 (PMI)
  - TPSS N5 – February 2006
  - TPSS Y2 – December 2005
- The description of the defects and repairs were not clearly documented as was the case during the following inspections:
  - TPPS S6 – September 2006, jumpier wire and interlock repairs.
  - TPPS A1 – September/May 2006, eye wash was broken and AC/DC breaker loose.
  - TPPS N5 – February 2006, battery alarm failure.
  - TPPS Y2 – December 2005, there were four total defects with only two indicated as repaired.

### Recommendations:

SRTD should take the necessary measures to clearly and consistently document repairs with completion dates on the Substation Quadrennial Inspection records (LR-SOP-86-403).

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>7</b>	Persons Contacted
Date of Audit	<b>04/07/08</b>	Rufus Francis, Director of Safety
Auditors	<b>Erik Juul Georgetta Gregory Raed Dwairi Jimmy Xia</b>	Rob Hoslett, Senior Safety Specialist
Department	<b>Safety Department</b>	

**REFERENCE CRITERIA**

1. SA-SOP—008, Revision Number 060107-C
2. GO 164-C
3. GO 164-D effective May 3, 2007
4. SA-SOP-06-007, Revision Number 103106-A, 10/25/06

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**INTERNAL SAFETY & SECURITY AUDITS/REVIEWS**

Interview the SRTD representative in charge of the Internal Safety Audit (ISA) Program and review the audit reports for the years 2005, 2006, and 2007 to determine whether or not:

1. Annual internal safety audits were performed in accordance with the applicable reference Criteria.
2. All of the required safety program elements were covered within a three year audit cycle and compliance with the SSPP and Security Plan was evaluated by auditors who are independent from the first line of supervision responsible for performance of the activity being audited.
3. The annual ISA reports were prepared and submitted to the CPUC by February 15<sup>th</sup> of each year and corrective action plan recommendations were prepared, tracked and implemented in a timely manner.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives in charge of the Internal Safety Audit Program and reviewed the internal safety audit reports for the years 2005, 2006, and 2007, and found the following:

1. SRTD prepared a Three Year Audit Schedule: 2005 – 2007 for the Internal Rail System Safety Audit Program.
2. All of the required safety program elements were covered within the 2005 to 2007 three year audit

cycle

3. The audits were performed in accordance with the applicable reference criteria.
4. SRTD auditors were from other departments not related to the department being audited.
5. Security was handled separately, with five Security items audited in 2007.
6. Staff reviewed the reports submitted to the CPUC by February 15<sup>th</sup> of each year. Corrective action plan recommendations were prepared, tracked, and implemented in a timely manner.
7. No exceptions were noted.

Recommendation:

None.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>8</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Lynn Cain – Director of Facilities
Auditors	<b>Jimmy Xia Rupa Shitole</b>	Joe Lentz – Facilities Supervisor Rob Hoslett – Senior Safety Specialist
Department	<b>Facilities Maintenance</b>	

**REFERENCE CRITERIA**

1. CPUC GO 143-B Section 9.03-Installation of Curbs, Fences, and Barriers; Section 9.12-Clearing Vegetation
2. SSPP

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**RIGHT-OF-WAY MAINTENANCE**

Conduct operational observations by riding a train on the North, Gold, and South Lines and randomly select a total of at least three stations to visually inspect the right-of-way and determine whether or not:

- a. The requirements of Section 9.12 of GO 143-B are met
- b. Fences are such that they offer an adequate degree of security to the right-of-way from any possible intrusions

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed the SRTD representatives in charge of the Facilities Maintenance Program and found the following:

Facilities Maintenance personnel inspect fencing and control vegetation growth along the right-of-way (ROW). A weekly station inspection is also performed which includes an inspection of the fencing and vegetation using an inspection checklist.

Work Orders are generated when fencing and vegetation issues are observed by sweep trains, train operators, or SRTD Wayside personnel. These Work Orders are then entered into a computer tracking system called SAP.

SRTD does not have a formal systematic program for the inspection and repair of fencing & vegetation control along their ROW.

Staff conducted visual inspection of the ROW along the Folsom, North, and South Lines and found the following regarding the vegetation along the ROW:

**The Folsom Line:**

1. The ROW appeared to be well-maintained.
2. There are some overgrown trees at the following areas:
  - a. near the eastbound ROW prior to the signal F538C,
  - b. around the signal F800 near the trackway for the westbound trains,
  - c. to the right of and close to the westbound trackway between the 48<sup>th</sup> St. and 39<sup>th</sup> St. Stations, which could impair the vision of train operators.
3. The ROW appeared to be cleared of all vegetation that would constitute a fire hazard, interfere with employees in performing normal trackside duties, or that would obstruct emergency walkways.

**The North Line:**

1. The ROW appeared to be well-maintained.
2. Some vegetation was observed at the following areas:
  - a. along the trackway around an area under the bridge overpass between the Alkali Flat and Globe Stations,
  - b. along the northbound trackway between the Alkali Flat and Globe Stations,
  - c. along the northbound trackway prior to milepost (MP) N2.00 around a bridge,
  - d. along the ROW fencing on the southbound to the right of the southbound track prior to the Swanston Station,
  - e. along the curb to the right of the southbound track prior to the O and 9<sup>th</sup> Streets intersection,
3. Minor vegetation was observed at the following areas:
  - a. along the curbs at the Globe Station,
  - b. along the southbound trackway past the Globe Station,
  - c. along the northbound trackway prior to the Del Paso crossing prior to the Arden/Del Paso Station,
  - d. along the southbound trackway prior to the Arden/Del Paso Station,
  - e. along the trackway at the Royal Oaks Station,
4. Excess debris was observed on the southbound trackway around the Del Paso crossing and past the 13<sup>th</sup> St. Station.
5. A lot of overgrown vegetation was observed along the concrete barriers to the right of the northbound trackway prior to the C Street crossing.
6. The ROW appeared to be cleared of all vegetation that would interfere with employees in performing normal trackside duties or that would obstruct emergency walkways.

**The South Line:**

1. The ROW appeared to be well-maintained.
2. There is a lot of vegetation next to the northbound trackway prior to the 16<sup>th</sup> St. crossing between the 16<sup>th</sup> St. and the Broadway Stations.
3. There are some trees with overgrown branches to the right of the southbound track past the Broadway Station.
4. There are a lot of vegetation and trees with overgrown branches around the concrete barriers to the right of the southbound track both prior to and past the Fruitridge Station.
5. Some vegetation was also observed along and to the right of the southbound track past the 47<sup>th</sup> Ave. Station.
6. Some trash observed on the trackway at the Fruitridge and the City College Stations and south of the 16<sup>th</sup> Street Station.

7. The ROW appeared to be cleared of all vegetation that would interfere with employees in performing normal trackside duties or that would obstruct emergency walkways.

Staff conducted visual inspection of the ROW fencing along the following lines:

**The Folsom Line:**

1. The ROW fencing appeared to be well-maintained.
2. Missing sections of fences were observed west of the University/65<sup>th</sup> St. Station to the west of the signal F466 and on the eastbound past signal F466 both prior to and around the end of the bridge overpass.
3. There is a hole in the fencing east of signal F466 prior to the bridge overpass.
4. There is a lack of fencing for a parking lot of a building to the left of the eastbound track prior to Tire Mall and prior to the College Greens Station.
5. Some ROW fences have collapsed between the College Greens and the Power Inn Stations and to right of the eastbound track around signal F774.
6. Some chain-link fences have been damaged to the right of the eastbound track at the Watt/Manlove Station.
7. A short green fence to the right of the eastbound track at the Zinfandel Station has been slightly damaged (i.e. has a small hole).
8. A missing section of fences on the westbound was observed to the right of the westbound track past the University/65<sup>th</sup> St. Station.
9. Fencing on the westbound prior to the 39<sup>th</sup> St. Station has been damaged.

**The North Line:**

1. The ROW fencing appeared to be well-maintained.
2. Fencing on the southbound to the right of the southbound track south of MP N6.50 has been damaged.
3. Some ROW fences at around MP N6.00 have been damaged or torn.
4. Some short fences north of MP N1.75 to the south of the Globe Station have been damaged.

**The South Line:**

1. The ROW fencing appeared to be well-maintained.
2. Few fences on the northbound at an open field to the right of the northbound track past the Florin Station have collapsed.
3. There is a hole in the fencing on the northbound to the right of the northbound track prior to the City College Station.
4. There are some fences on the northbound with small holes to the right of the northbound track past the Broadway Station.

Staff conducted visual inspection of the ROW at the following stations:

**Butterfield Station:** No vegetation was observed along the trackway and fencing appeared to be well-maintained, and the trees were trimmed well in this station.

**Sutter Station:**

1. Minor vegetation observed along the trackway and the bottom edges of the station platform.
2. Some trash was observed along the trackway.
3. The ROW fencing appeared to be well-maintained.

**The Watt/I-80 and the Florin Stations:** No vegetation problems were observed along the ROW and the fencing appeared to be well maintained in these two stations.

**Meadowview Station:**

1. Moderate amounts of trash were observed along both trackways.
2. No vegetation problems were observed along the ROW and the ROW fencing appeared to be well maintained.

Immediately following this review:

1. SRTD representatives sent a letter to the CPUC staff on 4/18/2008 stating that SRTD has developed an action plan to implement the quarterly inspection and preventive maintenance program for the ROW fencing and vegetation along with the Quarterly ROW Inspection Checklist. On 4/21/2008, the CPUC staff reviewed the checklist developed by SRTD and provided comments.
2. SRTD representatives revised the checklist addressing comments of the CPUC staff. A revised checklist was submitted to the CPUC staff on 4/29/2008 for review and further comments. The CPUC staff reviewed the checklist on 4/30/2008 and found it acceptable. The checklist specifies the components of the ROW fencing to be inspected, has fields for the inspection of vegetation along the ROW, and space to record the inspection findings and comments/Work Orders.
3. Inspections of the ROW fencing and vegetation of both the North and South Lines have been completed between 4/19/2008 and 4/30/2008 using the first draft of the inspection checklist. SRTD plans to inspect the ROW fencing and vegetation on the Folsom Line in mid July of 2008. Quarterly inspections of the entire system will commence thereafter.
4. No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>9</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Michael D. Cormiae – Wayside Maintenance Superintendent
Auditors	<b>Joey Bigornia</b>	Tim Kent – Wayside Maintenance Supervisor
Department	<b>Wayside Maintenance</b>	

REFERENCE CRITERIA

1. SSPP
2. LR-SOP-91-422 Vital Relay Testing & Interlocking Inspections (Biennial)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

VITAL RELAYS INSPECTIONS, MAINTENANCE AND RECORDS

1. Review the records of preventive maintenance, scheduled and unscheduled maintenance activities for vital relays to determine if inspections were performed at the required frequencies as specified in the reference criteria.
2. Determine if inspections were properly documented and corrected in a timely manner.
3. Determine if SRTD identified and implemented the acceptable limits for voltage and amperage readings for vital relay inspection records.

FINDINGS AND RECOMMENDATIONS

Activities and Findings:

Staff interviewed SRTD representatives and selected the following vital relays for records review:

1. Starfire
  - a. Biennial Inspection was performed on 9-1-04, 7-5-06 and next scheduled inspection is 7-08
  - b. Inspection was properly documented and relays were within the acceptable limits for voltage and amperage.
  - c. No exceptions were noted.
  
2. Alhambra Street
  - a. Biennial Inspection was performed on 6-25-05, 3-9-06, and 3-11-08. The next scheduled inspection is 3-10.
  - b. Inspection was properly documented and relays were within the acceptable limits for voltage and amperage.
  - c. No exceptions were noted.

3. E262
  - a. Biennial Inspection was performed on 9-3-04, 4-13-06 and 3-11-08. The next scheduled inspection is 3-10.
  - b. Inspection was properly documented and relays were within the acceptable limits for voltage and amperage.
  - c. No exceptions were noted.
  
4. 69<sup>th</sup> Street
  - a. Biennial Inspection was performed on 6-3-04, 6-7-06 and next scheduled inspection is 6-08.
  - b. Inspection was properly documented and relays were within the acceptable limits for voltage and amperage.
  - c. No exceptions were noted.
  
5. Natoma Station
  - a. This relay went into service with the Folsom Extension opening. The Biennial Inspection was performed on 12-9-06 and next scheduled inspection is 12-08.
  - b. Inspection was properly documented and relays were within the acceptable limits for voltage and amperage.
  - c. No exceptions were noted.
  
6. Sutter Street
  - a. This relay went into service with the Folsom Extension opening. The Biennial Inspection was performed on 12-9-06 and next scheduled inspection is 12-08
  - b. Inspection was properly documented and relays were within the acceptable limits for voltage and amperage.
  - c. No exceptions were noted.

Recommendation:

None.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>10</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Frederick Carr – Safety Specialist
Auditors	<b>Ni Liu</b>	J.M. Glenn P. Batilando – Safety Specialist II
Department	<b>Safety Department</b>	Rufus Francis – Director of Safety Rob Hoslett – Senior Safety Specialist

**REFERENCE CRITERIA**

1. SSPP
2. Injury and Illness Prevention Program, Issued July 1, 2004

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**EMPLOYEE AND CONTRACTORS SAFETY PROGRAM**

1. Interview the SRTD representative in charge of Employee Safety Program and review employee safety program records to determine whether or not:
  - a. Appropriate procedure and reporting form have been developed for all employees to effectively report safety hazards in the work place
  - b. Employees are aware of the existence of such a program and are comfortable utilizing it
  - c. Appropriate corrective action plans and schedules are developed, tracked, completed and documented to address all reported hazards
2. Interview the SRTD representative in charge of Contractors Safety Program and review contractor safety program records to determine whether or not:
  - a. Procedures and practices clearly identify, for the contractors and SRTD managers, that SRTD is in charge and that its contractors and their employees must comply with all established safety rules and procedures
  - b. Procedures require audits and inspections of the construction sites to monitor compliance with all established safety requirements

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives and determined the following methods in which district employees may report safety hazards:

- Informal report to supervisor or union representative at the shop area,
- Using Safe-1 Form to formally document the hazard reported,
- Presenting the hazard to the Hazard Resolution Safety Committee either directly or via a representative,

- Directly report the hazard to the Safety Department either informally or by using the Safe-1 Form
- Contacting Cal OSHA.

Staff reviewed Safe-1 forms from the year 2007 and determined almost all of the safe-1 forms were bus related. One Safe-1 Form was reviewed, its details are as follows:

Date: 12/7/2007

Subject: Light Rail Vehicle Maintenance First Aid Room

Response signed and 12/14/2007.

No exceptions were noted with the resolution of the reported hazard or safety concern.

The following information are included in the Safe-1 form:

- Employee information (optional)
- Location of unsafe condition or hazardous condition
- Description
- Recommendation
- District response
- Corrective action, date for implementation, and signature

Three Safe-2 Forms were reviewed from Yr 2007. Safe-2 forms are used by the supervisor in investigating employee injury. These were as follows:

- 12/11/07
  - Uneven walking surface
  - Facilities Work Order request was sent on 12/11/07
  - Facilities Work Order was reviewed and determined not necessary on 12/12/07
  - Manager/Department signature 12/12/07
- 9/17/07
  - None unsafe condition
  - Manager/Department signature 9/17/07
- 9/9/07
  - Rules/procedure incompliance
  - Manager/Department signature 9/12/07

Yr 2007 Safe-3 Forms were reviewed. These are used when corrective actions cannot be immediately implemented for identified hazards. One of the Safe-3 Form reviewed was as follows:

- Safe-3 Form for 8/2007
  - Originally reported on 5/15/07 with target date of completion 5/31/07
  - Issue was resolved in the Safety Committee meeting held on 10/2007
  - No Safe-3 Form was found from the manager for 9/2007

SRTD is continuing its efforts to develop a centralized tracking system (database) incorporating convenient means for reporting Safe-3 Forms and ensuring managers report Safe-3 even when no hazards are being

tracked.

Monthly safety committee meetings were held and properly documents for the Year 2007. Meetings minutes included the following sections relating to employee safety:

Section D: brief review of employee injuries/illnesses & accidents/incidents investigations  
Section F.3: occupational hazards.

During the New Employee Safety Orientation, Safe-1, 2, and 3 Forms are distributed and explained. The monthly toolbox safety meetings address current safety concerns.

Training outline memorandum dated 2/5/07 for Hazard Communication Training included the reporting of unsafe conditions.

Department Monthly Inspections for the Year 2007 were as follows:

- Light Rail Maintenance:
  - Monthly inspections were conducted appropriate sign-off.
- Wayside Maintenance:
  - Monthly inspection checklists were completed as required.

Current bid document for October 2007 were reviewed and included the following safety-related sections:

- 6.20 Stop Notices
- 6.39.1 Safety Program General Requirements
- 6.39.3 On-Site Safety Representative
- 6.40 Public Convenience and Safety

On Track Safety Training was provided by SRTD to its contractors.

For major capital projects, SRTD employs a representative dedicated to the safety oversight of the project. For other projects, the Safety Department representatives conduct site visits and report safety concerns

No exceptions were noted.

Recommendation:

None.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>11</b>	Persons Contacted
Date of Audit	<b>4/8/2008</b>	Laura Espinoza – Acting LR Vehicle Maintenance Superintendent
Auditors	<b>Noel Takahara</b>	
Department	<b>Quality Assurance</b>	

REFERENCE CRITERIA

1. SSPP
2. LR-SOP-01-224, Equipment Calibration

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

**CALIBRATION OF MEASURING AND TESTING EQUIPMENT PROGRAM**

Interview SRTD representatives and review records, examine equipment storage facilities and perform inspections of not less than eight pieces of measuring or testing equipment to determine whether or not:

1. The selected gauges, micrometers, calipers, torque wrenches, multi-meters, etc are properly inventoried, stored, distributed for use, calibrated at prescribed intervals, and marked, tagged or otherwise identified to show current calibration status.
2. The next schedule testing/calibration due date is shown on each equipment
3. Tools and instruments requiring calibration are addressed in department procedures

FINDINGS AND RECOMMENDATIONS

Activities & Findings:

Staff interviewed the Maintenance Superintendent and examined equipment calibration records. The measuring and test equipment were properly tagged indicating up-to-date calibration status. Per SOP-01-224, all tools and test equipment are to be calibrated annually and at the same time each year. The calibration services are procured from a 3<sup>rd</sup> party vendor. Records showed tools are calibrated annually in the month of April.

All measuring tools and test equipment were tagged with a sticker detailing their calibration status. The date of the last calibration and the due date for the next required calibration are clearly noted on these tags.

Per SOP-01-224, all tools and test equipment require annual calibration. The Maintenance Superintendent provided a Master List of tools subject to SOP-01-224 and the annual calibration requirement. The list is extensive with around 500 listed items. Through a review of the Master List and cross referencing with the 3<sup>rd</sup> party vendor's Job Orders, inconsistencies were found which made it difficult to ascertain that all tools requiring calibration are in fact being calibrated.

Recommendation:

SRTD should take the necessary measures to clearly document records pertaining to the annual calibration requirement of SOP-01-224 and maintain an updated Master List detailing calibration status.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMNETO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>12</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Michael D. Cormiae – Maintenance Superintendent
Auditors	<b>Rupa Shitole Jimmy Xia</b>	Tim Kent – Maintenance Supervisor
Department	<b>Wayside Maintenance</b>	

**REFERENCE CRITERIA**

1. GO 143-B
2. LR-SOP-88-408. Grade Crossing Protection Inspection, Dated 11/26/86

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**GATED CROSSING MAINTENANCE**

Randomly select at least five gated grade crossings and review their inspection & maintenance records during the last four years to determine whether or not:

1. The gates were inspected and maintained regularly
2. Inspections were properly documented
3. Noted defects were corrected in a timely manner

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives in charge of gated grade crossing maintenance and reviewed the gated crossing maintenance inspection records dated January 2004 to March 2008 and found the following:

1. 19<sup>th</sup> Street (South Line District)
  - a. All monthly inspection reports from January 2004 to March 2008 were performed however, July 2006 inspection report could not be found. No exceptions were noted.
  - b. All quarterly inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
  - c. All annual inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
  - d. All inspections were performed at the required frequency and noted defects were corrected in a timely manner. No exceptions were noted.

2. Alhambra Street ( Central Business District)

- a. All monthly inspection reports from January 2004 to March 2008 were performed however, August 2006 inspection report could not be found. No exceptions were noted.
- b. All quarterly inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
- c. All annual inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
- d. All inspections were performed at the required frequency and noted defects were corrected in a timely manner. No exceptions were noted.

3. Sutter Street (Extreme Folsom Line District) – *Open since Year 2005*

- a. All monthly inspection reports from September 2005 to March 2008 were performed. No exceptions were noted.
- b. All quarterly inspection reports from September 2005 to March 2008 were performed. No exceptions were noted.
- c. All annual inspection reports from September 2005 to March 2008 were performed. No exceptions were noted.
- d. All inspections were performed at the required frequency and noted defects were corrected in a timely manner. No exceptions were noted.

4. Roseville Road (North Line District)

- a. All monthly inspection reports from January 2004 to March 2008 were performed however, April and July 2007 inspection reports could not be found. No exceptions were noted.
- b. All quarterly inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
- c. All annual inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
- d. All inspections were performed at the required frequency and noted defects were corrected in a timely manner. No exceptions were noted.

5. 26<sup>th</sup> Street (Central Business District)

- a. All monthly inspection reports from January 2004 to March 2008 were performed however, March 2005 inspection report could not be found. No exceptions were noted.
- b. All quarterly inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.
- c. All annual inspection reports from January 2004 to March 2008 were performed. No exceptions were noted.

- d. All inspections were performed at the required frequency and noted defects were corrected in a timely manner. No exceptions were noted.

SRTD Wayside Maintenance provided additional records showing that repairs were indeed performed corresponding to the few missing monthly inspections records listed above.

No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>13</b>	Persons Contacted
Date of Audit	<b>04/11/08</b>	Rufus Francis, Director of Safety
Auditors	<b>Raed Dwairi</b>	Gabriel Avila, Director of Operations
Department	<b>Safety Operations</b>	Rob Hoslett, Senior Safety Specialist

REFERENCE CRITERIA

1. Code of Federal Regulations, CFR 49 Parts 659.41 Investigations & 659.43 Corrective Actions
2. CPUC General Order 164-C
3. CPUC General Order 164-D effective May 3, 2007
4. SSPP
5. SA-SOP-00-006, Rail Accident Investigation Procedure

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

**ACCIDENT/INCIDENT REPORTING & INVESTIGATION**

Interview SRTD representatives that are directly involved in accident reporting and review at least six reportable accident reports submitted to the CPUC since May 3, 2007 to determine whether or not:

- a. The accidents were reported to the CPUC within 2-hours as required by GO 164-D, section 7.
- b. The accident investigation activities and reports were in accordance with the reference criteria

FINDINGS AND RECOMMENDATIONS

Activities and Findings:

Staff interviewed SRTD representatives in charge of the accident notification and investigation responsibilities and reviewed accident reports since May 3, 2007 when General Order (GO) 164-D became effective and determined that the district complied with the accident notification & investigation requirements of GO 164-D.

Staff determined that the district should convene Accident Grading Board meetings on a regular basis since some of the accident reports submitted by SRTD Safety to CPUC staff lists primary, contributing, and potential recommendations as pending determination by the accident grading board committee. SRTD Safety regards this as essential to the completion of its investigative activities in some accidents.

Recommendation:

SRTD should convene Accident Grading Board Meetings to provide SRTD Safety the opportunity and info it needs to complete its accident investigation responsibilities (SA-SOP-00-006).

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>14</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Rufus Francis, Director of Safety
Auditors	<b>Erik Juul</b>	Rob Hoslett, Senior Safety Specialist
Department	<b>Safety Engineering</b>	

**REFERENCE CRITERIA**

1. CPUC General Order 164-D
2. SA-SOP—008, Revision Number 060107-C
3. SOP, SA-SOP-06-009 Safety Certification Program

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**SAFETY CERTIFICATION**

Interview SRTD representative in charge of the Safety Certification Program to review safety certification documentation of the Amtrak Extension to determine whether or not:

1. The safety certification activities were performed in accordance with the reference criteria
2. Safety critical elements were identified, certified and properly documented
3. All design and construction changes were properly coordinated and addressed in the safety certification process
4. All safety certification activities were thoroughly documented throughout the life of the project to substantiate that safety certifiable elements, safety criteria, final design, construction, testing, operating, emergency and procedures, and training aspects of the project have been implemented in the completed project.

Determine if safety certification is performed on projects smaller than line extensions, but significant enough to qualify as major projects under GO 164-D.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD staff regarding the Safety Certification Program, reviewed the SRTD Safety Certification Program Standard Operating Procedure, and reviewed the safety certification documentation for the Amtrak Extension.

Staff found that all required safety certification activities were completed and documented in the Safety Certification Report for the Amtrak Extension.

Staff found that safety critical elements were identified, certified, and properly documented for the Amtrak Extension project.

SRTD staff reported that no changes have risen to the threshold for design and/or construction changes for the Amtrak Extension project.

Staff found that all safety certification activities have been documented throughout the life of the Amtrak Extension project. SRTD staff reported that items on the Exception Tracking List have either been closed or are being tracked to closure by System Safety and/or the Fire Life Safety Committee.

SRTD staff reported that safety certification is being performed on projects smaller than line extensions, but significant enough to qualify as major projects under GO 164-D. Staff reviewed an example of a Design Completion Certificate for the Arden and Oxford Grade Crossing Improvement Project. Also, Staff reviewed the Safety and Security Certification Plan for the Northeast Corridor Improvement Project dated January 2008 which SRTD staff stated was not required by GO 164-D but is a good “best practice”. Staff found that safety certification is being performed on projects smaller than line extensions, but significant enough to qualify as major projects under GO 164-D.

No exceptions were noted.

Recommendation:

None.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>15</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Eric Oparko, SRTD Quality Assurance Administrator
Auditors	<b>Anton Garabetian</b>	
Department	Quality Assurance Engineering Safety Department	

**REFERENCE CRITERIA**

1. SSPP
2. Configuration Management Procedure

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**CONFIGURATION MANAGEMENT**

Interview SRTD representatives who are responsible for configuration management and track a sample of changes to the rail system to determine whether or not:

1. The changes made were submitted, reviewed and approved, implemented and documented in accordance with the reference criteria.
2. SRTD is actively addressing all the safety related issues stemming from the proposed changes to the rail system

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representative responsible for configuration management and tracked a sample of changes to the rail system.

SRTD made tremendous progress in following the SRTD Configuration Management Plan. SRTD keeps all electronic copies of the documents in a centralized drive called the M Share Drive. All departments needing the system configuration changes can access the information through the M Drive.

Eric Oparko, Quality Assurance Administrator, oversees the configuration management process. SRTD started the process in April 2006. There were 10 requests for change in 2006, 3 in 2007, and two in 2008. From the records reviewed, all SRTD departments supported the configuration management process in 2006. All involved departments attended the Change Review Committee (CRC) meetings. From 15 open items, six are already closed. All the meeting minutes are on file. During the last few months SRTD did not hold CRC meetings consistently because of lack of support from different departments. The Configuration Management Plan states that CRC will meet once a month if there are open items, or as necessary. From

December till March, SRTD held only one CRC meeting, even though there were still nine CRC open items.

Recommendation:

SRTD should take the necessary measures to hold the Change Review Committee (CRC) meetings on a consistent or as needed basis (PC-SOP-96-001).

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>16</b>	Persons Contacted
Date of Audit	04/09/08	Gabriel Avila – Director of Operations
Auditors	Dain Pankratz	Patrick Duncan – Acting Transportation Superintendent
Department	<b>Operations</b>	

**REFERENCE CRITERIA**

1. SSPP
2. GO 143-B

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**REVIEW OPERATING RULES AND PROCEDURES MANUAL**

Interview the SRTD manager responsible for the relevant documentation to determine whether or not:

1. All governing documents (Bulletins, Rules, and Standard Operating Procedures) are reviewed and updated annually
2. All updated governing documents were reviewed
3. All updated governing documents were distributed to the employees and appropriate training of staff on the changes was conducted as required

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

1. All governing documents are reviewed frequently by SRTD to determine if an update is necessary. Any SRTD personnel can request rule change by the Safe-2 Form. A rule change can also be generated during the monthly Hazard Resolution Fire/Life Safety (HRFLS) meetings or by the Rule Revision Committee. The Rail operation rule book was last revised in 10/1/06. Bulletins were also distributed to relevant employees that detail variances from the normal procedures.
2. A committee is used for the rule revision process. As rule change requests are generated, the committee determines the required rule changes and updates to the training documents, rule books and SOPs.
3. SRTD employees have a portable rule book that is numbered and issued to them. Employees can also reference the training rule book and emergency procedure rules in the operations office.
  - To ensure rules compliance, efficiency testing is randomly performed. Level 1 efficiency testing is performed 4-times annually, Level 2 performed twice annually and Level 1 once annually.
  - Three (3) employee records for audited for 2005-2007 and determined that Level 1, Level 2

and Level 3 were performed as stated.

- Records for three (3) employees were reviewed and determined that they have received required annual refresher training.

No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>17</b>	Persons Contacted
Date of Audit	<b>04/10/08</b>	Rufus Francis – Director of Safety
Auditors	<b>Arun Mehta</b>	Rob Hoslett – Senior Safety Specialist
Department	<b>Safety</b>	Frederick Carr – Safety Specialist J.M. Glenn P. Batilando – Safety Specialist II

**REFERENCE CRITERIA**

1. SSPP
2. GO 164-D
3. SRTD Hazardous Materials Management Plan

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**HAZARDOUS MATERIALS PROGRAMS / ENVIRONMENTAL MANAGEMENT**

Interview the SRTD manager responsible for reviewing relevant documentation prepared during the last 12-months to determine whether or not:

1. The hazardous material and environmental management programs comply with the Federal, State and Local regulatory requirements.
2. Employees and contactors receive hazardous materials training
3. A program/procedure is developed and implemented for hazard reporting.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives to determine how the Hazardous Materials / Environmental Management Program is implemented at Sacramento Regional Transit District (SRTD). Findings were as follows:

1. The Hazardous Materials Management Program (HMMP) Issued on 7/706 was a well written and appears to comply with Title 29, Code of Federal Regulations (CFR) Part 1910; Title 49 CFR Part 172.704; Title 8, California Code of Regulations (CCR) Section 5192; Title 22 CCR Section 66262.34; and California Health & Safety Code Chapter 6.95, Section 25500-25532.
2. The major departments at SRTD impacted by the hazardous materials program include: Safety Department, Rail (and Bus) Maintenance, Procurement, Training Department, and contractors to these departments.
3. Each department maintains an active list of hazardous materials. Each department keeps a hard copy of the MSDS sheets for reference and review by its employees.

4. All the MSDS data is available on SRTD Computer Headways System (Intranet). This data is available to district employees.
5. All new employees get training on Hazardous Communication (HAZCOM) Program. All employees get training on the Injury & Illness Prevention Program (IIPP).
6. Every month employees get Safety Tool Box training on different safety subjects to increase their awareness of workplace chemicals and their potential health effects.
7. The members of the Safety Department who oversee the HMMP program get annual refresher training given by agencies such as the University of California, Davis and World Safety Organization (WSO).
8. Safety Department conducts random HazCom inspections and cites out-of compliance workers (including contractors) to their supervisors. They issue "Stop Work Orders" if the situation warrants. An example was given of a citation issued to a roofing company contractor working on the Evergreen Facility for not wearing safety glasses.
9. An example of the timely response and action taken by the Safety Department to Hazardous Alert situation involving a leak from an underground oil/water separator system in their wastewater discharge treatment facility over a weekend. SRTD Safety Department acted responsibly and timely to bring the clean-up contractor immediately during the weekend. Another example is the case when two 55 gallon "unmarked" drums were found near the SRTD premises. SRTD Safety Department responded immediately by calling the emergency response team and disposed the drums in a safe and responsible manner. The drums were found to contain toluene.
10. No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>18</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Gabriel Avila – Director of Operations
Auditors	Dain Pankratz	Patrick Duncan – Acting Transportation Superintendent
Department	<b>Operations</b>	

**REFERENCE CRITERIA**

1. SSPP
2. SRTD Light Rail Emergency Plan

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**EMERGENCY RESPONSE PLANNING, COORDINATION, TRAINING**

Interview the SRTD representative responsible for Emergency Response Planning, Coordination, Training program and review records and documentation for the last year to determine whether or not:

1. Emergency drills that included tabletop and practical exercises were planned and carried out with the involvement of appropriate external agencies (local, state, and federal agencies)
2. Required training that included simulated emergency drills was provided to all emergency response agencies in the areas where SRTD operates.
3. All drills were performed regularly and any deficiencies were documented, scheduled and tracked to completion.
4. Emergency planning addresses both accidental emergencies as well as security related emergencies.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

1. As specified in the SSPP, One (1) emergency response drill was completed in each year for 2005, 2006 & 2007. The Responding agencies that participated in the drills include; Local Fire Dept, Police /Sheriff Dept, Security, Medical Response, SRTD personal and CPUC Staff.
2. SRTD offers train & Equipment familiarization to the local agencies on an as needed basis. There were two (2) familiarization training activities during 2005-2007. Emergency training is offered to SRTD personnel with the new hire and as part of the annual refresher training.
3. SRTD emergency drills are documented. Documentation includes the pre-drill meetings, drill scenario, drill activities, sign-in sheet, hot-wash and post-drill comments are all recorded in a separate binder for each drill. If the drill had deficiencies or action items, depending on the action

item, it can be tracked in the Hazard Resolution Fire Life Safety (HRFLS) Monthly Meeting. The post drill deficiencies were closed for the emergency drills reviewed.

4. The emergency drills contained both safety and security elements. All drills contained life-safety (accidental) elements that required response of rescuers such as the Fire Dept. Some of the performed security drill scenarios have involved security elements such as bomb explosions.
5. SRTD monitors deficiencies, especially in the HRFLS meetings, until completion. This practice should be highlighted & continued due to its obvious importance.
6. No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>19</b>	Persons Contacted
Date of Audit	<b>04/07/08</b>	Gabriel T. Avila – Director of Light Rail
Auditors	<b>Ni Liu</b>	Patrick Duncan – Acting Transportation Superintendent
Department	<b>Operations</b>	Shannon Hurley – Acting Transportation Superintendent

**REFERENCE CRITERIA**

1. CPUC General Order 143-B, Sections 12.02, 13.03, and 14.03
2. SSPP
3. LR-04-003 Supervisor/Controller Certification Program, Dated 12/10/04
4. LR-SOP-99-029 Supervisor/Controller Certification Program dated 07/09/99

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**LIGHT RAIL SUPERVISOR/CONTROLLER CERTIFICATION PROGRAM**

Interview the SRTD representative in charge of the Supervisor/Controller Certification Program and review relevant available documentation prepared during the last three years to determine whether or not the district complied with the requirements of the certification program for all Light Rail supervisors/controllers.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff reviewed three randomly selected Light Rail Transportation Supervisors' initial training records summarized as follows:

Light Rail Transportation Supervisor 1:

Initial training received between 9/05 – 3/06

- Radio control
  - Train control/system recovery
    - A, B, C, and D radio training
  - Radio communications
    - Rule book training
    - A, B, C, and D radio training
  - LRV troubleshooting
    - Rule book training
    - Yard certification – training was not received due to the supervisor's background in

- operations
    - A, B, C, and D radio training
    - B and D road training
    - A dispatch (also road) training
- Field supervisor
  - Accident investigation
    - Accident investigation training
  - Enforcement authority
    - P.C. 832 training
  - Signal and switch operation
    - Rule book training
    - B and D road training
    - A dispatch (also road) training
    - Wayside training
  - LRV operation
    - Rule book training
    - Mainline training
  - LRV troubleshooting
    - See above
- General duties category
  - Progressive disciplinary/contract interpretation
    - B dispatch/cont training
  - Operating rules/procedures
    - Rule book training
    - Mainline training
  - Supervisory/management skills
    - No specific training

Light Rail Transportation Supervisor 2:  
Initial training received between 10/04 – 4/05

- Radio control
  - Train control/system recovery
    - A, B, and C radio training
  - Radio communications
    - Rule book training
    - A, B, and C radio training
  - LRV troubleshooting
    - Rule book training
    - Yard certification
    - A, B, and C radio training
    - E and F road training
- Field supervisor
  - Accident investigation
    - Accident investigation training
  - Enforcement authority
    - P.C. 832 training

- Signal and switch operation
  - Rule book training
  - E and F road training
  - Wayside training
- LRV operation
  - Rule book training
  - Mainline training
  - In service training
- LRV troubleshooting
  - See above
- General duties category
  - Progressive disciplinary/contract interpretation
    - B dispatch/cont training
  - Operating rules/procedures
    - Rule book training
    - Mainline training
    - In service training
  - Supervisory/management skills
    - No specific training

Light Rail Transportation Supervisor 3:

Initial training received between 9/06 – 3/07

- Radio control
  - Train control/system recovery
    - A, B, C, and D radio training
  - Radio communications
    - Rule book training
    - A, B, C, and D radio training
  - LRV troubleshooting
    - Rule book training
    - Yard certification
    - A, B, C, and D radio training
    - A, B, C, D, and F road training
- Field supervisor
  - Accident investigation
    - On the road training
  - Enforcement authority
    - P.C. 832 - training was not received due to the supervisor's background in law enforcement
  - Signal and switch operation
    - Rule book training
    - A, B, C, D, and F road training
    - A dispatch/cont training
  - LRV operation
    - Rule book training

- Mainline training
  - LRV troubleshooting
    - See above
- General duties category
  - Progressive disciplinary/contract interpretation
    - B dispatch/cont training
  - Operating rules/procedures
    - Rule book training
    - Mainline training
  - Supervisory/management skills
    - No specific training

In addition to the initial training, all active supervisors have completed the Incident Command System (ICS) training.

No deficiencies were noted in the initial training records reviewed. However, the initial training was not specified in the subject Departmental Operating Procedure (DOP) LR-04-003.

SRTD representatives stated that the following periodic training is provided to the supervisors:

- Rule book Refresher Training: provided annually encompassing the entire rule book
- Toolbox: monthly safety training

SRTD is commended for exceeding the refresher training requirement of every two years by providing the rule book refresher training annually. However, the periodic training elements were not specified in the subject DOP LR-04-003.

SRTD representatives also stated that retraining is provided to supervisors with identified weakness or those who leave their positions for 45 days or more. However, the retraining criteria were not identified in the subject Departmental Operating Procedure (DOP) LR-04-003.

Transportation Supervisor Light Rail Job Element Definitions and one completed performance review were reviewed. All elements were covered in the performance review.

SRTD retains training records for more than four years. However, this was not specified in the subject Departmental Operating Procedure (DOP) LR-04-003.

Recommendations:

SRTD should revise DOP LR-04-003 to specify and outline initial, periodic, retraining, and record retention requirements (GO 143-B, Section 13.03).

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>20</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Laura Espinoza – Acting LR Vehicle Maintenance Superintendent
Auditors	<b>Joey Bigornia Howard Huie</b>	Brian Dunn – Maintenance Supervisor (LR) Mike Ornelas – Maintenance Supervisor (LR)
Department	<b>Vehicle Maintenance</b>	

**REFERENCE CRITERIA**

1. GO 143-B
2. LR-SOP-86-200, LRV Daily Inspection, Revision 101001-G
3. LR-SOP-86-201, LRV Weekly Inspection, Revision 060999-E
4. LR-SOP-86-202, LRV Mileage-Based Inspection Intervals, Revision 071096-B

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**LIGHT RAIL VEHICLE MAINTENANCE**

Randomly select a minimum of 10 vehicles from the SRTD fleet (CAF and Siemens) and review their records to determine whether or not:

1. Vehicles were inspected at the required frequencies as specified in the reference criteria.
2. Inspections were properly documented.
3. Noted defects were corrected in a timely manner.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives and selected the following vehicles for records review:

- A. CAF Car Nos.: 203, 208, 217, 223, 229
- B. Siemens Car Nos.: 102, 107, 114, 120, 127

1. Car No. 102
  - a. Daily Inspections – records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected at the weekly inspection interval.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. No exceptions were noted.

- c. Mileage Inspections - records dated January 2007 – March 2008
  - 1. Car was inspected at the required mileage inspection intervals.
  - 2. Noted defects were properly recorded and closed out by repair orders.
  - 3. No exceptions were noted
- 2. Car No. 107
  - a. Daily Inspections - records dated December 2007 – March 2008
    - 1. Car was inspected prior to revenue service and noted defects were properly recorded
    - 2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    - 1. Car was inspected at the weekly inspection interval
    - 2. Noted defects were properly recorded and closed out by repair orders
    - 3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    - 1. Car was inspected at the required mileage inspection intervals.
    - 2. Noted defects were properly recorded and closed out by repair orders.
    - 3. No exceptions were noted
- 3. Car No. 114
  - a. Daily Inspections - records dated December 2007 – March 2008
    - 1. Car was inspected prior to revenue service and noted defects were properly recorded
    - 2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    - 1. Car was inspected at the weekly inspection interval
    - 2. Noted defects were properly recorded and closed out by repair orders.
    - 3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    - 1. Car was inspected at the required mileage inspection intervals.
    - 2. Noted defects were properly recorded and closed out by repair orders.
    - 3. No exceptions were noted
- 4. Car No. 120
  - a. Daily Inspections - records dated December 2007 – March 2008
    - 1. Car was inspected prior to revenue service and noted defects were properly recorded
    - 2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    - 1. Car was inspected prior to revenue service and noted defects were properly recorded
    - 2. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    - 1. Car was inspected at the required mileage inspection intervals.

2. Noted defects were properly recorded and closed out by repair orders.
  3. No exceptions were noted
5. Car No. 127
- a. Daily Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected at the weekly inspection interval
    2. Noted defects were properly recorded and closed out by repair orders
    3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    1. Car was inspected at the required mileage inspection intervals.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. No exceptions were noted
6. Car No. 203
- a. Daily Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    1. Car was inspected at the required mileage inspection intervals.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. No exceptions were noted
7. Car No. 208
- a. Daily Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected at the weekly inspection interval
    2. Noted defects were properly recorded and closed out by repair orders
    3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    1. Car was inspected at the required mileage inspection intervals.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. No exceptions were noted

8. Car No. 217
  - a. Daily Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected at the weekly inspection interval
    2. Noted defects were properly recorded and closed out by repair orders
    3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    1. Car was inspected at the required mileage inspection intervals.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. No exceptions were noted
9. Car No. 223
  - a. Daily Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected at the weekly inspection interval
    2. Noted defects were properly recorded and closed out by repair orders
    3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    1. Car was inspected at the required mileage inspection intervals.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. The only exception noted was the tire diameter measurements were not performed on 8 of the 12 wheels for the 6-25-07, 20k Inspection.
10. Car No. 229
  - a. Daily Inspections - records dated December 2007 – March 2008
    1. Car was inspected prior to revenue service and noted defects were properly recorded
    2. No exceptions were noted.
  - b. Weekly Inspections - records dated December 2007 – March 2008
    1. Car was inspected at the weekly inspection interval
    2. Noted defects were properly recorded and closed out by repair orders
    3. No exceptions were noted.
  - c. Mileage Inspections - records dated January 2007 – March 2008
    1. Car was inspected at the required mileage inspection intervals.
    2. Noted defects were properly recorded and closed out by repair orders.
    3. The only exception noted was the flange height measurements were not performed on the 5-29-07

10k Inspection.

Recommendations:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>21</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Dan Bailey – Employee Relations Manager
Auditors	Dain Pankratz	Mariza Montung – HR Analyst
Department	Human Resources	

**REFERENCE CRITERIA**

1. Code of Federal Regulations, 49 Parts 40 and 655
2. CPUC GO 143-B, Section 12.03 - Use of Alcohol, Narcotics, or Drugs Forbidden
3. SSPP
4. SRTD Drug & Alcohol Program

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**DRUG & ALCOHOL PROGRAM**

1. Interview the SRTD representative in charge of the Drug and Alcohol Policy and determine whether or not SRTD’s policy is in compliance with State and Federal regulations
2. Review the report from the most recent FTA audit of the SRTD Drug Prevention and Alcohol Misuse Program and the status of any corrective actions resulting from FTA recommendations.
3. Review the relevant records of employees in safety sensitive positions who tested positive for drugs or alcohol in the past three years to determine, for each employee that tested positive, whether or not:
  - a. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP)
  - b. The employee was administered a return-to-duty test with verified negative results
  - c. Follow-up testing was performed as directed by the SAP according to the required follow-up testing frequencies of the reference criteria after the employee has returned to duty
  - d. Consequences for repeat offenders were carried out as required by the reference criteria.
  - e. Random testing of safety sensitive employees is performed within the one-week period without excusing individuals for unacceptable reasons as required
4. Safety sensitive employees who have been off duty for more than 90 days have been drug tested before being allowed back to resume their duties.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

1. Staff interviewed the SRTD Employee Relations personnel and determined that the SRTD policy for 2005, 2006 & 2007 is in compliance with State and Federal regulations.
2. The most recent FTA audit which was conducted in 2001 of the Drug & Alcohol Testing

Program was reviewed. The FTA recommendations, most of which were policy updates, were closed out and accepted by FTA.

3. SRTD records for safety sensitive employees subject to the Drug & Alcohol testing were reviewed for calendar years 2005, 2006 & 2007. All employees are entered into a computer program (Assistant) which was responsible for randomly selecting employees for testing. The database randomly determines and on a weekly basis the employees required for testing such that 25% of employees are drug tested and 10% of employees are tested for alcohol during 2007. The following is the results of this review:
  - SRTD's policy for 1<sup>st</sup> time drug and/or alcohol offenders is to meet with a Substance Abuse Professional (SAP). A randomly selection revealed that employees with a positive test were directed to a SAP and did not return to duty until the SAP released them as per SRTD policy.
  - Return-to-duty test results showed for the eight (8) transit employees selected that all eight of the return-to-duty tests were negative.
  - The SAP scheduled testing records showed that for the four (4) employees selected their follow-up testing was scheduled and entered into SRTD's testing program. All those employees completed their tests as required. The results were well documented by means of an electronic database (MS Access) as well as hard copies filed into each employee's records.
  - Consequences for repeat offenders are consistent and resulted in the employee's termination as required by SRTD policy.
  - Excuses for not-complying with Random Tests were well documented and tracked as part of the Drug & Alcohol Program. It is noteworthy that in 2007, only 2-unacceptable excuses were encountered out of a total o 311 tests, less then 1%).
4. The pre-employment Drug & Alcohol testing requirement for safety sensitive employees who were off work more then 90-days is well documented in the employee file and also electronically.
5. Post Accident Drug & Alcohol test records pertaining to post-accident tests were negative for all involved rail employees and were well documented.
6. Annual reports for Drug & Alcohol tests results are summarized and submitted for upper management.

Comments:

- Continue to monitor unacceptable excuses such as "admin error" or "manpower" to verify they are minimal.
- The scheduling & distribution of daily and hourly tests times to insure the random tests are not predictable and are a best practice of this department.

Recommendations:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>22</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Gabriel T. Avila – Director of Light Rail
Auditors	<b>Ni Liu</b>	Patrick Duncan – Acting Transportation Superintendent
Department	<b>Operations</b>	Shannon Hurley – Acting Transportation Superintendent

**REFERENCE CRITERIA**

1. SSPP
2. LR-SOP-86-014, Track Warrant

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**TRACK WARRANTS & CAB PASSES**

Conduct the necessary interviews and review appropriate records to determine whether or not:

1. Adequate and safe procedures exist for the issuance of cab passes
2. Procedures for the issuance and documentation of track warrants were followed as specified in the reference criteria.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff reviewed the two Transportation Notices pertaining to the issuance of cab passes and found a list of personnel categorized by title who are authorized to be present inside LRV cabs with the operator during train operation. The Transportation Notices also authorize any person with a valid cab pass to enter LRV cabs during revenue service operations.

Light Rail Cab Permit has sections for the Name, Effective Date(s), and Authorized Signature. Conditions under which the Cab Permit is issued are stated in the back of the Cab Pass.

Light Rail Cab Passes Log from 4/28/07 to 4/3/08 was reviewed and the following was found:

- Approximately five cab passes are issued per month.
- Almost all of the cab passes are issued to the operator’s family member or friend.
- Almost all of the cab passes are issued for no more than one day.

Light Rail Track Warrants were reviewed with section showing Company Name, Company Phone, On-Site Contact, On-Site Phone, Location, Nature of Work, Date(s) warrant issued, Track Warrant Conditions (and applicable protection), Applicant’s Name, Applicant’s Signature, and approval information.

Completed and signed track warrant between 3/31/08 and 4/6/08 as well as the Light Rail Operating Bulletin for 4/3/08 were reviewed. These are reviewed and logged by controller on duty each day. Information is compiled onto the Light Rail Operating Bulletin for the following day. Train operators

receive a copy of the bulletin as well as current track status during checkout prior to revenue service. No exceptions were noted in regard to the issuance of track warrants.

On August 14, 2008, SRTD developed a Department Operating Procedure (DOP) for the issuance of cab passes maintaining safe and secure train operations.

No exceptions were noted.

Recommendation:

None.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>23</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Gabriel Avila, Director of Light Rail
Auditors	<b>Arun Mehta</b>	Shannon Hurley, Acting Transportation Superintendent
Department	<b>Operations</b>	Patrick Duncan, Acting Transportation Superintendent

**REFERENCE CRITERIA**

General Order 143-B, Rule 12.04 Hours of Service-Safety Sensitive Employees.

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**HOURS OF SERVICE - TRAIN OPERATORS, TRAIN CONTROLLERS, AND SUPERVISORS**

Randomly select ten persons from the rosters of LRV operators, controllers/supervisors and review their hours of service records prepared during a two month period within the past two years for the selected employees and determine whether or not:

1. They complied with the requirement that employees in safety sensitive positions may not remain on duty for more than 12 consecutive hours, or for more than 12 hours spread over a period of 16 hours.
2. The initial on duty status of each safety sensitive employee only began after 8 consecutive hours off duty.
3. Method exists to track the employees' hours of services, in situations where violations were found, these were appropriately resolved by SRTD.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives and reviewed applicable train operators and controllers records. The following was found:

SRTD follows more conservative/stringent requirements compared to CPUC GO 143-B affecting safety sensitive employees of not remaining on duty for more than 12 hours spread over a period of 15 Hours instead over a 16 hour spread stated in 143-B).

SRTD has a sufficiently large work force of operators and controllers/supervisors over and above the minimum necessary, that a situation where workers may be required to work for over 12 hours is highly improbable.

Per the union contract, employees get a minimum rest period of 8 hours for regular operators and a minimum of 9 hours for the extra board operators.

SRTD is in full compliance with the Hours of Services requirements of GO 143-B. No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>24</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Gabriel T. Avila – Director of Light Rail
Auditors	<b>Ni Liu</b>	Patrick Duncan – Acting Transportation Superintendent
Department	<b>Operations</b>	Shannon Hurley – Acting Transportation Superintendent Chris Uchman – Training Supervisor

**REFERENCE CRITERIA**

1. LR-SOP-99-027, Operator Efficiency Test, Dated 04/22/99
2. LR-SOP-99-02930, Operator Training Plan

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**OPERATOR TRAINING, RETRAINING, AND EFFICIENCY TEST RECORDS**

Review relevant documentation prepared during the last three years to determine whether or not all Light Rail Operators meet the Operator Efficiency Test (Levels I-III), training, and retraining requirements of SRTD.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff reviewed the summary of 2007 Operator Efficiency Testing records and found that not all required testing has been conducted for all operators. Staff interviewed SRTD representatives and determined the following causes that may have prevented the completion of all required tests:

- The operator may have begun later in the year.
- The operator has been absent for a long term.
- The operator was in fact not tested.

Three randomly selected Operators' efficiency testing records were reviewed for the Year 2007 and the following was found:

**Operator 1:**

- Four Level-1 testing in 2007
- Three Level-2 testing in 2007
- One Level-3 testing in 2007

**Operator 2:**

- Four Level-1 testing in 2007
- Two Level-2 testing in 2007
- One Level-3 testing in 2007

**Operator 3:**

- Four Level-1 testing in 2007
- Two Level-2 testing in 2007
- One Level-3 testing in 2007

All records reviewed have been completed and signed off with the exception of a missing signature on the Level-3 testing for operator 3.

Two randomly selected Light Rail Operators' retraining records were reviewed and the following was found:

**Operator 4:**

Initial training began in 1994 with the following completed checklists:

- Training Certification Requirements
- Yard Operation Certification
- Light Rail Rule Book Training
- Troubleshooting Training
- Mainline Operation Training

Annual refresher in 1995 with the following completed checklists:

- Troubleshooting Training
- Light Rail Rule Book Training
- Mainline Operation Training

The operator returned in the year 2000 and received retraining between 2000 – 2001, his file included the following completed checklists:

- Mainline Operation Training
- Yard Operation Certification
- Troubleshooting Training
- 30-day Follow Up Training

Annual refresher training was conducted in 2002, 2003, 11/10/2004, 1/25/2006, and 2007.

**Operator 5:**

Initial training begin in 2006 with the following completed checklists:

- Training Certification Requirements
- Yard Operation Certification
- Light Rail Rule Book Training
- Troubleshooting Training

- Mainline Operation Training
  - 30-day Follow Up Training
- Annual refresher training conducted in 2007.

No deficiencies were noted in the operator training records reviewed.

Recommendation:

SRTD should take the necessary measures to make certain all rail operator efficiency testing requirements are met per LR-SOP-99-027.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>25</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Darryl Abansado, Civil & Track Design Manager
Auditors	<b>Erik Juul</b>	Luis Moreno
Department	<b>Engineering</b>	

**REFERENCE CRITERIA**

1. EC-SOP-06-001 dated 07/25/06, Bridges/Structures-Inspections & Reports
2. SA-SOP—008, Revision Number 060107-C

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**BRIDGES/STRUCTURES INSPECTIONS & REPORTS**

1. Interview SRTD representatives to determine if a procedure exists for structural inspections
2. Review available records of bridge and other structural inspections at SRTD to determine whether or not these were inspected as required and remedial actions taken in a timely manner.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD staff regarding Bridges/Structures Inspections & Reports.

Staff found that a draft Standard Operating Procedure (SOP) does exist for structural inspections. However, this SOP has not been approved by SRTD management.

Staff reviewed records of bridge and other structural inspections. Inspections are performed biennially during a two week period. The most recent inspections were performed in March 2007. SRTD staff reported that no catastrophic defects were found. Staff reviewed a sample of the inspection reports. SRTD staff maintains the findings of needed safety and maintenance items in an electronic spreadsheet. Staff found that SRTD staff does not adequately track deficiencies identified from the inspections to closure with corrective action plans including action steps, schedule completion dates, obstacles to completion, and reports to management.

Recommendations:

SRTD should finalize the approval of the structural inspections Standard Operating Procedure (SOP) and track deficiencies identified from the required inspections to closure, with appropriate corrective action plans and implementation schedules.

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>26</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Randall Miller, Procurement Service Manager
Auditors	<b>Arun Mehta Georgetta Gregory</b>	Colleen Elder, Materials Management Supervisor
Department		

**REFERENCE CRITERIA**

1. SSPP

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**PROCUREMENT**

Conduct the necessary interviews and review appropriate records to determine whether or not:

1. Adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the rail transit environment at SRTD.
2. Adequate procedures are in place to safely deal with defective or deficient equipment in the event these are introduced to the rail transit environment at SRTD.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

SRTD Procurement Service Manager and Materials Management Supervisor were interviewed and the following was found:

1. The Procurement Department follows the general guidelines provided in Section 5.3.7 of the SSPP for evaluating, testing, and acquisition of all materials.
2. The Procurement Department follows Standard Operating Procedure GM-SOP-97-009 developed according to FTA guidelines. This SOP addresses types of contracts, contract authority, procurement records, and contracting procedures.
3. The General Manager can authorize contracts valued up to \$100,000. Larger contracts have to be authorized by the SRTD Board.
4. All purchases have to be made through the Procurement Department for better control and accountability.

5. The Procurement Department works closely with the Operations and Maintenance Departments in evaluating/testing new products/materials.
6. SRTD has a good warranty tracking process in place. The Materials Management Supervisor provided several examples where SRTD pursued warranty follow-up to save money.
7. SRTD demonstrated good cost control practices for ordering replacement parts. Examples were provided where local vendors provided parts of adequate quality, at half the cost and half the delivery time period as those of vendors from outside the area.
8. Overall, we found SRTD to have (1) sound procurement process in place to prevent procurement of unsafe and defective parts, and (2) process and controls in place to deal with issues if a defective/deficient part is detected within the system.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>27</b>	Persons Contacted
Date of Audit	<b>04/10/08</b>	Lynn Cain - Director of Facilities
Auditors	<b>Rupa Shitole Jimmy Xia</b>	Joe Lentz – Facilities Supervisor
Department	<b>Facilities Maintenance</b>	

REFERENCE CRITERIA

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

FACILITY INSPECTIONS

Randomly select at least three light rail station on the South and North Lines and review their maintenance records to determine whether or not:

1. Inspections were performed and documented as required.
2. Noted defects were corrected and documented in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities and Findings:

Staff reviewed the Monthly Inspection Checklist for the following randomly selected light rail stations performed during Year 2007 until March 2008:

1. **Broadway, City College and Meadow View (South Line):** Year 2007 monthly inspection records dated 1/11, 2/19, 3/12, 4/20, 5/6, 6/3, 7/18, 8/28, 9/27, 10/10, 11/3, and 12/22 were completed as required. Year 2008 monthly inspections were completed on 1/14, 2/18, and 3/5 as required.
2. **Cordova Town, Hazel, and Sutter (North Line):** Year 2007 monthly inspections dated 1/10, 2/19, 3/12, 4/20, 5/6, 6/3, 7/18, 8/28, 9/27, 10/10, 11/3, and 12/22 were completed as required. Year 2008 monthly inspections dated 1/14, 2/18, and 3/5 were also completed as required.

Staff reviewed the Monthly Inspection Checklist for the following stations and found the following:

**Broadway, City College and Meadow View (South Line):** no deficiency noted.

**Cordova Town, Hazel, and Sutter (North Line):** no deficiency noted.

The noted needed repairs were corrected and documented in a timely manner.

3. SRTD has an Enterprise Business Management Program that is used to track Work Orders. This program is called System Applications and Products (SAP). The following was found:
  - Work Orders are created and verified by the supervisor and are logged into the SAP.
  - Light Rail Station Log Sheets are used internally to track the number of hours worked at each station and the type of work that was done by the assigned person. This information is also logged into the SAP.
4. SRTD representatives stated that their Monthly Inspection Checklist are being revised.
5. No exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>28</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Michael Cormiae – Maintenance Superintendent
Auditors	<b>Rupa Shitole</b>	Rick Stevens – Maintenance Supervisor
Department	<b>Wayside Maintenance</b>	

**REFERENCE CRITERIA**

1. LR-SOP-87-416, Track Inspections and Maintenance Standards, Dated 1/5/87
2. LR-SOP-87-413, Turnout Inspections, Dated 01/05/87
3. LR-SOP-87-414, Street Track Maintenance, Dated 09/26/91

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**TRACK COMPONENTS INSPECTION**

Review the records of track, timber & concrete ties, rail fastenings, rail joints, and continuous welded rail track (CWR) to determine whether or not:

1. Inspections were performed and documented as required.
2. Noted defects were corrected and documented in a timely manner.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff interviewed SRTD representatives in charge of the Track and Switch Maintenance Program and reviewed the maintenance inspection reports and found the following:

1. Mainline Track Inspections and Maintenance
  - A. Biannual Track Inspections
    - Biannual track inspections of the entire system were conducted in the month of July and December for the year 2004 and in July for 2007. Both the inbound and outbound tracks were inspected and noted defects were corrected and documented in a timely manner. No exceptions were noted.
  - B. Weekly Track Inspections
    - Reviewed records for 2007 from Watt/I-80 to Meadowview and from Sacramento Valley to Sutter Station. Both the inbound and outbound tracks were inspected noted defects were corrected and documented in a timely manner. No exceptions were noted.
  - C. Ultrasonic Rail Testing

- i. Ultrasonic tests for year 2006 were conducted on September 12, 2006. No exceptions were noted while those for year 2007 performed on September 19, 2007. No exceptions were noted.

2. Mainline Switch Inspections

A. Quarterly Switch Inspections

- i. Mainline switch inspection reports for year 2007 for the following switches were reviewed:
  - N-53 (Power Switch) – January 4, April 12, July 5, and October 9.
  - S 225 B (Spring Switch) – January 2, March 10, July 2, and October 12.
  - Both switches were inspected on a quarterly basis with no exceptions noted.

B. Biweekly Switch Inspections

- i. Reviewed mainline switch inspections reports for October, November and December 2007 for the following switches:
  - N-53 (Power Switch) – October 11 and 26, November 5 and 23, December 7 and 18.
  - S 225 B (Spring Switch) – October 5, 12, 18 and 26. November 1, 6, 14, 21 and 28. December 6, 13 and 20.
  - Both switches were inspected biweekly while the spring switches on weekly basis as specified in the SOPs.
  - Both switches were inspected at the required intervals and no exceptions were noted.

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>29</b>	Persons Contacted
Date of Audit	<b>04/18/08</b>	Mark Sakayue, RT Police Services Lieutenant
Auditors	<b>Robert Hertan</b>	
Department	<b>Police Services</b>	

**REFERENCE CRITERIA**

1. Security Plan
2. GO 164-D

**ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION**

**SECURITY**

Conduct the necessary interviews and review appropriate records to determine whether or not:

1. SRTD has a process for identifying security breach as a result of the collection and analysis of security-related data.
2. SRTD has a process for relocating security resources as a result of the analysis.

**FINDINGS AND RECOMMENDATIONS**

Activities and Findings:

Staff conducted all the necessary interviews and reviewed all appropriate records including the System Security Plan (SSP) and determined that SRTD has a strong detection and deterrence program in place and well prepared to respond rapidly and effectively to natural and human caused security threats and disasters. Identification of the tasks to be performed in order to implement the goals and objectives that are required to implement the SSP well documented. The agency's Security Awareness Training for all its employees and Introduction to Incident Command System/National Incident Management System (ICS/NIMS) are some of the best training efforts staff has seen and should be considered as an industry best practice.

No exceptions were noted.

Recommendations:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>30</b>	Persons Contacted
Date of Audit	<b>04/08/08</b>	Rufus Francis – Director of Safety
Auditors	<b>Noel Takahara</b>	Rob Hoslett – Senior Safety Specialist
Department	<b>Safety Department</b>	

REFERENCE CRITERIA

1. SSPP

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

**SAFETY DATA COLLECTION AND ANALYSIS**

Conduct the necessary interviews and review appropriate records to determine whether or not:

1. SRTD has a process for the collection and analysis of safety data
2. The above process was followed to identify safety issues where recommendations were generated and implemented (list specific case studies or projects).

FINDINGS AND RECOMMENDATIONS

Activities & Findings:

SRTD utilizes a customized version of TransitSafe software for both rail and bus safety operations. TransitSafe software is an accidents database and analysis tool. The software is used to compile a monthly report titled “Regional Transit (SRTD) Monthly Occurrence Report.” This report summarizes accident rates per 100,000 miles/month or year basis. Rail accident rates are separated into 3 categories; CPUC reportable, NTD reportable, and all rail incidents. SRTD uses TransitSafe software to categorize incidents as: Rail Collisions at Intersections, Rail Collisions Between Intersections, Train Collisions Rear End, Rail Collisions with Bicycles, Rail Collisions Between District Vehicles, and Rail Collisions with Pedestrians, Train Other Collisions, Rail Boarding, Rail Alighting, Rail on Board, Rail Other, etc. Each category also can be broken down into several sub-categories.

SRTD reps explained that they are in the process of fixing glitches that they have with their customized TransitSafe software. Attempts to query the top 10 incident locations failed due to the glitch. However, SRTD is not such a large system and the safety personnel is experienced enough so that the querying function is not necessarily a vital tool, although it would be helpful for newer personnel with access to Transitsafe. It was learned through the discussion with the SRTD reps that incidents occur at a higher rate on the street running portions of the system particularly in downtown Sacramento. An example was provided by SRTD demonstrating how safety recommendations were generated after data collection and analysis were performed. This example was the improvement of bus passenger safety for de-boarding.

With regard to rail safety improvements, SRTD and their CPUC designated rep worked closely on identifying hazards and introducing safety enhancements. A recent example was the crossing upgrade at the Arden & Oxford traffic controlled intersection. The hazard at Arden & Oxford has been mitigated by the installation of gates.

No exceptions were noted

Recommendations:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>31</b>	Persons Contacted
Date of Audit	<b>04/09/08</b>	Rufus Francis, Director of Safety
Auditors	<b>Noel Takahara</b>	Gabriel Avila, Director of Light Rail
Department	<b>Safety Operations</b>	

REFERENCE CRITERIA

1. SSPP
2. GO 164-D

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

**HAZARD MANAGEMENT PROCESS**

Conduct the necessary interviews and review appropriate records to determine whether or not:

1. SRTD has a process for managing hazards to its Light Rail System which is coordinated with other important activities such as accident/incident investigation and safety data collection and analysis.
2. The above process was followed to identify, categorize, and bring hazards down to acceptable levels of risk (provide specific examples).

FINDINGS AND RECOMMENDATIONS

Activities and Findings:

The Hazard Resolution & Fire/Life Safety Committee (HRFLSC) meetings began in 2006 and have been conducted on a monthly and regular basis since then. These meetings are attended by the CPUC designated representative to SRTD. Hazards are identified, resolved, and tracked through this process. Hazards are discussed at the HRFLSC meetings via Safe-1 and Safe-2 Forms as sources that can be used to identify hazards. Safe-1 Forms are filed by employees when hazards are perceived while Safe-2 Forms are filed after actual injuries occur. The HRFLSC also discusses hazards recorded on the 24-hour daily control log, statistical analysis reports, accident investigation reports, monthly inspection reports, maintenance and failure reports, annual/triennial audit reports, Rules and SOP review, and exceptions from the Safety Certification Program.

Staff also reviewed the January 2008 HRFLSC meeting minutes and found that the mitigation of several identified hazards was being tracked to full implementation. Specific examples include the following:

- a. Copper theft prevention
- b. LRV Door Malfunction – as mitigation new software is being installed
- c. 8<sup>th</sup> and K St. Interlocking and Signaling – as mitigation new software has been installed and is currently being tested.

d. Ahern Crossing – as mitigation upgrades are scheduled for completion by the end of 2008. The design is complete and funds have been allocated for the project.

No exceptions were noted

Recommendation:

None

**2008 CPUC SYSTEM SAFETY AND SECURITY REVIEW CHECKLIST FOR  
THE SACRAMENTO REGIONAL TRANSIT DISTRICT**

Checklist No.	<b>32</b>	Persons Contacted
Date of Audit	<b>04/07/08</b>	Eric Oparko, Quality Assurance Administrator
Auditors	<b>Anton Garabetian</b>	
Department	<b>Engineering</b>	

REFERENCE CRITERIA

SSPP

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SYSTEM MODIFICATION

Conduct the necessary interviews and review appropriate records to determine whether or not:

1. SRTD has a documented review and approval process with specifics of sign-off requirements and exception capability.
2. The above process was followed in the review and approval of proposed modifications to the rail system at SRTD (example, modification recently performed on the software controlling CAF door operation).

FINDINGS AND RECOMMENDATIONS

Activities and Findings:

Staff interviewed SRTD representative in charge of the system modifications process and reviewed appropriate records and determined that SRTD has a documented review and approval process with specifics of sign-off requirements and exception capability.

Staff also reviewed the system modification records for CAF Light Rail Vehicles Door Control Project. SRTD followed the review and approval process for this project. SRTD introduced the project Configuration Change Request Form (CCRF), assigned a project number with all the required signatures, and held meetings for which detailed minutes were on file. Project closing signatures were on file as required.

No exceptions were noted.

Recommendation:

None

